MMM | INTERMAG

2016 JOINT CONFERENCE

JANUARY 11-15, 2016 • SAN DIEGO, CALIFORNIA

ADVANCE PROGRAM

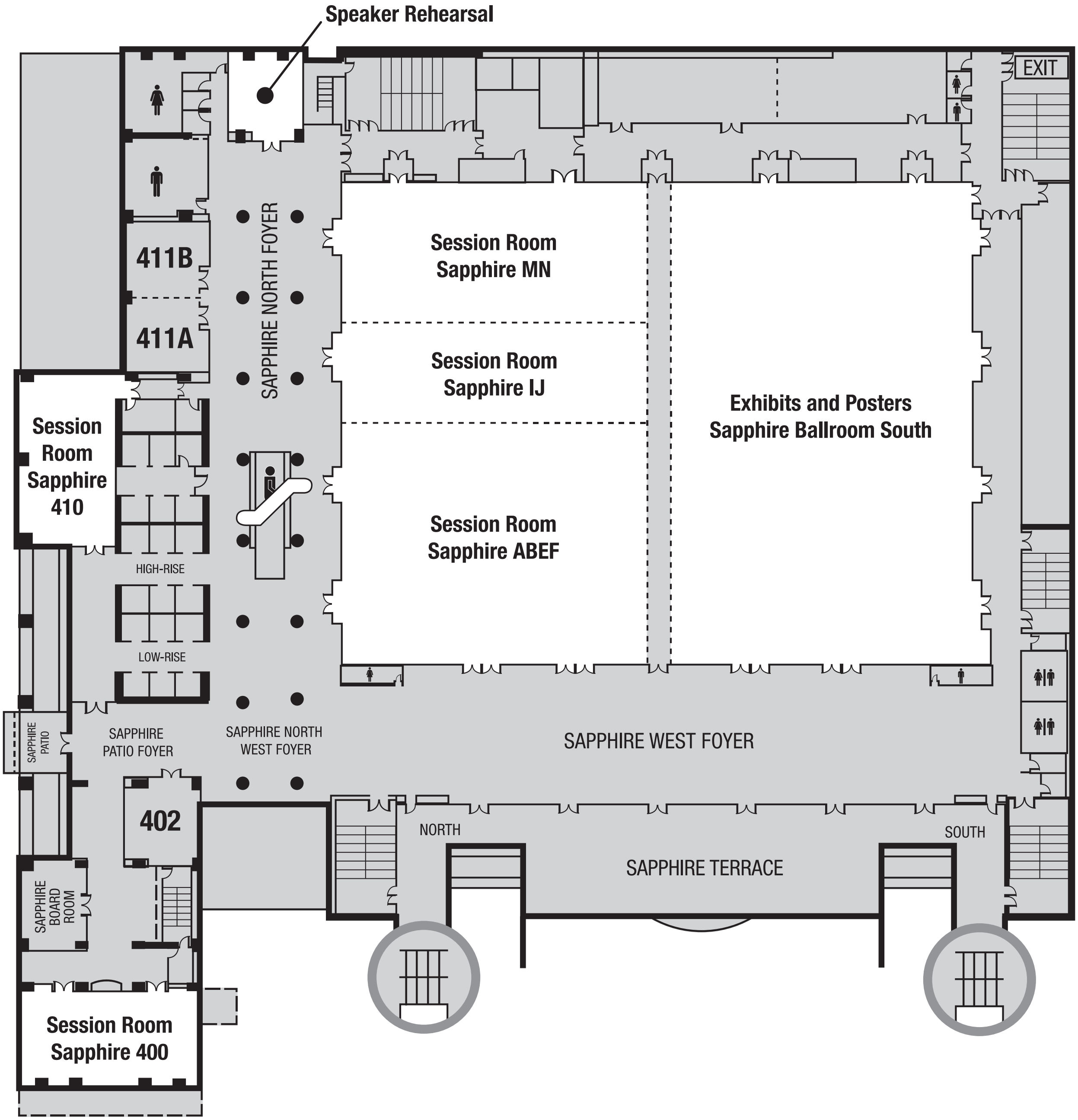
AIP Publishing

IEEE MAGNETICS

Jointly sponsored by AIP Publishing, LLC and the IEEE Magnetics Society

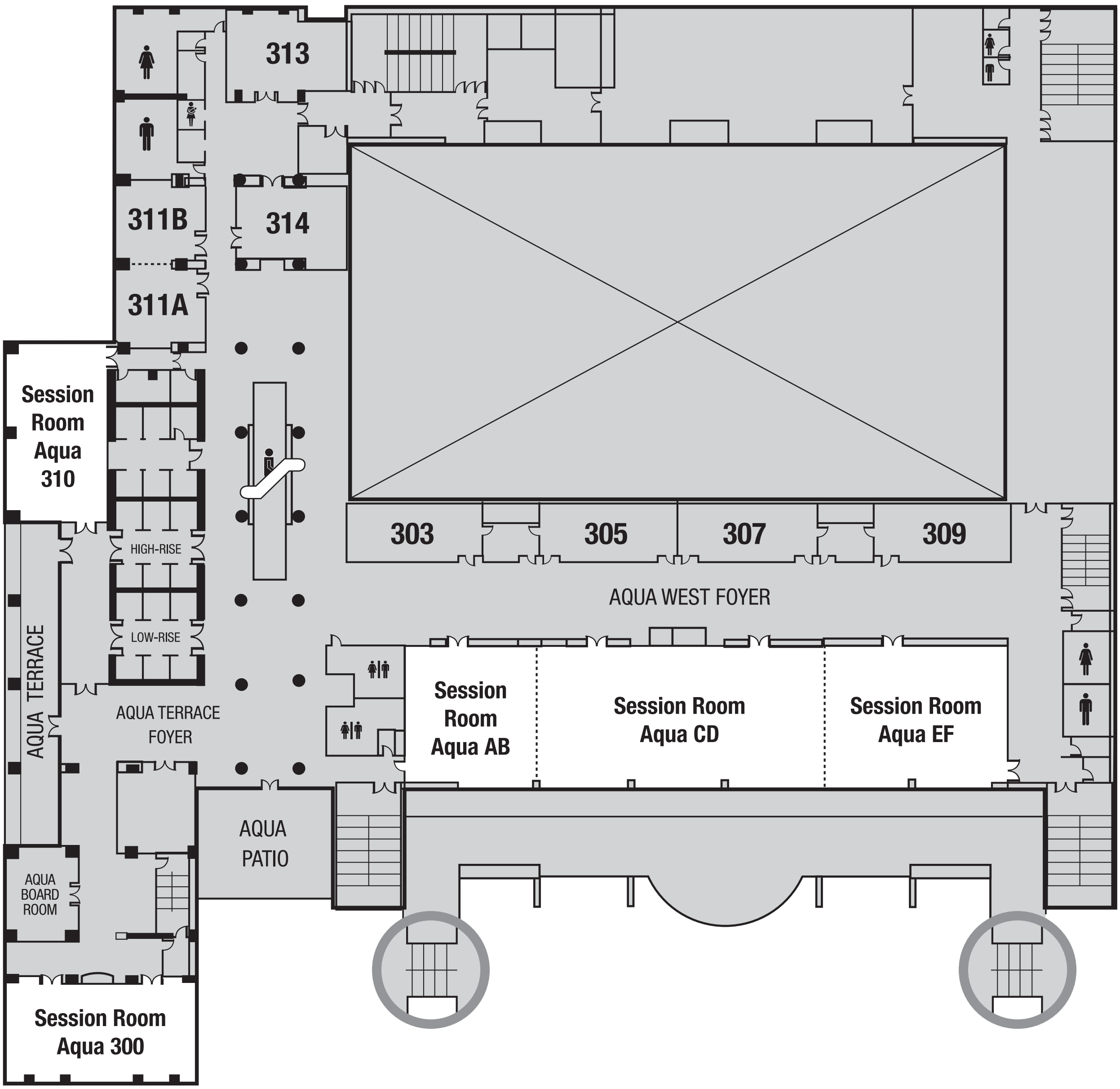
HILTON SAN DIEGO BAYFRONT

SAPPHIRE LEVEL — LEVEL 4



HILTON SAN DIEGO BAYFRONT

AQUA LEVEL — LEVEL 3



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GENERAL CONFERENCE INFORMATION

A WELCOME FROM THE CONFERENCE GENERAL CHAIR

On behalf of the Management Committee, welcome to San Diego and the 13th Joint MMM-Intermag Conference. The Conference, which is convened every three years, is the combination of two annual premiere international conferences on magnetism: the International Magnetics Conference (Intermag) and the Magnetism and Magnetic Materials Conference (MMM). The Conference includes all aspects of fundamental and applied magnetism, with sessions reviewing the latest advances in magnetic materials, emerging applications, new phenomena, spin electronics, energy and power applications, biomagnetism and much more.

San Diego is an exciting city known for its high tech business environment, unique harbor, miles of beaches and world class attractions. We hope you will have an opportunity to explore the rich history, landmarks and attractions of what locals have dubbed "America's finest city". I wish all participants a fruitful Conference and enjoyable stay in San Diego.

Bruce Gurney
Conference General Chair

SCOPE OF THE CONFERENCE

The 13th Joint MMM-Intermag Conference is sponsored jointly by AIP Publishing and the Magnetics Society of the IEEE, in cooperation with the American Physical Society. Members of the international scientific and engineering communities interested in recent developments in fundamental and applied magnetism are invited to attend the Conference and contribute to its technical sessions. Sessions will include invited and contributed papers in oral and poster sessions, invited symposia, a plenary session, and evening sessions. This Conference provides an outstanding opportunity for worldwide participants to meet their colleagues and collaborators and discuss developments in all areas of magnetism research. In terms of the number of presentations, this will be one of the largest Joint Conferences in its history, with over 1850 oral and poster presentations. This is also a very special year for the Conference, as we celebrate the 60th Anniversary of the Magnetism and Magnetic Materials Conference (MMM). The **Hilton San Diego Bayfront Hotel** is the location for the Joint Conference. Please support the Conference in our efforts to keep registration fees low by booking your room here. Discounted rate are available until December 18, 2015 at www.magnetism.org under "Travel Guide/ Hotel Information".

SAN DIEGO, CALIFORNIA

San Diego is California's second largest city, with over 70 miles of coastline, a Mediterranean climate, and a diverse range of activities and regions. Spend a day at one of its many stunning beaches swimming or surfing, go hiking in the mountains, play golf with a desert or an ocean view, or visit beautiful Coronado Island, home to the famed Hotel Del Coronado. The Zoo is a part of Balboa Park and contains museums, gardens and walks, many with the unique Spanish architecture frequently associated with the city. The Embarcadero was the original dock area, and is a pleasant walk with views of the Bay. The Gaslamp District, with its restaurants, shops and vibrant night life, harkens back to the gold rush era. The average temperature in November is a high of 69°F and a low of 54°F. For more information go to www.sandiego.org.

Tutorial: Latest Fabrication Technologies for Magnetic Devices and Magnets (Session VA)

Monday, January 11 2:00 - 5:00 pm
Sapphire Ballroom ABEF

Chair: Mingzhong Wu (Colorado State University)

Speakers: Koji Tsunekawa (Canon-Anelva), Ryo Funakoshi (JEOL USA), Hiroki Maehara (TEL) and David Brown (Molycorp)

Over the last decade, fabrication technologies have made significant progress. These advancements have allowed one to make sophisticated devices, which include spintronic memories and magnetic sensors. In this tutorial, four engineers from world-leading manufacturers will review the latest technologies for film growth, patterning and packaging for thin-film devices as well as bulk magnet production.

Evening Session I: Magnetic Technologies for the Future (Session XA)

Tuesday, January 12 6:00 - 7:30 pm
Sapphire Ballroom ABEF

Chair: Katayun Barmak (Columbia University)

Speakers: John Smith (General Atomics), Shigeyoshi Yoshida (NEC Tokin Corporation) and Oliver Gutfleisch (TU Darmstadt)

This session will provide an overview of the latest magnetic technologies, including superconducting magnets and electro-magnetic shielding. World-leading experts will discuss the recent development of these technologies and will provide a roadmap for their future. This session should be ideal not just for those who work on these technologies but also for the general magnetics community.

Plenary Session: (Session YA)

Talk: Magnetic Solutions for Diagnostics and Therapeutics

Awards: IEEE Magnetics Society

Wednesday, January 13 4:30 - 6:30 pm
Sapphire Ballroom ABEF

Chair: Bruce Gurney, Conference General Chair

Speaker: Professor Ali Hajimiri (California Institute of Technology)

Ali Hajimiri is a Thomas G. Myers Professor of Electrical Engineering and Medical Engineering, and Head of Electrical Engineering at Caltech. His research interests are high-speed and high-frequency ICs for applications in sensors, biomedical devices, photonics, and communication systems. He was selected to the TR35 top innovator's list and he is a Fellow of IEEE. Professor Hajimiri has authored many technical articles with more than thirteen thousand citations, and he has been granted more than seventy patents. He co-founded Axiom Microdevices Inc., which mass produced and shipped more than 250 million units of the world's first fully-integrated RF CMOS power amplifier.

The plenary session will also include awards and recognition of the Best Student Presentation Finalists, IEEE Fellows, Distinguished Lecturers, Student Travel Grant Recipients and others.

IEEE Magnetics Society Awards: Burkard Hillebrands, Honors and Awards Committee Chair

Congratulations to the Achievement Award Winner:
Luc Berger (Carnegie Mellon University)
For contributions to theoretical studies on metallic ferromagnets crucial to data storage, nanotechnology and magnetism, including SWASER, current-induced switching, spin-transfer torque, relaxation, and domain wall resistance.

Congratulations to the Distinguished Service Award Winner:
Ron Goldfarb (NIST)
For two decades of leadership in advancing the quality and operational excellence of the Magnetics Society and IEEE publications.

Plenary Reception

Following the Plenary Session, all Conference attendees are invited to attend the Plenary Reception, sponsored by the IEEE Magnetics Society, to be held in the Sapphire Ballroom Foyer from 6:30 - 7:30 pm. This will be a networking event where you can connect with colleagues and friends over hors d'oeuvres and a glass of wine or beer before going out to dinner.

Evening Session II: Magnetic Devices for the Future (Session ZA)

Thursday, January 14 6:00 - 7:30 pm
Sapphire Ballroom ABEF

Chair: Atsufumi Hirohata (University of York)

Speakers: Meng Huang Lai (iSentek Inc.), Seung Kang (Qualcomm Technologies Inc.), and David Awschalom (University of Chicago)

This session will provide an overview of the latest magnetic devices ranging from magnetic sensors and memories to components for quantum computation. Three world-leading experts will discuss the recent development of these devices and will provide some future prospects. This session should be ideal not just for those who work on these devices but also for the general magnetics community.

Symposia

Eight symposia are scheduled during the Conference. These sessions consist entirely of invited speaker presentations by experts in the field and will take place in Sapphire Ballroom ABEF throughout the week.

- **(Session AA)** New Developments with Heusler Compounds
- **(Session BA)** Heat Transport Challenges in Heat-Assisted Magnetic Recording
- **(Session CA)** Room Temperature Magnetic Skyrmions
- **(Session DA)** Permanent Magnet Applications: From Neural Architectures to Smart Cities Development
- **(Session EA)** Novel Characterization Methods for Magnetic Nanoparticles
- **(Session FA)** Antiferromagnetic Spintronics Born Again
- **(Session GA)** New Frontiers of Organic Spintronics
- **(Session HA)** Spin-Orbit Couplings and Exchange Interactions: Physics and Engineering

SPECIAL CONFERENCE EVENTS

Meet with the Experts and Meet with the Speakers

Students who have registered in advance of the Conference to attend either or both of these events will have the exclusive opportunity to participate in small, informal discussion groups with their designated industry Expert or Speaker. Students are encouraged to bring their own lunch. Only beverages will be provided. This event will be held Tuesday through Friday from 12:00 - 1:00 pm in Sapphire 411.

Women in Magnetism Networking Event

Expand your professional network! Don't miss the Women in Magnetism Networking Event, sponsored by the IEEE Magnetics Society, on Tuesday, January 12 from 5:00 - 6:30 pm on the Aqua Patio and Terrace Foyer. This is an opportunity to become acquainted with women in the profession and to discuss a range of topics including leadership, work-life balance, and professional development. All graduate students, researchers and retirees are encouraged to attend. For more information, contact the event organizer Pallavi Dhagat at: dhagat@eecs.oregonstate.edu.

IEEE Magnetics Society Annual Meeting

This meeting is open to all Joint Conference participants and will be held on Thursday, January 14, 5:30 - 6:00 pm in Sapphire 411. Come to learn more about what the IEEE Magnetics Society is doing to support and strengthen the magnetics community, and about the benefits of belonging to the Society. Your suggestions and feedback are most welcome! Beverages and light snacks will be provided.

By joining the IEEE Magnetics Society, you become part of the world's best-known magnetics organization. In addition to discounts on conference registrations, such as the 2016 Joint MMM-Intermag Conference, you will gain access to local Chapter events and technical activities. To join, go to www.ieeemagnetics.org. Note that if you would like to use your IEEE Magnetics Society membership to qualify for the registration discount, you must join ***before you register*** for the Joint Conference.

Young Professionals Networking Event

The Young Professionals Networking Event will be held on Thursday, January 14 from 6:00 - 7:30 pm in Sapphire 411. If you have just recently entered the professional workforce, join us for professional development insights, networking, snacks and drinks.

Bierstubes

A toast to our supporters who make the Bierstubes possible!

Monday 5:00 - 7:00 pm

QuantumDesign

Tuesday and Thursday 5:00 - 6:30 pm

MATERION

Note: Bierstubes will be held in the Exhibit/Poster Hall and Sapphire Ballroom Foyer.

Coffee

Ube Material Industries,Ltd.

Complimentary coffee service will be available Tuesday through Friday mornings from 9:00 - 10:00 am in the Exhibit/Poster Hall and Sapphire Ballroom Foyer. *Thank you to Ube Material Industries for their support!*

REGISTRATION

The Conference Registration Desk, located in the Sapphire Ballroom Foyer, will be open during the following hours:

Monday .... 11:00 am - 7:00 pm
Tuesday .... 7:00 am - 4:30 pm
Wednesday .... 8:00 am - 4:30 pm
Thursday .... 8:00 am - 2:30 pm

Note: If you need registration assistance on Friday please go to the Conference Office in Sapphire 402.

Onsite Registration Rates:

Full IEEE or Affiliated Society Member .... $730 USD
Full Non-Member .... $875 USD
Student IEEE or Affiliated Society Member .... $285 USD
Student Non-Member .... $345 USD
Retiree IEEE or Affiliated Society Member .... $345 USD
Retiree IEEE Non-Member .... $390 USD
IEEE Life Member .... $210 USD

Attendees are required to wear Conference name badges to enter all Conference events.

CAMERA, CELL PHONE AND VIDEO RECORDING POLICIES

Conference attendees are strictly prohibited from using cameras and all other recording devices in oral and poster sessions and in the Exhibit Hall. Attendees are not permitted to take pictures of speaker slides or posters, or to make video recordings of presentations. Furthermore, attendees are asked to be respectful of their colleagues by turning off all cell phones before entering the session rooms.

WIRELESS INTERNET ACCESS

Thank you to the IEEE Magnetics Society for sponsoring the wi-fi at the Conference.
To access the wi-fi, select the "JointConference" network on your mobile device or computer under the available wireless networks. When prompted, enter the password "mmm60anniversary".

PUBLICATIONS

Conference papers will be published as special issues of *AIP Advances* (www.aipadvances.aip.org) and *IEEE Transactions on Magnetics* (May 2016). Entire sessions will be assigned to one of these publications by the publication Co-Chairs. Invited papers will be published in the Journal to which their session is assigned by the publication Co-Chairs. All accepted papers are identified by presentation ID. All *AIP Advances* papers will be open access. All registrants will be able to access these papers online.

To check the status of their papers, AIPP authors should refer to the PXP submission site at http://mmm.peerx-press.org or the IEEE submission site at https://mc.manuscriptcentral.com/magconf-ieee. For all other publications questions, visit the Conference Office in Sapphire 402 for assistance.

SESSION CHAIRS

Poster and Oral Session Chairs are expected to attend the Session Chair Breakfast at 7:15 am in the Cobalt Room, Suite 500, on the morning of the session that they are chairing. If you are chairing an oral session, you must bring your laptop computer to your session or arrange to borrow one, as it is the Session Chair's laptop that will be used for session timing.

SPEAKER REHEARSAL ROOM

Speakers may use the Green Room (Level 4) to practice their presentations with the provided audiovisual equipment (LCD projector and screen) prior to their sessions. This room will be available from Monday at 1:00 pm until Friday at 1:00 pm.

ORAL SESSIONS

Oral sessions will be held Tuesday through Friday from 8:30 - 11:30 am and 1:30 - 4:30 pm, with the exception of Wednesday afternoon when the sessions will be held 1:30 - 3:18 pm. **Speakers must bring their presentation on their own laptop computer, have it powered on and ready to connect to the projector.** Only standard PC-style VGA connections to the LCD projector will be supplied, so you must supply any required adaptor for your computer. In particular, Mac OS users must make sure that they have the correct adaptor plug and that video mirroring is activated.

In each session room, there will be a multi-port switchbox so that speakers can connect their laptop during the question period of the previous speaker. **Each speaker will be responsible for promptly connecting to the projector and switching to the correct input port. The presentation timer will begin immediately after the introduction by the Session Chair, and there is no extra time allotted to troubleshoot connections or reboot.** Speakers are strongly encouraged to test their laptop connections and screen resolution settings in the Speaker Rehearsal Room or in the session room prior to the start of the session. There will be no technical support provided for speaker-supplied equipment. It is suggested that speakers bring a backup copy of their presentation on a USB flash drive. Session timing must be maintained and no additional presentation time will be given in the event of technical difficulties.

BEST STUDENT PRESENTATION AWARD

APS physics GMAG

The IEEE Magnetics Society and the APS Topical Group on Magnetism and its Applications (APS-GMAG), with additional support from CRC Press, are each sponsoring competitions for the Best Student Presentations. These competitions recognize and encourage excellence in graduate studies in the field of magnetism. For each competition there will be a $1000 USD one-year fellowship for the winner and $250 USD one-year fellowship for the remaining finalists. Conference attendees are encouraged to attend the talks and support these young scientists.

IEEE Magnetics Society Finalists:

AJ-03 ***Ultrahigh Sensitivity of Anomalous Hall Effect Sensor Based on Cr-Doped Bi_2Te_3 Topological Insulator Thin Films***
Yan Ni (Iowa State University)

BC-15 ***Toggling Synchronization in Nano-Contact Spin Torque Oscillators***
Afshin Houshang (University of Gothenburg)

CH-01 ***Photo-Spin-Voltaic Effect***
David Ellsworth (Colorado State University)

CH-09 ***Fine-Tuning of Rashba and Spin-Hall-Induced Torques in Perpendicular Ta/CoFeB/MgO Multilayer through Oxidation Degree Control***
Noriyuki Sato (Stanford University)

CI-02	***Unified Model of Hyperthermia via Hysteresis Heating in Systems of Interacting Magnetic Nanoparticles*** Sergiu Ruta (University of York)

APS-GMAG Finalists:

AE-11	***Breakdown of the Antiferromagnetic Order in Transition Metal Oxide Nanoparticles: A Matter of Size*** Natalia Rinaldi-Montes (University of Oviedo)
BB-08	***Magnetic Origami*** Chenattukuzhiyil Safeer (Spintec/Neel Institute)
BG-12	***Controlling Individual Magnetoelectric Heterostructure by Localized Strain in a Thin Film Piezoelectric*** Jizhai Cui (UCLA)
CC-12	***Magnon-Photon Interaction in YIG Opto-Magnetic Cavity*** Xufeng Zhang (Yale University)
CF-07	***Giant Enhancement of Magnetocrystalline Anisotropy in Ultrathin Manganite Films via Nanoscale 1D Periodic Depth Modulation*** Anil Rajapitamahuni (University of Nebraska at Lincoln)
CG-15	***CPP-GMR Devices Using $Co_2Fe(Ga_{0.5}Ge_{0.5})$ Full Heusler Alloy and a Ag-Zn Alloy Spacer*** Ye Du (University of Tsukuba)

Congratulations to the winner at the 2015 Intermag Conference:
Seonghoon Woo (MIT)
Finalists: Aitian Chen, Alice Mizrahi, Robert Sreubel and Wei-Yang Sun

Congratulations to the winner at the 2014 MMM Conference:
Jonas Becker (Radbound University Nijmegen)
Finalists: Aitian Chen, Jaimin Chen, Yabin Fan, Ian Gilbert and Michelle Jamer

POSTER SESSIONS

Poster Sessions will be held:

Tuesday	9:30 am - 12:30 pm	2:30 pm - 5:30 pm
Wednesday	9:30 am - 12:30 pm	1:30 pm - 4:30 pm
Thursday	9:30 am - 12:30 pm	2:30 pm - 5:30 pm
Friday	9:30 am - 12:30 pm	

Poster presenters should set up their materials at least 30 minutes before their session starts, and must be present at their poster, at a minimum, for the first *and* last hour of each Poster Session. **Presenters must remove all of their materials promptly at the end of their session** (except the push-pins provided by the Conference). Any poster materials not removed will be discarded in order to prepare for the next session. Presenters who have had their poster printed in advance by ScholarOne may pick up their posters in Sapphire 402 during the following times:

Monday	10:00 am - 7:00 pm
Tuesday - Thursday	8:45 - 9:30 am and 2:00 - 2:30 pm

BEST POSTER PRESENTATION AWARD

GMW

All posters will be eligible for nomination for this award provided that they meet the requirements and guidelines described on the Conference website. It is required that an author be registered for the Conference and present at the first and last hour of the poster session to present details and answer questions. Nominations will be made by the Poster Session Chairs, and the Poster Award Committee will review the nominated posters at the beginning of each session. Selections will be based on the level of the research, quality of the poster, and clarity of the presentation. The award will be given during the last hour of each poster session, and winners will receive a $50 USD prize, thanks to the generous support of GMW. A ribbon will also be attached to the winning posters, and they will be prominently displayed for the remainder of the Conference.

A complete list of the Best Poster Award Winners from MMM 2014 is available on the Conference website.

STUDENT TRAVEL SUPPORT

Travel grants are offered to a limited number of students who are presenting at the Conference. Students must apply online (with advisor's endorsement), and the grants are used to reimburse partial travel expenses (receipts required). The program is for students who are presenting at the Conference and have not previously received a Conference or IEEE Magnetics Society travel grant. Only one application per research group is accepted. Postdoctoral fellows and non-students are not eligible. The recipients have already been informed about their selection. If you are interested in applying for a travel grant to attend future MMM conferences, go to www.magnetism.org.

CHILD CARE SUPPORT

Child care grants are offered to a limited number of attendees who are bringing young children to the Conference or who incur extra expenses in leaving their children at home. The recipients of child care support have been informed about their selection and are required to submit receipts for their reimbursable expenses. If you are interested in applying for child care support at future MMM conferences, go to www.magnetism.org.

CONFERENCE ORGANIZATION

IEEE MAGNETICS SOCIETY ADVISORY COMMITTEE

President..Bruce Terris
President Elect ....Manual Vazquez
Secretary/Treasurer ....Pallavi Dhagat
Past President....................................Liesl Folks
Director of Operations ....Diane Melton

Magnetics Society Elected Members

Terms expiring **December 31, 2016**:
Jeff Childress, Marina Diaz Michelena, Peter Fischer, Masaaki Futamoto, Stephane Mangin, John Moreland, Ludwig Schultz, Masahiro Yamaguchi

Terms expiring **December 31, 2017**:
Franca Albertini, Bernard Dieny, Dafine Ravelosona, Rudolf Schaefer, Alexandru Stancu, Thomas Thomson, Jian-Ping Wang, Roger Wood

Terms expiring **December 31, 2018**:
Kaizhong Gao, Atsufumi Hirohata, David Jiles, Olga Kazakova, Vincent Mazauric, Katsuji Nakagawa, Massimo Pasquale, Robert Stamps

CONFERENCE MANAGEMENT COMMITTEE

General Chair .... Bruce Gurney
Chair Elect .... Kai Liu
Past Chair .... Chris Leighton
Treasurer .... Mark Kief
Program Co-Chairs .... Katayun Barmak and Atsufumi Hirohata

Program Committee Members:

Amr Adly
Franca Albertini
Dora Altbir
Yacine Amara
Elke Arenholz
Kais Atallah
William Bailey
Anne Bernard-Mantel
Ekkes Brück
Kristen Buchanan
Jeff Childress
Phanwadee Chureemart
Kevin Coffey
Alina Deac
Kathrin Dörr
Pete Eames
Tomoteru Fukumura
Don Gardner
Julie Grollier
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Laura Heyderman
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Mitsuteru Inoue
Karen Kavanagh
Olga Kazakova
Tae-Hee Kim
Matthew Kramer
P.S. Anil Kumar
Chih-Huang Lai
June Lau
Vlado Lazarov
Sang-Ho Lim
Sy-Hwang Liou
Vitaliy Lomakin
Sara Majetich
Stephane Mangin
Paul McGuiness
Bob McMichael
Ingrid Mertig
Casey Miller
Byoung-Chul Min
Puerto Morales
John Moreland
Kenji Nakamura
Shiho Nakamura
Yun Daniel Park
Johannes Paulides
Amanda Petford-Long
Stefania Pizzini
Philip Pong
Jeffrey Shield
Toshiyuki Shima
Robert Shull
Beth Stadler
Robert Stamps
Kiyonori Suzuki
Yuri Suzuki
Nikoleta Theodoropoulou
Paola Tiberto
Adam Torabi
Rie Y. Umetsu
Thomas Woodcock
Sabine Wurmehl
Hyunsoo Yang
Jingbo Yang
Hong-Bin Yu
Hiromi Yuasa

Publications Chairs .... Petru Andrei (IEEE) and Cindi Dennis (AIPP)
Publications Editors: .... Amr Adly, Kristen Buchanan, Alina Deac, Haifeng Ding, David Dorrell, Peter Fischer, Victorino Franco, Min-Fu Hsieh, Ron Jansen, Gangping Ju, Dennis Leung, Connie Li, Nicoleta Lupu, Gary Mankey, Iulian Nistor, Johannes Paulides, Frédéric Petroff, Prem Piramanayagam, Philip Pong, Kiyonori Suzuki, Ciro Visone

Exhibits Chair .... Tiffany Santos
Publicity Chair .... Brian Maranville
Student Awards and Travel Chair...... Barry Zink
Editor, *AIP Advances* .... Vincent Crespi

Conference Editor, *IEEE Transactions on Magnetics* .... Laura Henderson Lewis
Conference Manager .... Diane Melton
Conference Manager .... Molly Bartkowski
Abstracts/Publications Manager .... Regina Mohr
Exhibits Manager .... Jennifer Fiske
Registration Manager .... Ashley Cesare

MMM CONFERENCE ADVISORY COMMITTEE

Chair .... Chris Leighton
Chair-Elect .... Bruce Gurney
Executive Secretary/Treasurer .... Mark Kief
Recording Secretaries .... Diane Melton and Regina Mohr

Term expiring **February 1, 2016**:..... Cindi Dennis, Andrew Kent, Patrick LeClair, Kyung-Jin Lee, Laura Henderson Lewis, Alan MacDonald, Christopher Marrows, YoshiChika Otani, Amanda Petford-Long, Maria Varela

Term expiring **December 1, 2016**: ... Paul Crowell, Pallavi Dhagat, Kai Liu, Hariharan Shrikanth, Mark Stiles, Koki Takanashi, Bruce Terris, Suzanne te Velthuis, Manuel Vazquez, Shinji Yuasa

Term expiring **December 1, 2017**: ... Petru Andrei, Katayun Barmak, Jeff Childress, Alina Maria Deac, Atsufumi Hirohata, Xiaofeng Jin, Mark Kief, Vivian Ng, Tiffany Santos, Matt Willard

SPONSORING SOCIETY REPRESENTATIVES

AIP Publishing .... Bill Burke
IEEE Magnetics Society .... Randy Victora

ADDITIONAL INFORMATION

To join the Conference mailing list, visit www.magnetism.org or contact info@mmmconference.com.

FUTURE CONFERENCES

2016 Magnetism and Magnetic Materials Conference
October 31-November 4, 2016, New Orleans, Louisiana

2017 Intermag Conference
April 24-28, 2017, Dublin, Ireland

2017 Magnetism and Magnetic Materials Conference
November 6-10, 2017, Pittsburgh, Pennsylvania

2018 Intermag Conference
April 23-27, 2018, Singapore

2018 International Conference on Magnetism
July 16-20, 2018, San Francisco, California

2019 Joint MMM-Intermag Conference
January 14-18, 2019, Washington, DC

2019 Magnetism and Magnetic Materials Conference
November 4-8, 2019, Las Vegas, Nevada

2020 Magnetism and Magnetic Materials Conference
November 16-20, 2020, Fort Lauderdale, Florida

EXHIBITORS *(AS OF NOVEMBER 13, 2015)*

An exhibition of magnetism-related services, equipment, materials, and software will be held adjacent to the poster sessions.

AJA INTERNATIONAL, Inc.

Booth 22

Sputtering, E-beam, Ion Milling, and Hybrid Deposition Systems for R&D and Pilot Production. Static and Rotating Magnetron Sputter Sources for HV and UHV, Substrate Holders with Rotation, RF Biasing, Heating, Cooling, and Tilting; Sputter Targets, Microwave, RF and DC Power Supplies, Microwave Components and Plasma Sources, RF Ion/Plasma Sources.

Contact: Linda Tardie
Email: aalinda@ajaint.com
Website: www.ajaint.com

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attocube
pioneers of precision

Booth 20

Attocube offers an ample portfolio of cutting-edge scanning probe microscopes for operation in high magnetic fields and cryogenic temperatures. Our 1 inch microscope inserts, specifically designed for the PPMS from Quantum Design, allow for highly sensitive SPM measurements such as AFM, MFM, SHPM, confocal & RAMAN microscopy. Our latest innovation – the attoDRY800 – is the world's first cryo-optical table with integrated cold breadboard which is the perfect platform for challenging quantum and nano-optics experiments. Nano-precise piezo positioning systems for extreme environments and interferometric sensor solutions complete attocube's product portfolio.

Contact: Johanna Kilkile
Email: johanna.kilkile@attocube.com
Website: www.attocube.com

CAPRES A/S
COPENHAGEN APPLIED RESEARCH

Booth 11

CAPRES A/S is a nano-technology based company. Our unique probe technology is designed for in-line production monitoring in the semiconductor industry where our fully automated tools for mass production are used at four of the leading computer chip companies. Our unique probe and tool technology is ideal for R&D as well as production monitoring because it allows direct measurements of Sheet Resistance, Hall Mobility, and Active Carrier Density on very thin conducting films down to a few nm directly on 300 mm product wafers or smaller samples without sample preparation. Our unique CIPTech® tool is the preferred method for characterizing magnetic films in the MRAM and Read Head industry.

Contact: Tom Karpowicz
Email: tjk@capres.com
Website: www.capres.com

GMW Associates

Booths 3 & 4

GMW will show: Metrolab Three-Component Magnetic Field Probes with USB Interface and LabView software. Full-scale ranges of +/- 100 µT (1 G), +/- 8 mT (80 G), +/- 3T and +/- 20T. Senis One-, Two- and Three-Component Hall Transducers with analog output, full-scale field ranges to +/-20 T and frequency response from dc to 75 kHz. The Senis Probes can be used stand-alone or in Senis Magnetic Field Mapping Systems. GMW Electromagnets for magnetic material and thin film studies including the Miniature Projected Field Electromagnet family: model 5201 for in-plane fields, 5203 for vertical fields, 5205 series for larger volume, modest vertical fields, and the new 5204 for generating any field direction and amplitude from three components. HTS-110 compact Electromagnets including Short Solenoids to +/- 3 T, Shielded Solenoids to +/- 16 T and Shielded Dipoles to +/- 8 T. Matesy Magneto-Optic Sensor systems for visualization of vertical dc and ac magnetic fields at the surface of a planar sample.

Contact: Ben Hartzell
Email: ben@gmw.com
Website: www.gmw.com

HINDS™ INSTRUMENTS

Booth 2

Hinds Instruments' products for Magneto Optic Kerr Effect (MOKE) experiments are the Exicor Domain Hysteresis Looper and MOKE kits. The Hystersis Looper is a turn-key system that allows the user to plot hysteresis loops and deturmine coercivity values within the magnetic field range of 0 to 2400 Gauss. The MOKE kit options include photo detectors, lock-in amplifiers, and photoelastic modulators (PEMS) that allow experimenters to build their own MOKE system. In both the Looper sysytem and the MOKE kits the robustness and convenience of Hinds photoelastic modulator (PEM) technology allows sensitive detection of magneto-optic signals produced by thin magnetic films.

Contact: Connie Wimmer
Email: sales@hindsinstruments.com
Website: www.hindsinstruments.com

Intlvac THIN FILM

Booth 17

Intlvac Thin Film provides PVD (Physical Vapor Deposition) and IBE (Ion Beam Etch) systems for magnetic materials, metals and oxides. You can create and etch compounds that have never existed in nature with our Nanoquest Ion Beam Etch systems, and Nanochrome magnetron sputtering systems. Research and development plays a major role in our technology's superiority. Our in-house development lab designs, engineers and manufactures machinery and processes used for PVD and IBE. We specialize in engineering solutions for a variety of specific results and outcomes using our process lab. We provide our customers with machinery needed for creating ultra-thin coatings and etching solutions.

Contact: Dino Deligiannis
Email: dino@intlvac.com
Website: www.intlvac.com

IOP Publishing

Booth 12

Journal of Physics D: Applied Physics is the pre-eminent European applied physics journal. The journal receives more than 1 million downloads every year and has an impact factor of 2.721. It publishes cutting-edge research and reviews under a broad scope including semiconductors and photonics materials and device physics. Please drop by the IOP Publishing booth at the exhibition to speak with us, read the latest research published in our journals and find out what IOP Publishing can offer to our authors.

Contact: Lisa Searle
Email: lisa.searle@iop.org
Website: www.iop.org

KRI Kaufman & ROBINSON
Ion Beam Authority℠

Booth 10

Kaufman and Robinson, Inc. (KRI®) engineers and manufactures broad beam ion and plasma products. Our products are vacuum-based process tools which interact with materials at the atomic level. Typical material processes include the precision deposition of thin films, remote plasma etching of patterned wafers, and nanometer-scale modification of surfaces. KRI® is respected across the globe for innovative designs, product quality and technical expertise. Our products incorporate technical features such as gridded or gridless sources, DC or RF discharges and automated power supplies. Our products are proven process tools which are applied in a multitude of fields.

Contact: Derek Kauffman
Email: dkaufman@ionsources.com
Website: www.ionsources.com

Lake Shore CRYOTRONICS
ADVANCING SCIENCE

Booth 8

A leading innovator in solutions for measuring materials under controlled magnetic field and temperature conditions, Lake Shore offers magnetometer (VSM/AGM) systems for characterizing magnetic properties over a range of temperatures (4.2 K – 1273 K) and fields to 3.1 T; magnetic test and measurement instruments; and cryogenic probe stations with integrated vertical and horizontal field magnets (to 2.5 T) for on-wafer electrical, magneto-transport, DC, RF, or microwave measurements. Lake Shore also offers an integrated system for exploring the electronic and magnetic properties of materials at THz frequencies at variable temperature (4.2 K – 300 K) and field (9 T).

Contact: Dorie Adamescu
Email: general@lakeshore.com
Website: www.lakeshore.com

Booth 1

Mantis Deposition is dedicated to the design and manufacture of high-quality deposition systems and components that offer exquisite control of film composition, thickness, and structure for magnetic thin films, multilayers, and nanoparticles. Our product offerings include PVD, MBE, and Nanoparticle deposition systems as well as modular R&D deposition systems that can be customized for your application. We offer a range of sputter magnetron sources, RF atom and ion sources, e-beam evaporators, thermal gas crackers, and unique nanoparticle technology. Our highly skilled team of engineers, physicists, and designers will be happy to work with you on your next deposition challenge.

Contact: Jessica Hilton
Email: jessica.hilton@mantisdepostion.com
Website: www.mantisdeposition.com

Booth 15

MicroSense is a leading manufacturer of magnetic measurement systems for research and production quality control. Our Vibrating Sample Magnetometer (VSM) systems are used at many academic and commercial magnetics laboratories worldwide. MicroSense VSMs have the lowest noise, highest signal-to-noise ratio and highest magnetic field in the smallest footprint of any horizontal field VSM. MicroSense also offers a range of non-contact, in-line (full wafer or disk) research and production magnetic metrology systems for in-plane and perpendicular MRAM, hard disk and recording head process control. MicroSense was the first to introduce a 300 mm ready non-contact magnetic property measurement tool for MRAM.

Contact: Erik Samwel
Email: esamwel@microsense.net
Website: www.microsense.net

Booth 16

MTI Corporation has been providing a total solution for materials research labs since 1995. MTI supplies ceramic, crystal, metallic substrates from A-Z and nano-powder. We also provides laboratory R&D equipment including mixing, cutting, polishing machines, high temperature muffle and tube furnaces, pressing machines, film coaters, glove boxes, high vacuum systems, high pressure furnaces, RTP furnaces, CSS and PECVD furnace systems, high pressure and hydrogen furnaces, melting and casting systems, crystal growth systems as well as compact XRD/X-Ray orientation unit and equipment for battery and energy materials research.

Contact: Andy Huang
Email: andy@mtixtl.com
Website: www.mtixtl.com

nanoscan

Booth 23

NanoScan is a Swiss company that strives for the best magnetic resolution in Scanning Probe Microscopy on the market. We offer two versatile Atomic Force Microscopes for high-resolution magnetic force mode, and for all traditional AFM modes (contact, intermittent, non-contact, etc.) The Vacuum Large Stage Microscope (VLS-80) is a high-vacuum Magnetic Force Microscope and guarantees 10 nm magnetic resolution. It offers excellent positioning repeatability over the whole sample stage of 100 mm x 100 mm. The PPMS-AFM can be operated at low temperatures (2 K - 400 K) and high magnetic fields (0-16 T). It fits into 1-inch bore cryostats, but can also be operated at room temperature in high-vacuum. 15 nm magnetic resolution guaranteed.

Contact: Tim Ashworth
Email: tv.ashworth@nanoscan.ch
Website: www.nanoscan.ch

NEC/TOKIN

Booth 9

NEC TOKIN is a leader in cutting edge Noise and Power solutions, for tomorrow's Automotive, Industrial, Medical and Consumer products. The solutions are based on materials developed by NEC TOKIN for optimal product performance. NEC TOKIN's superior magnetic materials are used in our thin-flaked composite metal Flex Suppressor and SENFOLIAGE product lines. These products will be featured at our booth, as well as presented as a talk entitled "Permeability Spectra and Advanced Applications of the Noise Suppression Sheet" in Evening Session I (Session XA) Magnetic Technologies for the Future, which describes electromagnetic shielding from mobile devices to large facilities.

Contact: Hideyuki Inui
Email: sales-us@nec-tokin.com
Website: www.nec-tokin.com/english

Manufacturer of Lasers and MOKE Instruments
NEOARK NEOARK CORPORATION

Booth 21

Since being founded in 1976 (Tokyo, Japan), NEOARK CORPORATION sets its main engineering theme on contributing to the development of Lasers and Laser based Measurement Technology. Simultaneously, we have been focusing on Magnetic Characteristic Analysis based on Magneto-Optical Effect, realizing its advantages of non-contact and local analysis of magnetic materials. Since then, we have been providing more than tens of various kinds of products to researchers and engineers in Japan and in the world.

Contact: Akihito Wada
Email: wada@neoark.co.jp
Website: www.neoark.co.jp/en/

Booths 6 & 7

Quantum Design manufactures automated material characterization systems that provide temperatures from 0.05 K to 1000 K, magnetic fields up to 16 tesla, and a wide range of measurements, including: VSM magnetometry, magneto resistance, and sample rotator. Instruments include the Physical Property Measurement System (PPMS®), SQUID-based Magnetic Property Measurement System (MPMS®3), VersaLab, and PPMS® DynaCool. All systems have cryogen-free options. In addition, Quantum Design manufactures advanced helium liquefiers (ATL80, ATL160), configurable helium recovery systems, and crystal growth furnaces. Quantum Design International also distributes instrumentation for direct write lithography systems, NanoMOKE, FMR spectrometers, low temperature PPMS compatible SPM, and superconducting nanowire single photon detectors.

Contact: Melissa Figueroa
Email: melissa@qdusa.com
Website: www.qdusa.com

Booth 18

Raith offers innovative solutions for sub-10 nm focused ion beam (FIB) nanofabrication, SEM-based electron beam lithography (EBL), large area SEM image acquisition, gas-assisted nanolithography, in situ nanomanipluation and nanoprofilometry. Raith's proprietary FIB technology offers a wide range of ion species and elevates FIB based nanofabrication to a new level with highest selectivity and unsurpassed stability for automated wafer-scale patterning.

Contact: Andre Linden
Email: Adria.netska@raithamerica.com
Website: www.raith.com

Booth 19

Singulus Technologies has a high level of expertise in a combination of process and scientific know-how combined with smart solutions of equipment engineering for vacuum technology, thin-film deposition, thermal treatment as well as wet chemical processes. Our machines are employed by globally operating customers in Optical Disc, Solar and Semiconductor as well as new application areas. Singulus Technologies is a renowned manufacturer of advanced thin-film deposition equipment for magnetics, MRAM, thin-film head, and other semiconductor applications. The systems offer a reliable deposition of ultra-thin metallic and insulating films down to a thickness of one nanometer and below and stacks of such films with very precise material thickness and high uniformity specifications.

Contact: Bernhard Krause
Email: bernhard.krause@singulus.de
Website: www.singulus.com

Booth 14

SmartTip has extended its range of magnetic analysis tools with the SmartProber P1, a 300 mm capable 6 kOe perpendicular field CIPT tool. Find out more about this and our other affordable CIPT analysis tools at our booth. As the world's only AFM probe provider specializing in MFM probes, we also continue to offer a range of MFM probe solutions fit to your specific application: hard magnetic media, soft magnetic structures, applied field measurements, etc. Our Smart Coating technology guarantees very high resolution and reproducible results.

Contact: Daniel Bijl
Email: d.bijl@smarttip.nl
Website: www.smarttip:nl

Booth 13

Tohoku Steel has developed and commercialized numerous electromagnetic materials and technologies for over 70 years through close academic and cooperative partnership with Tohoku University. In this exhibit, you can obtain detailed information on Tohoku's unique line of magnetic measurement systems, which includes Hc meter and MR head / MRAM wafer probing systems. Tohoku's high-field MR-Probers, capable of applying over 15 kOe, will be a cutting edge tool for your most advanced research and production line inspection needs.

Contact: Okita Kazuhiko
Email: soushi@sm.rim.or.jp
Website: www.tohokusteel.com/en

Booth 5

Zurich Instruments makes lock-in amplifiers, phase-locked loops, and impedance spectroscopes that have revolutionized intrumentation in the high-frequency (HF) and ultra high-frequency (UHF) ranges by combining frequency-domain tools and time-domain tools within each product. This reduces the complexity of laboratory setups, removes sourses of problems and provides new measurement approches that support the progress of research.

Contact: Adeline De Wilde
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MMM publications will now be published in *AIP Advances*!

This year, the invited and contributed papers presented at the Joint MMM-Intermag Conference that are published by AIP will be published in the fully open access journal *AIP Advances*. *AIP Advances* is a peer reviewed journal covering all the areas of the physical sciences (experimental, theoretical, and applied), making it a good fit for the range of research on magnetism and magnetic materials now being presented at the Joint MMM-Intermag Conference.

IEEE MAGNETICS

The IEEE Magnetics Society is the leading international professional organization for magnetism and related professionals throughout the world. The IEEE Magnetics Society promotes the advancement of science, technology, applications and training in magnetism. It fosters presentation and exchange of information among its members and within the global technical community, including education and training of young engineers and scientists. It seeks to nurture positive interactions between all national and regional societies acting in the field of magnetism.

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Website: www.journals.aps.org

The American Physical Society Topical Group on Magnetism and its Applications (GMAG) provides for its members a convenient way to keep up with the fast-paced field of magnetism and to connect with other members of the magnetism community. GMAG is proud to sponsor the Best Student Presentations Awards at this Joint Conference for the first time. Membership in GMAG gives access to GMAG-sponsored graduate student awards, outreach grants and the GMAG Newsletter. Membership also has the potential to increase the number of GMAG-sponsored APS Fellows and the number of invited talks on magnetism at the March meeting.

Website: www.aps.org/units/gmag/

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BIERSTUBE SUPPORT

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Website: www.materion.com

QuantumDesign

See company listing under **EXHIBITORS** *section.*

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Contact: Yoshihiro Nishimura
Email: yoshihiro.nishimura@ubematerials.co.jp
Website: www.ubematerial.com

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Website: www.sigma-aldrich.com/matsci

JANIS

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Website: www.janis.com/MMM-Intermag.aspx

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MONDAY, JANUARY 11, 2016

2:00 pm - 5:00 pm

VA	Tutorial: Latest Fabrication Technologies for Magnetic Devices and Magnets	*Sapphire ABEF (L4)*

TUESDAY, JANUARY 12, 2016

8:30 am - 11:30 am

AA	New Developments with Heusler Compounds	*Sapphire ABEF (L4)*
AB	Energy Assisted Magnetic Recording I	*Sapphire IJ (L4)*
AC	Skyrmions	*Sapphire MN (L4)*
AD	Micromagnetics I	*Sapphire 400 (L4)*
AE	Nanoparticles I	*Sapphire 410 (L4)*
AF	Spin Ice and Frustrated Magnets	*Aqua AB (L3)*
AG	Antiferromagnetism and Spin-Orbit Interactions I	*Aqua CD (L3)*
AH	Hard Transition Metal Intermetallics	*Aqua EF (L3)*
AJ	Magnetic Field Sensors, High Frequency Devices and Magneto-Impendance	*Aqua 300 (L3)*

9:30 am – 12:30 pm • Poster Sessions *Sapphire Ballroom South (L4)*

AP	Multiferroic Oxides and Composites
AQ	Superconductvity and Low Dimensional Systems
AR	Rare-Earth Transition Metal Borides and Intermetallics I
AS	Dynamics and Magnetic Systems
AT	Spin Torque Oscillators
AU	Structured Materials: Thin Films and Interfaces
AV	Spin Waves and Spin Dynamics
AW	Bio Imaging, Assays and Hyperthermia I
AX	New Applications: Sensors and Power
AY	High Frequency and Magneto-Electric Devices

1:30 pm - 4:30 pm

BA	Heat Transport Challenges in Heat-Assisted Magnetic Recording	*Sapphire ABEF (L4)*
BB	Oscillations and Motion of Solitons	*Sapphire IJ (L4)*
BC	Walls, Vortices and Skyrmions I	*Sapphire MN (L4)*
BD	Antiferromagnetism and Spin-Orbit Interactions II	*Sapphire 400 (L4)*
BE	Magneto-Caloric Materials I	*Sapphire 410 (L4)*
BF	New Functional Magnetic Materials I	*Aqua AB (L3)*
BG	Topological Insulators and Magneto-Electricity	*Aqua CD (L3)*
BH	Rare-Earth Transition Metal Borides and Intermetallics II	*Aqua EF (L3)*
BI	Magneto-Electric Materials and Devices I	*Aqua 310 (L3)*
BJ	Motor Design and Analysis I	*Aqua 300 (L3)*

2:30 pm - 5:30 pm • Poster Sessions		*Sapphire Ballroom South (L4)*
BP	Half-Metallic Materials I	
BQ	Amorphous and Nano Crystalline Soft Magnetic Materials I	
BR	Hard Magnetic Materials Processing and Applications I	
BS	Nanoparticles II	
BT	Magnetic Tunnel Junctions I	
BU	Giant Magnetoresistance and Spin Injections	
BV	Domain Walls, Skyrmions and Vortices	
BW	Magnetic Field Sensors and Applications	
BX	Transformers and Shielding I	
BY	Transformers and Shielding II	
6:00 pm - 7:30 pm		
XA	Evening Session 1: Magnetic Technologies for the Future	*Sapphire ABEF (L4)*

WEDNESDAY, JANUARY 13, 2016

8:30 am - 11:30 am		
CA	Room Temperature Magnetic Skyrmions	*Sapphire ABEF (L4)*
CB	Spin Injection I	*Sapphire IJ (L4)*
CC	Magnonics I	*Sapphire MN (L4)*
CD	Correlated Systems and 4f Materials	*Sapphire 400 (L4)*
CE	Mn and Fe-Based Perovskites	*Sapphire 410 (L4)*
CF	Patterned Films	*Aqua AB (L3)*
CG	MRAM and Spin Logic I	*Aqua CD (L3)*
CH	Spin Hall and Related Effects I	*Aqua EF (L3)*
CI	Bio Imaging, Assays and Hyperthermia II	*Aqua 310 (L3)*
CJ	Electrical Machines and Applications	*Aqua 300 (L3)*
9:30 am - 12:30 pm • Poster Sessions		*Sapphire Ballroom South (L4)*
CP	Electronic Structure of Magnetic Materials	
CQ	Soft Magnetic Materials: Crystalline Alloys I	
CR	Magneto-Caloric and Magneto-Optical Materials	
CS	New Functional Magnetic Materials II	
CT	Micromagnetics II	
CU	Optical and Microwave Driven Dynamics	
CV	Energy Assisted Magnetic Recording II	
CW	Instrumentation and Measurement Techniques	
CX	Permanent Magnet Rotating Machines	
CY	Power and Motor Modeling and New Applications	
1:30 pm - 3:18 pm		
DA	Permanent Magnets Applications: From Neural Architectures to Smart Cities Development	*Sapphire ABEF (L4)*
DB	Probes for Chiral Magnetic Systems and Skyrmions	*Sapphire IJ (L4)*
DC	Electronic and Critical Phenomena	*Sapphire MN (L4)*
DD	Perovskites, Spinels and Other Oxides	*Sapphire 400 (L4)*

DE	Perpendicular Anisotropy and Magnetic Nanostructures	*Sapphire 410 (L4)*
DF	Half-Metallic Materials II	*Aqua AB (L3)*
DG	Magnetic Tunnel Junctions II	*Aqua CD (L3)*
DH	Mn-Based Hard Magnetic Materials	*Aqua EF (L3)*
DI	New Applications: Magneto-Elastic, Magneto-Electric and Other Devices	*Aqua 310 (L3)*
DJ	Modeling and Simulations of Motors I	*Aqua 300 (L3)*
1:30 pm - 4:30 pm • Poster Sessions		*Sapphire Ballroom South (L4)*
DP	Nanostructured Hard Magnetic Materials I	
DQ	Magneto-Electric Materials and Devices II	
DR	Soft Magnetic Materials: Crystalline Alloys II	
DS	Patterned Films and Nanoparticles	
DT	Spin Injection II	
DU	Spin Currents, Spin Hall and Related Effects I	
DV	Spin Currents, Spin Hall and Related Effects II	
DW	Motor Design and Actuators	
DX	Motor Design and Analysis II	
DY	Novel Applications: Motors, Power and Bio	
4:30 pm - 6:30 pm		
YA	Plenary	*Sapphire ABEF IJMN (L4)*
THURSDAY, JANUARY 14, 2016		
8:30 am - 11:30 am		
EA	Novel Characterization Methods for Magnetic Nanoparticles	*Sapphire ABEF (L4)*
EB	Spin Currents and Damping	*Sapphire IJ (L4)*
EC	Dzyaloshinskii-Moriya Interactions	*Sapphire MN (L4)*
ED	Numerical Methods	*Sapphire 400 (L4)*
EE	Magneto-Caloric Materials II	*Sapphire 410 (L4)*
EF	Exchange Bias I	*Aqua AB (L3)*
EG	Electric Field Control of Magnetism I	*Aqua CD (L3)*
EH	Magnetic Recording Heads and Media	*Aqua EF (L3)*
EI	Magnetic Fluids and Separations	*Aqua 310 (L3)*
EJ	Modeling and Simulations of Motors II	*Aqua 300 (L3)*
9:30 am - 12:30 pm • Poster Sessions		*Sapphire Ballroom South (L4)*
EP	Perovskite 3d Oxides and Composites	
EQ	Spin Ice, Frustrated Magnets and Critical Phenomena	
ER	Bio Applications and Magnetic Fluids	
ES	Magneto-Elastic and Magneto-Functional Materials	
ET	MRAM and Spin Logic II	
EU	Spin Currents, Spin Hall and Related Effects III	
EV	Dynamics of Walls and Reversal	
EW	Magnetic Nanowires and Arrays	
EX	Modeling and Simulations of Motors III	
EY	Modeling and Simulations of Motors IV	

1:30 pm - 4:30 pm

FA	Antiferromagnetic Spintronics Born Again	*Sapphire ABEF (L4)*
FB	MRAM and Spin Logic III	*Sapphire IJ (L4)*
FC	Walls, Vortices and Skyrmions II	*Sapphire MN (L4)*
FD	Amorphous and Nano Crystalline Soft Magnetic Materials II	*Sapphire 400 (L4)*
FF	Magnetization Dynamics and Damping	*Aqua AB (L3)*
FG	Ultrafast Dynamics, Optical Switching and Magneto-Optics	*Aqua CD (L3)*
FH	Hard Magnetic Materials Processing and Applications II	*Aqua EF (L3)*
FI	Molecular Magnets and Magneto-Optic Materials	*Aqua 310 (L3)*
FJ	Transformers and Levitation	*Aqua 300 (L3)*

2:30 pm - 5:30 pm • Poster Sessions *Sapphire Ballroom South (L4)*

FP	Magneto-Caloric Materials III
FQ	Intermetallics, L10 and Other Hard Magnetic Materials
FR	Exchange Bias II
FS	Topological Insulators and Magneto-Transport
FT	Spin Currents, Spin Hall and Related Effects IV
FU	Magnonics II
FV	Magnetic Recording Media
FW	Magnetic Imaging and Microscopy
FX	Modeling and Design of Motors
FY	Motor Control and Drives

6:00 pm - 7:30 pm

ZA	Evening Session 2: Magnetic Devices for the Future	*Sapphire ABEF (L4)*

FRIDAY, JANUARY 15, 2016

8:30 am - 11:30 am

GA	New Frontiers of Organic Spintronics	*Sapphire ABEF (L4)*
GB	Imaging of Nanostructured Materials	*Sapphire IJ (L4)*
GC	Magnons, Photons and Spin Dynamics	*Sapphire MN (L4)*
GD	Spin Hall and Related Effects II	*Sapphire 400 (L4)*
GE	Novel Magneto-Transport Phenomena and Ferromagnetic Semiconductors	*Sapphire 410 (L4)*
GF	Low-Dimensional and Other Topological Materials	*Aqua AB (L3)*
GG	Spin Transfer and Spin Orbit Torque	*Aqua CD (L3)*
GH	Multilayer Films and Superlattices	*Aqua EF (L3)*
GI	Bio Applications of Magnetic Particles	*Aqua 310 (L3)*
GJ	Motor Modeling, Control and Simulations	*Aqua 300 (L3)*

9:30 am - 12:30 pm • Poster Sessions		*Sapphire Ballroom South (L4)*
GP	Strongly Correlated Oxides and Heavy Fermions	
GQ	Amorphous and Nano Crystalline Soft Magnetic Materials III	
GR	Soft Magnetic Materials: Crystalline Alloys, Ferrites and Garnets	
GS	Structured Materials for Spintronics	
GT	Spin Torque Domain Wall Motion	
GU	Spin Torque, Domain Walls and Solitons	
GV	MRAM and Spin Logic IV	
GW	Electric Field Control of Magnetism II	
GX	Magnetic Recording Systems and Head Media Interface	
GY	Electrical Machines and Actuators	
1:30 pm - 4:30 pm		
HA	Spin-Orbit Coupling and Exchange Interactions: Physics and Engineering	*Sapphire ABEF (L4)*
HB	X-ray Imaging at the Nanoscale	*Sapphire IJ (L4)*
HC	Spin Torque Oscillators and Switching	*Sapphire MN (L4)*
HD	Soft Magnetic Materials: Crystalline Alloys III	*Sapphire 400 (L4)*
HE	Magneto-Elastic Materials	*Sapphire 410 (L4)*
HF	Spin Waves in Nanostructures	*Aqua AB (L3)*
HG	Spin Currents, Spin Hall and Related Effects V	*Aqua CD (L3)*
HH	Nanostructured Hard Magnetic Materials II	*Aqua EF (L3)*
HI	Ultrathin Films and Surface Effects	*Aqua 310 (L3)*

MONDAY AFTERNOON 2:00 | SAPPHIRE ABEF

Session VA
TUTORIAL: LATEST FABRICATION TECHNOLOGIES FOR MAGNETIC DEVICES AND MAGNETS

Mingzhong Wu, Chair
Colorado State University, Fort Collins, CO

2:00

VA-01. Recent Progress in Sputter Deposition Technology for Magnetic Thin Film Devices. ***(Invited)*** *K. Tsunekawa*[1] *1. Canon ANELVA Corporation, Kawasaki, Kanagawa, Japan*

2:40

VA-02. Recent Trend of Electron Beam Lithography System. ***(Invited)*** *R. Funakoshi*[1], Y. Nakagawa[2] and Y. Kuwano[2] *1. JEOL USA Inc., Peabody, MA; 2. JEOL ltd., Akishima-shi, Tokyo, Japan*

3:20

VA-03. Manufacturing technologies of spintronics devices. ***(Invited)*** *H. Maehara*[1] *1. Tokyo Electron Limited, Tokyo, Japan*

4:00

VA-04. Fabrication and Processing Technologies For Permanent Magnet Materials: Melt-Spun Nd-Fe-B Magnets. ***(Invited)*** *D. Brown*[1] *1. R&D, Magnequench, Singapore, Singapore*

TUESDAY MORNING 8:30 | SAPPHIRE ABEF

Session AA
NEW DEVELOPMENTS WITH HEUSLER COMPOUNDS

Claudia Felser, Chair
Max Planck Institute for Chemical Physics for Solids, Dresden, Germany

8:30

AA-01. The zero-moment half metal; How could it change spin electronics? ***(Invited)*** *M. Coey*[1] *1. Trinity College, Dublin, Dublin, Ireland*

9:06

AA-02. Spin-gapless and spin-filter magnetic semiconductors: The case of Heusler compounds. ***(Invited)*** *I. Galanakis*[1] *1. Materials Science, Unviersity of Patras, Patras, Greece*

9:42

AA-03. **Non-collinear magnetism amd spontaneous skyrmion in Heusler materials.** ***(Invited)*** *A.K. Nayak*[1,2], J. Wild[3], J. Zweck[3], S.S.P. Parkin[1] and C. Felser[2] *1. Max Planck Institute of Microstructure Physics, Halle, Germany; 2. Max Planck Institute for Chemical Physics of Solids, Dresden, Germany; 3. Institute for Experimental and Angewandte Physics, University of Regensburg, Germany, Regensburg, Germany*

10:18

AA-04. **Tetragonal Mn-based Heusler compounds and their spintronics applications.** ***(Invited)*** *S. Mizukami*[1], A. Sugihara[1], Q. Ma[1], S. Iihama[2], K.Z. Suzuki[1], R. Ranjbar[1], S. Pham[1] and T. Miyazaki[1] *1. WPI-AIMR, Tohoku University, Sendai, Japan; 2. Department of Applied Physics, Tohoku University, Sendai, Japan*

10:54

AA-05. **Termination layer compensated tunneling magnetoresistance in ferrimagnetic Heusler compounds with high perpendicular magnetic anisotropy.** ***(Invited)*** *S.S.P. Parkin*[1,2] *1. Max Planck Institute for Microstructure Physics, Halle (Saale), Germany; 2. IBM Research - Almaden, San Jose, CA*

TUESDAY
MORNING
8:30

SAPPHIRE IJ

Session AB
ENERGY ASSISTED MAGNETIC RECORDING I
Vitaliy Lomakin, Chair
UCSD, La Jolla, CA

8:30

AB-01. **Areal Density Limits for Heat Assisted Magnetic Recording and Perpendicular Magnetic Recording.** *K. Gao*[1], P. Lu[1], M. Ma[1], W. Zhu[1], G.M. Sandler[1], H. Zhou[1], C.J. Rea[1] and E. Gage[1] *1. Seagate Technology LLC, Shakopee, MN*

8:42

AB-02. **Areal density optimizations of bit patterned media with heat assist based on a coarse grained LLB model up to 5 TBit/in^2** *C. Vogler*[1,2], C. Abert[3], F. Bruckner[3], D. Suess[3] and D. Praetorius[2] *1. Institute of Solid State Physics, TU Wien, Vienna, Austria; 2. Institute for Analysis and Scientific Computing, TU Wien, Vienna, Austria; 3. Christian Doppler Laboratory for Advanced Magnetic Sensing and Materials, Institute for Solid State Physics, TU Wien, Vienna, Austria*

8:54

AB-03. **Micromagnetic modeling of HAMR media hysteresis loops at elevated temperature.** *B. Livshitz*[1], K. Eason[1] and M. Chapline[2] *1. ATO, Western Digital Company, San Jose, CA; 2. MO, Western Digital Company, San Jose, CA*

9:06

AB-04. 3-D magnetic recording using ferromagnetic resonance. *(Invited)* *R. Sato*[1] *1. Corporate Research & Development Center, Toshiba Corporation, Kawasaki, Japan*

9:42

AB-05. Distinguishing Random and Spatially Deterministic Noise Components in Heat Assisted Magnetic Recording. *M. Alex*[1] and G. Bertero[1] *1. Western Digital Corporation, Fremont, CA*

9:54

AB-06. Growth mechanism of columnar grains in FePt-C granular films for HAMR media processed by compositionally graded sputtering. *H. Pandey*[1], J. Wang[1], A. Perumal[1], Y. Takahashi[1] and K. Hono[1] *1. Magnetic Materials Unit, National Institute for Materials Science, Tsukuba, Ibaraki, Japan*

10:06

AB-07. Effect of large lattice mismatch on the microstructure and magnetic properties of FePt films. H. Li[1], K. Dong[1], J. Deng[1], Y. Peng[2], G. Ju[2], G. Chow[1] and *J. Chen*[1] *1. Materials Science and Engineering, National University of Singapore, Singapore, Singapore; 2. Seagate Technology, Fremont, CA*

10:18

AB-08. Interfacial thermal conductance in FePt-C/MgO for HAMR media studied by time-resolved MOKE. *J. Kimling*[1], J. Wang[2], Y. Takahashi[2], K. Hono[2] and D.G. Cahill[1] *1. Department of Materials Science and Engineering and Materials Research Laboratory, University of Illinois at Urbana-Champaign, Urbana, IL; 2. Magnetic Materials Unit, National Institute for Materials Science, Tsukuba, 305-0047, Japan*

10:30

AB-09. Pulse Recording to Probe HAMR Media Thermal Properties. *P. Jubert*[1], S. Burgos[1], V. Mehta[1] and M. Grobis[1] *1. HGST, a Western Digital company, San Jose, CA*

10:42

AB-10. Parametric Comparison of Modeled and Measured Heat Assisted Magnetic Recording Using a Common Signal to Noise Metric. *S. Hernandez*[1], P. Krivosik[2], W.R. Eppler[2], M. Ma[1], T. Rausch[1] and E. Gage[1] *1. Storage Research Group, Seagate Technology, Shakopee, MN; 2. Recording Head Operations, Seagate Technology, Bloomington, MN*

10:54

AB-11. Dual Side Spin Transfer Spin Torque Oscillator for Microwave Assisted Magnetic Recording. *J. Zhu*[1] *1. Data Storage Systems Center, Carnegie Mellon Univ, Pittsburgh, PA*

11:06

AB-12. Theoretical study of microwave-assisted magnetization switching in exchange coupled nano magnets. *T. Yamaji*[1], H. Arai[2,1], R. Matsumoto[1] and H. Imamura[1] *1. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology, Tsukuba, Ibaraki, Japan; 2. JST-PRESTO, Kawaguchi, Saitama, Japan*

11:18

AB-13. Identification of switching field distributions in current and future magnetic recording systems. *S. Ruta*[1], O. Hovorka[2], K. Wang[3], G. Ju[3] and R. Chantrell[1] *1. Physics, University of York, York, United Kingdom; 2. Faculty of Engineering and the Environment, University of Southampton, Southampton, United Kingdom; 3. Seagate Technology, Fremont, CA*

TUESDAY MORNING 8:30 | SAPPHIRE MN

Session AC
SKYRMIONS
Stephen McVitie, Chair
University of Glasgow, Glasgow, United Kingdom

8:30

AC-01. Dynamics and Control of Electric-Field Induced Skyrmion Motion. *H. Fook*[1], W. Gan[1] and W. Lew[1] *1. Physics and Applied Physics, School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore, Singapore*

8:42

AC-02. Creation of artificial skyrmions and antiskyrmions by anisotropy engineering. *S. Zhang*[1], A. Petford-Long[1] and C. Phatak[1] *1. Materials Science Division, Argonne National Laboratory, Argonne, IL*

8:54

AC-03. Skyrmion based microwave detectors. *G. Finocchio*[2], M. Ricci[3], R. Tomasello[4], A. Giordano[2], M. Lanuzza[4], V. Puliafito[2], P. Burrascano[3], B. Azzerboni[2] and M. Carpentieri[1] *1. Ingegneria Elettrica e dell'Informazione, Politecnico of Bari, Bari, Bari, Italy; 2. Department of Electronic Engineering, Industrial Chemistry and Engineering, University of Messina, Messina, Italy; 3. Department of Engineering, Polo Scientifico Didattico di Terni, University of Perugia, Terni, Italy; 4. Computer Science, Modelling, Electronics and System Science, University of Calabria, Rende, Italy*

9:06

AC-04. Systematic normal mode study of equilibrium skyrmionic textures in confined helimagnetic nanostructures. *M. Beg*[1], M. Albert[1], W. Wang[1], D.I. Cortes[1], M. Vousden[1], R. Carey[1], M. Bisotti[1], D. Chernyshenko[1], O. Hovorka[1], R. Stamps[2] and H. Fangohr[1] *1. Faculty of Engineering and the Environment, University of Southampton, Southampton, Hampshire, United Kingdom; 2. SUPA School of Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom*

9:18

AC-05. Skyrmions in Ir/Co/Pt multilayers with inhomogeneous Dzyaloshinskii-Moriya interaction observed by MFM. *M.A. Marioni*[2], M. Bacani[2], J. Schwenk[2,1], S. Romer[2], X. Zhao[2,1], A. Guiller[2] and H.J. Hug[2,1] *1. Department of Physics, University of Basel, Basel, Switzerland; 2. Nanoscale Materials Science, Empa, Swiss Federal Laboratories for Materials Science and Technology, Dübendorf, Switzerland*

9:30

AC-06. Spin wave reflection by a Dzyaloshinskii domain wall. *P. Borys*[1], F. Garcia-Sanchez[2], J. Kim[2] and R. Stamps[1] *1. University of Glasgow, Glasgow, United Kingdom; 2. Institut d'Electronique Fondamentale, Orsay, France*

9:42

AC-07. Skyrmion Nucleation via Localized Magnetic Fields. *S.A. Diaz*[1] and D. Arovas[1] *1. Physics, University of California, San Diego, La Jolla, CA*

9:54

AC-08. Internal Spin Configuration of Chiral Magnetic Nanostructures. J.F. Pulecio[2,4], P. Warnicke[3], M. Im[5], S. Pollard[4,7], P. Fischer[5,6], *D.A. Arena*[1] and Y. Zhu[4] *1. Dept. of Physics, University of South Florida, Tampa, FL; 2. Magnetodynamics and Spin Electronics, National Institute of Standards and Technology, Boulder, CO; 3. Swiss Light Source, Paul Scherrer Institute, Villigen, Switzerland; 4. Condensed Matter Physics and Materials Science, Brookhaven National Laboratory, Upton, NY; 5. Center for X-ray Optics, Lawrence Berkeley National Laboratory, Berkeley, CA; 6. Dept. of Physics, University of California-Santa Cruz, Santa Cruz, CA; 7. Electrical Engineering, National University of Singapore, Singapore, Singapore*

10:06

AC-09. Controlling Magnetic Skyrmions with Defects. *J. Müller*[1] and A. Rosch[1] *1. Institute for Theoretical Physics, University of Cologne, Cologne, NRW, Germany*

10:18

AC-10. Sub-100 nm skyrmions at room temperature: From magnetic thin films to asymmetric magnetic multilayers. ***(Invited)*** *V. Cros*[1], C. Moreau-Luchaire[1], C. Moutafis[2,3], N. Reyren[1], J. Sampaio[1,4], C.A. Vaz[2], N. Van Horne[1], K. Bouzehouane[1], K. Garcia[1], C. Deranlot[1], P. Warnicke[2], P. Wohlhüter[2,5], J. George[1], M. Weigand[6], J. Raabe[2] and A. Fert[1] *1. Unité Mixte de Physique CNRS/Thales, Palaiseau, France; 2. Paul Scherrer Institute, Swiss Light Source, Villigen, Switzerland; 3. School of Computer Science, University of Manchester, Manchester, United Kingdom; 4. Laboratoire de Physique des Solides, CNRS, Orsay, France; 5. Laboratory for Mesoscopic Systems, Department of Materials, ETH, Zurich, Switzerland; 6. Max Planck Institute for Intelligent Systems, Stuttgart, Germany*

10:54

AC-11. Millisecond time resolved imaging of lattice skyrmion creation and annihilation dynamics. *R.J. Lamb*[1], D. McGrouther[1], J. Rajeswari[2], Y. Murooka[2], F. Carbone[2], P. Huang[3] and H. Ronnow[3] *1. MCMP, Glasgow University, Glasgow, United Kingdom; 2. LUMES, Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland; 3. Laboratory for Quantum Magnetism, Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland*

11:06

AC-12. Resonant Properties of a Skyrmionic RE-TM Ferrimagnet with Weak Perpendicular Magnetic Anisotropy. *S.A. Montoya*[1,2], S. Couture[2], J. Chess[4], J.C. Lee[3,4], B. McMorran[4], S. Roy[3], P. Fischer[3], V. Lomakin[2] and E.E. Fullerton[1,2] *1. Center for Magnetic Recording Research, University of California San Diego, La Jolla, CA; 2. Electrical and Computer Engineering, University of California San Diego, La Jolla, CA; 3. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA; 4. Physics, University of Oregon, Eugene, OR*

11:18

AC-13. Highly Efficient Skyrmion Transport and Nucleation Using Spin-Orbit Torque. *W. Gan*[1], H. Fook[1] and W. Lew[1] *1. Nanyang Technological University, Singapore, Singapore*

Session AD
MICROMAGNETICS I
Ralph Skomski, Chair
University of Nebraska - Lincoln, Lincoln, NE

8:30

AD-01. Analysis of HAMR recording using Landau-Lifshitz-Bloch and Xu-Zhang formulations. *M. Menarini*[1,2], V. Lomakin[1,2], B. Livshitz[3], K. Eason[3] and E. Champion[3] *1. Electrical and Computer Engineering, University of California San Diego, La Jolla, CA; 2. CMRR, University of California San Diego, La Jolla, CA; 3. ATO, Western Digital Corp., San Jose, CA*

8:42

AD-02. OOMMF Python interface and Jupyter integration. *H. Fangohr*[1] *1. Computational Modelling Group, University of Southampton, Southampton, Hampshire, United Kingdom*

8:54

AD-03. Multi-Scale Magnetic Vortex Core Switching. *A. De Lucia*[2,1], B. Krüger[2] and M. Kläui[2] *1. Graduate School of Excellence, Material Science in Mainz, Mainz, Rheinland-Pfalz, Germany; 2. Institut für Physik, Johannes Gutenberg Universität, Mainz, Rheinland-Pfalz, Germany*

9:06

AD-04. Influence of Joule heating on current-driven domain wall depinning. *S. Moretti*[1], V. Raposo[1] and E. Martinez[1] *1. Departamento de Fisica Aplicada, Universidad de Salamanca, Salamanca, Spain*

9:18

AD-05. Thermodynamically self-consistent non-stochastic micromagnetic model for the ferromagnetic state. *M. Dvornik*[1,2], A. Vansteenkiste[2] and B. Van Waeyenberge[2] *1. Department of Physics, University of Gothenburg, Gothenburg, Sweden; 2. Department of Solid State Sciences, Ghent University, Ghent, Belgium*

9:30

AD-06. Spin wave modes in the presence of a magnetic antivortex. *M.A. Asmat-Uceda*[1], G.A. Riley[1], A. Haldar[1] and K. Buchanan[1] *1. Physics, Colorado State University, Fort Collins, CO*

9:42

AD-07. Electric-Field-Driven Magnetization Reversal in Multiferroic Structure Based on Surface/Interface Effect. *X. Li*[1], C. Lynch[1], D. Carka[1], C. Liang[1], A. Sepulveda[1], P. Khalili-Amiri[2] and G. Carman[1] *1. Mechanical and Aerospace Engineering, UCLA, Los Angeles, CA; 2. Electrical Engineering, UCLA, Los Angeles, CA*

9:54

AD-08. Atomistic modelling of magnetic reversal mechanisms in CoFeB-MgO tunnel junctions. *A. Meo*[1], P. Chureemart[2], R. Chepulskyy[3], D. Apalkov[3], R. Chantrell[1] and R.F. Evans[1] *1. Physics, University of York, York, United Kingdom; 2. Computational and experimental magnetism group, Department of Physics, Mahasarakham University, Mahasarakham, Thailand; 3. Samsung Electronics, Semiconductor R&D Center (Grandis), San Jose, CA*

10:06

AD-09. Geometrical tuning of spin torque oscillators. Predicting the influence of the pinned layer thickness. *C. Abert*[1], H. Sepehri Amin[2], F. Bruckner[1], C. Vogler[3], R. Windl[1] and D. Suess[1] *1. Institute of Solid State Physics, Christian Doppler Laboratory for Advanced Magnetic Sensing and Materials, TU Wien, Vienna, Austria; 2. National Institute for Materials Science, Tsukuba, Japan; 3. Institute of Solid State Physics, TU Wien, Vienna, Austria*

10:18

AD-10. Atomistic spin dynamics and temperature dependent properties of $Nd_2Fe_{14}B$. *R.F. Evans*[1], D. Givord[2], R. Cuadrado[1,3], T. Shoji[4], M. Yano[4], M. Ito[2,4], A. Manabe[4], G. Hrkac[5], T. Schrefl[6] and R. Chantrell[1] *1. Department of Physics, University of York, York, England, United Kingdom; 2. Institut Néel, CNRS/UJF, Grenoble, France; 3. Campus UAB, Institut Catala de Nanociencia i Nanotecnologia, Bellaterra (Barcelona), Spain; 4. Toyota Motor Corporation, Toyota City, Tokyo, Japan; 5. College of Engineering, Mathematics and Physical Sciences, University of Exeter, Exeter, United Kingdom; 6. Center for Integrated Sensor Systems, Danube University Krems, Krems, Austria*

10:30

AD-11. Statistical Considerations in Micromagnetic Simulations of Soft Nano-Granular Magnetic Films. *S. Couture*[1], E.E. Fullerton[1] and V. Lomakin[1] *1. Center for Magnetic Recording Research, University of California, San Diego, San Diego, CA*

10:42

AD-12. Domain wall nucleation and depinning from artificial nucleation centers by 3D magnetic fields. M. Becherer[1], G. Ziemys[1], I. Eichwald[1], D. Schmitt-Landsiedel[1], G. Csaba[2] and *S. Breitkreutz-v. Gamm*[1] *1. Institute for Technical Electronics, TU Munich, Munich, Germany; 2. Center for Nano Science and Technology, University of Notre Dame, Notre Dame, IN*

10:54

AD-13. Spin Torque Driven Bubble Motion in Magnetic Nanowires with Perpendicular Anisotropy. *A. Gokce*[1], O. Ozatay[1], T. Hauet[2], G. Finocchio[3], A. Giordano[3] and J. Katine[4] *1. Physics Department, Bogazici University, Istanbul, Turkey; 2. Institut Jean Lamour, Nancy Université, Nancy, France; 3. Electronic Engineering, Industrial Chemistry and Engineering, University of Messina, Messina, Italy; 4. HGST, A Western Digital Company, San Jose, CA*

11:06

AD-14. Intrinsic Nature of Stochastic Domain Wall Pinning Phenomena in Magnetic Nanowire Devices. *T.J. Hayward*[1] *1. Department of Materials Science and Engineering, University of Sheffield, Sheffield, South Yorkshire, United Kingdom*

11:18

AD-15. Packing 360º Domain Walls of Identical Circulation on Nanowires with Notches. *F. Kaya*[1], A. Sarella[1], D. Wang[2], M. Tuominen[2] and K.E. Aidala[1] *1. Physics, Mount Holyoke College, South Hadley, MA; 2. Physics, UMass, Amherst, MA*

TUESDAY MORNING 8:30 — SAPPHIRE 410

Session AE
NANOPARTICLES I
Tianlong Wen, Chair
University of Electronic Science and Technology of China, Chengdu, China

8:30

AE-01. Synthesis of High-Saturation Iron Cobalt by Calcium-Assisted Reduction of Cobalt Ferrite Nanoparticles. B. Qi[2], J.S. Andrew[1] and *D.P. Arnold*[2] *1. Materials Science & Engineering, University of Florida, Gainesville, FL; 2. Electrical and Computer Engineering, University of Florida, Gainesville, FL*

8:42

AE-02. Tuning the magnetic interaction in nanoparticle composites by polarization of matrix materials. *G.L. Wilbs*[1], O. Petracic[1], M. Waschk[1], E. Kentzinger[1], Y. Choi[2], J. Gräfe[3], E.J. Goering[3], U. Rücker[1] and T. Brückel[1] *1. Juelich Centre for Neutron Science JCNS and Peter Gruenberg Institute PGI, JARA-FIT, Forschungszentrum Juelich GmbH, Juelich, Germany; 2. Advanced Photon Source, Argonne National Laboratory, Argonne, IL; 3. Max-Planck-Institute for Intelligent Systems, Stuttgart, Germany*

8:54

AE-03. Static and Dynamic Magnetism of Iron Oxide Nanoparticle Arrangements in Single Magnetotactic Bacteria. *A. Terwey*[1], R. Meckenstock[1], D. Spoddig[1], S. Ghaisari[2], D. Faivre[2], M. Winklhofer[1] and M. Farle[1] *1. Experimental Physics - AG Farle, University Duisburg-Essen, Duisburg, Germany; 2. Molecular Biomimetics and Magnets Biomineralization, Max Planck Institute of Colloids and Interfaces, 14476 Potsdam, Germany*

9:06

AE-04. Study of Gd_2O_3 nanoparticles magnetic properties by magnetic hyperfine field measurements. *E.L. Correa*[1], B. Bosch-Santos[1], F.H. Cavalcante[1], R.S. Freitas[2], A.W. Carbonari[1], B.S. Correa[3] and M.A. Potiens[1] *1. Instituto de Pesquisas Energéticas e Nucleares, Universidade de São Paulo, São Paulo, SP, Brazil; 2. Instituto de Física, Universidade de São Paulo, São Paulo, SP, Brazil; 3. Faculdade de Ciências Exatas e Tecnologia, Universidade Federal do Pará, Abaetetuba, PA, Brazil*

9:18

AE-05. Intrinsic magnetic properties of nanoparticles deduced from isothermal remanent magnetization. *F. Tournus*[1], A. Tamion[1], A. Hillion[1,2] and V. Dupuis[1] *1. ILM, CNRS & Univ. Lyon 1, Villeurbanne, France; 2. Institut Jean Lamour, Nancy, France*

9:30

AE-06. Determining Magnetic Spin Structures in $MnFe_2O_4$ Nanoparticle Assemblies. *Y. Ijiri*[1], I. Hunt-Isaak[1], H. Pan[1], K.L. Krycka[2], J. Borchers[2], A. Abdelgawad[3], S. Oberdick[3] and S. Majetich[3] *1. Department of Physics and Astronomy, Oberlin College, Oberlin, OH; 2. NIST Center for Neutron Research, NIST, Gaithersburg, MD; 3. Department of Physics, Carnegie Mellon University, Pittsburgh, PA*

9:42

AE-07. Effect of Nano-confinement on Exchange Coupling within $MnFe_2O_4$ Nanoparticles. *K.L. Krycka*[1], J.J. Rhyne[2], J. Borchers[1], J.W. Lynn[1], S. Oberdick[3], A. Abdelgawad[3], Y. Ijiri[4], D.E. Parshall[1], N.P. Butch[1] and S. Majetich[3] *1. NCNR, NIST, Gaithersburg, MD; 2. Physics Department, University of Missouri-Columbia, Columbia, MO; 3. Physics Department, Carnegie Mellon University, Pittsburgh, PA; 4. Physics Department, Oberlin College, Oberlin, OH*

9:54

AE-08. Observation of New Magnetic State with Polarized Neutron Reflectometry. Q. Wang[1], P.N. Lapa[2,1], K. Belashchenko[3], M. Zhernenkov[4], M. Fitzsimmons[5] and *I.V. Roshchin*[2] *1. Materials Science Division, Argonne National Laboratory, Argonne, IL; 2. Department of Physics and Astronomy, Texas A&M University, College Station, TX; 3. Department of Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE; 4. National Synchrotron Light Source II, Brookhaven National Laboratory, Upton, NY; 5. Neutron Sciences Directorate, Oak Ridge National Laboratory, Oak Ridge, TN*

10:06

AE-09. Unusual Ferromagnetism in Mn_5Si_3 Nanoclusters. *B. Das*[1], B. Balasubramanian[1], P. Manchanda[1], P. Mukhrejee[1], R. Skomski[1], G.C. Hadjipanayis[2] and D.J. Sellmyer[1] *1. Nebraska Center for Materials & Nanoscience and Department of Physics & Astronomy, University of Nebraska, Lincoln, NE; 2. Department of Physics and Astronomy, University of Delaware, Newark, DE*

10:18

AE-10. Electrophoretic Deposition of Patterned Magnetic Nanoparticle Films. *S.J. Kelly*[1], X. Wen[2], J.S. Andrew[1] and D.P. Arnold[2] *1. Materials Science and Engineering, University of Florida, Gainesville, FL; 2. Electrical and Computer Engineering, University of Florida, Gainesville, FL*

10:30

AE-11. Breakdown of the antiferromagnetic order in transition metal oxide nanoparticles: a matter of size. *N. Rinaldi-Montes*[1*], P. Gorria[1], D. Martinez-Blanco[1], A. Fuertes[2], L. Olivi[3], I. Puente-Orench[4,5] and J.A. Blanco[1] *1. Department of Physics, University of Oviedo, Oviedo, Spain; 2. Instituto Nacional del Carbon-CSIC, Oviedo, Spain; 3. Elettra Synchrotron Trieste, Basovizza, Italy; 4. Institut Laue-Langevin, Grenoble, France; 5. Instituto de Ciencia de Materiales de Aragon, CSIC-University of Zaragoza, Zaragoza, Spain*

10:42

AE-12. Tetragonal Structure in Core-Shell Fe Nanoclusters. *M. Kaur*[1], J. McCloy[2], J. Tucek[3], C. Pearce[4] and Y. Qiang[1] *1. Physics, University of Idaho, Moscow, ID; 2. School of Mechanical & Materials Engineering, Washington State University, Pullman, WA; 3. Regional Centre of Advanced Technologies and Materials, Palacky University, Olomouc, Czech Republic; 4. School of Chemistry, University of Manchester, Manchester, United Kingdom*

10:54

AE-13. Novel Magnetic and Plasmonic Bifunctional Nanomaterials: Synthesis, Magnetic and Optical Properties. E. Carbó-Argibay[2], M. Bañobre-López[2], Y. Kolen'ko[2] and *J. Rivas*[1,2] *1. Applied Physics, Univ. Santiago de Compostela, Santiago de Compostela, Spain; 2. International Iberian Nanotechnology Laboratory, Braga, Portugal*

11:06

AE-14. Electron holography studies of individual maghemite (γ-Fe_2O_3) nanoflowers. *J. Larsen*[1], M. Varón[1], T. Kasama[2], M. Beleggia[2] and C. Frandsen[1] *1. Department of Physics, Technical University of Denmark, Kgs. Lyngby, Denmark; 2. Center for Electron Nanoscopy, Technical University of Denmark, 2800 Kgs. Lyngby, Denmark*

11:18

AE-15. 3D Printed Magnetic Structures Using UV-curable Magnetic Ink. *G. Clay*[1], H. Song[1], J. Nielsen[2], J. Stasiak[2], M. Khavari[2], A. Jander[1] and P. Dhagat[1] *1. Oregon State University, Corvallis, OR; 2. Hewlett-Packard Company, Corvallis, OR*

Session AF

SPIN ICE AND FRUSTRATED MAGNETS

Laura Heyderman, Chair
ETH Zurich - Paul Scherrer Institute, Villigen, Switzerland

8:30

AF-01. Emergence by design in Artificial Spin Ice: exotic magnetism through topological frustration. ***(Invited)***
C. Nisoli[1], I. Gilbert[2], S. Zhang[3], Y. Lao[4], G. Chern[5] and P. Schiffer[4] *1. Theoretical Division, LANL, Los Alamos, NM; 2. National Institute of Standards and Technology, Gaithersburg, MD; 3. ANL, Lemont, IL; 4. University of Illinois Urbana Champaign, Urbana-Champaign, IL; 5. University of Virginia, Charlottesville, VA*

9:06

AF-02. Optimized Thermal Annealing and Local Ground State Ordering in Artificial Spin Ice. *A. Farhan*[1,2], P.M. Derlet[3], L. Anghinolfi[4,5], S. Bocanski[6], P. Mellado[7], R.V. Chopdekar[8], A. Kleibdert[9], S. Gliga[4,5], A. Scholl[1] and L. Heyderman[4,5] *1. Lawrence Berkeley National Laboratory (LBNL), Berkeley, CO; 2. Department of Applied Physics, Aalto University School of Science, FI-00076 Aalto, Finland; 3. Condensed Matter Theory Group, NUM, Paul Scherrer Institute, 5232 Villigen, Aargau, Switzerland; 4. Laboratory for Micro and Nanotechnology, Paul Scherrer Insitute, 5232 Villigen, Aargau, Switzerland; 5. Laboratory for Mesoscopic Systems, Department of Materials, ETH Zurich, Zurich, 8093 Zurich, Switzerland; 6. Institute of Applied Physics, Vienna University of Technology, Vienna, 1040 Vienna, Austria; 7. School of Engineering and Sciences, Adolfo Ibanez University, 2640 Penalon, Santiago, Chile; 8. Department of Chemical Engineering and Materials Science, UC Davis, Davis, CA; 9. Swiss Light Source, Paul Scherrer Institute, Villigen, Switzerland*

9:18

AF-03. Emergent dimensionality reduction in a new artificial spin ice lattice. *I. Gilbert*[1,2], Y. Lao[1], I. Carrasquillo[1], L. O'Brien[3,4], J.D. Watts[3,5], M. Manno[3], C. Leighton[3], A. Scholl[6], C. Nisoli[7] and P. Schiffer[1] *1. Department of Physics and Frederick Seitz Materials Research Laboratory, University of Illinois at Urbana-Champaign, Urbana, IL; 2. Center for Nanoscale Science and Technology, National Institute of Standards and Technology, Gaithersburg, MD; 3. Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN; 4. Thin Film Magnetism Group, Department of Physics, Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom; 5. School of Physics and Astronomy, University of Minnesota, Minneapolis, MN; 6. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA; 7. Theoretical Division and Center for Nonlinear Studies, Los Alamos National Laboratory, Los Alamos, NM*

9:30

AF-04. Probing frustrations with artificial magnets. *B. Canals*[1], N. Rougemaille[2], I.A. Chioar[1], Y. Perrin[2], V. Nguyen[2], F. Montaigne[3], M. Hehn[3] and D. Lacour[3] *1. Condensed Matter Department, Institut Néel, Grenoble, France; 2. Nanoscience Department, Institut Néel, Grenoble, France; 3. Institut Jean Lamour, Université de Lorraine, CNRS, Vandoeuvre lès Nancy, France*

9:42

AF-05. Thermal injection and propagation of monopole excitations in square artificial spin ice. *S.A. Morley*[1], M.C. Rosamond[2], D. Alba Venero[3], A. Hrabec[1], J. Porro[3], M. Im[4,5], P. Fischer[4,6], S. Langridge[3] and C.H. Marrows[1] *1. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 2. School Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom; 3. ISIS, Rutherford Appleton Laboratory, Didcot, United Kingdom; 4. Center for X-ray Optics, Lawrence Berkeley National Laboratory, Berkeley, CA; 5. DGIST, Daegu, The Republic of Korea; 6. School of Physics, University of California, Santa Cruz, CA*

9:54

AF-06. Thermally-activated dynamics and Vogel-Fulcher-type freezing in artificial spin ice. *J. Porro*[1], S.A. Morley[2], D. Alba Venero[1], A. Stein[3], M.C. Rosamond[4], S.T. Riley[4], P. Steadman[5], Y. Li[6], D. Laroze[6,7], R. Stamps[6], S. Langridge[1] and C.H. Marrows[2] *1. ISIS, Rutherford Appleton Laboratory, STFC, Didcot, Oxfordshire, United Kingdom; 2. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 3. Center for Functional Nanomaterials, Brookhaven National Lab, Upton, NY; 4. School of Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom; 5. Diamond Light Source, Didcot, United Kingdom; 6. SUPA School of Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom; 7. Instituto de Alta Investigación, Universidad de Tarapacá, Arica, Chile*

10:06

AF-07. Lorentz Transmission Electron Microscopy Study of Three Dimensional Artificial Spin Ice. *S. Felton*[1,2], C. Kansal[2], K. Zeissler[3], S.K. Walton[3], B.N. Illy[2], W.R. Branford[3,4] and M.P. Ryan[2,4] *1. School of Mathematics and Physics, Queen's University Belfast, Belfast, United Kingdom; 2. Department of Materials, Imperial College London, London, United Kingdom; 3. Department of Physics, Imperial College London, London, United Kingdom; 4. London Centre for Nanotechnology, Imperial College London, London, United Kingdom*

10:18

AF-08. Nonequilibrium dynamics of magnetic charges in artificial spin ice. *R.V. Hügli*[1], G. Duff[1] and H. Braun[1] *1. School of Physics, University College Dublin, Dublin, Ireland*

10:30

AF-09. Glassy Multiscale Relaxation in Thin-film Ferromagnetic/ Antiferromagnet Bilayers. *S. Urazhdin*[1] and T. Ma[1] *1. Physics, Emory University, Atlanta, GA*

10:42

AF-10. Dipolar 4-state Potts model: Presentation and experimental realization. *D. Louis*[1], F. Montaigne[1], T. Hauet[1], D. Lacour[1], M. Hehn[1], N. Rougemaille[2] and B. Canals[2] *1. Institut Jean Lamour, Université de Lorraine - CNRS, Vandoeuvre les Nancy, France; 2. Institut Néel, Grenoble, France*

10:54

AF-11. Direct Imaging of Magnetic Order and Frustration on Distinct Sublattices in Artificial Quasicrystals. B.W. Farmer[1], A.L. Balk[3], V.S. Bhat[2], E. Teipel[1], N. Smith[1], J. Unguris[3], J.T. Hastings[4] and *L.E. De Long*[1] *1. Physics and Astronomy, University of Kentucky, Lexington, KY; 2. Technische Universität München, Munich, Germany; 3. Center for Nanoscale Science and Technology, National Institute of Standards and Technology, Gaithersburg, MD; 4. Department of Electrical and Computer Engineering, University of Kentucky, Lexington, KY*

11:06

AF-12. Dynamic Origin of Segment Magnetization Reversal in Penrose Quasicrystals. *F. Montoncello*[1], L. Giovannini[1], B.W. Farmer[2] and L.E. De Long[2] *1. Dipartimento di Fisica e Scienze della Terra, Università di Ferrara, Ferrara, Italy; 2. Department of Physics and Astronomy, University of Kentucky, Lexington, KY*

11:18

AF-13. Spin Dynamics in the Frustrated Double Perovskite Sr_2YRuO_6. *S.M. Disseler*[1], J.W. Lynn[1], R.F. Jardim[2], M. Torikachvili[4] and E. Granado[3] *1. NIST Center for Neutron Research, Gaithersburg, MD; 2. Instituto de Fisica, University of San Paulo, San Paulo, Brazil; 3. Institute of Physics "Gleb Wataghin", University of Campinas-UNICAMP, Sao Paulo, Brazil; 4. Dept. of Physics, San Diego State University, San Diego, CA*

TUESDAY MORNING 8:30 — AQUA SALON CD

Session AG
ANTIFERROMAGNETISM AND SPIN-ORBIT INTERACTIONS I

Ron Jansen, Chair
AIST, Tsukuba, Japan

8:30

AG-01. Antiferrmagnets for Spintronics. ***(Invited)*** *A.H. MacDonald*[1], H. Chen[1] and Q. Niu[1] *1. Physics, University of Texas at Austin, Austin, TX*

9:06

AG-02. Mechanism Of Spin Current Transfer Through Antiferromagnetic Dielectrics. *(Invited)* R. Khymyn[1], B. Ivanov[2], I. Lisenkov[1,3], V. Tyberkevych[1] and *A.N. Slavin*[1] *1. Physics, Oakland University, Rochester Hills, MI; 2. Institute of Magnetism,NASU and MESYSU, Kiev, Ukraine; 3. Kotelnikov Institute of Radio-Engineering and Electronics of RAS, Moscow, Russian Federation*

9:42

AG-03. Anti-damping spin transfer torque through epitaxial Nickel oxide. *T. Moriyama*[1], S. Takei[2], M. Nagata[1], Y. Yoshimura[1], N. Matsuzaki[1], T. Terashima[1], Y. Tserkovnyak[2] and T. Ono[1] *1. Kyoto Univ, Uji, Kyoto, Japan; 2. University of California, Los Angeles, CA*

9:54

AG-04. Inverse spin Hall effect in Cr: independence of antiferromagnetic ordering. *D. Qu*[1], S. Huang[2] and C. Chien[1] *1. Department of Physics and Astronomy, Johns Hopkins University, Baltimore, MD; 2. Department of Physics, National Taiwan University, Taipei, Taiwan*

10:06

AG-05. Supercurrent Induced Spin Accumulation on Superconductors with Spin Orbit Interaction. *L. Liu*[2,1], H. Chen[3], C. Chen[2] and A.H. MacDonald[3] *1. MIT, Cambridge, MA; 2. IBM TJ Watson Research Center, Yorktown Heights, NY; 3. University of Texas, Austin, TX*

10:18

AG-06. Direct Electrical Detection of Spin-Momentum Locking in a p-type Intrinsic Topological Insulator Sb_2Te_3. *C.H. Li*[1], O. van't Erve[1], Y. Li[2], L. Li[2] and B.T. Jonker[1] *1. Materials Science and Technology Division, Naval Research Lab, Washington, DC; 2. Physics, University of Wisconsin, Milwaukee, WI*

10:30

AG-07. Additional Spin-Orbit Effective Fields Generated from Rare Earth Metals. *K. Ueda*[1], A. Tan[1], M. Mann[1] and G. Beach[1] *1. Massachusetts Institute of Technology, Cambridge, MA*

10:42

AG-08. Magnetization dynamics in LSMO/Pt nanowires in the presence of spin Hall torques. *H. Lee*[1], I. Barsukov[1], C.J. Safranski[1], A.A. Jara[1], L. Yang[1], A. Swartz[2], B. Kim[2], H. Hwang[2,3] and I. Krivorotov[1] *1. Physics and Astronomy, University of California, Irvine, Irvine, CA; 2. GLAM, Stanford University, Stanford, CA; 3. SLAC National Accelerator Laboratory, Menlo Park, CA*

10:54

AG-09. Enhancement of spin-orbital effective field in Tb_xNiFe_{1-x}/Pt bilayers. H. Yuan[1,2], Y. Wang[1,2], J. Wu[2], *Y. Zhai*[1,3], J. Xiao[2], J. Du[3] and H. Zhai[3] *1. Department of physics, Southeast University, Nanjing, China; 2. Department of Physics and Astronomy, University of Delaware, Newark, DE; 3. National Laboratory of Solid State Microstructure, Nanjing University, Nanjing, China*

11:06

AG-10. Efficient spin-to-charge conversion in MoS_2 monolayer from spin pumping. C. Cheng[1,2], J. Rojas Sanchez[1], M. Collet[1], V. Ivanovskaya[1], B. Dlubak[1], P. Seneor[1], H. Kim[3,4], G. Han[3], Y. Lee[3,4], H. Yang[4] and *A. Anane*[1] *1. Unite Mixte de Physique CNRS/Thales and Universite Paris Sud, Palaiseau, France; 2. Department of Information Science and Electronic Engineering, Zhejiang University, Hangzhou, China; 3. IBS Center for Integrated Nanostructure Physics (CINAP), Institute for Basic Science, Sungkyunkwan University, Suwon, The Republic of Korea; 4. Department of Energy Science, Sungkyunkwan University, Suwon, The Republic of Korea*

11:18

AG-11. Strong Interface Exchange Field and Zeeman Spin-Hall Effect in Graphene/EuS Heterostructures. P. Wei[2], S. Lee[3,1], F. Lemaitre[1,4], L. Pinel[1,5], D. Cutaia[6,1], W. Cha[3], J. Moodera[2] and *C. Chen*[1] *1. IBM Thomas J Watson Research Center, Yorktown Heights, NY; 2. MIT Francis Bitter National Magnet Laboratory, Cambridge, MA; 3. Columbia University, New York, NY; 4. Technische Universiteit Eindhoven, Eindhoven, Netherlands; 5. Grenoble Institute of Technology, Grenoble, France; 6. IBM Zurich Research Laboratory, Zurich, Switzerland*

TUESDAY
MORNING
8:30

AQUA SALON EF

Session AH
HARD TRANSITION METAL INTERMETALLICS
Luke Marshall, Chair
Northeastern University, Boston, MA

8:30

AH-01. Structure and chemistry of grain boundary phase in a Nd-rich Ga-doped Nd-Fe-B sintered magnets. *T. Sasaki*[1,2], T. Ohkubo[1,2], Y. Takada[3], T. Sato[3], A. Kato[4], Y. Kaneko[3] and K. Hono[1,2] *1. Elements Strategy Initiative Center for Magnetic Materials, National Institute for Materials Science, Tsukuba, Ibaraki, Japan; 2. JST-CREST, Tsukuba, Ibaraki, Japan; 3. Toyota Central R&D Labs., Inc., Nagakute, Aichi, Japan; 4. Advanced Material Engineering Div., Toyota Motor Corp., Susono, Shizuoka, Japan*

8:42

AH-02. Ce, Co co-doped Nd-Fe-B high performance permanent magnets. *A. Pathak*[1], K.A. Gschneidner[1,2], M.U. Khan[1], R.W. McCallum[1] and V. Pecharsky[1,2] *1. Ames Laboratory, USDOE, Ames, IA; 2. Materials Science and Engineering, Iowa State University, Ames, IA*

8:54

AH-03. Substitution of Nd with other rare earth elements in melt-spun $Nd_2Fe_{14}B$. *D. Brown*[1] and D. Lau[1] *1. R&D, Magnequench, Singapore, Singapore*

9:06

AH-04. Magnetocrystalline anisotropy of $(Nd,Ce)_2(Fe,Co)_{14}B$ single crystals. *K.P. Skokov*[1], B. Fayyazi[1], C.A. Schwöbel[1] and O. Gutfleisch[1] *1. Functional Materials, TU Darmstadt, Darmstadt, Germany*

9:18

AH-05. Structural and magnetic properties of Cu-doped Nd-Fe-B magnets studied by first-principles calculations. *Y. Tatetsu*[1], S. Tsuneyuki[1,3] and Y. Gohda[1,2] *1. Department of Physics, ESICMM, The University of Tokyo, Tokyo, Japan; 2. Department of Materials Science and Engineering, Tokyo Institute of Technology, Yokohama, Japan; 3. Institute for Solid State Physics, The University of Tokyo, Kashiwa, Japan*

9:30

AH-06. Coercivity enhancement in Ce-Fe-B based core-shell magnets by Nd-Cu infiltration. *M. Ito*[1,2], M. Yano[1], N. Sakuma[1], H. Kishimoto[1], A. Manabe[1], T. Shoji[1], A. Kato[1], N. Dempsey[2,3] and D. Givord[2,3] *1. Toyota Motor Corperation, Grenoble, France; 2. CNRS, Institut Néel, Grenoble, France; 3. Univ. Grenoble, Grenoble, France*

9:42

AH-07. Low-Cost $Ce_{1-x}Sm_x(Fe,Co,Ti)_{12}$ Alloys for Permanent Magnets. *A. Gabay*[1], A. Martín-Cid[2], J. Barandiaran[2,3], D. Salazar[2] and G.C. Hadjipanayis[1] *1. Department of Physics and Astronomy, University of Delaware, Newark, DE; 2. Basque Center for Materials, Applications and Nanostructures, Derio, Spain; 3. Department of Electricity and Electronics, University of the Basque Country (UPV/EHU), Bilbao, Spain*

9:54

AH-08. Exchange coupling between soft magnetic ferrite and hard ferromagnetic $Sm_2Fe_{17}N_3$ in ferrite/$Sm_2Fe_{17}N_3$ composites. *N. Imaoka*[1,2], K. Ozaki[1], M. Tada[3], T. Nakagawa[4] and M. Abe[3] *1. Advanced Industrial Science and Technology (AIST), Nagoya, Japan; 2. Asahi Kasei Corporation, Fuji, Japan; 3. Tokyo Institute of Technology, Tokyo, Japan; 4. Osaka University, Suita, Japan*

10:06

AH-09. Magnetic properties, phase formation and microstructures of rapid solidified Hf-Co alloys. *M. Wang*[1], M. Koten[1] and J. Shield[1] *1. Mechanical and Materials Engineering, University of Nebraska - Lincoln, Lincoln, NE*

10:18

AH-10. Effect of Ni and Cu Ternary Additions on the Magnetic and Structural Character of FePd. *A. Montes-Arango*[1], K. Barmak[2] and L. Lewis[1,3] *1. Mechanical and Industrial Engineering, Northeastern University, Boston, MA; 2. Applied Physics and Applied Mathematics, Columbia University, New York, NY; 3. Chemical Engineering, Northeastern University, Boston, MA*

10:30

AH-11. Experimental investigation of off-stoichiometry and 3*d*-metal (Mn, Ni, Cu)-substitution in epitaxial FePt thin films. *T. Ono*[1,2], H. Nakata[1,2], T. Moriya[1,2], N. Kikuchi[3], S. Okamoto[3], O. Kitakami[3] and T. Shimatsu[2,4] *1. Fuji Electric Co., Ltd., Sendai, Miyagi, Japan; 2. FRIS, Tohoku University, Sendai, Miyagi, Japan; 3. IMRAM, Tohoku University, Sendai, Miyagi, Japan; 4. RIEC, Tohoku University, Sendai, Miyagi, Japan*

10:42

AH-12. Effect of Ti Content on Microstructure and Magnetic Properties of alnico 8-type Magnet Alloys. *W. Tang*[1], L. Zhou[1], A. Palasyuk[1], L. Ke[1], K. Dennis[1], M.J. Kramer[1], R.W. McCallum[1] and I.E. Anderson[1] *1. Ames Lab of USDOE, Ames, IA*

10:54

AH-13. Microscopic Characterization of Cu-Ni-rich Bridges in Alnico Alloys. *M. Fan*[1], Y. Liu[1,2], R. Jha[3], G.S. Dulikravich[3], J. Schwartz[1] and C.C. Koch[1] *1. Materials Science and Engineering, North Carolina State University, Raleigh, NC; 2. Analytical Instrumentation Facility, North Carolina State University, Raleigh, NC; 3. Mechanical and Materials Engineering, Florida International University, Miami, FL*

11:06

AH-14. Potential of $NdFe_{12}N_x$ based permanent magnets. *J. Fischbacher*[1], T. Schrefl[1], S. Bance[2], G. Hrkac[3], R. Chantrell[4], S. Westmoreland[4], R.F. Evans[4], G. Zimanyi[5], M. Winklhofer[6], M. Yano[7], N. Sakuma[7], M. Ito[7], A. Kato[7] and A. Manabe[7] *1. Center for Integrated Sensor Systems, Danube University Krems, Wiener Neustadt, Austria; 2. St. Poelten University of Applied Sciences, St. Poelten, Austria; 3. CEMPS, University of Exeter, Exeter, United Kingdom; 4. Department of Physics, The University of York, York, United Kingdom; 5. Department of Physics and Astronomy, UC Davis, Davis, CA; 6. Fakultät für Physik, Universität Duisburg-Essen, Duisburg, Germany; 7. Toyota Motor Corp., Toyota City, Japan*

11:18

AH-15. Influence of element substitution on the stabilization of $ThMn_{12}$-type $(Nd_{0.7}Zr_{0.3})$-$(Fe_{0.75}Co_{0.25})_{11.5}$-$Ti_{0.5}$-$N_x$ powder. *N. Sakuma*[1,2], S. Suzuki[3], T. Kuno[3], K. Urushibata[3], K. Kobayashi[3], M. Yano[1,2], A. Kato[1,2] and A. Manabe[2] *1. Toyota Motor Corporation, 1200 Mishuku, Susono, Shizuoka, Japan; 2. Technology Research Association of Magnetic Materials for High-Efficiency Motors (MagHEM)) Higashi-fuji-Branch, 1200 Mishuku, Susono, Shizuoka, Japan; 3. Shizuoka Institute of Science and Technology, 2200-2 Toyosawa, Fukuroi, Shizuoka, Japan*

TUESDAY MORNING 8:30 — AQUA 300

Session AJ

MAGNETIC FIELD SENSORS, HIGH FREQUENCY DEVICES AND MAGNETO-IMPENDANCE

Jen-Yuan (James) Chang, Chair
National Tsing Hua University, Hsinchu, Taiwan

8:30

AJ-01. Integrated Magnetics and Multiferroics for Compact and Power Efficient Sensing, Memory, RF and Microwave Electronics. ***(Invited)*** *N.X. Sun*[1] *1. W.M. Keck Laboratory for Integrated Ferroics, and ECE Dept, Northeastern University, Boston, MA*

9:06

AJ-02. Magnetic sensor based on magnetic tunnel junctions with in-plane magnetized CoFeB sensing layer and out-of-plane magnetized [Co/Pd]-based reference layer. *T. Nakano*[1], M. Oogane[1], T. Furuichi[2], K. Ao[2], H. Naganuma[1] and Y. Ando[1] *1. Department of Applied Physics, Tohoku University, Sendai, Miyagi, Japan; 2. DENSO Corporation., Kariya, Aichi, Japan*

9:18

AJ-03. Ultrahigh Sensitivity of Anomalous Hall Effect Sensor Based on Cr-doped Bi_2Te_3 Topological Insulator Thin Films. *Y. Ni*[1*], Z. Zhang[1], C.I. Nlebedim[2,1], R.L. Hadimani[1] and D.C. Jiles[1] *1. Department of Electrical and Computer Engineering, Iowa State Univeristy, Ames, IA; 2. U.S. Department of Energy, The Ames Laboratory, Ames, IA*

9:30

AJ-04. Wide-range magnetic field sensor based on magnetic tunnel junction. *X. Yin*[1,2], Y. Yang[1,2], Y. Liu[1,2], D.J. Sellmyer[1,2] and S. Liou[1,2] *1. Physics, University of Nebraska - Lincoln, Lincoln, NE; 2. Nebraska Center for Materials and Nanoscience, Lincoln, NE*

9:42

AJ-05. Improvement of Fluxgate Gradiometer Detection of Magnetic Nanoparticles Using a Shielding Permalloy Disk. *A.L. Elrefai*[1], I. Sasada[1] and T. Yoshida[2] *1. Applied Science for Electronics and Materials, Kyushu University, Fukuoka, Japan; 2. Electrical and Electronic Engineering, Kyushu University, Fukuoka, Japan*

9:54

AJ-06. Post Processed Thin Film GMI Magnetic Sensors. *S. Nazari Nejad*[1] and R. Mansour[1] *1. University of Waterloo, Waterloo, ON, Canada*

10:06

AJ-07. Analysis on Magnetostrictive/Quartz Composite Resonator Magnetic Sensor. C. Chen[1], *Y. Wen*[1] and P. Li[1] *1. Research Center of Sensors and Instruments, College of Optoelectronic Engineering, Chongqing University, Chongqing, China*

10:18

AJ-08. Perspectives of magneto-plasmonic metamaterials. *(Invited)* *P. Vavassori*[1,2] *1. CIC nanoGUNE Consolider, San Sebastian, Guipuzcoa, Spain; 2. IKERBASQUE - Basque Science Foundation, Bilbao, Spain*

10:54

AJ-09. Enhancing ferromagnetic resonance absorption for very thin insulating magnetic films with spin plasmonics. *S. Chui*[1] *1. Department of Physics and Astronomy, Univ Delaware, Newark, DE*

11:06

AJ-10. Fast and On-line Demagnetization Method for a Protection Current Transformer. *T. Zheng*[1], E. Hu[1], H. Yang[1], R. Zhao[1], Y. Kang[2] and V. Terzija[3] *1. College of Electrical Engineering, Zhejiang University, Hangzhou, Zhejiang Province, China; 2. Chonbuk National University, Chonju, Chonbuk, The Republic of Korea; 3. University of Manchester, Manchester, United Kingdom*

11:18

AJ-11. RFID strain sensor based on Villari effect taking advantage of GMR for passive operation. *R. Windl*[1], F. Bruckner[1], C. Abert[1], C. Vogler[3], T. Huber[3], A. Satz[2] and D. Suess[1] *1. Institute of Solid State Physics, CD-Labor: Advanced Magnetic Sensing and Materials, TU Wien, Vienna, Austria; 2. Infineon Technologies Austria AG, Villach, Austria; 3. Institute of Solid State Physics, TU Wien, Vienna, Austria*

Session AP
MULTIFERROIC OXIDES AND COMPOSITES (Poster Session)

Wenbo Mi, Chair
Tianjin University, Tianjin, China

AP-01. $Mn_{1-x}Co_xWO_4$: x = 0.135 and x = 0.15: A study of the multiferroic state under high pressure. *M.J. Gooch*[1], N. Poudel[1], K. Liang[1], J. Wang[2], F. Ye[2], J. Fernandez-Baca[2,3] and C. Chu[1,4] *1. University of Houston, Houston, TX; 2. Oak Ridge National Lab, Oak Ridge, TN; 3. Physics and Astronomy, The University of Tennessee, Knoxville, TN; 4. Lawrence Berkeley National Lab, Berkeley, CA*

AP-02. Spin reorientation in a novel disordered double perovskite $NdFe_{0.5}Cr_{0.5}O_3$. *M. Sharannia*[1], S. De[1], R. Nirmala[1], R. Singh[2], A. Das[2] and P. Santhosh[1] *1. Department of Physics, Indian Institute of Technology Madras, Chennai, India; 2. Solid State Physics Division, Bhabha Atomic Research Centre, Mumbai, India*

AP-03. The Effects of Multiple Anisotropy Axes on Magneto-Electric Coupling in Multiferroic Composites. S. Bourn[1], *T. Mercer*[1,2], P. Bissell[1], S. Lepadatu[1] and M. Vopson[3] *1. Jeremiah Horrocks Institute for Mathematics, Physics & Astrophysics, University of Central Lancashire, Preston, United Kingdom; 2. Department of Physics, University of Liverpool, Liverpool, United Kingdom; 3. Faculty of Science, University of Portsmouth, Portsmouth, United Kingdom*

AP-04. Doping dependent magnetism and exchange bias in $CaMn_{1-x}Nb_xO_3$. *V. Markovich*[1], I. Fita[2], A. Wisniewski[2], R. Puzniak[2], C. Martin[3], D. Mogilyansky[4], G. Jung[1,2] and G. Gorodetsky[1] *1. Physics, Ben-Gurion University of the Negev, Beer-Sheva, Israel; 2. Institute of Physics, Polish Academy of Sciences, Warsaw, Poland; 3. Laboratoire CRISMAT, UMR 6508, ISMRA, Caen, France; 4. The Ilse Katz Institute for Nanoscale Science and Technology, Ben-Gurion University of the Negev, Beer-Sheva, Israel*

AP-05. Voltage Induced Switching from Parallel to Antiparallel Magnetization Ordering in Artificial Multiferroics. *A.C. Chavez*[1], W. Sun[1], J. Atulasimha[2] and G. Carman[1] *1. Department of Mechanical and Aerospace Engineering, University of California, Los Angeles, Los Angeles, CA; 2. Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA*

AP-06. DRIE Inducing Giant Electric Field Tunability of Magnetism and Narrow Linewidth in FeCoSiB/PMN-PT Multiferroic Laminates. *Y. Gao*[1], L. Xie[1], X. Wang[1] and N.X. Sun[1] *1. Northeastern University, Northeastern University, Boston, MA*

AP-07. Electric and Magnetic Study of $BaFe_{12}O_{19}$(BaM)-$Na_{0.5}Bi_{0.5}TiO_3$ (NBT) 0-3 type Magneto-Electric Composite Systems. *R. Pattanayak*[1], B. Samantaray[2], R. Muduli[1], A.K. Biswal[1], R.K. Panda[1], S. Panigrahi[1] and P.N. Vishwakarma[1] *1. Physics, National Institute of Technology, Rourkela, Rourkela, Odisha, India; 2. Condensed Matter Physics Division, Saha Institute of Nuclear Physics, Kolkata - 700064, West Bengal, India*

AP-08. Enhanced coercivity and tunable exchange bias in Gd and Ti co-doped $BiFeO_3$ multiferroics. *M.A. Basith*[1], A. Billah[1], Z. Islam[1] and B. Ahmmad[2] *1. Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh; 2. Graduate School of Science and Engineering, Yamagata University, Yonezawa, Japan*

AP-09. Magnetism in Epitaxial $PrCoO_3$ and Y-doped $PrCoO_3$ Thin Films. *T. Sanders*[1,2], V.V. Mehta[3], C. Flint[4,2], U.S. Alaan[4,2], E. Arenholz[5], A.T. N'Diaye[5], P. Shafer[5] and Y. Suzuki[1,2] *1. Applied Physics, Stanford University, Stanford, CA; 2. Geballe Laboratory for Advanced Materials, Stanford University, Stanford, CA; 3. Research, HGST, A Western Digital Company, San Jose, CA; 4. Materials Science & Engineering, Stanford University, Stanford, CA; 5. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA*

AP-10. Toward Magnetism in a Transparent Conducting Perovskite. *U.S. Alaan*[1,2], A.T. N'Diaye[3], P. Shafer[3], E. Arenholz[3] and Y. Suzuki[1,4] *1. Geballe Laboratory for Advanced Materials, Stanford University, Stanford, CA; 2. Materials Science and Engineering, Stanford University, Stanford, CA; 3. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA; 4. Applied Physics, Stanford University, Stanford, CA*

AP-11. Magnetic field dependence of dielectric constant and resistivity in $Eu_{0.98}Ba_{0.02}TiO_3$ *K. Rubi*[1] and R. Mahendiran[1] *1. Physics, National University of Singapore, West Singapore, Singapore*

AP-12. 3D Atomic structure of antiphase boundary defects and their properties in thin (111) textured thin films of Fe_3O_4. *V. Lazarov*[1], D. Gilks[1], Z. Nedelkovski[1], R.F. Evans[1] and K. McKenna[1] *1. Physics, University of York, York, United Kingdom*

AP-13. Magnetic entropy evolution near multiferroic transition in bulk $FeVO_4$. *A. Dixit*[1,2], B. Tiwari[3], R. Balakrishanan[4] and G. Lawes[5] *1. Department of Physics, Indian Institute of Technology Jodhpur, Jodhpur, Rajasthan, India; 2. Center for Solar Energy, Indian Institute of Technology Jodhpur, Jodhpur, Rajasthan, India; 3. Applied Physics Department, Sardar Vallbhbhai National Institute of Technology, Surat, Gujrat, India; 4. Department of Physics, National Dong Hwa University, Hualien, Taiwan; 5. Department of Physics and Astronomy, Wayne State University, Detroit, MI*

AP-14. Tunable electromagnetic and microwave absorption properties of Co_2Z hexaferrite/P(VDF-TrFE) composites. *X. Wang*[1], K. Song[1], H. Luo[1], S. Yan[1] and R. Gong[1] *1. School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan, Hubei, China*

Session AQ
SUPERCONDUCTVITY AND LOW DIMENSIONAL SYSTEMS (Poster Session)

Nikoleta Theodoropoulou, Chair
Texas State University, San Marcos, TX

AQ-01. Observation of the competing magnetic torque forces in dia- and strong-magnetic thin film conjugate at 300 mT. *M. Iwasaka*[1] and H. Asada[2] *1. Research Institute for Nanodevice and Bio Sytems, Hiroshima University, Higashi-Hiroshima, Japan; 2. Yamaguchi University, Ube, Japan*

AQ-02. Withdrawn

AQ-03. Dependence of epitaxial growth and property of $FeSe_{0.5}Te_{0.5}$ superconducting thin film on the thickness of CeO_2 buffer layer. S. Chen[1], T. Wang[3] and *Z. Xing*[1,2] *1. Dept. of Materials Science and Engineering, Nanjing University, Nanjing, Jiangsu, China; 2. National Laboratory of Solid State Microstructures, Nanjing University, Nanjing, Jiangsu, China; 3. Mathematics, Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu, China*

AQ-04. Evolution of the normal-to-magnetically ordered state in transition metal substituted $BaFe_2As_2$: a microscopic point of view. G.G. Lesseux[1], T.M. Garitezi[1], *M.M. Piva*[1], P.F. Rosa[1,2], D. Tobia[1], M. Saleta[1], E. Granado[1], P. Kuhns[3], A. Reyes[3], X. Wang[4], T. Grant[2], Z. Fisk[2], C. Adriano[1], R.M. Fernandes[4], P. Pagliuso[1] and R.R. Urbano[1] *1. IFGW - Universidade de Campinas, Campinas, São Paulo, Brazil; 2. University of California, Irvine, CA; 3. National High Magnetic Field Laboratory, Tallahassee, FL; 4. School of Physics and Astronomy, University of Minnesota, Minneapolis, MN*

AQ-05. Unconventional superconductivity in $Y_5Rh_6Sn_{18}$ probed by muon spin relaxation. *A. Bhattacharyya*[3,1], D. Adroja[3,1], N. Kase[2], A. Hillier[3], J. Akimitsu[2] and A.M. Strydom[1] *1. Highly Correlated Matter Research Group, Physics Department, University of Johannesburg, PO Box 524, Auckland Park 2006, South Africa, Johannesburg, South Africa; 2. Department of Physics and Mathematics, Aoyama-Gakuin University, Fuchinobe 5-10-1, Sagamihara, Kanagawa 252-5258, Japan, Sagamihara, Kanagawa, Japan; 3. ISIS Facility, Rutherford Appleton Laboratory, Chilton, Didcot Oxon, OX11 0QX, UK, Didcot, United Kingdom*

AQ-06. Superconducting properties of ferromagnetic lithiated iron selenide hydroxides. *C. Urban*[1], A.C. Basaran[1], U. Pachmayr[2], D. Johrendt[2] and I.K. Schuller[1] *1. Physics, UCSD, San Diego, CA; 2. Chemistry, Ludwig-Maximilians-Universitaet Muenchen, Munich, Germany*

AQ-07. Pseudogap and kinetic energy of unconventional superconductivity in the two-dimensional Hubbard model. E.J. Calegari[2], A.C. Lausmann[2], S.G. Magalhães[3], C.M. Chaves[1] and *A. Troper*[1] *1. Centro Brasileiro de Pesquisas Fisicas, Rio de Janeiro, Brazil; 2. Universidade de Santa Maria, Santa Maria, RS, Brazil; 3. UFF, Niteroi, Brazil*

AQ-08. Withdrawn

AQ-09. Ferrimagnetism of Ti-adsorbed graphene. Z. Qin[1], M. Feng[2] and *X. Zuo*[1] *1. College of Electronic Information and Optical Engineering, Nankai University, Tianjin, China; 2. School of Physics, Nankai University, Tianjin, Tianjin, China*

AQ-10. Magnetic Hyperfine Field at ^{119}Sn and ^{111}Cd probes in Gd_5Ge_4 Studied by Mössbauer and PAC Spectroscopy. *V. Krylov*[1,2], B. Bosch-Santos[1], G. Cabrera-Pasca[1], A.W. Carbonari[1], J. Mestnik-Filho[1] and O.F. Leite Neto[1] *1. CRPq, IPEN-CNEN/SP, Sao Paulo, Sao Paulo, Brazil; 2. Skobeltsyn Institute of Nuclear Physics, Moscow State University, Moscow, Russian Federation*

AQ-11. Comparison with Ground States of Frustrated Quantum Spin Chain Systems $A_2Cu_2Mo_3O_{12}$ (A=Rb and Cs). *A. Fujimura*[1], Y. Yasui[1], Y. Yanagisawa[2], I. Terasaki[2], Y. Kono[3], S. Kittaka[3] and T. Sakakibara[3] *1. Physics, Meiji University, Kawasaki, Kanagawa, Japan; 2. Physics, Nagoya University, Nagoya, Aichi, Japan; 3. Institute Solid of Physics, the University of Tokyo, Kashiwa, Chiba, Japan*

AQ-12. Magnetic Properties and Crystal Structure of Honeycomb Lattice System $Li_3Ni_2SbO_6$. *A. Fukui*[1], Y. Yasui[1], N. Igawa[2], T. Matsukawa[3], Y. Yoshida[3], A. Hoshikawa[3] and T. Ishigaki[3] *1. Meiji University, Kawasaki, Kanagawa, Japan; 2. Quantum Beam Science Center, Japan Atomic Energy Agency, Tokai, Ibaraki, Japan; 3. Frontier Research Center for Applied Atomic Sciences, Ibaraki University, Tokai, Ibaraki, Japan*

AQ-13. Magnetic Structure of Li_2ZrCuO_4 with Quasi-one-dimensional J_1-J_2 Magnet. *Y. Yasui*[1], N. Igawa[2] and K. Kakurai[2] *1. Physics, Meiji University, Kawasaki, Japan; 2. Quantum Beam Science Center, Japan Atomic Energy Agency, Ibaraki, Japan*

AQ-14. Magnetization curves and susceptibility of GaN:Mn films containing Mn^{3+} ions. *M. Marysko*[1], Z. Sofer[2], V. Laguta[3], D. Sedmidubsky[4], J. Hejtmanek[3], K. Jurek[3], J. Stejskal[4], P. Malinsky[5], A. Mackova[5,6], P. Simek[4], O. Jankovsky[2], M. Vaclavu[10], M. Mikulics[7,8] and H. Hardtdegen[9] *1. Institute of Physics ASCR, Praha 6, Czech Republic; 2. Dep. of Inorganic Chemistry, Inst. of Chem. Technology, Prague 6, Prague, Czech Republic; 3. Inst. of Physics, ASCR, Prague, Prague, Czech Republic; 4. Dep. of Inorganic Chemistry, Inst. of Chem. Technology, Prague 6, Prague, Czech Republic; 5. Nuclear Physics Inst. ASCR, Rez, Rez u Prahy, Czech Republic; 6. Dep. of Physics, Faculty of Science J.E. Purkinje, Usti nad Labem, Czech Republic; 7. Peter Grunberg Inst. (PGI-9), Julich, Julich, Germany; 8. JARA, Fundamental of Future Information Technology, Julich, Germany; 9. Forschungszentrum Julich, Institute of Bio-Nanosystems, Julich, Germany; 10. Faculty of Mathematics and Physics, UK, Prague, Czech Republic*

Session AR
RARE-EARTH TRANSITION METAL BORIDES AND INTERMETALLICS I (Poster Session)
Tadakatsu Ohkubo, Chair
NIMS, Tsukuba, Japan

AR-01. Coercivity Enhancement of Hot-deformed Nd–Fe–B Magnets by Grain Boundary Diffusion without Heavy Rare Earth Alloys. *K. Hioki*[1], T. Akiya[1], A. Hattori[1], H. Sepehri Amin[2], T. Ohkubo[2], T. Iriyama[1] and K. Hono[2] *1. Daido Steel Co., Ltd., Nagoya, Japan; 2. National Institute of Material Science, Tsukuba, Japan*

AR-02. Coercivity enhancement mechanism of Tb-diffusion Nd-Fe-B sintered magnets studied by Magneto-optical Kerr effect microscope. *D. Wu*[1], W. Liu[1], M. Yue[1], Q. Wu[1], D. Zhang[1] and Q. Lu[1] *1. Beijing University Of Technology, Beijing, China*

AR-03. Crystallographic Alignment during Recombination Stage in *d*-HDDR Process of Nd-Fe-B-Ga-Nb Powders. *T. Horikawa*[1], M. Matsuura[1], S. Sugimoto[1], M. Yamazaki[2] and C. Mishima[2] *1. Department of Materials Science, Graduate School of Engineering, Tohoku University, Sendai, Miyagi, Japan; 2. Advanced and High Functional Products Development Division, Aichi Steel Corporation, Seki, Gifu, Japan*

AR-04. Analysis of Thermal Demagnetization Behavior of Nd–Fe–B Sintered Magnets Using Magnetic Domain Observation. M. Takezawa[1], *S. Ikeda*[1], Y. Morimoto[1] and H. Kabashima[2] *1. Kyusyu Institute of Technology, Kitakyushu, Japan; 2. Mazda Motor Corporation, Hiroshima, Japan*

AR-05. Temperature dependence of magnetic volume fraction in $Ce_2Fe_{14}B$-based core-shell magnets determined with muon spin rotation and relaxation measurements. *H. Nozaki*[1], M. Yano[2], I. Umegaki[1], Y. Higuchi[1], M. Ito[2], A. Kato[2], A. Manabe[2], G. Morris[3], B. Hitti[3], D. Arseneau[3] and J. Sugiyama[1] *1. Materials Analysis Evaluation Dept., Toyota Central R&D Labs., Inc., Nagakute, Aichi, Japan; 2. Toyota Motor Corporation, Susono, Shizuoka, Japan; 3. TRIUMF, Vancouver, BC, Canada*

AR-06. Influence of precursor's shape and size on their reduced Sm_2Fe_{17} particles in reduction-diffusion method. *S. Okada*[1], K. Takagi[1] and K. Ozaki[1] *1. Department of Materials and Chemistry Inorganic Functional Materials Research Institute, National Institute of Advanced Industrial Science and Technology, Nagoya, Aichi, Japan*

AR-07. Remanence Properties and Reversible-irreversible Magnetization in Sm-Fe Ribbons. *M.C. Grijalva Castillo*[1], C.R. Santillán-Rodríguez[1], M.E. Botello[1], F.J. Rivera-Gómez[1] and J.A. Matutes-Aquino[1] *1. Física de Materiales, Centro de Investigación en Materiales Avanzados, S.C., Chihuahua, Chihuahua, Mexico*

AR-08. Understanding and Tailoring of $SmCo_5$ from Theoretical Calculations. *D. Paudyal*[1] and K. Gschneidner, Jr.[1,2] *1. The Ames Laboratory, U. S. Department of Energy, Iowa State University, Ames, IA; 2. Department of Materials Science and Engineering, Iowa State University, Ames, IA*

AR-09. Mapping the magnetic hyperfine field in $GdCo_5$. V. Krylov[1,2], B. Bosch-Santos[1], G. Cabrera-Pasca[1], N.N. Delyagin[2] and *A.W. Carbonari*[1] *1. CRPq, IPEN-CNEN/SP, Sao Paulo, Sao Paulo, Brazil; 2. Skobeltsyn Institute of Nuclear Physics, Moscow State University, Moscow, Russian Federation*

AR-10. ^{119}Sn Mössbauer Spectroscopy Study of RCo_5 (R=Pr, Nd, Sm, Gd–Tm, and Y) Compounds. *V. Krylov*[1] *1. Skobeltsyn Institute of Nuclear Physics, Moscow State University, Moscow, Russian Federation*

AR-11. Magnetocrystalline Anisotropy of La_2Co_7 and YCo_5 Single Crystals: Comparison of Different Approaches. *C.A. Schwöbel*[1], K.P. Skokov[1], I.A. Radulov[1], M.D. Kuzmin[2] and O. Gutfleisch[1] *1. FG Funktionale Materialien, Materialwissenschaft, TU Darmstadt, Darmstadt, Germany; 2. IM2NP, Aix-Marseille Université, Marseille, France*

AR-12. Coercivity analysis of the $Nd_2Fe_{14}B$/Nd thin films. *K. Koike*[1], T. Kusano[1], D. Ogawa[1], K. Kobayashi[1], H. Kato[1], T. Miyazaki[2], M. Oogane[2], Y. Ando[2] and M. Itakura[3] *1. Applied Mathematics and Physics, Yamagata University, Yonezawa, Yamagata, Japan; 2. Tohoku University, Sendai, Japan; 3. Kyushu University, Fukuoka, Japan*

AR-13. Changes of magnetic properties of $Nd_6(Fe, M)_{14}$ films by additive elements. *T. Sato*[1], Y. Takada[1], T. Sasaki[2], T. Ohkubo[2], K. Hono[2], A. Kato[3] and Y. Kaneko[1] *1. Toyota Central R&D Labs., Inc., Nagakute, Aichi, Japan; 2. National Institute for Materials Science, Tsukuba, Japan; 3. Toyota Motor Corporation, Susono, Japan*

AR-14. A new class of rare-earth-free permanent magnets. *G. Franceschin*[1], T. Gaudisson[1], N. Menguy[2,1], R. Valenzuela[3], F. Mazaleyrat[4] and S. Ammar[1] *1. ITODYS, Université Paris 7 Diderot, Paris, France; 2. IMCPMC, Université Pierre et Marie Curie, Paris, France; 3. IIM, Universidad Nacional Autonoma de Mexico, Mexico City, Mexico; 4. SATIE, ENS Cachan, Cachan, France*

Session AS
DYNAMICS AND MAGNETIC SYSTEMS (Poster Session)

Dorin Cimpoesu, Chair
Alexandru Ioan Cuza University of Iasi, Iasi, Romania

AS-01. Quantitative Effect of Cell Size on Precision of Micromagnetic Energy Calculation. *M.J. Donahue*[1] and D.G. Porter[1] *1. ITL, NIST, Gaithersburg, MD*

AS-02. Susceptibility analysis of Preisach systems and its applications to inverse modeling and hysteretic compensation. *P. Andrei*[1] and M. Dimian[2,3] *1. Florida State University, Tallahassee, FL; 2. Department of Electrical & Computer Engineering, Howard University, Washington D.C., DC; 3. Department of Computers, Electronics & Automation, Stefan cel Mare University, Suceava, Romania*

AS-03. Vector magnetization of a uniaxial particle. E. Della Torre[2], *A. Jamali*[2], H. ElBidweihy[1] and L. Bennett[2] *1. Department of Electrical and Computer Engineering, United States Naval Academy, Annapolis, MD; 2. Electrical and Computer Engineering, The George Washington University, Washington, DC*

AS-04. Analysis of noise induced switching and resonance in mixed hysteretic system. M. Dimian[2,3], *P. Andrei*[1], M. Mehta[1] and O. Idubor[2] *1. Florida State University, Tallahassee, FL; 2. Department of Electrical & Computer Engineering, Howard University, Washington D.C., DC; 3. Department of Computers, Electronics & Automation, Stefan cel Mare University, Suceava, Romania*

AS-05. Spin transfer torque in the Stoner-Wohlfarth model in term of dissipative power for magnetic tunnel junctions. *M.P. Lavanant*[1], S. Petit-Watelot[1], A.D. Kent[2] and S. Mangin[1] *1. Institut Jean Lamour, Université de Lorraine, Nancy, Lorraine, France; 2. Department of Physics, New York University, New York City, NY*

AS-06. Highly Parallel Demagnetization Field Calculation Using the Fast Multipole Method on Irregular Meshes. *P. Palmesi*[1], F. Bruckner[1], C. Abert[1] and D. Suess[1] *1. Institute of Solid State Physics, TU Wien, Wien, Wien, Austria*

AS-07. Mechanical Deformation and Body Force Density Due to the Generalized Korteweg-Helmholtz Force Density Method Employing the Virtual Air-gap Scheme. *J. Choi*[1], C. Kwak[1], H. Choi[1], H. Kim[1] and S. Lee[1] *1. Department of Electrical Engineering, Kyungpook National University, Daegu, The Republic of Korea*

AS-08. A Scalar Preisach Model of Magnetic Hysteresis based on a Vectorial Elemental Operator. W. Xu[1,2], N. Duan[1], S. Wang[1], *J. Zhu*[2] and Y. Guo[2] *1. Xi'an Jiaotong University, Xi'an, China; 2. University of Technology, Sydney, Sydney, NSW, Australia*

AS-09. A new skyrmion-based racetrack structure to confine the skyrmions. *P. Lai*[1,2] and G. Zhao[1] *1. SiChuan Normal University, Chengdu, China; 2. Aba Teachers University, Wenchuan, China*

AS-10. Giant vortex mass in thick magnetic nanodots. K. Guslienko[1,2], *G.N. Kakazei*[3,4], J. Ding[3], X. Liu[3] and A. Adeyeye[3] *1. Departamento de Física de Materiales, Universidad del País Vasco UPV/EHU, San Sebastian, Spain; 2. IKERBASQUE, The Basque Foundation for Science, Bilbao, Spain; 3. ISML, Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; 4. IFIMUP-IN/Department of Physics, University of Porto, Porto, Portugal*

AS-11. Modified Thiele Equation with Spin Orbit Torque for Skyrmion Dynamics. I. Purnama[1], S. Wu[1], W. Gan[1] and *W. Lew*[1] *1. Nanyang Technological University, Singapore, Singapore*

AS-12. Is the maze connected?: Numerical simulations for the demagnetized states of magnetic thin films. *K. Iwano*[1], K. Ono[1] and C. Mitsumata[2] *1. IMSS, KEK, Tsukuba, Ibaraki, Japan; 2. NIMS, Tsukuba, Japan*

AS-13. Modeling the Effect of Internal Mechanical Stress State on Dynamic Hysteresis Loops in NO Steel Sheets. S. Steentjes[2], *M. Petrun*[1], D. Dolinar[1] and K. Hameyer[2] *1. FERI, University of Maribor, Maribor, Slovenia; 2. IEM, RWTH Aachen, Aachen, Germany*

AS-14. Experimental detection of azimuthal-like modes of a magnetic antivortex. *G.A. Riley*[1], M. Asmat-Uceda[1], J. Liu[1], A. Haldar[1] and K.S. Buchanan[1] *1. Physics, Colorado State University, Fort Collins, CO*

TUESDAY MORNING 9:30 — SAPPHIRE BALLROOM SOUTH

Session AT
SPIN TORQUE OSCILLATORS (Poster Session)

Xiufeng Han, Chair
Institute of Physics, Beijing, China

AT-01. Efficient synchronization of dipolarly coupled vortex-based spin transfer oscillator. N. Locatelli[1,2], A. Hamadeh[4], F. Abreu Araujo[3], R. Lebrun[1], A.D. Belanovsky[5], V.V. Naletov[4], J. Grollier[1], G. de Loubens[4], K.A. Zvezdin[5], M. Munoz[6], O. Klein[4] and *V. Cros*[1] *1. Unité Mixte de Physique CNRS/Thales, Palaiseau, France; 2. Institut d'Electronique Fondamentale and Univ. Paris-Sud, Orsay, France; 3. Institute of Condensed Matter and Nanosciences, Univ. Catholique de Louvain, Louvain la Neuve, Belgium; 4. SPEC, CNRS UMR 3680, CEA, Gif sur Yvette, France; 5. A. M. Prokhorov General Physics Institute, Moscow, Russian Federation; 6. IMM, CSIC, Madrid, Spain*

AT-02. Control of the mutual synchronized state of spin-torque oscillators driven by self-emitted current. *R. Lebrun*[1], S. Tsunegi[2], P. Bortolotti[1], H. Kubota[2], K. Yakushiji[2], J. Grollier[1], A. Fukushima[2], S. Yuasa[2] and V. Cros[1] *1. UMR CNRS/THALES, Palaiseau, France; 2. National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan*

AT-03. Chaotic states in nanocontact vortex oscillators. T. Devolder[1], D. Rontani[4], S. Petit-Watelot[2], K. Bouzehouane[3], M. Sciamanna[4], V. Cros[3] and *J. Kim*[1] *1. Institut d'Electronique Fondamentale, CNRS/Univ. Paris-Sud, Orsay, France; 2. Institut Jean Lamour, CNRS/Univ. Lorraine, Vandoeuvre-les-Nancy, France; 3. Unité Mixte de Physique, CNRS/Thales & Univ. Paris-Sud, Palaiseau, France; 4. Optics and Electronics Department & Laboratoire Matériaux Optiques, Photoniques et Systèmes, CentraleSupélec, Metz, France*

AT-04. Large quality factor of oscillations in MgO-based magnetic field feedback oscillator. *D. Kumar*[1], K. Konishi[2], S.C. Nikhil[3], S. Miwa[2], A. Fukushima[4], K. Yakushiji[4], S. Yuasa[4], H. Kubota[4], C.V. Tomy[1], A. Prabhakar[3], Y. Suzuki[2] and A. Tulapurkar[5] *1. Department of Physics, Indian Institute of Technology Bombay, Mumbai, India; 2. Graduate School of Enginnering Science, Osaka University, Osaka, Japan; 3. Department of Electrical Engineering, Indian Institute of Technology Madras, Chennai, India; 4. Spintronics Research Centre, National Institute of Advance Industrial Science and Technology (AIST), Ibaraki, Japan; 5. Department of Electrical Engineering, Indian Institute of Technology Bombay, Mumbai, India*

AT-05. Patterned injector MgO tunnel barrier-based spin torque oscillators. *E.R. Evarts*[1], M. Pufall[1] and W. Rippard[1] *1. Spintronics Group, National Institute of Standards and Technology, Boulder, CO*

AT-06. Spin Torque Ferromagnetic Resonance in Heusler based Magnetic Tunnel Junctions. *J. Zhang*[1,2], T. Phung[1], A. Pushp[1], J. Jeong[1], Y. Ferrante[1], C. Rettner[1], B.P. Hughes[1], S. Yang[1] and S.S.P. Parkin[1,3] *1. IBM Almaden Research Center, San Jose, CA; 2. School of Materials Science and Engineering, University of Science & Technology Beijing, Beijing, China; 3. Max Planck Institute for Microstructure Physics, Halle (Saale), Germany*

AT-07. Spin Torque Oscillator Frequency Response to DC Bias Current Ramp. *S. Louis*[1], V. Tyberkevych[1] and A.N. Slavin[1] *1. Physics, Oakland University, Rochester, MI*

AT-08. Zero-field dynamics in MgO-based spin-torque oscillators stabilized by in-plane shape anisotropy. *E. Kowalska*[1,2], V. Sluka[1], C. Fowley[1], Y. Aleksandrov[1,2], H. Cansever[1], J. Lindner[1], J. Fassbender[1,2] and A.M. Deac[1] *1. Helmholtz-Zentrum Dresden - Rossendorf, Dresden, Germany; 2. Institute for Solid State Physics, TU Dresden, Dresden, Germany*

AT-09. Frequency modulation of spin torque nano-oscillators without cutoff frequencies. *A. Purbawati*[2,1], F. Garcia-Sanchez[2,1], L.D. Buda-Prejbeanu[2,1] and U. Ebels[2,1] *1. CEA-INAC / CNRS / SPINTEC, Grenoble, France; 2. Univ. Grenoble Alpes, Grenoble, France*

AT-10. Junction size dependence of millimeter-wave detection by magnetic tunnel junctions with $L1_0$-FePd free layer. *K. Mukaiyama*[1], H. Naganuma[1], T. Yu[1], H. Kubota[2], A. Fukushima[2], M. Oogane[1] and Y. Ando[1] *1. Department of Applied Physics, Tohoku University, Sendai, Japan; 2. National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan*

AT-11. Effects of Oscillation Power Fluctuation on Fast Magnetic Field Detection Using a Spin-Torque Oscillator. *T. Kanao*[1], T. Nagasawa[1], K. Kudo[1], H. Suto[1], M. Yamagishi[1], K. Mizushima[1] and R. Sato[1] *1. Corporate Research & Development Center, Toshiba Corporation, Kawasaki-shi, Japan*

AT-12. Zero-field spin-torque-induced oscillation of a perpendicularly magnetized free layer having first- and second-order uniaxial anisotropy. *H. Arai*[1,2], R. Matsumoto[2], S. Yuasa[2] and H. Imamura[2] *1. PRESTO, JST, Kawaguchi, Japan; 2. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan*

AT-13. Out-of-plane angular dependence of spin-torque ferromagnetic resonance in a permalloy/platinum bilayer. *J. Sklenar*[1,2], W. Zhang[2], M. Jungfleisch[2], W. Jiang[2], H. Saglam[3,2], S. Grudichak[4], J.B. Ketterson[1] and A. Hoffmann[2] *1. Physics and Astronomy, Northwestern University, Evanston, IL; 2. Argonne National Laboratory, Argonne, IL; 3. Physics, Illinois Institute of Technology, Chicago, IL; 4. Physics, Lawrence University, Appleton, WI*

AT-14. Current induced configurations in composite spring magnet. *C. Lambert*[1], M. Kuteifan[2,1], M.V. Lubarda[3,2], E.E. Fullerton[2,4], V. Lomakin[2,4] and S. Mangin[1] *1. Institut Jean Lamour, UMR CNRS 7198, Université de Lorraine, Nancy, France; 2. Center for Magnetic Recording Research, University of California San Diego, La Jolla, CA; 3. Faculty of Polytechnics, University of Donja Gorica, Podgorica, Montenegro; 4. Department of Electrical and Computer Engineering, University of California San Diego, La Jolla, CA*

Session AU

STRUCTURED MATERIALS: THIN FILMS AND INTERFACES (Poster Session)

Bethanie Stadler, Co-Chair
University of Minnesota, Minneapolis, MN
Karen Kavanagh, Co-Chair
Simon Fraser University, Burnaby, Canada

AU-01. Observation of Interfacial Dzyaloshinskii Moriya Interaction in W/CoFeB/SiO_2 Using Brillouin Light Scattering. *C. Banerjee*[1], S. Pan[1], S. Sahoo[1], S. Choudhury[1], J. Sinha[1] and A. Barman[1] *1. Condensed Matter Physics and Material Sciences, S N Bose National Centre For Basic Sciences, Kolkata, West Bengal, India*

AU-02. Excitation and detection of spin waves in ordered FeRh thin films. *T. Usami*[1], I. Suzuki[1], M. Itoh[1] and T. Taniyama[1] *1. Materials and Structures Laboratory, Tokyo Institute of Technology, Yokohama, Japan*

AU-03. Surface morphology, magnetism and chemical state of Fe coverage on MoS_2 substrate. *H. Hsu*[1], C. Wu[2], K. Hsu[1] and W. Lin[1] *1. Department of Physics, National Taiwan Normal University, Taipei, Taiwan; 2. Department of Physics, Chung Yuan Christian University, Chungli, Taiwan*

AU-04. XMCD study of epitaxial Mn-Ge ordered alloys with various compositions. *J. Kim*[1], M. Mizuguchi[1], N. Inami[2], T. Ueno[3], K. Ono[2] and K. Takanashi[1] *1. Institute for Materials Research, Tohoku University, Sendai, Japan; 2. High Energy Accelerator Research Organization (KEK), Tsukuba, Japan; 3. National Institute for Materials Science (NIMS), Tsukuba, Japan*

AU-05. Manipulation of the spin helix in FeGe thin films and FeGe/Fe multilayers. N.A. Porter[1], C.S. Spencer[1], *R.C. Temple*[1], C.J. Kinane[2], T. Charlton[2], S. Langridge[2] and C.H. Marrows[1] *1. University of Leeds, Leeds, United Kingdom; 2. ISIS, STFC Rutherford Appleton Laboratory, Didcot, Oxfordshire, United Kingdom*

AU-06. Anomalous Hall Effect in Facing-Target Reactively Sputtered Fe_4N Films. *Y. Zhang*[1] and W. Mi[1] *1. Department of Applied Physics, Tianjin University, Tianjin, China*

AU-07. Effect of additional elements on compositional modulated atomic layered structure of hexagonal $Co_{80}Pt_{20}$ alloy films with superlattice diffraction. *S. Hinata*[1], A. Yamane[1] and S. Saito[1] *1. Department of Electronic Engineering, Tohoku Univ., Sendai, Miyagi, Japan*

AU-08. Effect of aging and annealing on perpendicular magnetic anisotropy of ultra-thin CoPt films. *R. Hara*[1], K. Ebata[1] and R. Sugita[1] *1. Media and Telecommunications Engineering, Ibaraki University, Hitachi, Ibaraki, Japan*

AU-09. Evolution of Domain Structure and Magnetization Process of $[Pt/Co/Cu]_{10}$ Multilayers Near Spin Reorientation Transition. *L. Sun*[1], J. Liang[1], X. Xiao[1], C. Zhou[1] and Y. Wu[1] *1. Department of Physics, State Key Laboratory of Surface Physics and Collaborative Innovation Center of Advanced Microstructures, Fudan University, Shanghai, China*

AU-10. Effect of the third element addition to Fe/Co superlattices in magnetic anisotropy of tetragonal FeCo films. *K. Shintaku*[1], S. Fujishima[2] and S. Ishio[2] *1. Akita Industrial Technology Center, Akita, Japan; 2. Department of Materials Science and Engineering, Akita University, Akita, Japan*

AU-11. Structural and magnetic properties of $[Fe/Fe_4N]_N$ multilayers with high saturation magnetization. B. Yu[2], L. Lin[2], *B. Ma*[1,2], Z. Zhang[2], Q. Jin[2] and J. Wang[1] *1. Electrical and computer Engineering, University of Minnesota, Minneapolis, MN; 2. Fudan University, Shanghai, China*

AU-12. Application of Gettering Layers for Low Temperature Conversion of Magnetic Oxides into Ferromagnetic Metals in Thin Films, Multilayers, and Nanostructured Arrays. *W. Qiu*[1,2], L. Chang[3,2] and D. Litvinov[3,1] *1. Materials Science and Engineering, University of Houston, Houston, TX; 2. UH Nanofabrication Facility, University of Houston, Houston, TX; 3. Electrical and Computer Engineering, University of Houston, Houston, TX*

AU-13. Study of the dynamic magnetic properties of $Co_{40}Fe_{40}B_{20}$/MgO magnetic structures with perpendicular magnetic anisotropy. *G. Venkat Swamy*[1,2], G. Basheed[1,2], S. Binoy[3], S. Srinath[3], K. Maurya[1] and R. Rakshit[1,2] *1. CSIR-National Physical Laboratory, Dr. K. S. Krishnan Road, New Delhi-110012, India; 2. CSIR-NPL Campus, Academy of Scientific and Innovative Research (AcSIR), Dr. K. S. Krishnan Road, New Delhi-110012, India; 3. School of Physics, University of Hyderabad, Central University, Hyderabad, Telangana, India*

AU-14. The Influence of Interface on Spin Pumping Effect in $Ni_{80}Fe_{20}$/Tb Bilayer. J. Yue[1], S. Jiang[1], D. Zhang[1], H. Yuan[1], Y. Wang[1], *Y. Zhai*[1,2], J. Du[2] and H. Zhai[2] *1. Department of Physics, Southeast University, Nanjing, China; 2. National Laboratory of Solid Microstructures, Nanjing University, Nanjing, China*

Session AV
SPIN WAVES AND SPIN DYNAMICS (Poster Session)
Ales Hrabec, Chair
University of Leeds, Leeds, United Kingdom

AV-01. Brillouin Light Scattering Study of Magnetic Inhomogeneity in Ta(N)|CoFeB|MgO. J. Sinha[1], *C. Banerjee*[1], A. Chaurasiya[1], M. Hayashi[2] and A. Barman[1] *1. Condensed Matter Physics and Material Sciences, S N Bose National Centre For Basic Sciences, Kolkata, West Bengal, India; 2. National Institute for Materials Science, Tsukuba 305-0047, Japan*

AV-02. Phenomenology of chiral damping in noncentrosymmetric magnets. *C.A. Akosa*[1], M. Miron[2,3], G. Gaudin[2,3] and A. Manchon[1] *1. Material Science and Engineering, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia; 2. Univ. Grenoble Alpes INAC-SPINTEC, Grenoble, France; 3. CNRS INAC-SPINTEC, Grenoble, France*

AV-03. Micromagnetic Simulation of Spin/Mechanical Wave Coupling. *C. Chen*[1], C. Liang[1], S. Zhang[1], S. Keller[1], A. Mal[1], G. Carman[1] and A. Sepulveda[1] *1. MAE, UCLA, Los Angeles, CA*

AV-04. Microwave-Magnetic-Field-Induced Diode Effect: Analysis of Magnetization Dynamics of a Perpendicular Magnetic Nanodot. *H. Suto*[1], K. Kudo[1], T. Nagasawa[1], T. Kanao[1], K. Mizushima[1] and R. Sato[1] *1. Corporate Research & Development Center, Toshiba Corporation, Kawasaki, Japan*

AV-05. Study on the effect of sample structure on spin excitations by spin rectification. Y. Zhang[1], J. Wang[2], *X. Fan*[1], D. Yang[1] and D. Xue[1] *1. The Key Lab for Magnetism and Magnetic Materials of Ministry of Education, Lanzhou University, Lanzhou, Gansu, China; 2. Institute of Microelectronics, Lanzhou University, Lanzhou, Gansu, China*

AV-06. Absorbing boundary layers for spin wave micromagnetics. G. Venkat[1], H. Fangohr[2] and *A. Prabhakar*[1] *1. Electrical Engineering, Indian Institute of Technology Madras, Chennai, Tamil Nadu, India; 2. Engineering and the Environment, University of Southampton, Southampton, United Kingdom*

AV-07. Spin wave eigen-modes of triangular magnetic element studied by micro-focused Brillouin light scattering. *S. Hwang*[1], J. Kwon[1], O. Dzyapko[2] and B. Cho[1] *1. School of Materials Science and Engineering, Gwangju Institute of Science and Techonology, Gwangju, The Republic of Korea; 2. Institute for Applied Physics, University of Muenster, Muenster, Germany*

AV-08. Spin wave dynamics in a nanocontact geometry. *M. Fazlali*[1], M. Dvornik[1], P. Dürrenfeld[1], E. Iacocca[1], P.K. Muduli[1], M. Haidar[1], M. Ranjbar[1], J. Åkerman[1,2] and R.K. Dumas[1] *1. Physics, University of Gothenburg, Gothenburg, Sweden; 2. Materials Physics, School of ICT, Royal Institute of Technology, Kista, Sweden*

AV-09. Effect of Spin Pumping on Magnetization Dynamics in Fe/Pt(x nm)/FePt Multilayers. *C. Berk*[1], F. Ganss[2], M. Albrecht[3] and H. Schmidt[1] *1. UC Santa Cruz, Santa Cruz, CA; 2. Chemnitz University of Technology, Chemnitz, Germany; 3. University of Augsburt, Augsburg, Germany*

AV-10. Influence of Pt on the Magnetization Dynamics in Pt/$Co_2FeAl_{0.5}Si_{0.5}$/MgO with Perpendicular Magnetic Anisotropy. *J. Besbas*[1], L. Loong[1] and H. Yang[1] *1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore*

AV-11. Axially and radially quantized spin waves in thick permalloy nanodots. *X. Zhou*[1] and A. Adeyeye[1] *1. Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore*

AV-12. XRMR study of superdiffusive spin transport induced by ultrafast laser pulses. V. Lopez-Flores[1], N. Pontius[2], C. Schuessler-Langeheine[2], N. Bergeard[3], B. Vodungbo[4], C. Boeglin[3], J. Luning[4] and *N. Jaouen*[1] *1. Experimental division, Synchrotron SOLEIL, Gif sur Yvette, France; 2. Institut für Methoden und Instrumentierung der Forschung mit Synchrotronstrahlung, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Berlin, Germany; 3. IPCMS, UMR 7504 CNRS-Université de Strasbourg, Strasbourg, France; 4. LCPMR, Université Pierre & Marie Curie, Paris, France*

AV-13. Influence of the buffer layer on the magnetic damping and perpendicular anisotropy in CoFeB/MgO thin films. *J. Adam*[1], R. Soucaille[1], J. Kim[1], T. Devolder[1], J. Torrejon[2] and M. Hayashi[2] *1. Institut d'Electronique Fondamental, UMR 8622, Université Paris-Sud / CNRS, Orsay, France; 2. National Institute for Materials Science, Tsukuba, Japan*

AV-14. Spin-waves In Thin Films With Dzyaloshinskii-Moriya Interactions. *P. Landeros*[2], D. Cortés-Ortuño[2,1] and R. Troncoso[2] *1. Institute for Complex Systems Simulation, University of Southampton, Southampton, United Kingdom; 2. Departamento de Física, Universidad Técnica Federico Santa María, Valparaíso, Chile*

Session AW

BIO IMAGING, ASSAYS AND HYPERTHERMIA I (Poster Session)

Pavel Kabos, Chair
NIST, Boulder, CO

AW-01. Magnetization Response Spectroscopy of Superparamagnetic Nanoparticles Under Mixing Frequency Fields. *K. Wu*[1], A. Batra[2], J. Liu[1] and J. Wang[1] *1. Electrical Engineering, University of Minnesota, Minneapolis, MN; 2. Mechanical Engineering, University of Wisconsin-Madison, Madison, WI*

AW-02. Feasibility of electronic measurements in an alternating magnetic field for studying magnetic nanoparticle hyperthermia. *Z. Boekelheide*[1], Z.A. Hussein[1] and S. Hartzell[1] *1. Lafayette College, Easton, PA*

AW-03. Time-dependent Magnetic and Inductive Heating Responses of Core-Shell Fe/γ-Fe_2O_3 Nanoparticles. *Z. Nemati*[1], J. Alonso[1,2], H. Khurshid[1], M. Phan[1] and H. Srikanth[1] *1. Physics, University of South Florida, Tampa, FL; 2. BCMaterials, Derio, Vizcaya, Spain*

AW-04. Thermo-fluid analysis in the Magnetic Hyperthermia with low Curie temperature particles. I. Astefanoaei[1], I. Dumitru[1], H. Chiriac[2] and *A. Stancu*[1] *1. Department of Physics, Alexandru Ioan Cuza University, Iasi, Romania; 2. National Institute of Research & Development for Technical Physics, Iasi, Romania*

AW-05. Magnetic nanoparticles surface modified with thermoresponsive P(NIPAAm-co-DMAAm) copolymers for Doxorubicin Delivery. J. Freitas[2], J. Vega Chacón[1], A.C. Telatin Tognolo[1], M.G. Campos[2], *R.F. Marques*[1] and M. Jafelicci Jr.[1] *1. Institute of Chemistry, São Paulo State University - UNESP, Araraquara, São Paulo, Brazil; 2. Federal University of Alfenas, Poços de Caldas, Minas Gerais, Brazil*

AW-06. Magnetic Nanocolloids based on Zn-Mn Ferrites Core/Shell Nanoparticles for Hyperthermia and Liquid Cooling Systems. *V. Pilati*[1], R.C. Gomes[1,2], G.S. Gomide[1], F.L. Paula[1], R. Aquino[3], F. Tourinho[3], G.F. Goya[4], R. Perzynski[2] and J. Depeyrot[1] *1. GFC - Institute of Physics, University of Brasília, Brasília, DF, Brazil; 2. PHENIX, Université Pierre et Marie Curie, Paris, France; 3. LNAA, FUP, University of Brasília, Planaltina, Brazil; 4. INA, Condensed Matter Physics Dept., University of Zaragoza, Zaragoza, Spain*

AW-07. Preparation of folate-conjugated PEGylated SPIONs for magnetic hyperthermia. E.S. Nunes[1,4], W. Viali[1], R.D. Piazza[1], *R.F. Marques*[1], S. da Silva[2], P.C. Morais[2,3] and M. Jafelicci Jr.[1] *1. Physical-Chemistry, UNESP - Institute of Chemistry, Araraquara, São Paulo, Brazil; 2. Instituto de Física, Núcleo de Física Aplicada, Universidade de Brasília, Brasília, DF, Brazil; 3. Department of Control Science and Engineering, Huazhong University of Science and Technology, Wuhan, China; 4. Instituto Federal Goiano, Rio Verde, Goiás, Brazil*

AW-08. Investigation of Depth and Focality of Different Coil Designs During Transcranial Magnetic Stimulation in Mice. *P. Rastogi*[1], R.L. Hadimani[1] and D.C. Jiles[1] *1. Department of Electrical and Computer Engineering, Iowa State University, Ames, IA*

AW-09. Planar Gradient Coil and Electric Scanning of Field Free Point for Single-Sided Magnetic Particle Imaging. *K. Tanabe*[1], S. Bai[1], K. Yamamoto[1], T. Sasayama[1], T. Yoshida[1] and K. Enpuku[1] *1. Kyushu University, Fukuoka, Japan*

AW-10. Improving the Efficiency of Transcranial Magnetic Stimulation by the Combination of Different-Direction Laminated Iron Core Plate. *K. Yamamoto*[1], Y. Miyawaki[1], D. Kim[1], Y. Saitoh[1,2] and M. Sekino[1,2] *1. The University of Tokyo, Tokyo, Japan; 2. Osaka University, Osaka, Japan*

AW-11. Optimization of Magnetic Resonance Imaging Contrast Agent Efficiency in Size Controlled MFe_2O_4 (M = Mn and Fe) Nanoassemblies. *J. Mohapatra*[1], A. Mitra[2], M. Aslam[2,1] and D. Bahadur[1,3] *1. 1Centre for Research in Nanotechnology and Science, Indian Institute of Technology Bombay, Mumbai, Maharashtra, India; 2. Department of Physics, Indian Institute of Technology Bombay, Mumbai, India; 3. Department of Metallurgical Engineering and Materials Science, Indian Institute of Technology Bombay, Mumbai, India*

AW-12. Numerical Analyses of Transcranial Magnetic Stimulation on Personal Brain Models Based on the Scalar-Potential Finite-Difference Method. *K. Yamamoto*[1], Y. Takiyama[1], Y. Saitoh[2] and M. Sekino[1,2] *1. The University of Tokyo, Tokyo, Japan; 2. Osaka University, Osaka, Japan*

AW-13. Frequency Dependence of 5mT Alternative Magnetic Field on Proliferation of Human Liver Cancer Cell. *H. Park*[1], H. Lee[1] and D. Hwang[1] *1. Sangji university, Wonju, The Republic of Korea*

AW-14. Drug release and heating properties of silica coated sponge-like porous magnetite clusters (SPMCs). *S. Kim*[1], K. Katsumata[2], K. Okada[3] and N. Matsushita[1,4] *1. Electronic Chemistry, Tokyo Institute of Technology, Yokohama, Japan; 2. Photocatalysis international Research Center, Tokyo University of Science, Chiba, Japan; 3. Tokyo Institute of Technology, Tokyo, Japan; 4. Chemistry and Materials Science, Tokyo Institute of Technology, Tokyo, Japan*

Session AX
NEW APPLICATIONS: SENSORS AND POWER (Poster Session)

Mean-Jue Tung, Chair
Industrial Technology Research Institute of Taiwan, Hsinchu, Taiwan

AX-01. In Vitro Viscosity Measurement on Superparamagnetic Nanoparticle Suspensions. K. Wu[1], *J. Liu*[1], C. Ye[1] and J. Wang[1] *1. Electrical Engineering, University of Minnesota, Minneapolis, MN*

AX-02. Effects of Novel Iron-Copper Alloy Rotor Sleeve on High Speed PM Generator Performance. X. Zhang[2,1], *H. Zhang*[1], W. Li[2], C. Gerada[1], M. Galea[1], J. Cao[2] and J. Li[1] *1. The University of Nottingham, Notingham, United Kingdom; 2. Beijing Jiaotong University, Beijing, China*

AX-03. Measurements of leakage currents from the matrix converter-induction motor link in a large-scale overhead crane used for solid-fuel rocket assembly: A study to reduce the stray voltage at a hook of the crane. *I. Sasada*[1], T. Matsuda[1], H. Yamamoto[2], M. Muto[2], T. Saito[2] and T. Nishida[2] *1. Applied Science for Electronics and Materials, Kyushu University, Kasuga, Japan; 2. Japanese Aerospace Exploratory Agency, Tukuba, Japan*

AX-04. Surface-oxidized Carbonyl-iron powder/epoxy composite bulk magnetic core and its application to a MHz switching buck dc-dc converter. K. Sugimura[1], A. Ueno[1], D. Shibamoto[1], K. Sato[1,2], M. Sonehara[1] and *T. Sato*[1] *1. Faculty of Engineering, Shinshu University, Nagano, Japan; 2. Precision and Electronics Technology Department, Nagano Prefecture General Industrial Technology Center, Okaya, Japan*

AX-05. Wireless power transfer based on non-symmetrical core structure. *J. Zhang*[1] and C. Zhu[1] *1. School of Electrical Engineering Automation, Harbin Institute of Technology, Harbin, China*

AX-06. A Novel Method for High Frequency Corona Discharge Location Based on TMR Sensors. *G. Zhao*[1], J. Hu[1], Y. Ouyang[1], Z. Wang[1], S. Wang[2,1] and J. He[1] *1. The State Key Lab of Power System, Department of Electrical Engineering, Tsinghua University, Beijing, China; 2. Center for Magnetic Nanotechnology, Stanford University, Stanford, CA*

AX-07. The output characteristic of magnetostrictive displacement sensor under the helical magnetic field and stress. L. Zhang[1], *B. Wang*[1], R. Zhao[1,3], L. Weng[1], Y. Sun[1] and B. Cui[2] *1. Key Laboratory of Electro-magnetic Field and Electrical Apparatus Reliability of Hebei Province, Hebei University of Technology, Tianjin, China; 2. Electron Energy Corporation, Landisville, PA; 3. School of Mechanical and Electrical Engineering, Nanchang Institute of Technology, Nanchang, China*

AX-08. Preliminary evaluation of magnetorheological elastomers with oriented Fe-Ga alloy flakes for force sensing applications. *B. Yoo*[1], S. Na[1], A.B. Flatau[1] and D.J. Pines[1] *1. Aerospace Engineering, University of Maryland, College Park, MD*

AX-09. Analysis on novel induction heater with LC resonance inverter for electric vehicle. D. Park[1] and *K. Kim*[1] *1. Dept. of electrical engineering, Hanbat National University, Daejeon, The Republic of Korea*

AX-10. Bidirectional current–voltage converter based on coil-wound, intermagnetically biased, heterostructured magnetoelectric ring. *S. Zhang*[1] and S. Or[1] *1. Department of Electrical Engineering, The Hong Kong Polytechnic University, Kowloon, Hong Kong*

AX-11. Stimulating Vibration in Magnetoelastic Beams by the Circumferential Fields of Conducted Currents. I.J. Garshelis[1,2] and *R.J. Kari*[2] *1. Magnova, Inc., Pittsfield, MA; 2. MagCanica, Inc., San Diego, CA*

AX-12. The Interaction of Electromagnetically Induced Acoustic Emission with Crack Orientations. *Z. Cai*[1], S. Liu[1], C. Zhang[1] and Q. Yang[1,2] *1. Province-Ministry Joint Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability, Hebei University of Technology, Tianjin, China; 2. Key Laboratory of Advanced Electrical Engineering and Energy Technology,, Tianjin Polytechnic University, Tianjin, China*

AX-13. Performance of Flow Energy Harvesting Using Magnetic Nanofluids Considering Magnetic Saturation and Geometric Effect of Energy Collecting Coil. *I. Kim*[1], S. Kim[1] and S. Lee[1] *1. Department of Electrical Engineering, Kyungpook National University, Daegu, The Republic of Korea*

AX-14. Self-contained wireless Hall current sensor applied for two-wire zip-cords. C. Sun[1], *Y. Wen*[1], P. Li[1] and W. Ye[1] *1. Research Center of Sensors and Instruments, College of Optoelectronic Engineering, Chongqing University, Chongqing, China*

TUESDAY
MORNING
9:30

SAPPHIRE BALLROOM SOUTH

Session AY
HIGH FREQUENCY AND MAGNETO-ELECTRIC DEVICES
(Poster Session)

Paola Tiberto, Chair
INRIM, Torino, Italy

AY-01. A 3D Self-biased Circulator in Molded Interconnect Device Technology. *V. Laur*[1], J. Mattei[1], P. Queffelec[1], R. Lebourgeois[2] and J. Ganne[2] *1. Lab-STICC / University of Brest, Brest, France; 2. Thales Research & Technology, Palaiseau, France*

AY-02. Electrically Tunable Phase Shifter in X- Band Using Microstrip Line on a Partially Magnetized LTCC-Compatible Ferrite Substrate. *S. Kagita*[1], A. Basu[1] and S. Koul[1] *1. Center for Applied Research in Electronics, Indian Institute of Technology,Delhi, New Delhi, India*

AY-03. Low-Profile Multiband Ferrite Antenna for Telematics Application. *W. Lee*[1,2], Y. Hong[1,2], J. Park[1,2], J. Lee[3], I. Baek[4], N. Hur[4] and W. Seong[4] *1. Department of Electrical and Computer Engineering, The University of Alabama, Tuscaloosa, AL; 2. MINT Center, The University of Alabama, Tuscaloosa, AL; 3. Client Research and Development, Intel Corporation, Hillsboro, OR; 4. Research and Development Center, E.M.W. Co., Ltd., Seoul, The Republic of Korea*

AY-04. Implantable Ferrite Antenna for Biomedical Applications. *M.L. Fazeli*[1], Y. Hong[1,2], W. Lee[1,2] and J. Park[1,2] *1. Department of Electrical and Computer Engineering, The University of Alabama, Tuscaloosa, AL; 2. MINT Center, The University of Alabama, Tuscaloosa, AL*

AY-05. Neighboring metal layer induced non-reciprocal wave propagation in a thin metallic ferromagnetic film. *Y. Zhuang*[1], F. Kumar Vishal[1] and G. Hartman[1] *1. Wright State University, Dayton, OH*

AY-06. Tune Magnetic Resonance via Interlayer Exchange Coupling in Multiferroic Heterostructure and Microwave Spintronic Devices. *Y. Chen*[1], X. Fan[2], Y. Xie[1], Y. Zhou[1], T. Wang[1], S. Chui[1] and J. Xiao[1] *1. Physics and Astronomy, University of Delaware, Newark, DE; 2. Physics and Astronomy, University of Denver, Denver, CO*

AY-07. Non-Reciprocal RF Magnetic Devices Based on Magnetic Thin Films. *R. Guo*[1,2], H. Lin[1], Y. Gao[1], W. Shi[1,3] and N.X. Sun[1] *1. Department of Electrical and Computer Engineering, Northeastern University, Boston, MA; 2. State Key Laboratory of Electronic Thin Films and Integrated Devices, University of Electronic Science and Technology of China, Chengdu, China; 3. School of Mechanical Engineering, Inner Mongolia University of Science & Technology, Baotou, China*

AY-08. A Fully-Coupled Finite Element Model on Electromagnetic Radiation from Multiferroic Elements. *Z. Zhou*[1], S. Keller[1] and G. Carman[1] *1. Mechanical and Aerospace Engineering, UCLA, Los Angeles, CA*

AY-09. A Novel Magnetic Energy Harvester Using Spinning Magnetoelectric Transducer. *Z. Wang*[1], J. Hu[1], J. Han[1], S. Wang[2] and J. He[1] *1. Tsinghua University, Beijing, China; 2. Stanford University, Stanford, CA*

AY-10. Realization of a variable magnonic beam splitter. *C.S. Davies*[1], A. Francis[1], A. Sadovnikov[2,5], S. Chertapolov[3], M.T. Bryan[4], S. Grishin[2], D. Allwood[4], Y.P. Sharaevskii[2], S. Nikitov[2,5] and V.V. Kruglyak[1] *1. School of Physics, University of Exeter, Exeter, Devon, United Kingdom; 2. Saratov State University, Saratov, Russian Federation; 3. Donetsk National University, Donetsk, Ukraine; 4. University of Sheffield, Sheffield, United Kingdom; 5. Kotel'nikov Institute of Radioengineering and Electronics, Moscow, Russian Federation*

AY-11. Open Loop Platform Low Cost Integrated Differential Micro Inductor based Magnetic Bio-Sensors.
M. Khodadadi[1,2], L. Chang[2,3], W. Qiu[1,2] and D. Litvinov[1,3]
1. Materials Science and Engineering, University of Houston, Houston, TX; 2. UH Nanofabrication Facility, University of Houston, Houston, TX; 3. Electrical and computer engineering, University of Houston, Webster, TX

AY-12. Self assembling pattern of thin-film magneto-impedance structures for bio applications. *E. Fernandez-Martin*[1,2], A. Garcia-Arribas[3,2], A.V. Svalov[3], G.V. Kurlyandskaya[3] and C. Ross[1] *1. Material Science and Engineering, Massachussets Institute of Technology, Cambridge, MA; 2. BCMaterials, Derio, Bizkaia, Spain; 3. Electricidad y electronica, Universidad del Pais Vasco (UPV/EHU), Leioa, Bizkaia, Spain*

AY-13. Mesomechanical Theory Model of Converse Magnetoelectric Effect Aimed at Sensing Electric Field. *F. Xue*[1], J. Hu[1], S. Wang[2,1] and J. He[1] *1. Tsinghua University, Beijing, China; 2. Stanford University, Stanford, CA*

AY-14. Voltage-mode DC magnetic field sensor in composite of Rosen-type piezoelectric transformer and ferromagnetic material. C. Yang[1], *P. Li*[1], Y. Wen[1], D. Wang[1] and F. Zhang[1]
1. Research Center of Sensors and Instruments,College of Optoelectronic Engineering, Chongqing University, Chongqing, China

TUESDAY AFTERNOON 1:30 | SAPPHIRE ABEF

Session BA
HEAT TRANSPORT CHALLENGES IN HEAT-ASSISTED MAGNETIC RECORDING

Simone Pisana, Chair
York University, Toronto, Canada

1:30

BA-01. Structure optimization of FePt-based HAMR media. *(Invited)* *K. Hono*[1], Y. Takahashi[1], J. Wang[1], T. Shiroyama[1], B. Varaprasad[1], H. Pandey[1] and A. Perumal[1] *1. Magnetic Materials Unit, NIMS, Tsukuba, Japan*

2:06

BA-02. Ultrafast Thermal Analysis of HAMR Media. *(Invited)*
D.G. Cahill[1] and J. Kimling[1] *1. Materials Science and Engineering, University of Illinois, Urbana, IL*

2:42

BA-03. Investigating temperature distributions in granular FePt media for Heat-Assisted Magnetic Recording. ***(Invited)*** *S. Jain*[1], S.H. Wee[1], O. Hellwig[1], S. Pisana[2], S. Burgos[1], G. Parker[1] and M. Grobis[1] *1. HGST, a Western Digital Company, San Jose, CA; 2. Department of Electrical Engineering & Computer Science, York University, Toronto, ON, Canada*

3:18

BA-04. Thermal Interface Resistance Reduction at Au-dielectric Interfaces Relevant to HAMR through Adhesion Layers and Alloying. ***(Invited)*** *J.A. Malen*[1,2], M. Jeong[2], J. Freedman[2], H. Liang[3], C. Chow[3], X. Yun[4], A. Gellman[4,2] and J.A. Bain[3] *1. Mechanical Engineering, Carnegie Mellon University, Pittsburgh, PA; 2. Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, PA; 3. Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA; 4. Chemical Engineering, Carnegie Mellon University, Pittsburgh, PA*

3:54

BA-05. Thermal Transport in Multilayer Systems with Highly Dissimilar Debye Temperatures. ***(Invited)*** E. Dechaumphai[1] and *R. Chen*[1] *1. Mechanical and Aerospace Engineering, University of California, San Diego, La Jolla, CA*

TUESDAY AFTERNOON 1:30 — SAPPHIRE IJ

Session BB
OSCILLATIONS AND MOTION OF SOLITONS

André Thiaville, Chair
Universite Paris-Sud, Orsay, France

1:30

BB-01. Stability and dynamical properties of magnetic droplet solitons in spin transfer nanocontacts. ***(Invited)*** *F. Macia*[1], S. Lendinez[1], N. Statuto[1], J. Hernàndez[1], D. Backes[2,3] and A.D. Kent[2] *1. Fundamental Physics, Universitat de Barcelona, Barcelona, Spain; 2. Physics department, New York University, New York, NY; 3. Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom*

2:06

BB-02. Temperature dependence behavior of droplet solitons in spin-transfer-torque nano-oscillators. J. Hang[1], S. Sani[1], *S. Lendinez*[2], D. Backes[1], A.D. Kent[1] and F. Macia[2] *1. Physics, New York University, New York, NY; 2. Departament de Fisica Fonamental, Universitat de Barcelona, Barcelona, Spain*

2:18

BB-03. Investigation of a single layer nano contact STO using x-ray holography with extended references. *E.O. Burgos Parra*[1], N. Bukin[1], M. Dupraz[2], G. Beutier[2], S. Sani[3], H. Popescu[4], S.A. Cavill[5], J. Åkerman[6,3], N. Jaouen[4], P.S. Keatley[1], R.J. Hicken[1], G. van der Laan[7] and F.Y. Ogrin[1] *1. Department of Physics and Astronomy, University of Exeter, Exeter, Devon, United Kingdom; 2. SIMaP, Grenoble-INP, CNRS, Grenoble, France; 3. Material Physics, KTH- Royal Insitute of Technology, Kista, Sweden; 4. SOLEIL synchrotron, Paris, France; 5. Department of Physics, University of York, York, North Yorkshire, United Kingdom; 6. The Physics Department, University of Gothenburg, Gothenburg, Västra Götaland, Sweden; 7. Diamond Light Source Ltd., Didcot, Oxfordshire, United Kingdom*

2:30

BB-04. Spin torque resonant vortex core expulsion for an efficient radio-frequency detection scheme. *A. Jenkins*[1], R. Lebrun[1], P. Bortolotti[1], E. Grimaldi[1], S. Tsunegi[2], H. Kubota[2], K. Yakushiji[2], A. Fukushima[2], S. Yuasa[2] and V. Cros[1] *1. CNRS/Thlaes, Palaiseau, France; 2. Spintronics Research Center, Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan*

2:42

BB-05. Dynamics of domain wall oscillators using a spring magnet. *M. Kuteifan*[1,2], C. Lambert[2], M.V. Lubarda[3,1], E.E. Fullerton[1,4], V. Lomakin[1,4] and S. Mangin[2] *1. Center for Magnetic Recording Research, University of California San Diego, San Diego, CA; 2. Institut Jean Lamour, UMR CNRS 7198, Université de Lorraine, Nancy, France; 3. Faculty of Polytechnics, University of Donja Gorica, Podgorica, Montenegro; 4. Department of Electrical and Computer Engineering, University of California San Diego, La Jolla, CA*

2:54

BB-06. Current induced domain wall motion along electron flow in ferromagnetic Pt/Co/Ni/Co/Pt wires. *K. Ryu*[1], S. Yang[3], L. Thomas[2] and S.S.P. Parkin[3] *1. Dapartment of Physics Education, KNUE, JeongJu, The Republic of Korea; 2. TDK-Headway Technologies, Milpits, CA; 3. IBM Almaden Research center, Sanjose, CA*

3:06

BB-07. Helicity dependent ballistic domain wall motion driven by ultra-short laser pulses. T. Janda[3], P. Roy[1], A.J. Ramsay[1], R.M. Otxoa[1], A.C. Irvine[5], R. Campion[4] and *J. Wunderlich*[1,2] *1. Hitachi Cambridge Laboratory, Cambridge, United Kingdom; 2. Institute of Physics, Academy of Sciences of the Czech Republic, Prague, Czech Republic; 3. Faculty of Mathematics and Physics, Charles University in Prague, Prague, Czech Republic; 4. School of Physics and Astronomy, University of Nottingham, Nottingham, United Kingdom; 5. The Cavendish Laboratory, University of Cambridge,, Cambridge, United Kingdom*

3:18

BB-08. Magnetic origami. *C. Safeer*[1,2*], E. Jué[1,2], A. Lopez[1,2], L.D. Buda-Prejbeanu[1,2], S. Auffret[1,2], S. Pizzini[3,2], O. Boulle[1,2], M. Miron[1,2] and G. Gaudin[1,2] *1. SPINTEC-INAC/CEA/CNRS-Grenoble, Grenoble, Rhone Alpes, France; 2. Universite de Grenoble Alpes, Grenoble, France; 3. CNRS-Institute Néel, Grenoble, France*

3:30

BB-09. Control of the 3D domain walls in cylindrical magnetic nanowires. *I. Ivanov*[1], S. Lopatin[1], A. Chuvilin[2] and J. Kosel[1] *1. King Abdullah University of Science and Technology, Thuwal, Saudi Arabia; 2. EM Lab, CIC nanoGUNE Consolider, San Sebastian, Spain*

3:42

BB-10. Operation of [Co/Pd] nanowire sequential memory utilizing bit-shift of current-driven magnetic domains recorded and reproduced by magnetic head. *M. Okuda*[1,2], Y. Miyamoto[1], M. Kawana[1], E. Miyashita[1], N. Saito[1] and S. Nakagawa[2] *1. Science & Technology Research Laboratories, NHK (Japan Broadcasting Corporation), Tokyo, Japan; 2. Department of Physical Electronics, Tokyo Institute of Technology, Tokyo, Japan*

3:54

BB-11. A Sound Approach: Manipulating Domain Walls with Surface Acoustic Waves. J. Dean[1], M.T. Bryan[2], J.D. Cooper[3], A. Virbule[1], J.E. Cunningham[3] and *T.J. Hayward*[1] *1. Department of Materials Science and Engineering, University Sheffield, Sheffield, South Yorkshire, United Kingdom; 2. Department of Cardiovascular Science, University of Sheffield, Sheffield, United Kingdom; 3. School of Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom*

4:06

BB-12. Sorting domains in a perpendicularly magnetized racetrack biplexer. *A. Pushp*[1], C. Garg[1,2], T. Phung[1], B.P. Hughes[1], C. Rettner[1], S. Yang[1] and S.S.P. Parkin[1,2] *1. IBM Almaden Research Center, San Jose, CA; 2. Max Planck Institute for Microstructure Physics, Halle (Saale), D06120, Germany*

4:18

BB-13. 360° Domain Walls: Stability, Magnetic Field and Electric Current Effects. *J. Zhang*[1], S.A. Siddiqui[2], P. Ho[1], J. Currivan[2], L. Tryputen[1], E. Lage[1] and C. Ross[1] *1. Materials Science and Engineering, MIT, Cambridge, MA; 2. EECS, Massachusetts Institute of Technology, Cambridge, MA*

Session BC

WALLS, VORTICES AND SKYRMIONS I

Jan Müller, Chair
University of Cologne, Cologne, Germany

1:30

BC-01. Observation of spin textures in manganites. *A. Kotani*[1], H. Nakajima[1], K. Harada[1,2], Y. Ishii[1] and S. Mori[1] *1. Material Science, Osaka Prefecture University, Osaka, Japan; 2. Hitachi Ltd., Tokyo, Japan*

1:42

BC-02. Directional Spin Wave Emission From Topological Spin Textures. V. Sluka[2,4], M. Weigand[3], A. Kakay[2], K. Schultheiss[2], A. Erbe[2], V. Tyberkevych[5], A.N. Slavin[5], A.M. Deac[2], J. Lindner[2], J. Fassbender[2], J. Raabe[1] and *S. Wintz*[1,2] *1. Paul Scherrer Institut, Villigen PSI, Switzerland; 2. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 3. Max-Planck-Institut für Intelligente Systeme, Stuttgart, Germany; 4. New York University, New York, NY; 5. Oakland University, Rochester, MI*

1:54

BC-03. Analytical Theory of Propagating Magnetic Droplet Solitons. *M. Hoefer*[1] and L. Bookman[2,3] *1. Applied Mathematics, University of Colorado, Boulder, Boulder, CO; 2. Mathematics, North Carolina State University, Raleigh, NC; 3. Mathematics, Yale University, New Haven, CT*

2:06

BC-04. Study of topological spin texture in B20 crystalline FeGe films. *E. Turgut*[1], A. Park[1], K. Nguyen[1], R. Hovden[1], L. Kourkoutis[1,2], D. Muller[1,2] and G. Fuchs[1] *1. Applied and Engineering Physics, Cornell University, Ithaca, NY; 2. Kavli Institute at Cornell for Nanoscale Science, Ithaca, NY*

2:18

BC-05. Enhancement of the Interfacial Dzyaloshinskii-Moriya Interaction in Pt/Co/AlOx with a Tantalum Buffer Layer. *N. Kim*[1], D. Han[2], J. Jung[1], J. Cho[1], J. Kim[2], H. Swagten[2], M. Jung[3] and C. You[1] *1. Department of Physics, Inha University, Incheon, The Republic of Korea; 2. Department of Applied Physics, Center for NanoMaterials, Eindhoven University of Technology, Eindhoven, Netherlands; 3. Department of Physics, Sogang University, Seoul, The Republic of Korea*

2:30

BC-06. Domain walls in synthetic antiferromagnets based on perpendicularly magnetized CoFeB layers. A. Hamadeh[1], P. Pirro[1], M.P. Lavanant[1,3], B. Tao[1], J. Adam[2], Y. Lu[1], *S. Mangin*[1] and S. Petit-Watelot[1] *1. Institut Jean Lamour, Université de Lorraine / CNRS, Vandoeuvre Les Nancy, France; 2. Institut d'Electronique Fondamentale, Université Paris-Sud / CNRS, Orsay, France; 3. Department of Physic, NYU, New York City, NY*

2:42

BC-07. Dynamics and Inertia of Skyrmionic Spin Structures. *C. Moutafis*[2,1], F. Büttner[3], A. Bisig[3], B. Krüger[3], C.A. Vaz[1], P. Warnicke[1], M. Foerster[3], M.A. Mawass[3], M. Schneider[4], C. Günter[4], J. Geilhufe[5], C. Korff Schmising, v.[4], J. Mohanty[4], B. Pfau[4], S. Schaffert[4], T. Schulz[3], M. Weigand[6], J.H. Franken[7], R. Lavrijsen[7], J. Raabe[1], H. Swagten[7], M. Kläui[3] and S. Eisebitt[4,5] *1. Paul Scherrer Institut, Villigen, Switzerland; 2. Nano Engineering and Storage Technologies, University of Manchester, Manchester, United Kingdom; 3. Institute of Physics, Johannes Gutenberg Universitaet Mainz, Mainz, Germany; 4. Institut für Optik und Atomare Physik, Technische Universität Berlin, Berlin, Germany; 5. Helmholtz Zentrum Berlin fur Materialien und Energie GmbH, Berlin, Germany; 6. Max Planck Institute for Intelligent Systems, Stuttgart, Germany; 7. Department of Applied Physics Center for NanoMaterials, Eindhoven University of Technology, Eindhoven, Netherlands*

2:54

BC-08. Static and Dynamical Properties of Antiferromagnetic Skyrmions. *O. Tretiakov*[1] and J. Barker[1] *1. IMR, Tohoku University, Sendai, Miyagi, Japan*

3:06

BC-09. Manipulating Topological Charges in the Domain States of 2D Micromagnets. *S. Slöetjes*[1], E. Folven[1] and J.K. Grepstad[1] *1. Norwegian University of Science and Technology, Trondheim, Norway*

3:18

BC-10. Nonlinear vortex-pair dynamics in synthetic ferrimagnets. *B.C. Koop*[1], M. Gruschke[1], A.V. Bondarenko[2], B. Ivanov[2] and V. Korenivski[1] *1. Applied Physics, KTH Royal Institute of Technology, Stockholm, Sweden; 2. Institute of Magnetism, Kiev, Ukraine*

3:30

BC-11. Optimizing the synchronization properties of dipolarly coupled spin-transfer vortex oscillators. *F. Abreu Araujo*[1,2], N. Locatelli[3,1], A.D. Belanovsky[6,7], A. Hamadeh[8,4], R. Lebrun[1], G. de Loubens[4], O. Klein[5,4], P.N. Skirdkov[6,7], K.A. Zvezdin[6,7], J. Grollier[1], A.K. Zvezdin[6,7] and V. Cros[1] *1. Unité Mixte de Physique, CNRS/Thales, Paris, France; 2. IMCN, Université catholique de Louvain, Louvain-la-Neuve, Brabant Wallon, Belgium; 3. Institut d'Electronique Fondamentale, Université Paris-Sud, Orsay, France; 4. Service de Physique de l'État Condensé, CEA Saclay, Gif-sur-Yvette, France; 5. UMR CEA/CNRS/UJF-Grenoble 1/Grenoble-INP, SPINTEC, Grenoble, France; 6. A. M. Prokhorov General Physics Institute, RAS, Moscow, Russian Federation; 7. Moscow Institute of Physics and Technology, Dolgoprudny, Russian Federation; 8. Institut Jean-Lamour, Université de Lorraine, Nancy, France*

3:42

BC-12. Domain wall depinning from notches in nanowires with perpendicular magnetic anisotropy using combined in- and out-of-plane magnetic fields. J.J. Goertz[1,2], G. Ziemys[2], I. Eichwald[2], M. Becherer[2], D. Schmitt-Landsiedel[2], H. Swagten[1] and *S. Breitkreutz-v. Gamm*[2] *1. Department of Applied Physics, Eindhoven University of Technology, Eindhoven, Netherlands; 2. Institute for Technical Electronics, Technische Universität München, Munich, Germany*

3:54

BC-13. Strain-mediated Deterministic Control of 360 degrees Domain Wall Motion in Magnetoelastic Nanorings. *C. Liang*[1], A. Sepulveda[1], D. Hoff[1], S. Keller[1] and G. Carman[1] *1. Department of Mechanical and Aerospace Engineering, UCLA, Los Angeles, CA*

4:06

BC-14. Domain wall dynamics driven by novel combination of exchange coupling torque with chiral spin torque in synthetic antiferromagnets. *S. Yang*[1], C. Garg[1], C. Rettner[1] and S.S.P. Parkin[1,2] *1. IBM Almaden Research Center, San Jose, CA; 2. Max Planck Institute, Halle, Germany*

4:18

BC-15. Toggling synchronization in nano-contact spin torque oscillators. *A. Houshang*[1,2*], P. Dürrenfeld[1], J. Åkerman[1,2] and R.K. Dumas[1,2] *1. Physics, University of Gothenburg, Gothenburg, Västra Götaland, Sweden; 2. NanOsc AB, Kista, Sweden*

Session BD
ANTIFERROMAGNETISM AND SPIN-ORBIT INTERACTIONS II

Bernard Diény, Chair
SPINTEC, Grenoble, France

1:30

BD-01. Anomalous position and Berry curvature originating from the atomic orbital hybridization in multi-orbital systems. *D. Go*[1] and H. Lee[1] *1. Physics, Pohang University of Science and Technology (POSTECH), Pohang, The Republic of Korea*

1:42

BD-02. Effect of the Oersted field and Dzyaloshinskii-Moriya interaction on the dynamical behavior of a spin-Hall oscillator. *A. Giordano*[1], V. Puliafito[1], A. laudani[2], G. Gubbiotti[3], M. Carpentieri[4], B. Azzerboni[1] and G. Finocchio[1] *1. Department of Electronic Engineering, Industrial Chemistry and Engineering, University of Messina, Messina, Italy; 2. Department of Engineering, University of Roma Tre, Roma, Italy; 3. Istituto Officina dei Materiali del CNR - Dipartimento di Fisica e Geologia, Unità di Perugia, Perugia, Italy; 4. Department of Electrical and Information Engineering, Politecnico di Bari, Bari, Italy*

1:54

BD-03. Enhanced spin current absorption by antiferromagnetic IrMn thin films around the Néel temperature. *L. Frangou*[1], S. Oyarzun[2], S. Auffret[1], L. Vila[2], S. Giambarelli[3] and V. Baltz[1] *1. Univ. Grenoble Alpes/CNRS/INAC-CEA, SPINTEC, Grenoble, France; 2. Univ. Grenoble Alpes/INAC-CEA, NM, Grenoble, France; 3. Univ. Grenoble Alpes/CNRS/INAC-CEA, SCIB, Grenoble, France*

2:06

BD-04. Spin-Hall Switching of In-plane Exchange Biased Heterostructures. *M. Mann*[1] and G. Beach[1] *1. MIT, Cambridge, MA*

2:18

BD-05. Spin transport in antiferromagnetic insulators mediated by magnetic correlations. *F. Yang*[1], H. Wang[1], C. Du[1] and P. Hammel[1] *1. Physics, The Ohio State University, Columbus, OH*

2:30

BD-06. Spin orbit torques in W:O_2. *T. Phung*[1], K. Demasius[1,2], W. Zhang[1], B.P. Hughes[1], S. Yang[1], A. Kellock[1], W. Han[1], A. Pushp[1], T. Topuria[1], Y. Ferrante[1], E. Delenia[1] and S.S.P. Parkin[1,3] *1. IBM Almaden Research Center, San Jose, CA; 2. TU Dresden, Dresden, Germany; 3. Max Planck Institute for Microstructure Physics, Halle (Saale), Germany*

2:42

BD-07. Rashba field-like torque in permalloy interfaced with an oxide. *S. Emori*[2,1], T. Nan[2], A. Belkessam[2], X. Wang[2], A. Matyushov[2], C. Babroski[2], Y. Gao[2], H. Lin[2] and N.X. Sun[2] *1. Applied Physics, Stanford University, Stanford, CA; 2. Electrical and Computer Engineering, Northeastern University, Boston, MA*

2:54

BD-08. Hanle-induced magnetoresistance in thin metal films with large spin-orbit coupling. *S. Velez*[1], A. Bedoya-Pinto[1], V.N. Golovach[2,3], M. Isasa[1], E. Sagasta[1], L.E. Hueso[1,3], S. Bergeret[2] and F. Casanova[1,3] *1. CIC nanoGUNE, San Sebastian, Spain; 2. Centro de Física de Materiales (CFM-MPC) and Donostia International Physics Center (DIPC), San Sebastian, Spain; 3. IKERBASQUE, Bilbao, Spain*

3:06

BD-09. Magneto-transport driven by spin-orbital scattering. *S. Zhang*[1,2], G. Vignale[1] and S. Zhang[2] *1. Physics and Astronomy, University of Missouri, Columbia, MO; 2. Department of Physics, University of Arizona, Tucson, AZ*

3:18

BD-10. Characterization of spin-orbit torques in epitaxially grown Pt/Co/MgO ferromagnetic films. *S. Woo*[1,2], C. Pai[2], M. Mann[2], L.M. Caretta[2], J. Currivan[2], J. Choi[1], J. Chang[1] and G. Beach[2] *1. Center for Spintronics, Korea Institute of Science and Technology (KIST), Seoul, The Republic of Korea; 2. Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA*

3:30

BD-11. Spin Hall angle and spin diffusion length in $Au_{0.6}Cu_{0.4}$ alloy determined from the spin-orbit torque measurement. *J. Wu*[1], L. Zou[2], T. Wang[1], Y. Chen[1], J. Cai[2] and J. Xiao[1] *1. Physics & Astronomy, University of Delaware, Newark, DE; 2. Beijing National Laboratory for Condensed Matter Physics and Institute of Physics, Chinese Academy of Sciences, Beijing, China*

3:42

BD-12. Tuning spin Hall effect and spin-orbit torques in Cu-Pt alloy. *R. Ramaswamy*[1], Y. Wang[1], X. Qiu[1] and H. Yang[1] *1. Dept. of ECE, National University of Singapore, Singapore, Singapore*

3:54

BD-13. Characterization of the Spin-Hall Effective Field via Magnetization Switching in Magnetic Heterostructures with Perpendicular Magnetic Anisotropy. *C. Pai*[1], M. Mann[1], L.M. Caretta[1], A. Tan[1] and G. Beach[1] *1. Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA*

4:06

BD-14. Current induced effective magnetic fields and magnetization switching of perpendicular synthetic antiferromagnet multilayers. *X. Qiu*[1], P. He[1], L. William[1], R. Ramaswamy[1] and H. Yang[1] *1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore*

4:18

BD-15. Flexible heat-flow sensors based on the spin Seebeck effect. *A. Kirihara*[1,2], K. Kondo[3], M. Ishida[1,2], K. Ihara[1,2], Y. Iwasaki[1], H. Someya[1,2], K. Uchida[4,5], E. Saitoh[2,4], N. Yamamoto[3] and S. Yorozu[1,2] *1. NEC Corporation, Tsukuba, Japan; 2. ERATO, Japan Science and Technology Agency, Sendai, Japan; 3. NEC TOKIN Corporation, Sendai, Japan; 4. Tohoku University, Sendai, Japan; 5. PRESTO, Japan Science and Technology Agency, Saitama, Japan*

TUESDAY AFTERNOON 1:30 — SAPPHIRE 410

Session BE
MAGNETO-CALORIC MATERIALS I
Ekkes Brück, Chair
TU Delft, Delft, Netherlands

1:30

BE-01. Magneto-Elastic Coupling in La(Fe,Mn,Si)$_{13}$H$_y$ Within The Bean-Rodbell Model. *H.N. Bez*[1], K.K. Nielsen[1], A. Smith[1] and C.R. Bahl[1] *1. Department of Energy Conversion and Storage, Technical University of Denmark, Lyngby, Denmark*

1:42

BE-02. Extrinsic contributions to the entropy change in Mn-Fe-Si-P magneto-caloric compounds. *M. Kuepferling*[1], C. Curcio[1,4], V. Basso[1], A. Bartok[2], A. Pasko[2], K. Zehani[3], L. Bessais[3], F. Mazaleyrat[2] and M. LoBue[2] *1. INRIM, Torino, Italy; 2. SATIE, ENS Cachan, CNRS, Cachan, France; 3. CMTR, ICMPE, CNRS-UPEC, Thiais, France; 4. Politecnico di Torino, DISAT, Torino, Italy*

1:54

BE-03. Effects of nitrogen addition on the structural and magnetocaloric properties of (Mn,Fe)$_2$(P,Si) materials. *N. Thang*[1], N. van Dijk[1] and E. Brück[1] *1. Fundamental Aspects of Materials and Energy, Delft University of Technology, Delft, Netherlands*

2:06

BE-04. Inhomogeneous magnetization states as a tool for improving dynamic properties of magnetocaloric materials. *(Invited)* *J. Lyubina*[1], E. Lovell[1], A. Pereira[1], D. Caplin[1] and L. Cohen[1] *1. Imperial College London, London, United Kingdom*

2:42

BE-05. kinetic-arrest induced phase coexistence and metastability in $(Mn,Fe)_2(P,Si)$. *X. Miao*[1], Y. Mitsui[2], I. Dugulan[1], L. Caron[3,1], K. Koyama[2], K. Takahashi[4], N. Thang[1], N. van Dijk[1] and E. Brück[1] *1. Delft University of Technology, Delft, Netherlands; 2. Kagoshima University, Kagoshima, Japan; 3. Max Planck Institute for Chemical Physics of Solids, Dresden, Germany; 4. Tohoku University, Sendai, Japan*

2:54

BE-06. Magnetocaloric effect and Landau coefficients in itinerant electron metamagnetic Mn-Fe-P-Si: the role of inhmogeneities. V. Russier[2], M. Kustov[4], A. Bartok[1], A. Pasko[1], F. Mazaleyrat[1], L. Bessais[3], K. Zehani[3], L. Cohen[4] and *M. LoBue*[1] *1. SATIE, ENS de CACHAN, Université Paris-Saclay, CNRS, Cachan, France; 2. ICMPE, CNRS, Thiais, France; 3. ICMPE, CNRS-UPEC, Thiais, France; 4. Imperial College, London, United Kingdom*

3:06

BE-07. Pressure and temperature dependent structure and magnetism of magnetocaloric $MnFe_4Si_3$ single crystals and powder samples. *P. Hering*[1], K. Friese[1], A. Grzechnik[2], M. Hanfland[3], A. Senyshyn[4], J. Voigt[5], M. Maswada[1], Y. Cheng[1] and T. Brückel[1] *1. JCNS-2, Forschungszentrum Jülich GmbH, Juelich, Germany; 2. Institut für Kristallographie, RWTH Aachen, Aachen, Germany; 3. ESRF, Grenoble, France; 4. MLZ, Technische Universität München, München, Germany; 5. MLZ, Forschungszentrum Jülich GmbH, Jülich, Germany*

3:18

BE-08. Anisotropic magnetic phase diagram of Fe_2P single crystals. *D. Campanini*[1], M. Hudl[1], L. Caron[2], V. Höglin[3], M. Sahlberg[3], P. Nordblad[4] and A. Rydh[1] *1. Physics, Stockholm University, Stockholm, Sweden; 2. Max-Planck-Institute for Chemical Physics of Solids, Dresden, Germany; 3. Chemistry, Uppsala University, Uppsala, Sweden; 4. Engineering Sciences, Uppsala University, Uppsala, Sweden*

3:30

BE-09. A new device for thermography measurements of the adiabatic temperature change in small-volume magnetocaloric materials. *L. Helmich*[1], N. Teichert[1], A. Waske[2] and A. Huetten[1] *1. Physics Department, Center for Spinelectronic Materials and Devices, Bielefeld University, Bielefeld, Germany; 2. Institute for Complex Materials, Dresden, Germany*

3:42

BE-10. Multicaloric effects in $Fe_{49}Rh_{51}$. *E. Stern-Taulats*[3], L. Mañosa[3], A. Planes[3], L. Lewis[1], R. Barua[1], S. Pramanick[2] and S. Majumdar[2] *1. Chemical Engineering, Northeastern University, Boston, MA; 2. Solid State Physics, Indian Association for the Cultivation of Science, Kolkata, India; 3. Estructura i Constituents de la Matèria, Universitat de Barcelona, Barcelona, Catalonia, Spain*

3:54

BE-11. Pressure-induced Magnetocaloric Response in ($Fe_{47.5}Ni_{1.5}$) Rh_{51}. *R. Barua*[1,2], F. Jimenez-Villacorta[1], I.J. McDonald[1], L. Lewis[1,2] and D. Heiman[3] *1. Chemical Engineering, Northeastern University, Boston, MA; 2. George J. Kostas Research Institute for Homeland Security, Northeastern University, Burlington, MA; 3. Physics, Northeastern University, Boston, MA*

4:06

BE-12. Magnetocaloric behavior and enhanced refrigerant capacity of melt-spun R_2Fe_{17} ribbons. J.L. Sanchez Llamazares[2], P. Alvarez-Alonso[3], C.F. Sánchez-Valdés[2], P.J. Ibarra-Gaytán[2], J.A. Blanco[1] and *P. Gorria*[1] *1. Physics, University of Oviedo, Oviedo, Spain; 2. IPICYT, San Luis Potosí, Mexico; 3. UPV/EHU, Bilbao, Spain*

4:18

BE-13. A comparison of superconducting and permanent magnets for magnetic refrigeration. *R. Bjørk*[1], C.R. Bahl[1], K.K. Nielsen[1], A. Smith[1] and A.C. Wulff[1] *1. Department of Energy Conversion and Storage, Technical University of Denmark, Roskilde, Denmark*

TUESDAY AFTERNOON 1:30 — AQUA AB

Session BF
NEW FUNCTIONAL MAGNETIC MATERIALS I
David Sellmyer, Chair
University of Nebraska - Lincoln, Lincoln, NE

1:30

BF-01. Elastic control of the perpendicular magnetic anisotropy of Pd,Fe films deposited on $BaTiO_3$ substrates. *R.M. Harton*[1], V. Stoica[2] and R. Clarke[1] *1. University of Michigan at Ann Arbor, Ann Arbor, MI; 2. Argonne National Laboratory, Argonne, IL*

1:42

BF-02. Structural and magnetic properties of epitaxial Mn_2Au thin films for antiferromagnetic spintronics. A.A. Sapozhnik[1,2], H. Braeuning[1], M. Jourdan[1], H. Elmers[1], *H. Zabel*[1,2] and M. Kläui[1] *1. Institute of Physics, Johannes-Gutenberg University Mainz, Mainz, Germany; 2. Graduate School Materials Science in Mainz, Mainz, Germany*

1:54

BF-03. Tuning the magnetic properties of Mn_5Ge_3 by C doping: How to design a new material for spintronics applications. *L. Michez*[1], M. Petit[1], V. Le Thanh[1], M. Jamet[2], E. Prestat[2], F. D'Acapito[3] and F. Boscherini[4] *1. Aix-Marseille Université - CNRS/CINaM, Marseille, France; 2. INAC/SP2M, CEA-Grenoble, Grenoble, France; 3. ESRF, Grenoble, France; 4. University of Bologna, Bologna, Italy*

2:06

BF-04. Skyrmion stability in confined geometries. *R. Pepper*[1], M. Beg[1], R. Carey[1], W. Wang[1], D. Cortés-Ortuño[1], M. Vousden[1], M. Bisotti[1], M. Albert[1], D. Chernyshenko[1], O. Hovorka[1], R. Stamps[2] and H. Fangohr[1] *1. Faculty of Engineering and the Environment, University of Southampton, Southampton, United Kingdom; 2. SUPA School of Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom*

2:18

BF-05. Structural and magnetic properties of CoFeCrSi Heusler alloy. *P.R. Kharel*[1,2], Y. Jin[3], S. Valloppilly[2], A. O'Connell[3], Y. Huh[1], K. Yang[1,4] and D.J. Sellmyer[3,2] *1. Physics, South Dakota State University, Brookings, SD; 2. Nebraska Center for Materials and Nanoscience, Lincoln, NE; 3. Physics, University of Nebraska, Lincoln, NE; 4. Mechanical and Electrical Engineering, Hohai University, Changzhou, China*

2:30

BF-06. Large magnetic anisotropy in MnPtGa thin film. *R. Sahoo*[1], A.K. Nayak[2], W. Carrillo-Cabrera[1], S. Selle[3], T. Hoeche[3], B. Ernst[1], D. Ebke[1] and C. Felser[1] *1. Max Planck Institute for Chemical Physics of Solids, Dresden, Germany; 2. Max Planck Institute of Microstructure Physics, Halle, Germany; 3. Fraunhofer-Institut für Werkstoffmechanik IWM, Halle, Germany*

2:42

BF-07. Combinatorial magnetic materials characterization at ALS. *A.T. N'Diaye*[1], Y.U. Idzerda[2], H. Bhatkar[2], M. Meinert[3], J.M. Schmalhorst[3], D. Ebke[3,4], S.W. Fackler[5], I. Takeuchi[5], P. Huck[6], K. Persson[6] and E. Arenholz[1] *1. Advanced Light Source, Lawrence Berkeley National Lab, Berkeley, CA; 2. Department of Physics, Montana State University, Bozeman, MT; 3. Department of Physics, Bielefeld University, Bielefeld, Germany; 4. Miele & Cie. KG - Imperial Werke oHG, Bünde, Germany; 5. Department of Materials Science and Engineering, University of Maryland, College Park, MD; 6. Energy Technologies Area, Lawrence Berkeley National Lab, Berkeley, CA*

2:54

BF-08. Magnetism of Mn_2CrGa Heusler Compound. *W. Zhang*[1,3], P.R. Kharel[2,3], S. Valloppilly[3] and D.J. Sellmyer[1,3] *1. Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE; 2. Department of Physics, South Dakota State University, Brookings, SD; 3. Nebraska Center for Materials and Nanoscience, University of Nebraska, Lincoln, NE*

3:06

BF-09. Unexpected magnetic phase transitions in $Er_{1-x}Dy_xCo_2$. *A. Pathak*[1], K.A. Gschneidner[1,2] and V. Pecharsky[1,2] *1. Ames Laboratory, USDOE, Ames, IA; 2. Materials Science and Engineering, Iowa State University, Ames, IA*

3:18

BF-10. Coercivity control in bulk magnetic hybrid materials. *C. Urban*[1], T. Saerbeck[3,1], A. Quesada[2], M. Garcia[2] and I.K. Schuller[1] *1. Physics, UCSD, San Diego, CA; 2. Instituto de Cerámica y Vidrio, Madrid, Spain; 3. Institut Laue-Langevin, Grenoble, France*

3:30

BF-11. Structure and Magnetism of New $Fe_3Co_3X_2$ (X = Ti, Nb) Intermetallic Compounds. *B. Balasubramanian*[1,2], Z. Jie[3,4], B. Das[1,2], M. Nguyen[3,4], X. Xu[1,2], Y. Liu[5], A. Huq[5], C. Wang[3,4], K. Ho[3,4] and D.J. Sellmyer[1,2] *1. Nebraska Center for Materials and Nanoscience, University of Nebraska, Lincoln, NE; 2. Department of Physics and Astronomy, University of Nebraska, Lincoln, NE; 3. Ames Laboratory, US Department of Energy, Ames, IA; 4. Department of Physics and Astronomy, Iowa State University, Ames, IA; 5. Quantum Condensed Matter Division, Oak Ridge National Lab, Oak Ridge, TN*

3:42

BF-12. Perpendicular magnetic anisotropy of $Co_xMn_{4-x}N$ (x = 0 and 0.2) epitaxial films on $SrTiO_3$(001) substrates. *K. Ito*[1,2], Y. Yasutomi[1], K. Kabara[2], T. Gushi[1], S. HIgashikozono[1], K. Toko[1], M. Tsunoda[2] and T. Suemasu[1] *1. Institute of Applied Physics, University of Tsukuba, Tsukuba, Ibaraki, Japan; 2. Department of Electronic Engineering, Tohoku University, Sendai, Japan*

3:54

BF-13. Magnetic properties and structures of Tb_3Ni_2 and Tb_3CoNi. *A. Provino*[1,2], K.A. Gschneidner[3,4], V. Pecharsky[3,4], C. Ritter[5] and P. Manfrinetti[1,2] *1. Department of Chemistry, University of Genova, Genova, Italy; 2. Institute SPIN, CNR, Genova, Genova, Italy; 3. Ames Laboratory, Ames, IA; 4. Department of Materials Science and Engineering, Iowa State University, Ames, IA; 5. Institut Laue-Langevin, Grenoble, France*

4:06

BF-14. New soft magnetic composites for electromagnetic applications. *L. Ferraris*[1], E. Pošković[1] and F. Franchini[1] *1. Politecnico di Torino, Alessandria, Alessandria, Italy*

4:18

BF-15. Controllable Broadband Absorption in the Mixed Phase of Metamagnets. M. Pregelj[1], *A. Zorko*[1] and O. Zaharko[2] *1. Jozef Stefan Institute, Ljubljana, Slovenia; 2. Paul Scherrer Institute, Villigen, Switzerland*

Session BG
TOPOLOGICAL INSULATORS AND MAGNETO-ELECTRICITY
Olaf van't Erve, Chair
Naval Research Laboratory, Washington, DC

1:30

BG-01. Spin Polarization Measurements of Topological Insulator Family $(Bi_{1-x}Sb_x)_2Te_3$ by Point Contact Andreev Reflection. *K. Borisov*[1], C. Chang[2], J. Moodera[2] and P.S. Stamenov[1] *1. School of Physics and CRANN, Trinity College Dublin, Dublin, Ireland; 2. Department of Physics, Massachusetts Institute of Technology, Cambridge, MA*

1:42

BG-02. Coherent ultrafast spin-polarization in three dimensional topological insulators. M. Mansurova[1,2], F. Boschini[3], G. Mussler[4], J. Kampmeier[4], D. Grützmacher[4], F. Katmis[5], J. Moodera[5], C. Dallera[3], E. Carpene[3], C. Franz[7], M. Czerner[7], C. Heiliger[7], L. Braun[6], T. Kampfrath[6] and *M. Münzenberg*[1] *1. Institute of Physics, Ernst-Moritz-Arndt Univeristy, Greifswald, Deutschland (DEU), Germany; 2. I. Phys. Institut, Göttingen University, Göttingen, Germany; 3. Dipartimento di Fisica, Politecnico di Milano, 20133 Milan, Italy; 4. Peter Grünberg Institut (PGI-9) and Jülich-Aachen Research Alliance (JARA-FIT), Forschungszentrum Jülich, 52425 Jülich, Germany; 5. Francis Bitter Magnet Laboratory, Massachusetts Institute of Technology, Cambridge, MA; 6. Department of Physical Chemistry, Fritz-Haber-Institute, Berlin, Germany; 7. I. Physikalisches Institut, Justus-Liebig-Universität Giessen, Giessen, Germany*

1:54

BG-03. Temperature Dependence of Magneto-Optical Kerr Signal of $[(GeTe)_2/(Sb_2Te_3)_1]_n$ Topological Superlattices. *B. Do*[1,2], H. Awano[1,2], Y. Saito[3,2] and J. Tominaga[3,2] *1. Toyota Technological Institute, Nagoya, Japan; 2. CREST, Japan Science and Technology Agency,, 4-1-8 Honcho, Kawaguchi, Saitama, 332-0012, Japan; 3. Nanoelectronics Research Institute, AIST, 1-1-1 Higashi, Tsukuba, 305-8562,, Japan*

2:06

BG-04. Spin-Orbit Torques and Spin-Orbit Torque efficiency in Ferromagnet/Bi_2Se_3 Heterostructure. Y. Wang[1], P. Deorani[1], J. Son[1], K. Banerjee[1], N. Koirala[2], M. Brahlek[2], S. Oh[2] and *H. Yang*[1] *1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore, Singapore; 2. Department of Physics and Astronomy, The State University of New Jersey, Piscataway, NJ*

2:18

BG-05. Structural and proximity induced ferromagnetic properties of topological insulator-magnetic insulator heterostructures. *Z. Jiang*[1], C. Chang[2], C. Tang[1], J. Zheng[3], J. Moodera[2,4] and J. Shi[1] *1. Department of Physics and Astronomy, University of California at Riverside, Riverside, CA; 2. Francis Bitter Magnetic Lab, Massachusetts Institute of Technology, Cambridge, MA; 3. Irvine Materials Research Institute, University of California at Irvine, Irvine, CA; 4. Department of Physics, Massachusetts Institute of Technology, Cambridge, MA*

2:30

BG-06. Electrical Transport Properties of SmB_6 Thin Films: Does the Low-Temperature Plateau Signify Surface Conduction of a Topological Surface State? *Y. Li*[1], S. Huang[1] and C. Chien[1] *1. Department of Physics and Astronomy, Johns Hopkins Univeristy, Baltimore, MD*

2:42

BG-07. Landau Quantization and NMR Relaxation in the Topological Kondo Insulator SmB_6. *P. Schlottmann*[1] *1. Department of Physics, Florida State University, Tallahassee, FL*

2:54

BG-08. Strain Induced Vortex Core Switching in Planar Magnetostrictive Nanostructures. *T.A. Ostler*[1,2], R. Cuadrado[5,2], R. Chantrell[2], A. Rushforth[4] and S.A. Cavill[2,3] *1. College of Engineering, Mathematics and Physical Sciences, The University of Exeter, Exeter, United Kingdom; 2. Department of Physics, The University of York, York, UK, United Kingdom; 3. Diamond Light Source, Didcot, UK, United Kingdom; 4. School of Physics and Astronomy, The University of Nottingham, Nottingham, UK, United Kingdom; 5. ICN2 - Institut Català de Nanociència i Nanotecnologia, Barcelona, Spain*

3:06

BG-09. Investigation on Flexomagnetic Effect in Multiferroic Composites. *H.G. Borkar*[1] and A. Kumar[1] *1. ALSIM, CSIR-National Physical Laboratoory, New Delhi, Delhi, India*

3:18

BG-10. Power absorption in acoustically-driven ferromagnetic resonance. *D. Labanowski*[1], A. Jung[1] and S. Salahuddin[1] *1. University of California, Berkeley, Berkeley, CA*

3:30

BG-11. Magnetoelectric Effect in PZT/FeCuNbSiB Heterostructure with Perpendicular Middle Bonding. F. Zhang[1], *P. Li*[1], Y. Wen[1], C. Yang[1] and D. Wang[1] *1. Research Center of Sensors and Instruments, College of Optoelectronic Engineering, Chongqing University, Chongqing, China*

3:42

BG-12. Controlling individual magnetoelectric heterostructure by localized strain in a thin film piezoelectric. *J. Cui*[1*], C. Liang[1], E. Paisley[2], A. Sepulveda[1], J. Ihlefeld[2], G. Carman[1] and C. Lynch[1] *1. Mechanical and Aerospace Engineering Department, University of California, Los Angeles, Los Angeles, CA; 2. Electronic, Optical, and Nano Materials Department, Sandia National Laboratories, Albuquerque, NM*

3:54

BG-13. Reversible electrochemistry controlled magnetic phase transitions: Towards on-and-off bulk ferromagnetism. ***(Invited)*** *H. Hahn*[1,2], S. Dasgupta[1] and R. Kruk[1] *1. Institute of Nanotechnology, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Baden-Wuerttemberg, Germany; 2. Herbert Gleiter Institute of Nanoscience, Nanjing, China*

TUESDAY AFTERNOON 1:30 | AQUA SALON EF

Session BH
RARE-EARTH TRANSITION METAL BORIDES AND INTERMETALLICS II
Dominic Ryan, Chair
McGill University, Montreal, Canada

1:30

BH-01. The trend of Nd-Fe-B sintered magnets. ***(Invited)*** *H. Nakamura*[1] *1. Shin-Etsu Chemical, Echizen, Fukui, Japan*

2:06

BH-02. Laser Engineered Net Shaping (LENS) Enabled Rapid Synthesis and Assessment of Magnetic Materials. *C.I. Nlebedim*[1], R. Ott[1] and J. Geng[1] *1. Ames Laboratory, US Department of Energy, Iowa State University, Ames, IA*

2:18

BH-03. Combined TEM analysis and micromagnetic modelling of $Nd_2Fe_{14}B$ magnets. *J. Fidler*[1], G. Zickler[1], P. Toson[1] and A. Asali[1] *1. TU Vienna, Vienna, Austria*

2:30

BH-04. Looking inside Nd-Fe-B permanent magnets during initial magnetization and magnetirac reverrsal processes. *K. Saito*[1], T. Ueno[2], M. Yano[3], T. Shoji[3], N. Sakuma[3], A. Manabe[3], A. Kato[3], E.P. Gilbert[4] and K. Ono[1] *1. Institute of Materials Structure Science, High Energy Accelerator Research Organization, Tsukuba, Ibaraki, Japan; 2. Elements Strategy Initiative Center for Magnetic Materials, National Institution for Materials Science, Tsukuba, Ibaraki, Japan; 3. Advanced Materials Engineering Div., Toyota Motor Corporation, Susono, Shizuoka, Japan; 4. Bragg Institute, Australian Nuclear Science and Technology Organization, Lucas Heights, NSW, Australia*

2:42

BH-05. Anisotropic nature of the grain boundary phase in Nd-Fe-B sintered magnet. T. Sasaki[1], *T. Ohkubo*[1] and K. Hono[1] *1. Magnetic Materials Unit, National Institute for Materials Science, Tsukuba, Japan*

2:54

BH-06. Site-Specific Magnetic Anisotropies in $Nd_2Fe_{14}B$ Systems. *T. Yoshioka*[1] and H. Tsuchiura[1] *1. Department of Applied Physics, Tohoku University, Sendai, Miyagi, Japan*

3:06

BH-07. Spin fluctuation mechanism of anomalous temperature dependence of magnetocrystalline anisotropy in itinerant magnets. *I. Zhuravlev*[1], V. Antropov[2] and K. Belashchenko[1] *1. Department of Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE; 2. Ames Laboratory, Ames, IA*

3:18

BH-08. Magnetic properties of $(Fe_{1-x}Co_x)_2B$ and the effect of doping by 5d elements. *A. Edström*[1], M. Werwinski[1,2], D. Iusan[1], J. Rusz[1], O. Eriksson[1], K.P. Skokov[3], I.A. Radulov[3], S. Ener[3], M.D. Kuzmin[3], M. Fries[3], D.Y. Karpenkov[3], O. Gutfleisch[3], P. Toson[4] and J. Fidler[4] *1. Physics and Astronomy, Uppsala University, Uppsala, Sweden; 2. Institute of Molecular Physics, Polish Academy of Sciences, Poznan, Poland; 3. TU Darmstadt, Darmstadt, Germany; 4. TU Wien, Wien, Austria*

3:30

BH-09. Crystal-Field Degeneracy and Anisotropy in Bulk Magnets and Nanostructures. *R. Skomski*[1], P. Manchanda[1], R. Choudhary[2,1], A. Kashyap[2] and D.J. Sellmyer[1] *1. Department of Physics and Astronomy and NCMN, University of Nebraska, Lincoln, Lincoln, NE; 2. School of Basic Sciences, Indian Institute of Technology Mandi, Mandi, Himachal Pradesh, India*

3:42

BH-10. Micromagnetic Simulation of the Influence of Orientation Dependence of Grain Boundary Properties on Coercivities of Nd-Fe-B Sintered Magnets. *J. Fujisaki*[1], A. Furuya[1], Y. Uehara[1], K. Shimizu[1], T. Ataka[1], T. Tanaka[1], H. Oshima[2], T. Ohkubo[3], S. Hirosawa[3] and K. Hono[3] *1. Fujitsu Ltd., Kawasaki, Japan; 2. Fujitsu Laboratories Ltd., Kawasaki, Japan; 3. Elements Strategy Initiative Center for Magnetic Materials, National Institute for Materials Science, Tsukuba, Japan*

3:54

BH-11. First-principles study of interface magnetic properties of Nd-Fe-B magnet microstructures. *Y. Gohda*[1,4], H. Misawa[2], H. Tsuchiura[3,4] and S. Tsuneyuki[2,4] *1. Tokyo Tech, Yokohama, Japan; 2. Univ. Tokyo, Tokyo, Japan; 3. Tohoku Univ., Sendai, Japan; 4. ESICMM, Tsukuba, Japan*

4:06

BH-12. Large-scale micromagnetic simulation of Nd-Fe-B sintered magnets with Dy-rich shell structures. *T. Oikawa*[2,1], H. Yokota[2,1], T. Ohkubo[2] and K. Hono[2] *1. TDK Corporation, Ichikawa, Chiba, Japan; 2. National Institute for Materials Science (NIMS), Tsukuba, Ibaraki, Japan*

4:18

BH-13. Frozen orbital moment at rare earth $M_{4,5}$ absorption edges in Nd based rare earth permanent magnets. *S. Tripathi*[1], Y. Chen[1], T. Tietze[1], S. Schuppler[2], G.A. Schuetz[1] and E.J. Goering[1] *1. Modern Magnetic Materials, Max Planck Institute for Intelligent Systems, Stuttgart, Baden-wüttemberg, Germany; 2. Institute for Solid-State Physics, Karlsruhe Institute of Technology, Karlsruhe, Baden-Württemberg, Germany*

TUESDAY AFTERNOON 1:30 — AQUA 310

Session BI
MAGNETO-ELECTRIC MATERIALS AND DEVICES I
Hideto Yanagihara, Chair
University of Tsukuba, Tsukuba, Japan

1:30

BI-01. Colossal Magnetoelectricity in Polar/Chiral Magnets. *(Invited)* *S. Cheong*[1] *1. Physics and Astronomy, Rutgers University, Piscataway, NJ*

2:06

BI-02. Electric Field Control of the $CaRuO_3$/$CaMnO_3$ Interface. *A. Grutter*[1], B.J. Kirby[1], M.T. Gray[2,4], C. Flint[2,4], U.S. Alaan[2,4], Y. Suzuki[4,5], A.T. N'Diaye[3], E. Arenholz[3] and J. Borchers[1] *1. NIST Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD; 2. Materials Science and Engineering, Stanford University, Stanford, CA; 3. Advanced Light Source, Lawrence Berkeley National Lab, Berkeley, CA; 4. Geballe Laboratory for Advanced Materials, Stanford University, Stanford, CA; 5. Applied Physics, Stanford University, Stanford, CA*

2:18

BI-03. Exchange Interactions at the Interface of Co/Cr_2O_3 Bilayers. R. Choudhary[1,2], *R. Skomski*[2], D.J. Sellmyer[2] and A. Kashyap[1] *1. School of Basic Sciences (Physics), Indian Institute of Technology,Mandi, Mandi, Himachal Pradesh, India; 2. Department of Physics and Astronomy, University of Nebraska, Lincoln, NE*

2:30

BI-04. Effect of positive exchange bias on magnetization switching by magnetoelectric effect in Cr_2O_3/Co exchange coupling system. *T. Nozaki*[1], S. Pati[1], Y. Shiokawa[1], M. Al-Mahdawi[1] and M. Sahashi[1] *1. Electronic Engineering, Tohoku University, Sendai, Miyagi, Japan*

2:42

BI-05. Enhanced magneto-ionic switching of interface anisotropy in Pt/Co/GdOx films. *A. Tan*[1], U. Bauer[1] and G. Beach[1] *1. Materials Science and Engineering, MIT, Cambridge, MA*

2:54

BI-06. Withdrawn

3:06

BI-07. Magneto-electrical Modulation of Single-layer MoS_2 with Sulfur Vacancies. C. Chung[1], C. Yang[1], S. Chang[1], X. Zhang[3], K. Chiu[3], H. Pan[2], Y. Lee[3] and *Y. Tseng*[1] *1. Materials Science & Engineering, National Chiao-Tung University, Hsin-Chu, Taiwan; 2. Institute of Applied Physics and Materials Engineering, Macau, China; 3. National Tsing Hui University, Hsin-chu, Taiwan*

3:18

BI-08. Interfacial Effects on the Electric-Field Control of Magnetic Anisotropy in Organic Ferroelectric/Metallic Ferromagnetic Heterostructures. *K. Foreman*[1,2], E. Echeverria[1,2], M. Koten[3,2], C. Labedz[1,2], R. Lindsay[4] and S. Adenwalla[1,2] *1. Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE; 2. Nebraska Center for Materials and Nanoscience, University of Nebraska-Lincoln, Lincoln, NE; 3. Mechanical and Materials Engineering, University of Nebraska-Lincoln, Lincoln, NE; 4. University of Wisconsin-Stout, Menomonie, WI*

3:30

BI-09. Flexible Magnetoelectric Polymer Nanocomposite with Anisotropic Magnetoelectric Response. *M. Alnassar*[1,2], I. Ivanov[1], E. Vilanova[1] and J. Kosel[1] *1. Electrical Engineering, King Abdullah University of Science and Technology, Thuwal - Jeddah, Saudi Arabia; 2. Power Systems Department, Saudi Arabian Oil Company, Dhahran, Saudi Arabia*

3:42

BI-10. Tailoring Morphology and Properties of New Polymer Based Magnetoelectric Materials Coupling the Polyol Process and Suitable Surface Chemistry. C. Ben Osman[1,2], M. Bibani[1,2], S. Nowak[1,2], D. Faurie[3,2], S. Mercone[3,2], S. Ammar[1,2] and *F. Mammeri*[1,2] *1. ITODYS, Paris Diderot University, Sorbonne Paris Cité, Paris, France; 2. CNRS, Paris, France; 3. LSPM, Paris Nord University, Sorbonne Paris Cité, Villetaneuse, France*

3:54

BI-11. Giant Magnetoelectric Effect in FeCo and FeCo/Ag films on (011) oriented PIN-PMN-PT. *M. Staruch*[1], K. Bussmann[1] and P. Finkel[1] *1. Naval Research Laboratory, Washington, DC*

4:06

BI-12. Large magnetoelectric coupling in lead free (BNT-BKT-BMgT) - $CoFe_2O_4$ particulate nanocomposite. M. Tyagi[1], R. Chatterjee[2] and *P. Sharma*[1] *1. School of Physics & Materials Science, Thapar University, Patiala, Punjab, India; 2. Department of Physics, Indian Institute of Technology, Delhi, Delhi, India*

4:18

BI-13. Magnetoelectric control of domain wall motion induced by uniform stress in magnetoelastic thin films. T. Mathurin[1], S. Giordano[1], Y. Dusch[1], *N. Tiercelin*[1], V. Preobrazhensky[1,2] and P. Pernod[1] *1. Univ. Lille, CNRS, Centrale Lille, Joint International Laboratory LICS/LEMAC, Villeneuve d'Ascq, France; 2. Wave Research Center of A. Prokhorov General Physics Institute RAS, 38 Vavilova Street, 119991, Moscow, Russian Federation*

TUESDAY AFTERNOON 1:30 — AQUA 300

Session BJ
MOTOR DESIGN AND ANALYSIS I
Xiaolu Yin, Chair
University of Nebraska - Lincoln, Lincoln, NE

1:30

BJ-01. Analysis and Design Optimization of Tubular Linear Magnetic Gear. *N. Feng*[1], H. Yu[1], M. Hu[1], L. Huang[1] and S. Zhenchuan[1] *1. School of Electrical Engineering, Southeast University, Nanjing, Jiangsu, China*

1:42

BJ-02. Design and Analysis of a Flux Switching Permanent Magnet Machine of 3D Flux Path with SMC Cores and Ferrite Magnets. *C. Liu*[1], J. Zhu[2], Y. Wang[1], Y. Guo[2] and G. Lei[2] *1. College of Electrical Engineering, Hebei University of Technology, Tianjin, China; 2. University of Technology, Sydney, Sydney, 2007, Australia, Sydney, NSW, Australia*

1:54

BJ-03. Torque Density Elevation in Permanent-Magnet-Assisted Synchronous Reluctance Machines for Electric Vehicle Application. *Y. Hu*[1] and C. Liu[1] *1. College of Automation Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu, China*

2:06

BJ-04. Analysis of a Double Stator Linear Rotary Permanent Magnet Motor with Orthogonal Arrayed Permanent Magnets. *L. Xu*[1], M. Lin[1], X. Fu[1] and N. Li[1] *1. Electrical Engineering of Southeast University, Nanjing, China*

2:18

BJ-05. Detent Force Minimization of a Linear Vernier Permanent Magnet Machine for Direct-Drive Servo Applications. Y. Gao[1], *R. Qu*[1] and D. Li[1] *1. Huazhong University of Science of Technology, Wuhan, China*

2:30

BJ-06. Design and Analysis of a Novel Cambered 2-DOF PM In-wheel Motor. F. Chai[1], *L. Gan*[1], Y. Pei[1] and S. Cheng[1] *1. School of Electrical Engineering and Autumation, Harbin Institute of Technology, Harbin, China*

2:42

BJ-07. Development of a Limited-angle torque motor with a Moving Coil. *J. Zou*[1], G. Yu[1], Y. Xu[1], Q. Wang[1], J. Li[1] and B. Zhao[1] *1. Harbin Institute of Technology, Harbin, China*

2:54

BJ-08. Magnetic and Thermal Stress Analysis of a Direct Liquid-Cooled Coreless Linear Actuator. *T. van Beek*[1], J. Jansen[1], B. Gysen[1] and E.A. Lomonova[1] *1. Electrical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands*

3:06

BJ-09. Thermal Analysis of a Staggered-Teeth Transverse-Flux Permanent-Magnet Linear Machine Using Three-Dimensional Thermal Network Method. P. Zheng[1], *S. Zhang*[1], B. Yu[1], Y. Sui[1] and W. Wang[1] *1. School of Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, China*

3:18

BJ-10. Unbalanced Magnetic Forces due to Rotor Eccentricity in a Toroidally-Wound BLDC Motor. D. Kim[1], *M.D. Noh*[1] and Y. Park[1] *1. Mechatronics Engineering, Chungnam National University, Daejeon, The Republic of Korea*

3:30

BJ-11. Electromagnetic Characterization of Steel Spheres for Usage as Rotors in an Ultra-High Speed Motor. *M. Schuck*[1], T. Nussbaumer[2] and J. Kolar[1] *1. Power Electronic Systems Laboratory, Swiss Federal Institute of Technology (ETH), Zurich, Switzerland; 2. Levitronix GmbH, Zurich, Switzerland*

3:42

BJ-12. Use of Non-Rare-Earth Permanent Magnets in Halbach Cylinder Rotor Permanent Magnet Generator. *H.A. Khazdozian*[1,2], R.L. Hadimani[2] and D.C. Jiles[1,2] *1. Wind Energy Science, Engineering and Policy Program, Iowa State University, Ames, IA; 2. Dept. of Electrical and Computer Engineering, Iowa State University, Ames, IA*

3:54

BJ-13. Multifrequency Spiral Vector Model for Brushless Doubly Fed Machines. *P. Han*[1,2], M. Cheng[1] and Z. Chen[2] *1. School of Electrical Engineering, Southeast University, Nanjing, Jiangsu, China; 2. Department of Energy Technology, Aalborg University, Aalborg, Denmark*

4:06

BJ-14. Performance Estimation of Switched Reluctance Machine Based on Nonlinear Reluctance Analysis. *S. Song*[1] and S. Chen[1] *1. Northwestern Polytechnical University, Xi'an, Shaanxi, China*

4:18

BJ-15. Investigation of A New Ironless-Stator Self-Bearing Axial Flux Permanent Magnet Motor. *W. Geng*[1] and Z. Zhang[1] *1. Department of Electrical Engineering College of Automation Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing, China*

TUESDAY AFTERNOON 2:30 — SAPPHIRE BALLROOM SOUTH

Session BP

HALF-METALLIC MATERIALS I (Poster Session)

Goran Mihajlovic, Co-Chair
HGST, San Jose, CA
Stephane Andrieu, Co-Chair
Universite de Lorraine, Vandoeuvre, France

BP-01. Enhancement of $L2_1$ ordering and spin polarization in Co_2MnSi Heusler alloy thin films by Ag alloying. *S. Bosu*[1], Y. Sakuraba[1], T. Sasaki[1], S. Li[1] and K. Hono[1] *1. National Institute for Materials Science, Tsukuba, Japan*

BP-02. Effect of the Chalcogenide Element Doping on the Electronic Properties of Co_2FeAl Heusler Alloys. T. Huang[1], *X. Cheng*[1], X. Guan[1] and X. Miao[1] *1. School of Optical and Electronic Information, Huazhong University of Science & Technology, Wuhan, Hubei, China*

BP-03. Fully epitaxial $C1_b$-type NiMnSb half-Heusler alloy films for current-perpendicular-to-plane giant magnetoresistance devices with a Ag spacer. *Z. Wen*[1], T. Kubota[1], T. Yamamoto[1] and K. Takanashi[1] *1. Institute for Materials Research (IMR), Tohoku University, Sendai, Japan*

BP-04. Thermal properties of highly spin polarized $Co_{1-x}Fe_xS_2$ single crystals. *D. Wesenberg*[1], M. Manno[2], C. Leighton[2] and B. Zink[1] *1. Physics and Astronomy, University of Denver, Denver, CO; 2. Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN*

BP-05. Nuclear magnetic resonance reveals structural evolution upon annealing in epitaxial Co_2MnSi Heusler films.
S. Wurmehl[1], S. Rodan[1], A. Alfonsov[1], J. Kohlhepp[2], H. Swagten[2], B. Koopmans[2], B. Büchner[1] and Y. Sakuraba[3]
1. IFW-Dresden, Dresden, Germany; 2. TU Eindhoven, Eindhoven, Netherlands; 3. NIMS, Tsukuba, Japan

BP-06. Spectral signatures of thermal spin disorder and excess Mn in half-metallic NiMnSb. *K. Belashchenko*[1], J. Weerasinghe[1], S. Mu[1] and B. Pujari[1,2] *1. Department of Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE; 2. Centre for Modeling and Simulation, Savitribai Phule University of Pune, Pune, Maharashtra, India*

BP-07. Synthesis and characterization of Fe-Ti-Sb intermetallic compounds: discovery of a new Slater-Pauling Phase.
N. Naghibolashrafi[1,3], S. Keshavarz[2,3], J.C. Romero[2,3], K. Munira[2,3], D. Mazumdar[4], V.I. Hegde[5], J. Ma[6], A. Gupta[3,7], P. LeClair[2,3], W.H. Butler[2,3], A. Ghosh[5] and C. Wolverton[5]
1. Materials Science Program, University of Alabama, Tuscaloosa, AL; 2. Physics and Astronomy, University of Alabama, Tuscaloosa, AL; 3. Center for Materials for Information Technology, Tuscaloosa, AL; 4. Physics, Southern Illinois University, Carbondale, IL; 5. Materials Science and Engineering, Northwestern university, Evanston, IL; 6. Electrical and Computer Engineering, University of Virginia, Charlottesville, VA; 7. Chemistry, University of Alabama, Tuscaloosa, AL

BP-08. Electronic structure and magnetic properties of Mn_3Ga doped with Ti, V, and Cr: A first-principles study.
M. Tsujikawa[1] and M. Shirai[1] *1. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan*

BP-09. Half-metallicity in $CuCr_2S_4$ film: a density functional study.
M. Feng[1], B. Shao[2], X. Cao[1] and *X. Zuo*[3] *1. School of Physics, Nankai University, Tianjin, China; 2. Tsinghua University, Beijing, China; 3. College of Electronic Information and Optical Engineering, Nankai University, Tianjin, China*

BP-10. Phonon driven modulation of Verwey transition in isotope substituted $Fe_3{}^{18}O_4$ thin films. *K. Teraguchi*[1], I. Suzuki[1], Y. Hamasaki[1], S. Yasui[1], T. Taniyama[1] and M. Itoh[1]
1. Materials and Structures Laboratory, Tokyo Institute of Technology, Yokohama, Kanagawa, Japan

BP-11. Atomic study of CO/CO_2 post-annealed Fe_3O_4 thin films.
B. Kuerbanjiang[1], D. Pingstone[1], Z. Nedelkovski[1], L. Lari[1], A. Ghasemi[1], S. Tear[1] and V. Lazarov[1] *1. University of York, York, United Kingdom*

BP-12. Substrate effects on in-plane magnetic anisotropy and Verwey transition temperature of the (100) Fe_3O_4 films.
J. Dho[1], B. Kim[1] and S. Ki[1] *1. Physics, Kyungpook National University, Daegu, The Republic of Korea*

BP-13. First-principles calculations of exchange interaction constants of an ultra-thin Cr_2O_3 film. *Y. Kitaoka*[1] and H. Imamura[1] *1. AIST, Tsukuba, Japan*

BP-14. Magnetically active memristors based on STO. *I. Bergenti*[1], P. Graziosi[1], A. Riminucci[1], L. Vistoli[1], E. Zuccatti[1], D. McLaren[2], K. O'Shea[2] and V.A. Dediu[1] *1. ISMN-CNR, Bologna, Italy; 2. School of Physics, University of Glasgow, Glasgow, United Kingdom*

TUESDAY AFTERNOON 2:30 | SAPPHIRE BALLROOM SOUTH

Session BQ
AMORPHOUS AND NANO CRYSTALLINE SOFT MAGNETIC MATERIALS I (Poster Session)

Massimo Pasquale, Chair
INRIM, Torino, Italy

BQ-01. Structural evolution and soft magnetic properties of thermally treated Ni substituted Fe-B-Nb glassy metals. *A. Masood*[1,2], V. Ström[2], L. Belova[2], S. Kulkarni[1], C. O'Mathuana[1] and K.V. Rao[2] *1. Microsystems Center, Tyndall National Institute, University College Cork, Cork, Ireland; 2. Materials Science and Engineering, KTH-Royal Institute of Technology, Stockholm, Sweden*

BQ-02. Magnetic and magnetoimpedance studies on rapidly solidified $(Fe_{70}Co_{30})B_{19}M_1$ ribbons. *S.K. Manna*[1] and V. Srinivas[1] *1. Department of Physics, Indian Institute of Technology Madras, Chennai, Tamil Nadu, India*

BQ-03. Magnetoelectric Effect in Ring-shaped Fe-based Nanocrystalline FeCuNbSiB Alloy and Piezoelectric Ceramic $Pb(Zr,TiO)_3$ Composites. F. Zhang[1], *P. Li*[1], Y. Wen[1], C. Yang[1] and D. Wang[1] *1. College of Optoelectronic Engineering, Chongqing University, Chongqing, China*

BQ-04. Tuning biaxial anisotropic field in FeCoTiO/SiO_2/FeCoTiO Trilayer Films by Oblique Sputtering and Strips Patterning. *Y. Wang*[1], H. Zhang[1], L. Wang[1] and F. Bai[1] *1. State Key Laboratory of Electronic Thin Films and Integrated Devices, University of Electronic Science and Technology of China, Chengdu, China*

BQ-05. Study of magnetic properties and double resonance peaks of FeCoB/SiO_2/FeCoSiB magnetic films. *H. Zheng*[1,2], L. Zhang[1,2], W. Zhu[1,2], M. Li[1,2], M. Zhang[1,2], J. Xie[1,2] and L. Deng[1,2] *1. School of Microelectronics and Solid-State Electronics, University of Electronic Science and Technology of China, Chengdu, Sichuan, China; 2. National Engineering Research Center of Electromagnetic Radiation Control Materials, University of Electronic Science and Technology of China, Chengdu, Sichuan, China*

BQ-06. Impact of ion-irradiation upon magnetic structure of NANOPERM-type metallic glasses. M. Miglierini[2,3], M. Pavúk[2], *M. Hasiak*[1], J. Kaleta[1] and M. Bujdoš[4] *1. Department of Mechanics and Materials Scienece, Wroclaw University of Technology, Wroclaw, Poland; 2. Institute of Nuclear and Physical Engineering, Slovak University of Technology, Bratislava, Slovakia; 3. Department of Nuclear Reactors, Czech Technical University, Prague, Czech Republic; 4. Institute of Laboratory Research on Geomaterials, Comenius University, Bratislava, Slovakia*

BQ-07. Microstructure and magnetic properties of Co-V nanotubes. *Y. Jeon*[1], S.H. Kim[1] and Y.K. Kim[1] *1. Department of Materials Science & Engineering, Korea University, Seoul, The Republic of Korea*

BQ-08. Nano-indentation properties and structure of $Co_{60}Fe_{20}B_{20}$ thin films. *Y. Chen*[1] *1. Graduate School of Materials Science, National Yunlin University of Science and Technology, Yunlin 64002, Taiwan, R.O.C., Graduate School of Materials Science, National Yunlin University of Science and Technology, Yunlin 64002, Taiwan, R.O.C., Yunlin, Taiwan*

BQ-09. Bianisotropy induced by oblique sputtering in CoFeB amorphous soft films. *D. Wen*[1], H. Zhang[1] and F. Bai[1] *1. University of Electronic Science and Technology of China, Chengdu, China*

BQ-10. FORC temperature evolution analysis of multiphase soft magnetic ribbons. *J.C. Martínez-García*[1], M. Rivas[1] and P. Gorria[1] *1. Physics Department, Universidad de Oviedo, Gijón, Spain*

BQ-11. Left-handed properties dependence versus the interwire distance in Fe-based microwires metastructures. *G. Ababei*[1], C.S. Olariu[1], N. Lupu[1] and H. Chiriac[1] *1. National Institute of Research and Development for, Iasi, Romania*

BQ-12. Core Loss Measurement of Amorphous Alloys in High-Speed Permanent-Magnet Machine. *D. Joo*[1], D. Hong[1] and B. Woo[1] *1. Electric Motor Research Center, KERI, Changwon-si, The Republic of Korea*

BQ-13. Effect of post-annealing on low-frequency magnetic susceptibility, and electrical and adhesive properties of FePdB thin films. *Y. Chen*[1] *1. Graduate School of Materials Science, National Yunlin University of Science and Technology, Yunlin, Taiwan*

BQ-14. High sensitivity zero-biased magnetic field sensor based on multiphase laminate heterostructures with FeCuNbSiB nanocrystalline soft magnetic alloy. *J. Qiu*[1], Y. Wen[1], P. Li[1] and W. Li[2] *1. College of Optoelectronic Engineering, Chongqing University, Chongqing, Chongqing, China; 2. College of Engineering, University of California, Davis, CA*

Session BR

HARD MAGNETIC MATERIALS PROCESSING AND APPLICATIONS I (Poster Session)

Hajime Nakamura, Co-Chair
Shin-Etsu Chemical, Echizen, Japan
Arjun Pathak, Co-Chair
Ames Laboratory, Ames, IA

BR-01. Recycling of rare earth permanent magnets in WEEE: The EXTRADE project. *V. Nachbaur*[1], N. Maat[1], J. Le Breton[1] and N. Menad[2] *1. Groupe de Physique des Matériaux, Université de Rouen, Saint Etienne du Rouvray, France; 2. Waste and Raw Materials Unit, BRGM Environment and Ecotechnologies Division, Orléans, France*

BR-02. Changes of microstructure and coercivity of Nd-rich Ga-doped NdFeB sintered magnets with post-annealing. *Y. Takada*[1], T. Sato[1], T. Sasaki[2], T. Ohkubo[2], K. Hono[2], A. Kato[3] and Y. Kaneko[1] *1. Materials and Processing Dept. II, Toyota Central R&D Labs., Inc., Nagakute, Aichi, Japan; 2. National Institute for Materials Science, Tsukuba, Ibaraki, Japan; 3. Toyota Motor Corporation, Susono, Shizuoka, Japan*

BR-03. Distinguishing the Effects of Heat Treatment and Dysprosium Diffusion on Coercivity Enhancement in Nd-Fe-B Magnets. *G.L. Hester*[1,2], W. Tang[2], C.I. Nlebedim[2] and R.W. McCallum[2] *1. Department of Physics, Astronomy and Materials Science, Missouri State University, Ozark, MO; 2. Ames National Laboratory, Iowa State University, Ames, IA*

BR-04. Effect of processing parameters on the magnetic properties and macrotexture of the $Nd_{13.5}Fe_{73.8}Co_{6.7}B_{5.6}Ga_{0.4}$ alloy processed by ECAP with back pressure. E. Onal[1], R. Lapovok[2], H. Kishimoto[3], A. Kato[3], C. Davies[4] and *K. Suzuki*[1] *1. Department of Materials Science and Engineering, Monash University, Melbourne, VIC, Australia; 2. Institute for Frontier Materials, Deakin University, Geelong, VIC, Australia; 3. Toyota Motor Corporation, Susono, Shizuoka, Japan; 4. Department of Mechanical and Aerospace Engineering, Monash University, Melbourne, VIC, Australia*

BR-05. Magnetic Properties of Interstitially Modified Ce-Nd-Fe-Mo-N Magnets Prepared by Spark Plasma Sintering. *C. Zhou*[1], J. Kong[2] and F.E. Pinkerton[1] *1. General Motors Research and Development Center, Warren, MI; 2. Department of Chemical Engineering and Materials Science, Michigan State University, East Lansing, MI*

BR-06. Effect of Cooling Rate during Homogenization on Magnet Properties of NdFeB-based d-HDDR Powder. *M. Yamazaki*[1], C. Mishima[1], K. Noguchi[1], M. Shintaku[1] and H. Mitarai[1] *1. Aichi Steel corporation, Seki, Gifu, Japan*

BR-07. Magnetic properties and microstructures of Zr-Co powders by high energy ball milling. *G. Lee*[1], K. Moon[1], K. Jeon[1], M. Kang[1] and J. Kim[1] *1. Materials Engineering, Hanyang university, Ansan, Kyunggi-Do, The Republic of Korea*

BR-08. Calcination effects on magnetic properties in strontium ferrite synthesized by a molten salt method. *K. Kim*[1], K. Jeon[1], M. Kang[1], K. Moon[1] and J. Kim[1] *1. Department of Materials Engineering, Hanyang Univ, Ansan, Gyeunggi-do, The Republic of Korea*

BR-09. Mechanical properties of La-Ce substituted Nd-Fe-B magnets. *J. Jin*[1], Y. Zhang[1], T. Ma[1] and M. Yan[1] *1. Material Science and Engineering, Zhejiang University, Hangzhou, Zhejiang, China*

BR-10. Development of Dy-free NdFeB anisotropic injection-molded magnet for IPM motor application. *K. Noguchi*[1] *1. Electro Magnetic product Department, Aichi Steel Corporation, Aichi, Japan*

BR-11. Recovery for Nd-Fe-B sintered magnets sludge as a recycled magnet. *X. Yin*[1], M. Liu[1], S. Sun[1], M. Yue[1] and H. Suo[1] *1. College of Materials Science and Engineering, Beijing University of Technology, Beijing, China*

BR-12. Prediction of flux loss in a Nd-Fe-B bonded magnet under an external magnetic field. *S. Horita*[1], T. Yanai[1], M. Nakano[1] and H. Fukunaga[1] *1. Nagasaki University, Nagasaki, Japan*

BR-13. Comparative Study of Novel Designs of Triple-Permanent-Magnet-Excited Magnetic Gears. Y. Mao[1], *S. Niu*[1], W. Fu[1] and L. Yang[1] *1. The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

BR-14. Corrosion Behavior of Dual-Main-Phase CeNdFeB Magnet. Y. Wu[1,2], *M. Zhu*[1,2], S. Huang[1,2] and W. Li[1,2] *1. Functional Materials Research Institute, Central Iron and Steel Research Institute, Beijing, China; 2. Beijing Engineering Laboratory of Advanced Metallic Magnetic Materials and Preparation Techniques, Beijing, China*

Session BS
NANOPARTICLES II
(Poster Session)

Richard Evans, Co-Chair
University of York, York, United Kingdom
Ondrej Hovorka, Co-Chair
Southampton University, Southampton, United Kingdom

BS-01. Determination of Magnetic Anisotropy and Relaxation of 20 uncoupled 43 nm Fe/Fe_xO_y Core/Shell-Nanocubes by means of Ferromagnetic Resonance. *A. Terwey*[1], S. Masur[1], R. Meckenstock[1], C. Derricks[1], F. Römer[1], B.W. Zingsem[1] and M. Farle[1] *1. Experimental Physics - AG Farle, University Duisburg-Essen, 47057 Duisburg, Germany*

BS-02. Uniform Doping of Magnetic Ions in Semiconductor Quantum Dots from Inside Out. *A. Saha*[1], S. Chattopadhyay[2], T. Shibata[2] and R. Viswanatha[1] *1. New Chemistry Unit, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, Karnataka, India; 2. Argonne National Laboratory, Chicago, IL*

BS-03. Magnetic Properties of Iron-Oxide-Nanoparticle Superstructures Assembled under In-Plane Magnetic Field. *C. Jiang*[1], C. Zheng[1], C. Leung[2] and P. Pong[1] *1. Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong, Hong Kong; 2. Department of Applied Physics, Hong Kong Polytechnic University, Hong Kong, Hong Kong*

BS-04. High energy product $SmCo_5$@Fe core-shell nanoparticles. A.L. Dantas[1], L.L. Oliveira[2], S. Pedrosa[2], G. Rebouças[3], R.B. Silva[1] and *A.S. Carriço*[2] *1. Departament of Physics, University of State of Rio Grande do Norte, Natal, RN, Brazil; 2. Department of Physics, Federal University of Rio Grande do Norte, Natal, RN, Brazil; 3. Department of Physics, Federal Rural University of Semi-Arido, Angicos, RN, Brazil*

BS-05. Fabrication of Patterned Rings of Magnetic Nanoparticle Assemblies. Y. Li[1], *T. Wen*[1], D. Zhang[1,2], Y. Liao[1], Q. Wen[1], H. Zhang[1], F. Bai[1] and Z. Zhong[1] *1. State Key Laboratory of Electronic Thin Films and Integrated Devices, University of Electronic Science and Technology of China, Chengdu, Sichuan, China; 2. Electrical and Computer Engineering, University of Delaware, Newark, DE*

BS-06. Temperature Dependent Magnetization in Bimagnetic Nanoparticles with Antiferromagnetic Interfacial Exchange. *N.R. Anderson*[1] and R.E. Camley[1] *1. Physics, University of Colorado, Colorado Springs, Colorado Springs, CO*

BS-07. Improved Electromagnetic Interference Shielding Response of Fe_3O_4@PANI core-shell nanostructures. *J. Nam*[1], K. Choi[2], L.M. Malkinski[3], L. Spinu[3], K. Han[1], S. Park[1] and J. Jung[1] *1. Chemistry, Gangneung-Wonju National University, Gangneung, The Republic of Korea; 2. Physics & Material Science, Kwangwoon University, Seoul, The Republic of Korea; 3. Physics & Material Science, University of New Orleans, New Orleans, LA*

BS-08. Spin glass transition in single crystal Ni carbide nanoparticles with Ni_3C-type structure. *S. Fujieda*[1], T. Kuboniwa[1], K. Shinoda[1] and S. Suzuki[1] *1. Tohoku University, Sendai, Japan*

BS-09. Needle-shaped porous particles composed of spinel-type iron oxide. *S. Fujieda*[1], T. Akiyama[1], K. Shinoda[1] and S. Suzuki[1] *1. Tohoku Univ, Sendai, Japan*

BS-10. Magneto-optical susceptometry of superparamagnetic Fe_3O_4 nanoparticles using AC magnetic fields. T. Taplin[1], *C. Patterson*[1], M. Syed[1] and T. Foulkes[2] *1. Physics & Optical Engineering, Rose-Hulman Institute of Technology, Terre Haute, IN; 2. Electrical Engineering, Rose-Hulman Institute of Technology, Terre Haute, IN*

BS-11. Enhanced photosensitivity of K-Ni-Cr Prussian blue analogue in nano-sized core/shell heterostructure. *C. Lee*[1], M. Wang[1], C. Wu[2], C. Wang[2] and W. Li[1] *1. Department of Physics, National Central University, Jhongli, Taiwan; 2. Neutron Group, National Synchrotron Radiation Research Center, Hsinchu, Taiwan*

BS-12. Ferromagnetic MnBi nanoparticles: Structure, composition, and magnetism. *E. Skoropata*[1], R.D. Desautels[1], J.W. Freeland[2], M.P. Rowe[3] and J. van Lierop[1] *1. Physics and Astronomy, University of Manitoba, Winnipeg, MB, Canada; 2. Argonne National Laboratory, Argonne, IL; 3. Toyota, Ann Arbor, MI*

BS-13. XMCD Study of Size Dependent Magnetism on Co Clusters Embedded in Cu. *M. Kaur*[1] and Y. Qiang[1] *1. Physics, University of Idaho, Moscow, ID*

BS-14. Alumina Doped with Fe_2O_3 Coated Alumina Platelets and Textured by Low Magnetic Field. *A.S. Sokolov*[1], R. Barua[1] and V.G. Harris[1] *1. CM3IC, Northeastern University, Boston, MA*

Session BT

MAGNETIC TUNNEL JUNCTIONS I (Poster Session)

Tadashi Kai, Chair
Toshiba Corporation, Kawasaki, Japan

BT-01. Voltage modulation of switching field in antiferromagnetic thin film measured by tunneling anisotropic magnetoresistance. *M. Goto*[1], K. Nawaoka[1], S. Miwa[1], S. Hatanaka[1], N. Mizuochi[1] and Y. Suzuki[1] *1. Graduate school of engineering science, Osaka university, Toyonaka, Osaka, Japan*

BT-02. Electric and magnetic improvements of the patterned MTJs by the damage recovery using the novel oxygen showering post-treatment (OSP) process at the argon ion milling etching (AIME) scheme. *J. Jeong*[1,2] and T. Endoh[1,3] *1. Graduate School of Engineering, Tohoku university, Sendai, Japan; 2. Samsung Electronics Co., Ltd., Hwasung-si, The Republic of Korea; 3. Center for Innovative Integrated Electronic Systems (CIES), Sendai, Japan*

BT-03. Multi-electrode probe geometry optimization for characterization of magnetic tunnel junction stacks. *A. Cagliani*[1,2], D. Kjaer[2,1], F.W. Østerberg[1,2], O. Hansen[1], P. Nielsen[2] and D.H. Petersen[1] *1. DTU-Nanotech, Technical University of Denamrk, Copenhagen, Denmark; 2. CAPRES A/S, Kgs. Lyngby, Denmark*

BT-04. Experimental observation of back-hopping with reference layer flipping by high-voltage pulse in perpendicular magnetic tunnel junctions. *W. Kim*[1], S. Rao[1], G. Donadio[1], D. Crotti[1], S. Couet[1], J. Swerts[1], L. Souriau[1], S. Van Beek[1,2], L. Goux[1], G.S. Kar[1] and A. Furnemont[1] *1. IMEC, Leuven, Belgium; 2. Dept. ESAT, KU Leuven, Heverlee, Belgium*

BT-05. Ultra-low switching energy and scaling in electric-field-controlled nanoscale magnetic tunnel junctions with high resistance-area product. *C. Grezes*[1], F. Ebrahimi[1,2], J. Katine[3], J. Langer[4], B. Ocker[4], P. Khalili[1,2] and K. Wang[1] *1. Electrical Engineering, University of California Los Angeles, Los Angeles, CA; 2. Inston Inc., Los Angeles, CA; 3. HGST Inc., San Jose, CA; 4. Singulus Technologies AG, Kahl am Main, Germany*

BT-06. Angular dependence of tunneling magnetoresistance in hybrid Fe/GaAlAs/GaMnAs magnetic tunnel junctions. *S. Choi*[1], T. Yoo[1,2], S. Bac[1], S. Lee[1], S. Lee[1], X. Liu[2] and J. Furdyna[2] *1. Physics, Korea University, Seoul, The Republic of Korea; 2. Physics, Notre Dame University, Notre Dame, IN*

BT-07. Temperatures and temperature gradients in magnetic tunnel junctions during pulsed heating. *N. Liebing*[1], S. Serrano-Guisan[2], S. Sievers[1], P. Krzysteczko[1], X. Hu[1], H.W. Schumacher[1], K. Rott[3] and G. Reiss[3] *1. Physikalisch-Technische Bundesanstalt, Braunschweig, Germany; 2. International Iberian Nanotechnology Laboratory, Braga, Portugal; 3. Physics Department, Bielefeld University, Bielefeld, Germany*

BT-08. Effect of bottom electrode smoothness on tunnel magnetoresistance in top pinned perpendicular magnetic tunnel junctions. *J. Wrona*[1,2], J. Langer[1], S. Tibus[1], J. Kanak[2] and T. Stobiecki[2] *1. Singulus Technologies AG, Kahl am Main, Germany; 2. Department of Electronics, AGH University of Science and Technology, Krakow, Poland*

BT-09. Site-resolved contributions to the magnetic anisotropy energy and sperrimagnetic nature of Fe/MgO sandwiches. R. Cuadrado[1,2], L. Oroszlany[3,4], A. Deák[3], A. Meo[1], T.A. Ostler[1,5], R. Chepulskyy[6], D. Apalkov[6], R.F. Evans[1], *L. Szunyogh*[3] and R. Chantrell[1] *1. Department of Physics, University of York, York, England, United Kingdom; 2. Institut Catala de Nanociencia i Nanotecnologia, Campus UAB, Barcelona, Spain; 3. Department of Theoretical Physics, Budapest University of Technology and Economics, Budapest, Hungary; 4. Department of Physics of Complex Systems, Eötvös University, Budapest, Hungary; 5. College of Engineering, Mathematics and Physical Sciences, The University of Exeter, Exeter, United Kingdom; 6. Samsung Electronics, Semiconductor R&D Center (Grandis), San Jose, CA*

BT-10. A CoFeB/MgO/CoFeB perpendicular magnetic tunnel junction coupled to an in-plane exchange-biased magnetic layer. *M. Zhu*[1], H. Chong[1], Q. Vu[1], T. Vo[1], R. Brooks[1], H. Stamper[1], S. Bennett[1] and J. Piccirillo[1] *1. Colleges of Nanoscale Science and Engineering, SUNY Polytechnic Institute, Albany, NY*

BT-11. Epitaxial Growth of FeCo/MgO/EuS on MgO buffered (100)-Si and Characterization of FeCo/Mg/MgO/EuS Magnetic Tunnel Junction. *Z. Gao*[1,2], Y. Yang[1,2], Y. Ji[1,2], L. Li[1,2], H. Zhang[2] and G. Miao[1,2] *1. Electrical and Computer Engineering, University of Waterloo, Waterloo, ON, Canada; 2. Institute of Quantum Computing, Waterloo, ON, Canada*

BT-12. AlO*x* barrier optimisation for annealing free magnetic tunnel junction sensing devices. *S. Knudde*[1,2], G. Farinha[1,2], D.C. Leitao[1,2], S. Cardoso[1,2] and P. Freitas[1] *1. INESC-MN, Lisboa, Portugal; 2. Instituto Superior Tecnico, Lisboa, Portugal*

BT-13. Under Layer Effect on Perpendicular Magnetic Anisotropy in $Co_{20}Fe_{60}B_{20}$/MgO. *P.J. Chen*[1], Y.L. Iunin[1,2], S.F. Cheng[3] and R. Shull[1] *1. National Institute of Standards and Technology, Gaithersburg, MD; 2. Institute of Solid State Physics, Russian Academy Sciences, Chernogolovka, Moscow, Russian Federation; 3. Naval Research Laboratory, Washington, DC*

BT-14. Kondo Effect in Magnetic Tunnel Junctions with an AlO*x* Tunnel Barrier. *C. Zheng*[1], X. Li[1], R. Shull[2], A.P. Chen[2] and P. Pong[1] *1. Department of Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong, Hong Kong; 2. Functional Nanostructured Materials Group, National Institute of Standards and Technology, Gaithersburg, MD*

TUESDAY AFTERNOON 2:30 — SAPPHIRE BALLROOM SOUTH

Session BU
GIANT MAGNETORESISTANCE AND SPIN INJECTIONS (Poster Session)

Yi Li, Chair
Columbia University, New York, NY

BU-01. Spin-dependent thermal transport perpendicular to the planes of Co/Cu multilayers. *J. Kimling*[1], R.B. Wilson[1], K. Rott[2], J. Kimling[1], G. Reiss[2] and D.G. Cahill[1] *1. Materials Science and Engineering, UIUC, Urbana, IL; 2. Physics, Bielefeld University, Bielefeld, Germany*

BU-02. Giant magneto-resistance in epitaxial ZnO:$La_{0.7}Sr_{0.3}MnO_3$ nanocomposites. *W. Pan*[1], J. Ihlefeld[1], P. Lu[1] and S.R. Lee[1] *1. Sandia National Labs, Albuquerque, NM*

BU-03. Tuning carrier mobility without spin transport degrading in organic semiconductor. S. Jiang[1], P. Wang[1], B. Chen[1], H. Ding[1] and *D. Wu*[1] *1. Nanjing University, Nanjing, China*

BU-04. Highly Spin-Polarised Electron Transport Through a Single-Molecule Transistor at Ambient Temperature and Pressure. *R. Brooke*[1], C. Jin[2], D. Szumski[1], R. Nichols[3], B. Mao[4], K. Thygesen[2] and W. Schwarzacher[1] *1. HH Wills Physics Laboratory, University of Bristol, Bristol, United Kingdom; 2. Department of Physics, Technical University of Denmark, Lyngby, Denmark; 3. Department of Chemistry, University of Liverpool, Liverpool, United Kingdom; 4. Chemistry Department, Xiamen University, Xiamen, China*

BU-05. Spin and Valley Dynamics in WS_2 Monolayers Investigated by Time Resolved Kerr Rotation Microscopy. *E.J. Bushong*[1], Y. Luo[1], K. McCreary[2], M. Newburger[1], S. Singh[1], B. Jonker[2] and R. Kawakami[1,3] *1. Physics, The Ohio State University, Columbus, OH; 2. Naval Research Lab, Washington, DC; 3. Physics, University of California, Riverside, Riverside, CA*

BU-06. Spin gapless semiconductors: a new route to spintronics. L. Bainsla[1], A. Mallick[1], M. Raja[2], A. Coelho[3], *A.K. Nigam*[4], Y. Takahashi[5], D. Johnson[6,7], A. Alam[1], K. Hono[5] and K. Suresh[1] *1. Physics, Indian Institute of Technology Bombay, Mumbai, India; 2. Defence Metallurgical Research Laboratory, Hyderabad, India; 3. Instituto de Física "Gleb Wataghin", Universidade Estadual de Campinas-UNICAMP, Sao Paulo, Brazil; 4. DCMPMS, Tata Institute of Fundamental Research, Mumbai, India; 5. Magnetic Materials Unit, National Institute for Materials Science, Tsukuba, Japan; 6. The Ames Laboratory, U.S. Department of Energy, Ames, IA; 7. Department of Materials Science & Engineering, Iowa State University, Ames, IA*

BU-07. Influence of thermal deformation on exchange bias in FeGa/IrMn bilayers grown on flexible polyvinylidene fluoride membranes. Y. Zhang[1], *Q. Zhan*[1], X. Rong[1], H. Li[1], Z. Zuo[1], Y. Liu[1], B. Wang[1] and R. Li[1] *1. Ningbo Institute of Materials Technology and Engineering (NIMTE), Chinese Academy of Sciences, Ningbo, China*

BU-08. Development of a CPP-GMR Heusler Alloy Junction. *W.J. Frost*[1] and A. Hirohata[1] *1. Department of Electronics, University of York, York, United Kingdom*

BU-09. GMR dependence on the thickness of InAs in the *k*-space filtering heterostructure Fe/Ag/Fe/InAs. *Z. Wang*[1] and R.H. Victora[1,2] *1. The School of Physics and Astronomy, University of Minnesota, Minneapolis, MN; 2. Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN*

BU-10. Enhancement of magnetoresistance by inserting thin NiAl layers at the interfaces in $Co_2FeGa_{0.5}Ge_{0.5}$/Ag/$Co_2FeGa_{0.5}Ge_{0.5}$ current-perpendicular-to-plane pseudo spin valves. *J. Jung*[1], Y. Sakuraba[1], T. Sasaki[1] and K. Hono[1] *1. Magnetic Materials Unit, National Institute for Materials Science (NIMS), Tsukuba, Ibaraki, Japan*

BU-11. Control of crystal structure and properties in $([La_{0.7}Sr_{0.3}MnO_3]_n/[SrTiO_3]_n)_m$ supperlattice. *B. Zhang*[1], C. Sun[2], T. Venkatesan[1,3], S. Heald[2], J. Chen[1] and G. Chow[1] *1. Department of Materials Science and Engineering, National University of Singapore, Singapore, Singapore; 2. Advanced Photon Source,, Argonne National Laboratory, Argonne, IL; 3. NUSNNI-Nanocore, National University of Singapore, Singapore, Singapore, Singapore*

BU-12. Current perpendicular to plane giant magnetoresistance effect using Co_2(Fe-Mn)Si electrodes and a Ag-Mg spacer layer: Ag-Mg composition dependence. *T. Kubota*[1], Y. Ina[1], Z. Wen[1] and K. Takanashi[1] *1. Institute for Materials Research, Tohoku university, Sendai, Miyagi, Japan*

BU-13. Effect of uniaxial strain on giant magnetoresistance of spin valves with FeGa/FeCo composite free layers. *L. Liu*[1], Q. Zhan[1], H. Li[1], H. Yang[1], Y. Liu[1], Y. Zhang[1], Z. Zuo[1], B. Wang[1] and R. Li[1] *1. Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, Ningbo, China*

BU-14. Nontrivial magnetoresistive properties of a single-wall carbon nanotube quantum dot with an embedded single molecular magnet. *I. Weymann*[1] and A. Plominska[1] *1. Faculty of Physics, Adam Mickiewicz University, Poznan, Poland*

TUESDAY AFTERNOON 2:30 | SAPPHIRE BALLROOM SOUTH

Session BV

DOMAIN WALLS, SKYRMIONS AND VORTICES (Poster Session)

Mi-Young Im, Chair
LBNL, Berkeley, CA

BV-01. Magnetic Domain Wall Propagation in Discrete Magnetic Nanodot Chains. M. Yang[1], *H. Piao*[1], C. Chen[1], L. Pan[1] and D. Kim[2] *1. School of Science, China Three Gorges University, Yichang, Hubei, China; 2. Chungbuk National University, Chongju, The Republic of Korea*

BV-02. The investigating of Dzyaloshinskii-Moriya interaction sign on the Ta/CoFeB/Pt and Pt/CoFeB/Ta structures using Brillouin light scattering. *J. Jung*[1], N. Kim[1], J. Cho[1], S. Kang[1], C. You[1] and M. Jung[2] *1. Department of Physics, Inha University, Incheon, The Republic of Korea; 2. Department of Physics, Sogang University, Seoul, The Republic of Korea*

BV-03. Determination of Néel-type domain-walls induced by Dyzaloshinskii-Moriya interaction via observation of contrasting domain expansion patterns. *D. Kim*[1], D. Kim[1], J. Moon[1] and S. Choe[1] *1. Physics and Astronomy, Seoul National University, Seoul, The Republic of Korea*

BV-04. Skyrmions in Easy-Plane Anisotropy Materials. *M. Vousden*[1], R. Carey[1], M. Beg[1], M. Bisotti[1], W. Wang[1], D. Chernyshenko[1], M. Albert[1], C.H. Marrows[2], O. Hovorka[1] and H. Fangohr[1] *1. University of Southampton, Southampton, Hampshire, United Kingdom; 2. University of Leeds, Leeds, United Kingdom*

BV-05. Effect of Dresselhaus spin orbit interaction on current-induced skyrmion dynamics. *S. Lee*[1] and K. Lee[1,2] *1. KU-KIST Graduate School, Korea University, Seoul, The Republic of Korea; 2. Dept. of Mater. Sci. & Eng., Korea University, Seoul, The Republic of Korea*

BV-06. Spin Dynamics of Magnetic Skyrmions. S. Woo[2], K. Litzius[1], *B. Krüger*[1], M. Im[3], L. Caretta[2], K. Richter[1], M. Mann[2], R.M. Reeve[1], M. Weigand[4], P. Agrawal[2], I. Lemesh[2], M. Mawass[1], P. Fischer[3], F. Büttner[1], C. Moutafis[5], S. Eisebitt[6], H. Swagten[7], G. Beach[2] and M. Kläui[1] *1. Physics, Johannes Gutenberg - University Mainz, Mainz, Germany; 2. Materials, MIT, Boston, MA; 3. ALS, LBL, Berkeley, CA; 4. BESSY, Berlin, Germany; 5. SLS, PSI, Villigen, Switzerland; 6. Physics, TU Berlin, Berlin, Germany; 7. TU Eindhoven, Eindhoven, Netherlands*

BV-07. Roles of edge solitons in the magnetization processes of [111] oriented iron whiskers. *A.S. Arrott*[1] *1. Physics, Simon Fraser University, Burnaby, BC, Canada*

BV-08. Micromagnetic analysis of current-induced domain wall motion in a bilayer nanowire with synthetic antiferromagnetic coupling. *T. Komine*[1] and T. Aono[1] *1. Faculty of Engineering, Ibaraki University, Ibaraki, Japan*

BV-09. Excitation of magnetic domain wall velocity in (Co/Ni) nanowires induced by blocking the motion of vertical Bloch lines. *K. Yamada*[1] and Y. Nakatani[1] *1. Graduate School of Informatics and Engineering, University of Electro-Communications, Chofu, Tokyo, Japan*

BV-10. Dynamic tearing up a vortex core structure by rotating magnetic fields. *H. Han*[1], S. Lee[1], D. Jung[1], M. Im[2,3], J. Hong[3], P. Fischer[2] and K. Lee[1] *1. School of Materials Science Engineering, Ulsan National Institute of Science and Technology, Ulsan, The Republic of Korea; 2. Center for X-ray Optics, Lawrence Berkeley National Laboratory, Berkeley, CA; 3. Department of Emerging Materials Science, Daegu Gyeongbuk Institute of Science and Technology, Daegu, The Republic of Korea*

BV-11. Remote measurement of the resonance frequency of magnonic vortex crystals. *C. Behncke*[1], M. Hänze[1], C.F. Adolff[1] and G. Meier[2,3] *1. Institute of Applied Physics, University of Hamburg, Hamburg, Germany; 2. Max Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany; 3. The Hamburg Centre for Ultrafast Imaging, Hamburg, Germany*

BV-12. Magnetic vortex core in cylindrical nanostructures: looking for its stability as a function of geometric and magnetic parameters. A. Riveros[1], *N. Vidal*[1], P. Landeros[3,2], D. Altbir[1,2], E. Vogel[4,2] and J. Escrig[1,2] *1. Departamento de Física, Universidad de Santiago Chile, Santiago, Chile; 2. Center for the Development of Nanoscience and Nanotechnology, Santiago, Chile; 3. Departamento de Física, Universidad Técnica Federico Santa María, Valparaíso, Chile; 4. Departamento de Ciencias Físicas, Universidad de La Frontera, Temuco, Chile*

BV-13. Giant Amplification and Fan-Out Operation in Asymmetric Magnetic Vortex Transistor. S. Barman[1], S. Saha[1], S. Mondal[1], D. Kumar[1], *C. Banerjee*[1] and A. Barman[1] *1. Condensed Matter Physics and Material Sciences, S N Bose National Centre For Basic Sciences, Kolkata, West Bengal, India*

BV-14. Confinement-enhanced sensitivity of the vortex gyrotropic mode to localised magnetic fields. J. Fried[1] and *P. Metaxas*[1] *1. School of Physics, University of Western Australia, Crawley, WA, Australia*

Session BW
MAGNETIC FIELD SENSORS AND APPLICATIONS (Poster Session)

Maria Torija, Chair
NVE Corporation, Eden Prairie, MN

BW-01. A self-powered electric current sensor based on ferromagnetic invariant elastic alloy, piezoelectric ceramic, and permalloy yoke. *W. He*[1] and J. Zhang[2] *1. School of Information Engineering, Baise University, Baise, Guangxi, China; 2. College of Electric and Information Engineering, Zhengzhou University of Light Industry, Zhengzhou, Henan, China*

BW-02. Yttrium iron garnet disk generating anti-resonance for pico-tesla order magnetic field sensing. *S. Okajima*[1], T. Goto[2], S. Shichi[1], K. Matsuda[1], N. Kanazawa[2], H. Nishikawa[1], T. Hasegawa[1], H. Takagi[2] and M. Inoue[2] *1. Corporate Technology & Business Development Unit, Murata Manufacturing Co., Ltd., Nagaokakyo, Kyoto, Japan; 2. Department of Electrical and Electronic Information Engineering, Toyohashi University of Technology, Toyohashi, Aichi, Japan*

BW-03. Low frequency noise characterization of CoFeB/MgO/CoFeB MTJ based perpendicular field sensor. B. Das[1], Y. Lee[1], Y. Liu[3], L. Li[2], Y. Suen[3], L. Horng[1], C. Chang[5], T. Wu[4] and *J. Wu*[1] *1. Department of Physics, NCUE, Changhua, Changhua county, Taiwan; 2. Center for Nanoscience and Technology, National Chiao Tung University, Hsinchu, Taiwan; 3. Department of physics, National Chung Hsing University, Taichung, Taiwan; 4. Taiwan SPIN Research Center, National Yunlin University of Science and Technology, Yunlin, Taiwan; 5. Department of Physics, National Taiwan University, Taipei, Taiwan*

BW-04. Meandering coplanar line type thin film sensor using direct dc bias for magnetic film. *S. Yabukami*[1], H. Uetake[1], T. Kawakami[1], K. Moriya[1] and T. Ozawa[1] *1. Tohoku-Gakuin University, Tagajo, Japan*

BW-05. Highly sensitive MTJ arrays with amorphous CoFeSiB for bio-magnetic field sensor. *S. Cakir*[1], D. Kato[1], K. Fujiwara[1], H. Naganuma[1], M. Oogane[1] and Y. Ando[1] *1. Tohoku University, Sendai, Miyagi-ken, Japan*

BW-06. Tunneling-Magnetoresistance Vector Magnetometer with Deflection Flux-Chopper. *V. Luong*[1], J. Jeng[1], J. Hsu[2], C. Chang[2] and C. Lu[3] *1. Mechanical Engineering, National Kaohsiung University of Applied Sciences, Kaohsiung, Taiwan; 2. Physics, National Taiwan University, Taipei 10617, Taiwan; 3. Mechatronics Engineering, National Taipei University of Technology, Taipei 10608, Taiwan*

BW-07. Multi-frequency analysis of ringing in inductive magnetic sensors for pulsed NMR applications. *N. Prabhu Gaunkar*[1], C.I. Nlebedim[1], I. Bulu[2], R.L. Hadimani[1], Y. Song[2], M. Mina[1] and D.C. Jiles[1] *1. Department of Electrical and Computer Engineering, Iowa State University, Ames, IA; 2. Schlumberger-Doll Research, Cambridge, MA*

BW-08. Optical magnetometer utilizing the magnetorefractive effect in $La_{0.7}Sr_{0.3}MnO_3$ (LSMO). *S.M. Strutner*[1], S. Ula[1], T. Lee[2] and G. Carman[1] *1. Department of Mechanical and Aerospace Engineering, University of California, Los Angeles, Los Angeles, CA; 2. Department of Materials Science and Engineering, University of California at Los Angeles, Los Angeles, CA*

BW-09. Domain wall motion in FeCoV wires and its excitation field dependence for battery-less rotary sensor. *A. Takebuchi*[1], T. Yamada[1] and Y. Takemura[1] *1. Yokohama National University, Department of Electrical and Computer Engineering, Yokohama, Japan*

BW-10. Effects of magnetic field and pressure in magnetoelastic stress reconfigurable thin film resonators for magnetic field sensing. P. Finkel[1] and *M. Staruch*[1] *1. Naval Research Laboratory, Washington, DC*

BW-11. Detection of inner-corrosion of steel construction using magnetic resistance sensor and magnetic spectroscopic analysis. *K. Tsukada*[1], Y. Haga[1], K. Morita[1], S. Nannan[1], K. Sakai[1], T. Kiwa[1] and W. Cheng[2] *1. Okayama University, Okayama, Japan; 2. Japan Power Engineering and Inspection Corporation, Yokohama, Japan*

BW-12. Fundamental study of non-contact water salinity sensor by using electromagnetic means for seawater desalination plants. *N. Toai*[1], M. Sonehara[1] and T. Sato[1] *1. Dep. of Electrical & Electronic Eng., Fac. of Eng., Shinshu University, Nagano, Japan*

BW-13. Electric current sensor with amphitheater shape. *P. Ripka*[1] and M. Pribil[1] *1. Faculty of Electrical Engineering, Czech Technical University, Prague, Czech Republic*

BW-14. Hydrogenation sensitivity enhancement of Pd/Co bi-layer films for magnetic hydrogen gas sensing. C. Lueng[1], *P. Metaxas*[1] and M. Kostylev[1] *1. School of Physics, The University of Western Australia, Crawley, WA, Australia*

Session BX
TRANSFORMERS AND SHIELDING I (Poster Session)

Michael Löffler, Chair
Friedrich-Alexander-Universität Erlangen-Nuremberg, Erlangen, Germany

BX-01. A non-resonant magnetoelectric energy harvester for scavenging magnetic field energy from two-wire power cords. *W. He*[1] and J. Zhang[2] *1. School of Information Engineering, Baise University, Baise, Guangxi, China; 2. College of Electric and Information Engineering, Zhengzhou University of Light Industry, Zhengzhou, Henan, China*

BX-02. Inductance Maximization by Mitigation of Encapsulation Stresses of PCB Embedded Ferrite Broadband Transformers. *D. Bowen*[1,2], C. Krafft[2] and I. Mayergoyz[1] *1. University of Maryland, College Park, MD; 2. Laboratory for Physical Sciences, College Park, MD*

BX-03. The Influence of Nonlinear Characteristics of Electromagnets and Normal Force of Linear Induction Motor on Magnetically Levitated Vehicle. K. Kim[1], J. Han[1], S. Yang[1], H. Han[2] and *H. Cho*[1] *1. Chungnam National University, Daejeon, The Republic of Korea; 2. Korea Institute of Machinery and Materials, Daejeon, The Republic of Korea*

BX-04. Performance comparison of Finemet and Metglas tape cores under non-sinusoidal waveforms with dc bias. *H. Kosai*[2,1], Z. Turgut[1], T. Bixel[2,1] and J. Scofield[1] *1. AFRL, Wright-Patterson AFB, OH; 2. UES Inc., Dayton, OH*

BX-05. Improvement of Force Performance in Linear Fault-Tolerant Permanent-Magnet Machine for Transportation Applications. *W. Zhao*[1], L. Chen[1] and J. Ji[1] *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*

BX-06. Integrated on-chip solenoid inductor with naogranular magnetic core. L. Wang[1], Y. Wang[1], H. Zhang[1], Z. Zhong[1], D. Peng[2] and *F. Bai*[1] *1. State Key Laboratory of Electronic Thin Films and Integrated Devices, University of Electronic Science and Technology of China, Chengdu, China; 2. Department of Materials Science and Engineering, Xiamen University, Xiamen, Fujian, China*

BX-07. Design and Analysis of 6.6 kVA - 100 kVA Concentric-Winding type Three-Phase Variable Inductor based on Reluctance Network Analysis. *K. Nakamura*[1], Y. Yamada[1], T. Ohinata[2], K. Arimatsu[2], T. Kojima[3], M. Yamada[3], M. Takiguchi[3] and O. Ichinokura[1] *1. Graduate School of Engineering, Tohoku University, Sendai, Japan; 2. Tohoku Electric Power Co., Inc., Sendai, Japan; 3. Fuji Electric Co., Ltd., Tokyo, Japan*

BX-08. A Method of Harmonic Fluxes Suppression for 12-pulse Converter Transformers. *C. Liang*[1], L. Luo[1], Y. Li[1], Y. Peng[1] and Q. Qi[2] *1. College of Electrical and Information Engineering, Hunan University, Changsha, Hunan, China; 2. Maintenance Company, State Grid Fujian Electric Power Co., LTD., Fuzhou, China*

BX-09. Trench structure to suppress the leakage of magnetic fields from apertures in a metallic enclosure. *S. Matsuzawa*[1], J. Muramatsu[1], T. Watanabe[1] and Y. Hattori[1] *1. System & Electronics Engineering Dept. II, Toyota Central R & D Labs., Inc., Nagakute, Aichi, Japan*

BX-10. Analysis of electromagnetic coupling effect of levitation and guidance system for semi-high-speed Maglev using Magnetic Equivalent Circuit. *J. Jeong*[1], C. Ha[2], J. Lim[2], C. Kim[2] and J. Choi[1] *1. Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea; 2. Magnetic Levitation and Linear Drive, Korea Institute of Machinery and Materials, Daejeon, The Republic of Korea*

BX-11. Influence of Lateral-Impact Force Effects on the Non-Guidance Force Control System of an Electro-Permanent Magnet Suspension Conveyor. *H. Shin*[1], J. Choi[1] and J. Lee[2] *1. Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea; 2. Levitation/Propulsion Technologies for High-Speed Maglev Vehicle, Korea institute of Machinery & Materials, Daejeon, The Republic of Korea*

BX-12. Computing the Frequency Dependent Coupling Inductances in the Winding of High Current Instrument Transformers. *C. Jäschke*[1] and P. Schegner[1] *1. Faculty of Electrical and Computer Engineering, Technische Universität Dresden, Dresden, Saxony, Germany*

BX-13. An Accurate, Iterative Approach to Calculating the Inductance of Planar Windings Composed of Arbitrary Straight Flat-strip Segments. *D. Bowen*[1,2], D. Basu[2], C. Krafft[1] and I. Mayergoyz[2] *1. Laboratory for Physical Sciences, College Park, MD; 2. University of Maryland, College Park, MD*

BX-14. Design of High efficiency Wireless Power Transfer System with Miniaturized Receiver Coil. P.K. Sampath[2], A. Arokiaswami[2], M. Vilathgamuwa[1] and *D.G. Dorrell*[3] *1. Science and Engineering Faculty, Queensland University of Technology, Brisbane, QLD, Australia; 2. School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore, Singapore; 3. School of Electrical, Mechanical and Mechatronic Systms, University of Technology Sydney, Sydney, NSW, Australia*

Session BY
TRANSFORMERS AND SHIELDING II
(Poster Session)
Ichiro Sasada, Chair
Kyushu University, Kasuga, Japan

BY-01. Modeling of a Multi-Winding Toroidal Transformer as a Common Magnetic Link for Micro-grid Applications. *M. Jafari*[1], Z. Malekjamshidi[1], G. Platt[2] and J. Zhu[1] *1. Electrical Engineering, University of Technology Sydney, Sydney, NSW, Australia; 2. The Commonwealth Scientific and Industrial Research Organisation (CSIRO), Newcastle, NSW, Australia*

BY-02. Fabrication and Analysis of High Q Integrated Solenoid Inductors with Different Polyimide Thickness. *X. Wang*[1], Z. Hu[1,3], H. Chen[1], Y. Gao[1], X. Shi[3], T. Nan[1], J. Jones[2], B. Howe[2], G. Brown[2] and N.X. Sun[1] *1. ECE, Northeastern University, Boston, MA; 2. Air Force Research Laboratory, Materials and Manufacturing Directorate, Air base, OH; 3. Winchester Technologies LLC, Winchester, MA*

BY-03. Improving Operational Performance of Magnetically Suspended Flywheel with Permanent Magnet Biased Magnetic Bearings Using Adaptive Resonant Controller and Nonlinear Compensation Method. *Z. Su*[1], D. Wang[1] and J. Chen[1] *1. Naval University of Engineering, National Key Laboratory of Science and Technology on Vessel Integrated Power System, Wuhan, Hubei, China*

BY-04. Design of a Coupling Transformer with a Virtual Air Gap for Dynamic Voltage Restorers. *V. Majchrzak*[1,2], G. Parent[1], J. Brudny[1], V. Costan[2] and P. Guuinic[2] *1. Univ. Artois, Laboratoire des Systèmes Electrotechniques et Environnement (LSEE), Béthune, France; 2. Electricité de France (EDF) R&D, Clamart, France*

BY-05. Frequency Characteristics of Reactor Core Loss by Numerical Analysis Using Detailed Lamination Model. *S. Odawara*[1], K. Sawatari[1], K. Fujisaki[1], Y. Shindo[2] and N. Yoshikawa[2] *1. Toyota Technological Institute, Nagoya, Japan; 2. Kawasaki Heavy Industries, Ltd., Akashi, Japan*

BY-06. Experimental Comparison of the Efficiency Characteristic of Wireless Power Transmission by Litz Magnetoplated Wire Coil and Litz Copper Wire Coil. *Y. Bu*[1], W. Wang[1], T. Kasai[1], T. Yammamoto[1] and T. Mizuno[1] *1. Faculty of Engineering, Shinshu University, Nagano, Nagano, Japan*

BY-07. A Study on the Transformer Design considering the Inrush Current Reduction in the Arc Welding Machine. *I. Kim*[1], H. Ahn[1], W. Shim[1], J. Lee[1] and D. Kang[2] *1. Hanyang University, Seoul, The Republic of Korea; 2. Keimyung University, Daegu, The Republic of Korea*

BY-08. Residual Flux Calculation and Demagnetization of the Power Transformer. *W. Ge*[1] and Y. Wang[2] *1. School of Mechanical Enginering, Hebei University of Technology, Tianjin, China; 2. Province-Ministry Joint Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability, Tianjin, China*

BY-09. Low-loss FeSiAl Flake/Polyolefin Sheets for Radio-frequency Electromagnetic Shielding. *H. Luo*[1], F. Qin[1], L. Deng[2] and H. Peng[1] *1. Materials Science and Engineering, Zhejiang University, Hangzhou, China; 2. Physics, Central South University, Changsha, China*

BY-10. A Novel Structure of a 3-axis Active-Control type Magnetic Bearing for Reducing Rotor Iron Loss. *T. Matsuzaki*[1], M. Takemoto[1], S. Ogasawara[1], S. Ota[2], K. Oi[2] and M. Daiki[2] *1. Graduate School of Information Science and Technology, Hokkaido University, Sapporo, Japan; 2. Meidensha Corporation, Chuo, Japan*

BY-11. Core-Clad CMOS-Integrated Inductors with Vertical Magnetic Loop Closure. *E. Aklimi*[1], N. Wang[2], W.J. Gallagher[2] and K.L. Shepard[1] *1. Electrical Engineering, Columbia University, New York, NY; 2. T.J. Watson Research Center, IBM Research Division, Yorktown Heights, NY*

BY-12. Predicting Iron Loss in Soft Magnetic Materials with Given DC-Biased Waveform of Flux Density Using Mathematical Model. *W. Chen*[1] and Y. Fang[1] *1. Zhejiang University, Hangzhou, Zhejiang, China*

BY-13. Subdomain Method for Permanent Magnetic Biased Homo-Polar Radial Magnetic Bearing. K. Wang[1], D. Wang[2], Y. Shen[2], X. Zhang[2], J. Chen[2] and *Y. Zhang*[1] *1. Engineering Research Center for Motion Control of Ministry of Education, Southeast University, Nanjing, Jiangsu, China; 2. National Key Laboratory of Science and Technology on Vessel Integrated Power System, Naval University of Engineering, Wuhan, Hubei, China*

BY-14. Design of Inductive Charging Coupler with Assistive Coils. S. Wang[1] and *D.G. Dorrell*[1] *1. school of Electrical, Mechanical and Mechatronic Systems, University of Technology Sydney, Sydney, NSW, Australia*

TUESDAY
EVENING
6:00

SAPPHIRE ABEF

Session XA
EVENING SESSION 1: MAGNETIC TECHNOLOGIES FOR THE FUTURE
Katayun Barmak, Chair
Columbia University, New York, NY

6:00

XA-01. ITER Central Solenoid Module Fabrication Program. ***(Invited)*** *J. Smith*[1] *1. MFE, General Atomics, San Diego, CA*

6:30

XA-02. Permeability Spectra and Advanced Applications of the Noise Suppression Sheet. ***(Invited)*** *S. Yoshida*[1], T. Igarashi[1], K. Kondo[1], T. Oka[1] and Y. Shimada[2] *1. NEC Tokin Corporation, Sendai, Miyagi, Japan; 2. Tohoku University, Sendai, Japan*

7:00

XA-03. Magnets for Energy Conversion and Harvesting. ***(Invited)*** *O. Gutfleisch*[1,2], T. Gottschall[1], M. Fries[1], I. Poenaru[1,2], R. Gauss[2] and K.P. Skokov[1] *1. Material Science, Functional Materials, TU Darmstadt, Darmstadt, Germany; 2. Project Group Materials Recycling and Resource Strategy IWKS, Fraunhofer ISC, Hanau, Germany*

WEDNESDAY
MORNING
8:30

SAPPHIRE ABEF

Session CA
ROOM TEMPERATURE MAGNETIC SKYRMIONS
Axel Hoffmann, Chair
Argonne National Laboratory, Argonne, IL

8:30

CA-01. Control of the skyrmion structure in a nano disk by electric field pulses at room temperature. ***(Invited)*** *Y. Nakatani*[1], S. Kanai[2], S. Fukami[2], M. Hayashi[3] and H. Ohno[2] *1. University of Electro-Communications, Tokyo, Japan; 2. Tohoku University, Sendai, Japan; 3. NIMS, Tsukuba, Japan*

9:06

CA-02. Electrical Creation and Manipulation of Magnetic Skyrmion Bubbles. ***(Invited)*** *W. Jiang*[1], P. Upadhyaya[2], W. Zhang[1], G. Yu[2], M. Jungfleisch[1], F.Y. Fradin[1], J.E. Pearson[1], O. Heinonen[1], Y. Tserkovnyak[3], K.L. Wang[2], S.G. te Velthuis[1] and A. Hoffmann[1] *1. Material Science Division, Argonne National Laboratory, Darien, IL; 2. Department of Electrical Engineering, UCLA, Los Angeles, CA; 3. Department of Physics, UCLA, Los Angeles, CA*

9:42

CA-03. Room Temperature Magnetic Skyrmions in Ultrathin Metallic Ferromagnets. ***(Invited)*** *G. Beach*[1] *1. Materials Science and Engineering, MIT, Cambridge, MA*

10:18

CA-04. Room Temperature Two-Dimensional Artificial Skyrmion Crystal Stabilized by Nanopatterning. ***(Invited)*** *H. Ding*[1,2] *1. Physics, Nanjing University, Nanjing, China; 2. National Laboratory of Solid State Microstructures, Nanjing, China*

10:54

CA-05. Dynamical stabilization of magnetic skyrmions in nano-contact spin torque oscillators. ***(Invited)*** *J. Åkerman*[1], E. Iacocca[1], Y. Zhou[2], A.A. Awad[1], R.K. Dumas[1], F.C. Zhang[2] and H. Braun[3] *1. Univ Gothenburg, Göteborg, Sweden; 2. University of Hong Kong, Hong Kong, Hong Kong; 3. University College Dublin, Dublin, Ireland*

WEDNESDAY MORNING 8:30 — SAPPHIRE IJ

Session CB
SPIN INJECTION I
Stephane Mangin, Chair
Universite de Lorraine, Vandoeuvre-les-Nancy, France

8:30

CB-01. Spinterface: Crafting spintronics at the molecular scale. ***(Invited)*** *M. Galbiati*[1], S. Tatay[1,2], C. Barraud[1], S. Delprat[1], K. Bouzehouane[1], C. Deranlot[1], E. Jacquet[1], P. Seneor[1], R. Mattana[1] and F. Petroff[1] *1. Unité Mixte de Physique CNRS/Thales, Palaiseau, France; 2. Instituto de Ciencia Molecular, Universidad de Valencia, Valencia, Spain*

9:06

CB-02. Room Temperature Long Distance Spin Communication in Chemical Vapor Deposited (CVD) Graphene. *M. Kamalakar*[1,2], C. Groenveld[1], A. Dankert[1] and S.P. Dash[1] *1. Department of Microtechnology and Nanoscience, Chalmers University of Technology, Göteborg, SE-412 96, Sweden; 2. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden*

9:18

CB-03. Homoepitaxial Functionalized Graphene Tunnel Barriers for Spin Transport. *A.L. Friedman*[1], O. van't Erve[1], J. Robinson[2], K.E. Whitener, Jr.[3] and B. Jonker[1] *1. Materials Science and Technology, Naval Research Laboratory, Washington, DC; 2. Electronics Science and Technology, Naval Research Laboratory, Washington, DC; 3. Chemistry, Naval Research Laboratory, Washington, DC*

9:30

CB-04. Electrical detection of coherent spin precession using spin Hall and Rashba effects. *(Invited)* *H. Koo*[1,2], W. Choi[1,2], H. Kim[1], J. Chang[1], S. Han[1] and M. Johnson[3] *1. Korea Institute of Science and Technology, Seoul, The Republic of Korea; 2. Korea University, Seoul, The Republic of Korea; 3. Naval Research Laboratory, Washington, DC*

10:06

CB-05. Spin Transport and Hanle Effect in Silicon Nanowires using Graphene Tunnel Barriers. *O. van't Erve*[1], A.L. Friedman[1], J. Robinson[1], C.H. Li[1], L. Lauhon[2], J. Connel[2] and B. Jonker[1] *1. Naval Research Laboratory, Washington, DC; 2. NorthWestern University, Evanston, IL*

10:18

CB-06. Remanent spin injection in $In_xGa_{1-x}As$ light emitting diode with MgO/CoFeB perpendicular spin injector with Mo capping layer. *B. Tao*[1,2], P. Barate[3], X. Devaux[1], P. Renucci[3], B. Xu[4], J. Frougier[5], S. Liang[1], M. Hehn[1], S. Mangin[1], H. Jaffrès[5], J. George[5], X. Marie[3], X. Han[2], Z. Wang[4] and Y. Lu[1] *1. Departement P2M, Institut Jean Lamour, Vandoeuvre Les Nancy, France; 2. Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Beijing, China; 3. INSA-CNRS-UPS, LPCNO, Université de Toulouse, Toulouse, France; 4. Key Laboratory of Semiconductor Materials Science, Institute of Semiconductors, Beijing, China; 5. Unité Mixte de Physique CNRS/Thales, Palaiseau, France*

10:30

CB-07. Analysis of transient response of nuclear spins in GaAs with/without nuclear magnetic resonance. *M. Rasly*[1], Z. Lin[1], M. Yamamoto[1] and T. Uemura[1] *1. Division of Electronics for Informatics, Hokkaido University, Sapporo, Hokkaido, Japan*

10:42

CB-08. Interdiffusion-Controlled Kondo Suppression of Injection Efficiency in Metallic Non-Local Spin Valves. L. O'Brien[1,2], D. Spivak[1], J. Jeong[1], A. Mkhoyan[1], P. Crowell[1] and *C. Leighton*[1] *1. University of Minnesota, Minneapolis, MN; 2. University of Cambridge, Cambridge, United Kingdom*

10:54

CB-09. A Global View of Contact-Induced Spin Relaxation in Hanle Spin Precession Measurements. L. O'Brien[2,3], D. Spivak[1], N. Krueger[1], T. Peterson[1], M.J. Erickson[1], B.T. Bolon[4], C. Geppert[1], C. Leighton[2] and *P.A. Crowell*[1] *1. Physics and Astronomy, University of Minnesota, Minneapolis, MN; 2. Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN; 3. Thin Film Magnetism, University of Cambridge, Cambridge, United Kingdom; 4. Physics, Hamline University, St. Paul, MN*

11:06

CB-10. Control of electrical and magnetic properties of Magnetic Tunnel Transistor. *C. Vautrin*[1], Y. Lu[1], S. Le Gall[1], G. Sala[1], S. Robert[1], O. Lenoble[1], F. Montaigne[1], M. Wu[2], D. Lacour[1] and M. Hehn[1] *1. IJL UMR 7198 CNRS, Vandoeuvre lès Nancy, France; 2. Department of Physics University of Science and Technology of China, Hefei National Laboratory for Physical Sciences at Microscale, Hefei, Anhui, 230026,, China*

11:18

CB-11. Direct measurement of spin accumulation in the Cu across Co/Cu interface. *R. Kukreja*[1], S. Bonetti[2], Z. Chen[2], D. Backes[3], Y. Acremann[5], J. Katine[4], A. Kent[3], H. Durr[2], H. Ohldag[2] and J. Stohr[2] *1. University of California, San Diego, San Diego, CA; 2. SLAC National Accelerator Laboratory, Stanford, CA; 3. Department of Physics, New York University, New York, NY; 4. HGST a Western Digital Company, San Jose, CA; 5. ETH Zurich, Zurich, Switzerland*

WEDNESDAY
MORNING
8:30

SAPPHIRE MN

Session CC
MAGNONICS I
Chiara Ciccarelli, Chair
University of Cambridge, Cambridge, United Kingdom

8:30

CC-01. An optically reconfigurable magnetic material for the control of spin waves. *M. Vogel*[1], A.V. Chumak[1], E.H. Waller[1], T. Langner[1], V.I. Vasyuchka[1], B. Hillebrands[1] and G. von Freymann[1,2] *1. Department of Physics and State Research Center OPTIMAS, University of Kaiserslautern, Kaiserslautern, Rhineland-Palatinate, Germany; 2. Fraunhofer-Institute for Physical Measurement Techniques IPM, Kaiserslautern, Rhineland-Palatinate, Germany*

8:42

CC-02. Long distance transport of magnon spin information in a magnetic insulator at room temperature. *B. Van Wees*[1], L. Cornelissen[1] and J. Liu[1] *1. Zernike Institute of Advanced Materials, University of Groningen, Groningen, Netherlands*

8:54

CC-03. Spin Optodynamics in Magnetic Solids. *T. Liu*[1], X. Zhang[2], H. Tang[2] and M.E. Flatte[1] *1. Department of Physics and Astronomy, University of Iowa, Iowa City, IA; 2. Department of Electrical Engineering, Yale University, New Haven, CT*

9:06

CC-04. Propagation properties of Spinwaves in Self-assembled Antidot Arrays. *A. Caprile*[1], F. Celegato[1], M. Coisson[1], G. Conta[1], O.U. Khan[2], M. Kuepferling[1], A. Magni[1], A. Manzin[1], C. Ragusa[2] and A.A. Rahim[2] *1. INRiM, Torino, Italy; 2. Energy, Politecnico di Torino, Torino, Italy*

9:18

CC-05. Band structure engineering of two-dimensional magnonic vortex crystals. *C. Behncke*[1], M. Hänze[1], C.F. Adolff[1], M. Weigand[2] and G. Meier[3,4] *1. Institute of Applied Physics, University of Hamburg, Hamburg, Germany; 2. Max-Planck Institute for Intelligent Systems, Stuttgart, Germany; 3. Max-Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany; 4. The Hamburg Centre for Ultrafast Imaging, Hamburg, Germany*

9:30

CC-06. Measuring spin-wave systems in the single magnon limit. *A.D. Karenowska*[1], P.J. Leek[1], A.F. van Loo[1], R. Morris[1], A.D. Patterson[1], M.J. Peterer[1] and E.B. Magnússon[1] *1. Physics, University of Oxford, Oxford, Oxfordshire, United Kingdom*

9:42

CC-07. Strongly Coupled Magnons and Cavity Photons. ***(Invited)*** *H. Tang*[1], X. Zhang[1], C. Zou[1] and L. Jiang[2] *1. Department of Electrical Engineering, Yale University, New Haven, CT; 2. Department of Applied Physics, Yale University, New Haven, CT*

10:18

CC-08. X-Ray Microscopic Investigation of Spin Wave Propagation in Nanoscaled Antidot Lattices. *J. Gräfe*[1], A. Gangwar[2], M. Noske[1], M. Weigand[1], H. Stoll[1], C.H. Back[2], G.A. Schuetz[1] and E.J. Goering[1] *1. Max Planck Institute for Intelligent Systems, Stuttgart, Germany; 2. Department of Physics, University of Regensburg, Regensburg, Germany*

10:30

CC-09. Magnonic nanocrystals and heat traps: Evanescence of the Bloch state. *M. Mansurova*[2,1], J. Walowski[1] and M. Münzenberg[1] *1. Institute of Physics, Ernst-Moritz-Arndt Univeristy, Greifswald, Deutschland (DEU), Germany; 2. Goerg-August-Universität Göttingen, I. Physikalisches Institut, Göttingen, Germany*

10:42

CC-10. Optically Induced Ferromagnetic Resonance in Magnetic Iron Garnets by a Sequence of Optical Pulses. *M. Jäckl*[1], I. Akimov[1,2], V. Belotelov[3,4], A.K. Zvezdin[3,5] and M. Bayer[1,2] *1. Technical University Dortmund, Dortmund, Germany; 2. A.F. Ioffe Physical-Technical Institute, St. Petersburg, Russian Federation; 3. Russian Quantum Center, Moscow, Russian Federation; 4. Lomonosov Moscow State University, Moscow, Russian Federation; 5. Prokhorov General Physics Institute, Moscow, Russian Federation*

10:54

CC-11. Synthetic antiferromagnetic coupling in nano-structured magnonic crystals for enhanced spin-wave nonreciprocity. S. Kundu[1], *S.N. Piramanayagam*[1], H. Yang[2], C.S. Bhatia[2], V. Zhang[3], S. Feng[3], H. Lim[3], S. Ng[3] and M. Kuok[3] *1. School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore; 2. ECE Department, National University of Singapore, Singapore, Singapore; 3. Physics Department, National University of Singapore, Singapore, Singapore*

11:06

CC-12. Magnon-photon interaction in YIG opto-magnetic cavity. *X. Zhang*[1*], C. Zou[1,2], N. Zhu[1] and H. Tang[1] *1. Electrical Engineering, Yale University, New Haven, CT; 2. Applied Physics, Yale University, New Haven, CT*

11:18

CC-13. Electric Field Control of Spin Waves in One-Dimensional Magnonic Crystals. *G. Sietsema*[1] and M.E. Flatte[1] *1. Department of Physics, University of Iowa, Iowa City, IA*

WEDNESDAY MORNING 8:30 — SAPPHIRE 400

Session CD
CORRELATED SYSTEMS AND 4F MATERIALS
Jing Shi, Chair
University of California Riverside, Riverside, CA

8:30

CD-01. The origin of reduced moment magnetic order and anomalous spin gaps in Sr_2TMOsO_6 (TM=Sc, Cr, Fe) double perovskites. *(Invited)* *A. Taylor*[1], R. Morrow[2], S. Calder[1], R.S. Fishman[3], S.E. Hahn[4], D.J. Singh[3], A.I. Kolesnikov[5], M.D. Lumsden[1], P.M. Woodward[2] and A.D. Christianson[1,6] *1. Quantum Condensed Matter Division, Oak Ridge National Laboratory, Oak Ridge, TN; 2. Department of Chemistry, The Ohio State University, Columbus, OH; 3. Materials Science & Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN; 4. Neutron Data Analysis and Visualization Division, Oak Ridge National Laboratory, Oak Ridge, TN; 5. Chemical and Engineering Materials Division, Oak Ridge National Laboratory, Oak Ridge, TN; 6. Department of Physics and Astronomy, The University of Tennessee, Knoxville, TN*

9:06

CD-02. Frustration-Induced Phase Separation in Spin Systems. *A. Zorko*[1], D. Arčon[1] and A. Lappas[2] *1. Jozef Stefan Institute, Ljubljana, Slovenia; 2. Institute of Electronic Structure and Laser, Foundation for Research and Technology – Hellas, Heraklion, Greece*

9:18

CD-03. Spin-orbit Coupling and Electron Pairing Instabilities in the Two-dimensional Square and Honeycomb Structures. *A.N. Kocharian*[1], G.W. Fernando[2], K. Fang[2], K. Palandage[3] and A.V. Balatsky[4] *1. Physics and Astronomy, California State University, Los Angeles, CA; 2. Physics, University of Connecticut, Storrs, CT; 3. Trinity College, Hartford, CT; 4. NORDITA, Stockholm, Sweden*

9:30

CD-04. Towards Ultrafast Control of Conductivity and Electronic Correlations in Vanadium Dioxide. *A.X. Gray*[1,2], J. Jeong[3], N. Aetukuri[3], E. Arenholz[4], M. Hoffmann[5], M. Samant[3], R. Averitt[6], K. Nelson[7], S.S.P. Parkin[3,8] and H. Durr[2] *1. Department of Physics, Temple University, Philadelphia, PA; 2. Stanford Institute for Materials and Energy Sciences, SLAC National Accelerator Laboratory, Menlo Park, CA; 3. IBM Almaden Research Center, San Jose, CA; 4. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA; 5. Linac Coherent Light Source, SLAC National Accelerator Laboratory, Menlo Park, CA; 6. Department of Physics, University of California San Diego, San Diego, CA; 7. Department of Chemistry, Massachusetts Institute of Technology, Boston, MA; 8. Max Planck Institute for Microstructure Physics, Halle (Saale), Halle, Germany*

9:42

CD-05. Synchronization of Bose Einstein Condensates of Magnons by Acoustic Waves. *R. Khymyn*[1], V. Tyberkevych[1] and A.N. Slavin[1] *1. Oakland University, Rochester, MI*

9:54

CD-06. Intriguing Magnetic and Structural Transformations in Strongly Correlated 4*f* Electron Rare Earth Dialuminide Systems. *D. Paudyal*[1], V. Pecharsky[1,2] and K. Gschneidner, Jr.[1,2] *1. The Ames Laboratory, U S Department of Energy, Iowa State Univ, Ames, IA; 2. Department of Materials Science and Engineering, Iowa State University, Ames, IA*

10:06

CD-07. Commensurate and Incommensurate Spin Density Waves and the Superconductivity Dome in Heavy Electron Systems. *P. Schlottmann*[1] *1. Department of Physics, Florida State University, Tallahassee, FL*

10:18

CD-08. On the Ising Character of the Quantum-Phase Transition in $LiHoF_4$. *R. Skomski*[1] *1. Physics and Astronomy and NCMN, University of Nebraska, Lincoln, NE*

10:30

CD-09. Superparamagnetism and Exchange Bias in the Martensitic Phase of $Ni_{50-x}Co_xMn_{40}Sn_{10}$. *M.J. Hoch*[1], S. Yuan[1], P. Kuhns[1], A. Reyes[1], J. Brooks[2], V. Srivastava[3], R. James[3] and C. Leighton[4] *1. National High Magnetic Field Laboratory, Tallahassee, FL; 2. Physics, Florida State University, Tallahassee, FL; 3. Aerospace Engineering and Mechanics, University of Minnesota, Minneapolis, MN; 4. Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN*

10:42

CD-10. A Muon Study of Magnetism in EuSe under Pressure. I. Terry[2], P.W. Adams[3], *N. Bykovetz*[1], S.R. Giblin[4], Z. Guguchia[5], R. Khasanov[5], J. Klein[6], C. Lin[1] and T. Liu[3] *1. Physics, Temple University, Philadelphia, PA; 2. Physics, Durham University, Durham, United Kingdom; 3. Physics and Astronomy, Louisiana State University, Baton Rouge, LA; 4. Physics and Astronomy, Cardiff University, Cardiff, United Kingdom; 5. Laboratory for Muon-Spin Spectroscopy, Paul Scherrer Institute, Villigen-PSI, Switzerland; 6. Physics and Astronomy, University of Pennsylvania, Philadelphia, PA*

10:54

CD-11. Magneto-Structural transition in CrN Thin Film. *K. Alam*[1], Y. Ma[1], A. Foley[1], S.M. Disseler[2], W.D. Ratcliff[2], J. Borchers[2], A. Richard[1], D.C. Ingram[1] and A.R. Smith[1] *1. Nanoscale and Quantum Phenomena Institute, Physics and Astronomy, Ohio University, Athens, OH; 2. NIST Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD*

11:06

CD-12. Mixed valency in SmB_{66}. *T. Mori*[1,2], A. Sussardi[1,2], T. Aizawa[1], S. Hishita[1], I. Ohkubo[1], N. Tsujii[1] and L. Schlapbach[1] *1. National Institute for Materials Science (NIMS), Tsukuba, Japan; 2. Univ. Tsukuba, Taukuba, Japan*

11:18

CD-13. Nature of Spin Fluctuations in Transition Metal Magnets. *A.L. Wysocki*[1], A.L. Kutepov[1] and V. Antropov[1] *1. Ames Laboratory, U.S. Department of Energy, Ames, Iowa 50011, USA, Ames, IA*

Session CE
MN AND FE-BASED PEROVSKITES

Michael Fitzsimmons, Chair
Oak Ridge National Laboratory, Knoxville, TN

8:30

CE-01. Control of magnetic oxide interfaces through engineering octahedral distortions. ***(Invited)*** *E. Moon*[1] *1. Drexel University, Philadelphia, PA*

9:06

CE-02. Towards a new type of magnetoelectric coupling in artificial multiferroics with γ-Fe as the magnetic component. V. Augustyns[1], M. Rovezzi[2], H. Gunnlaugsson[1,3], H. von Bardeleben[4], I. Vickridge[4], F. Kremer[5], M. Ridgway[5], J. Hadermann[6], J. Correia[7], U. Wahl[7], K. Temst[1], A. Vantomme[1] and *L. Pereira*[1] *1. Instituut voor Kern- en Stralingsfysica, KU Leuven, Leuven, Belgium; 2. European Synchrotron Radiation Facility, BP220, Grenoble, France; 3. ISOLDE CERN, PH Dept., Geneva, Switzerland; 4. Institut des Nanosciences de Paris (INSP), Universités Paris 6&7, UMR 7588 au CNRS 140, Paris, France; 5. Department of Electronic Materials Engineering, Research School of Physics and Engineering, The Australian National University, Canberra, ACT, Australia; 6. Electron Microscopy for Materials Science (EMAT), University of Antwerp, Antwerp, Belgium; 7. Centro de Ciencias e Tecnologias Nucleares, Instituto Superior Tecnico, Universidade de Lisboa, Sacavem, Portugal*

9:18

CE-03. Room Temperature Multiferroicity and Enhancement of Magnetocaloric Properties in $La_{0.66}Ca_{0.33}MnO_3/BaTiO_3$ Bilayers. *N.S. Bingham*[1,2], A.K. Suszka[1,2], C.A. Vaz[3] and L. Heyderman[1,2] *1. Laboratory for Mesoscopic Systems, Department of Materials, ETH Zurich, 8093 Zurich, Switzerland; 2. Laboratory for Micro- and Nanotechnology, Paul Scherrer Institute, 5232 Villigen PSI, Switzerland; 3. Swiss Light Source, Paul Scherrer Institute, 5232 Villigen PSI, Switzerland*

9:30

CE-04. Magnetoresistance effect in $La_{1-x}Sr_xMnO_3$ nanowire networks. X. Zeng[1], T. Karwoth[1], A. Koblischka-Veneva[1], *M.R. Koblischka*[1], T. Hauet[2], A. Kostrubanic[3] and U. Hartmann[1] *1. Experimental Physics, Saarland University, Saarbrucken, Germany; 2. Physics, University of Lorraine, Nancy, France; 3. Physics, Drexel University, Philadelphia, PA*

9:42

CE-05. Electrolyte Gate Control of Magnetism in Ultrathin $LaAlO_3$(001)/$La_{0.5}Sr_{0.5}CoO_{3-\delta}$ Films Probed *via* the Anomalous Hall Effect. *J. Walter*[1], H. Wang[1] and C. Leighton[1] *1. Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN*

9:54

CE-06. Impact of spin dynamics on low field magnetoresistance in $La_{0.8}Ba_{0.2}MnO_3$. *R. Mahendiran*[1] and P. Kumar[1] *1. Physics Dept, National University of Singapore, Singapore, Singapore*

10:06

CE-07. Angular dependence of exchange bias and magnetization reversal controlled by electric-field-induced competing anisotropies. *A. Chen*[1], Y. Zhao[1], P. Li[1], X. Zhang[2], R. Peng[3], H. Huang[4], L. Zou[2], X. Zheng[2], S. Zhang[5], P. Miao[1], Y. Lu[4], J. Cai[2] and C. Nan[3] *1. Department of Physics, Tsinghua University, Beijing, China; 2. Institute of Physics, Chinese Academy of Sciences, Beijing, China; 3. School of Materials Science and Engineering, Tsinghua University, Beijing, China; 4. Hefei National Laboratory for Physical Sciences at the Microscale and National Synchrotron Radiation Laboratory, University of Science and Technology of China, Hefei, China; 5. College of Science, National University of Defense Technology, Changsha, China*

10:18

CE-08. Ferroelectric 180^o domain wall motion controlled by reversible elastic strain. *E. Guo*[1], R. Roth[1], A. Herklotz[1,3], D. Hesse[2] and K. Dörr[1] *1. Institute of Physics, Martin-Luther-University Halle-Wittenberg, Halle(Saale), Germany; 2. Max-Plank Institute of Microstructure Physics, Halle(Saale), Germany; 3. Oak Ridge National Lab, Oak Ridge, TN*

10:30

CE-09. Investigation of interfaces of $La_{0.7}Sr_{0.3}MnO_3$-$BiFeO_3$ heterostructures by XMCD and x-ray resonant magnetic scattering. M. Vafaee[1], S. Finizio[1], R.M. Abrudan[2], H. Deniz[3], D. Hesse[3], *H. Zabel*[1], G. Jakob[1] and M. Kläui[1] *1. Physics, Johannes-Gutenberg University Mainz, Mainz, Germany; 2. Helmholtz-Zentrum Berlin, Berlin, Germany; 3. Max-Planck Institute of Microstructure Physics, Halle, Germany*

10:42

CE-10. Magnetic coupling at the interface between a multiferroic and a soft ferromagnet by X-ray resonant magnetic scattering. *N. Jaouen*[1], C. Blouzon[2], M. Elzo[1], R. Moubah[2], S. Dhesi[3], S. Fusil[4], R. Belkhou[1] and M. Viret[2] *1. Experimental division, Synchrotron SOLEIL, Gif sur Yvette, France; 2. CEA, Gif Sur Yvette, France; 3. Diamon Light Source, Didcot, United Kingdom; 4. Unité Mixte de Physique CNRS/Thales, Palaiseau, France*

10:54

CE-11. Investigation of the magnetic structure of multiferroic $BiFeO_3$ thin films with NV scanning magnetometry. *I. Gross*[1,2], L. Martinez[1], T. Hingant[1], J. Tetienne[1], J. Roch[1], C. Carrétéro[3], K. Garcia[3], S. Fusil[3], V. Garcia[3], A. Barthélémy[3], M. Bibes[3] and V. Jacques[2,1] *1. Laboratoire Aime Cotton, CNRS, ENS Cachan, Paris, France; 2. Université Montpellier, Laboratoire Charles Coulomb and CNRS, Montpellier, France; 3. Unité Mixte de Physique CNRS-Thales, Palaiseau, France*

11:06

CE-12. Observation of local ferroelectric and magnetic properties of multiferroic $BiFeO_3$ thin film. *T. Jia*[1], H. Kimura[1], Z. Cheng[2] and H. Zhao[3] *1. National Institute for Materials Science, Ibaraki, Japan; 2. Institute for Superconducting and Electronic Materials, University of Wollongong, North Wollongong, NSW, Australia; 3. Department of Materials Science and Engineering, Wuhan Institute of Technology, Wuhan, China*

11:18

CE-13. $BiFeO_3/CoFe_2O_4$ vertical nanocomposites with tetragonal and rhombohedral $BiFeO_3$. *S. Ojha*[1], N. Aimon[1] and C. Ross[1] *1. Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA*

WEDNESDAY MORNING 8:30 — AQUA AB

Session CF
PATTERNED FILMS
Karen Livesey, Chair
University of Colorado at Colorado Springs, Colorado Springs, CO

8:30

CF-01. Realization of Ground State Artificial Skyrmion Lattices at Room Temperature. *D.A. Gilbert*[1,2], B.B. Maranville[2], A.L. Balk[3,5], B.J. Kirby[2], P. Fischer[4,6], D.T. Pierce[3], J. Unguris[3], J. Borchers[2] and K. Liu[1] *1. Physics, University of california, Davis, Davis, CA; 2. NIST Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD; 3. Center for Nanoscale Science and Technology, National Institute of Standards and Technology, Gaithersburg, MD; 4. Lawrence Berkeley National Laboratory, Center for X-ray Optics, Berkeley, CA; 5. Maryland Nanocenter, University of Maryland, College Park, MD; 6. Physics, University of California Santa Cruz, Santa Cruz, CA*

8:42

CF-02. Thermodynamic phase transitions in artificial spin ice. L. Anghinolfi[1,2], H. Luetkens[2], J. Perron[2,3], M. Flokstra[4], *O. Sendetskyi*[1,2], A. Suter[2], T. Prokscha[2], P.M. Derlet[2], S. Lee[4] and L. Heyderman[1,2] *1. Department of Materials, ETH Zurich, Zurich, Switzerland; 2. Paul Scherrer Institut, Villigen PSI, Switzerland; 3. UPMC Univ Paris 06, Sorbonne Universités, Paris, France; 4. University of St. Andrews, St. Andrews, United Kingdom*

8:54

CF-03. Effects of Fibonacci Distortions on the Magnetization of Honeycomb Artificial Spin Ice. *B.W. Farmer*[1], J.S. Woods[1], J.T. Hastings[2] and L.E. De Long[1] *1. Department of Physics and Astronomy, University of Kentucky, Lexington, KY; 2. Department of Electrical and Computer Engineering, University of Kentucky, Lexington, KY*

9:06

CF-04. Static and dynamic behavior of distorted vortex cores in asymmetric permalloy disks. ***(Invited)*** *M. Im*[1,2], K. Lee[3], W. Chao[1], J. Hong[2] and P. Fischer[4,5] *1. CXRO, Lawrence Berkeley National Laboratory, Berkeley, CA; 2. DGIST, Daegu, The Republic of Korea; 3. UNIST, Ulsan, The Republic of Korea; 4. LBNL, Berkeley, CA; 5. UCSC, Santa Cruz, CA*

9:42

CF-05. Micromagnetic Characterisation of 3D Gyroid Nanostructures. *D.M. Love*[1], J. Llandro[1], A. Kovacs[2], A. Kakay[3], M. Scherer[1], C. Cimorra[1], U. Steiner[4], R. Dunin-Borkowski[2] and C. Barnes[1] *1. Department of Physics, University of Cambridge, Cambridge, United Kingdom; 2. Ernst Ruska-Centre, Juelich, Germany; 3. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 4. Adolphe Merkle Institute, Fribourg, Switzerland*

9:54

CF-06. Inducing confined magnetic regions in *B*2 materials using a nanofocussed light-ion beam. *R. Bali*[1], F. Röder[2], G. Hlawacek[1], S. Wintz[3], A. Heidarian[1,2], A. Semisalova[1,4], R. Hübner[1], L. Bischoff[1], K. Potzger[1], H. Lichte[2], J. Lindner[1] and J. Fassbender[1,2] *1. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. TU Dresden, Dresden, Germany; 3. Paul Scherrer Institute, Villigen, Switzerland; 4. Faculy of Physics, Lomonosov MSU, Moscow, Russian Federation*

10:06

CF-07. Giant enhancement of magnetocrystalline anisotropy in ultrathin manganite films via nanoscale 1D periodic depth modulation. *A.K. Rajapitamahuni*[1*], L. Zhang[1], V. Singh[1], J.D. Burton[1], E.Y. Tsymbal[1] and X. Hong[1] *1. Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE*

10:18

CF-08. Magnetic and Structural Properties of Neon-Irradiated $Fe_{60}Al_{40}$ Thin Films. K. Borisov[1], R. Bali[2], J. Ehrler[2], S. Cornelius[2], C. Fowley[2], K. Potzger[2], J. Lindner[2], J. Fassbender[2] and *P.S. Stamenov*[1] *1. School of Physics and CRANN, Trinity College, Dublin, Ireland; 2. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany*

10:30

CF-09. Surface patterning effects on magnetic properties of single ferromagnetic thin films. *B. Mora*[1], N. Soriano[1], C. Redondo[1], A. Arteche[1], D. Navas[2] and R. Morales[3,4] *1. Department of Chemical-Physics, University of the Basque Country, UPV/EHU, Leioa, Spain; 2. IFIMUP-IN and Departamento Física e Astronomia, Universidade do Porto, Porto, Portugal; 3. Department of Chemical-Physics & BCMaterials, University of the Basque Country, UPV/EHU, Leioa, Spain; 4. IKERBASQUE, Basque Foundation for Science, Bilbao, Spain*

10:42

CF-10. Field-dependent measurements of correlations in nanoisland arrays with perpendicular magnetic anisotropy. *S.E. Kempinger*[1], R. Fraleigh[1], P. Lammert[1], V. Crespi[1], P. Schiffer[2] and N. Samarth[1] *1. Physics, The Pennsylvania State University, University Park, PA; 2. Physics, University of Illinois at Urbana Champaign, Urbana, IL*

10:54

CF-11. Large area closed-packed 10 nm dots of permalloy and FePt. *A.M. Abdelgawad*[1], S. Oberdick[2] and S. Majetich[2] *1. Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, PA; 2. Physics Department, Carnegie Mellon University, Pittsburgh, PA*

11:06

CF-12. Mini-hysteretic effects in magnetic vortex state. *H. Brueckl*[1], A. Satz[2], K. Pruegl[3], T. Wurft[4], S. Luber[4], W. Raberg[4], J. Zimmer[4] and D. Suess[5] *1. Institute of Integrated Sensor Systems, Danube University Krems, Wiener Neustadt, Austria; 2. Infineon Technologies Austria AG, Villach, Austria; 3. Infineon Technologies Austria AG, Regensburg, Germany; 4. Infineon Technologies Austria AG, Munich, Germany; 5. Christian Doppler Laboratory for Advanced Magnetic Sensing and Materials, Institute of Solid State Physics, Vienna, Austria*

11:18

CF-13. Characterisation of Magnetic Metamaterial based on Concavity Nanostructures. *J. Llandro*[1], D.M. Love[1], J. Herrero-Albillos[2], D. Mahendru[1], F. Maccherozzi[3], C. Cimorra[1] and C. Barnes[1] *1. Thin Film Magnetism Group, University of Cambridge, Cambridge, United Kingdom; 2. University of Zaragoza, Zaragoza, Spain; 3. Diamond Light Source, Didcot, United Kingdom*

WEDNESDAY
MORNING
8:30

AQUA SALON CD

Session CG
MRAM AND SPIN LOGIC I
Konrad Bussmann, Chair
Naval Research Laboratory, Washington, DC

8:30

CG-01. Scaling of ST-MRAM from in-plane to perpendicular technology. *D. Houssameddine*[1], R. Whig[1], H. Chia[1], L. Ye[1], F.B. Mancoff[1], S. Ikegawa[1], S. Deshpande[1], K. Nagel[1], S. Karre[1], Y. Yang[1], C. Mudivarthi[1], M. DeHerrera[1], M. Lin[1], J. Janesky[1], S. Aggarwal[1] and J.M. Slaughter[1] *1. Everspin Technologies, Chandler, AZ*

8:42

CG-02. Origin of Interfacial Perpendicular Magnetic Anisotropy in MgO/CoFe/Metallic Capping Layer Structures. *S. Peng*[1], M. Wang[1], H. Yang[2], L. Zeng[1], J. Nan[1], J. Zhou[1], Y. Zhang[1], A. Hallal[2], M. Chshiev[2], K.L. Wang[3], Q. Zhang[4,1] and W. Zhao[1] *1. Fert Beijing Institute, Beihang University, Beijing, China; 2. Univ. Grenoble Alpes, INAC-SPINTEC, CEA, INAC-SPINTEC, CNRS, SPINTEC, Grenoble, France; 3. Department of Electrical Engineering, University of California, Los Angeles, Los Angeles, CA; 4. School of Materials Science and Engineering, Beihang University, Beijing, China*

9:54

9:06

CG-04. Tetragonal Heusler thin films for spintronic applications. *J. Jeong*[1], Y. Ferrante[1,2], M. Samant[1] and S.S.P. Parkin[1,2] *1. IBM Almaden Research, San Jose, CA; 2. Max Planck Institute of Microstructure Physics, Halle, Germany*

9:18

CG-05. Lowering switching current in STT-MRAM devices with double MTJ structures. *G. Hu*[1,2], J. Lee[2], J.J. Nowak[1,2], J. Sun[1,2], J. Harms[1], A.J. Annunziata[1,2], S. Brown[1,2], W. Chen[1], Y. Kim[2], G. Lauer[1,2], N. Marchack[1,2], J. Park[2], M. Reuter[1,2], R. Robertazzi[1,2], P.L. Trouilloud[1,2], Y. Zhu[1,2] and D. Worledge[1,2] *1. IBM-Micron MRAM Alliance, IBM TJ Watson Research Center, Yorktown Heights, NY; 2. IBM-Samsung MRAM Alliance, IBM TJ Watson Research Center, Yorktown Heights, NY*

9:30

CG-06. Spin-wave noise spectroscopy for the measurement of the temperature rise during operation of a STT-MRAM cell. *A. Le Goff*[1], F. Garcia-Sanchez[1], J. Kim[1], V. Nikitin[2] and T. Devolder[1] *1. Institut d'Electronique Fondamentale, University Paris-Sud, Orsay, France; 2. Samsung Electronics, Milipitas, CA*

9:42

CG-07. Characterization of perpendicular STT-MRAM by spin torque ferromagnetic resonance. *C. Sha*[1], L. Yang[1], H. Lee[1], I. Barsukov[1], J. Zhang[1] and I. Krivorotov[1] *1. Department of Physics&Astronomy, University of California Irvine, Irvine, CA*

9:54

CG-08. Highly Stable Co/Pt Reference Layer with Strong Antiferromagnetic Interlayer Exchange Coupling in a Practicable p-MTJ. *K. Yakushiji*[1], H. Kubota[1], A. Fukushima[1] and S. Yuasa[1] *1. Spintronics Research Center, AIST, Tsukuba, Japan*

10:06

CG-09. Current induced magnetization switching of CoFeB/Ta/[Co/Pd (Pt)]-multilayer in magnetic tunnel junctions with perpendicular anisotropy. *S. Ishikawa*[1], H. Sato[2,3], S. Fukami[2,3], F. Matsukura[4,2] and H. Ohno[1,2] *1. Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University, Sendai, Miyagi, Japan; 2. Center for Spintronics Integrated Systems, Tohoku University, Sendai, Miyagi, Japan; 3. Center for Innovative Integrated Electronic Systems, Tohoku University, Sendai, Miyagi, Japan; 4. WPI Advanced Institute for Materials Research, Tohoku University, Sendai, Miyagi, Japan*

10:18

CG-10. Thermal stability extraction from single perpendicular MTJs and Mbit arrays: comparison and statistical analysis. *S. Van Beek*[1,2], K.M. Martens[1,2], P. Roussel[1], W. Kim[1], J. Swerts[1], G. Donadio[1], G.S. Kar[1], A. Thean[1], A. Furnemont[1] and G. Groeseneken[1,2] *1. Imec, Leuven, Belgium; 2. ESAT, KU Leuven, Leuven, Belgium*

10:30

CG-11. Thermal stability of perpendicular spin-transfer-torque magnetic random access memory at device and chip level. *L. Thomas*[1], G. Jan[1], S. Le[1], Y. Lee[1], H. Liu[1], J. Zhu[1], S. Serrano-Guisan[1], R. Tong[1], K. Pi[1], D. Shen[1], R. He[1], J. Haq[1], J. Teng[1], R. Annapragada[1], V. Lam[1], Y. Wang[1], T. Zhong[1], T. Torng[1] and P. Wang[1] *1. TDK-Headway Technologies, Milpitas, CA*

10:42

CG-12. Three-terminal spin-orbit torque magnetic random access memory (SOT-MRAM) with low writing current. *C. Hamelin*[1,2], O. Boulle[1,2], N. Lamard[3], T. Braecher[1,2], M. Miron[1,2], J. Langer[4], B. Ocker[4], P. Gambardella[5] and G. Gaudin[1,2] *1. Univ. Grenoble Alpes, Grenoble, France; 2. INAC-SPINTEC, Grenoble, France; 3. CEA-LETI, Grenoble, France; 4. Singulus AG, Kahl, Germany; 5. Materials, ETH, Zurich, Switzerland*

10:54

CG-13. Enabling Spin Logic via Shannon-inspired Statistical Computing. *A. Patil*[2], S. Manipatruni[1], D.E. Nikonov[1], I. Young[1] and N. Shanbhag[2] *1. Intel Components Research, Portland, OR; 2. Department of Electrical and Computer Engineering, University of Illinois at Urbana–Champaign, Urbana, IL*

11:06

CG-14. Scaling Limits on All-spin Logic. *S. Chang*[1,2], N. Kani[1], S. Manipatruni[2], D.E. Nikonov[2], I. Young[2] and A. Naeemi[1] *1. Georgia Institute of Technology, Atlanta, GA; 2. Components Research, Intel Corporation, Hillsboro, OR*

11:18

CG-15. CPP-GMR devices using $Co_2Fe(Ga_{0.5}Ge_{0.5})$ full Heusler alloy and a Ag-Zn alloy spacer. *Y. Du*[1,2*], T. Furubayashi[2], T. Sasaki[2], Y. Sakuraba[2], Y. Takahashi[2] and K. Hono[2,1] *1. University of Tsukuba, Tsukuba, Japan; 2. National Institute for Materials Science, Tsukuba, Japan*

WEDNESDAY
MORNING
8:30

AQUA SALON EF

Session CH

SPIN HALL AND RELATED EFFECTS I

Takeshi Seki, Chair
Tohoku University, Sendai, Japan

8:30

CH-01. Photo-Spin-Voltaic Effect. *D. Ellsworth*[1*], L. Lu[1], J. Lan[2,3], H. Chang[1], P. Li[1], Z. Wang[3], J. Hu[2], B. Johnson[1], Y. Bian[1], J. Xiao[3,4], R. Wu[2,3] and M. Wu[1] *1. Physics, Colorado State Univsersity, Fort Collins, CO; 2. Physics and Astronomy, University of California, Irvine, CA; 3. Physics, Fudan University, Shanghai, China; 4. Collaborative Innovation Center of Advanced Microstructures, Fudan University, Shanghai, China*

8:42

CH-02. Spin Hall effect in AuW alloys. *P. Laczkowski*[1,2], J. Rojas Sanchez[1,2], Y. Fu[2], W. Savero Torres[2], N. Reyren[1], C. Deranlot[1], J. George[1], H. Jaffrès[1], L. Notin[2], C. Beigné[2], A. Marty[2], J. Attané[2], L. Vila[2] and A. Fert[1] *1. Unité Mixte de Physique CNRS/Thales, Palaiseau, France; 2. Institut Nanosciences et Cryogénie,CEA, Grenoble, France*

8:54

CH-03. Spin Transport Through Magnetic Native Oxides and Evidence for Large Spin Hall Angle in Dilute Gold Alloys. *B. Zink*[1], M. Manno[2], L. O'Brien[2,3], J. Lotze[4], M. Weiler[4], D. Wesenberg[1], S. Goennenwein[4], M. Johnson[2] and C. Leighton[2] *1. University of Denver, Denver, CO; 2. Chem. Eng. and Mat. Sci., University of Minnesota, Minneapolis, MN; 3. Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom; 4. Walther-Meissner Institute, Garching, Germany*

9:06

CH-04. Spin Hall conductivity and spin diffusion length in platinum thin films due to the intrinsic spin Hall effect and Elliott-Yafet spin scattering. *M. Nguyen*[1], D.C. Ralph[1,2] and R.A. Buhrman[1] *1. Department of Physics, Cornell University, Ithaca, NY; 2. Kavli Institute at Cornell, Ithaca, NY*

9:18

CH-05. Auto-oscillation induced by Spin Hall effect torques in 20 nm thick YIG disks. *M. Collet*[1], X. De Milly[2], O. d'Allivy Kelly[1], V.V. Naletov[2], R. Bernard[1], E. Jacquet[1], P. Bortolotti[1], J. Ben Youssef[3], J.L. Prieto[4], M. Munoz[5], G. de Loubens[2], O. Klein[2], V. Cros[1] and A. Anane[1] *1. Unité Mixte de Physique CNRS/Thales and Université Paris Sud, Palaiseau, Ile-de-France, France; 2. Service de Physique de l'Etat Condensé, CEA Saclay, Gif-sur-Yvette, Ile-de-France, France; 3. Université de Bretagne Occidentale, Laboratoire de Magnétisme de Bretagne CNRS, Brest, France; 4. Instituto de Sistemas Optoelectrónicos y Microtecnología (UPM), Madrid, Spain; 5. Instituto de Microelectrónica de Madrid (CNM, CSIC), Madrid, Spain*

9:30

CH-06. Spin-wave excitation, propagation and amplification in YIG-Pt bi-layers. *A.A. Serga*[1], D.A. Bozhko[1,2], M. Agrawal[1], V.I. Vasyuchka[1], B. Hillebrands[1] and M. Kostylev[3] *1. Fachbereich Physik and Landesforschungszentrum OPTIMAS, TU Kaiserslautern, Kaiserslautern, Germany; 2. Graduate School Materials Science in Mainz, Kaiserslautern, Germany; 3. School of Physics, University of Western Australia, Crawley, WA, Australia*

9:42

CH-07. Interface dependence of the anomalous Hall-like effect in YIG/Pt bilayers. *A.L. Westerman*[1], M. Ali[1], L.M. Banniard[1,2] and B. Hickey[1] *1. School of Physics & Astronomy, University of Leeds, Leeds, West Yorkshire, United Kingdom; 2. Nanophysics, Phelma Grenoble INP, Grenoble, Rhône Alpes, France*

9:54

CH-08. Investigation of spin pumping and magnetoresistance phenomena in yttrium iron garnet/graphene bilayers. J.B. Mendes[1], O. Alves-Santos[2], L.M. Meireles[3], R.G. Lacerda[3], L.H. Vilela-Leão[4], F.L. Machado[2], R.L. Rodríguez-Suárez[5,2], *A. Azevedo*[2] and S.M. Rezende[2] *1. Departamento de Fisica, Universidade Federal de Viçosa, Viçosa, MG, Brazil; 2. Departamento de Física, Universidade Federal de Pernambuco, Recife, Pernambuco, Brazil; 3. Departamento de Física, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil; 4. Centro Acadêmico do Agreste, Universidade Federal de Pernambuco, Caruaru, Pernambuco, Brazil; 5. Facultad de Física, Pontificia Universidad Católica de Chile, Santiago, Chile*

10:06

CH-09. Fine-Tuning of Rashba and Spin-Hall-Induced Torques in Perpendicular Ta/CoFeB/MgO Multilayer through Oxidation Degree Control. *N. Sato*[1*], R.M. White[2] and S. Wang[1,2] *1. Electrical Engineering, Stanford University, Stanford, CA; 2. Materials Science and Engineering, Stanford University, Stanford, CA*

10:18

CH-10. Interface-driven spin-torque ferromagnetic resonance by Rashba coupling at the interface between non-magnetic materials. *M. Jungfleisch*[1], W. Zhang[1], J. Sklenar[1,2], W. Jiang[1], J.E. Pearson[1], J.B. Ketterson[2] and A. Hoffmann[1] *1. Materials Science Division, Argonne National Laboratory, Argonne, IL; 2. Department of Physics and Astronomy, Northwestern University, Evanston, IL*

10:30

CH-11. Quantitative investigation of the relationship between spin drift and spin signal in spin-MOSFET. *T. Tahara*[1], Y. Ando[1], H. Koike[2], M. Kameno[3,1], T. Sasaki[2], Y. Suzuki[3] and M. Shiraishi[1] *1. Kyoto university, Kyoto, Japan; 2. TDK Corporation, Tokyo, Japan; 3. Osaka university, Osaka, Japan*

10:42

CH-12. Anomalous Hall and ferromagnetic proximity effects in graphene/YIG devices. *J.C. Leutenantsmeyer*[1], A. Kaverzin[1] and B. Van Wees[1] *1. University of Groningen, Physics of Nanodevices, Groningen, Netherlands*

10:54

CH-13. Origin of the Spin Seebeck effect in ferrimagnets. S. Gepraegs[2], A. Kehlberger[1], F. Coletta[2], Z. Qiu[3], E. Guo[1], T. Schulz[1], S. Meyer[2], A. Kamra[2], M. Althammer[2], H. Huebl[2], G. Jakob[1], Y. Ohnuma[3], H. Adachi[4], J. Barker[3], S. Maekawa[4], G.E. Bauer[3], E. Saitoh[3], R. Gross[2], S. Goennenwein[2] and *M. Kläui*[1] *1. Physics, Johannes Gutenberg - University Mainz, Mainz, Germany; 2. Walter Meissner Institut, München, Germany; 3. Tohoku University, Sendai, Japan; 4. JAEA, Tokai, Japan*

11:06

CH-14. Spin Seebeck effect from the paramagnetic phases of $Gd_3Ga_5O_{12}$ and $DyScO_3$. *S.M. Wu*[1], J.E. Pearson[1] and A. Bhattacharya[1] *1. Materials Science Division, Argonne National Laboratory, Argonne, IL*

11:18

CH-15. Investigation of interface spin polarization of nonmagnetic thin films adjacent to magnetic insulators by x-ray resonant magnetic reflectivity. *T. Kuschel*[1], C. Klewe[1], J. Schmalhorst[1], M. Meinert[1], O. Schuckmann[2], J. Wollschläger[2], F. Bertram[3], J. Strempfer[3] and G. Reiss[1] *1. Bielefeld University, Bielefeld, Germany; 2. University of Osnabrück, Osnabrück, Germany; 3. Deutsches Elektronen-Synchrotron (DESY), Hamburg, Germany*

Session CI
BIO IMAGING, ASSAYS AND HYPERTHERMIA II
Stephen Russek, Chair
NIST, Boulder, CO

8:30

CI-01. **Magnetic nanostructures by nanosphere lithography for hyperthermia.** *P. Tiberto*[1], G. Barrera[1,2], F. Celegato[1], M. Coisson[1], G. Conta[1,2], K. Martina[3], L. Serpe[3] and R. Canaparo[3] *1. INRIM, Torino, Italy; 2. Chemistry, Università di Torino, Torino, Italy; 3. Neuroscienze, Università di Torino, Torino, Italy*

8:42

CI-02. **Unified model of hyperthermia via hysteresis heating in systems of interacting magnetic nanoparticles.** *S. Ruta*[1*], O. Hovorka[2] and R. Chantrell[1] *1. Physics, University of York, York, United Kingdom; 2. Faculty of Engineering and the Environment, University of Southampton, Southampton, United Kingdom*

8:54

CI-03. **Anisotropic Magnetic Nanostructures for Enhanced Hyperthermia.** *J. Alonso*[1,2], Z. Nemati[1], R. Das[1], L. Martinez[3], H. Khurshid[1], E. Garaio[4], J. García[5], M. Fdez-Gubieda[2], J. Barandiarán[2], M. Phan[1] and H. Srikanth[1] *1. Physics, University of South Florida, Tampa, FL; 2. BCMaterials, Derio, Vizcaya, Spain; 3. Physics and Electronics, University of Puerto Rico, Humacao, PR; 4. Electricity and Electronics, University of Basque Country, Leioa, Vizcaya, Spain; 5. Applied Physics II, University of Basque Country, Leioa, Vizcaya, Spain*

9:06

CI-04. **Enhanced Hyperthermia Capability by Tuning the Anisotropy of Ferrite Nanoparticles.** S. He[2,1], H. Zhang[1], F. Sun[1], C. Liu[2], X. Li[2] and *H. Zeng*[1] *1. Physics, University at Buffalo, SUNY, Buffalo, NY; 2. Physics, Capital Normal University, Beijing, China*

9:18

CI-05. **Magnetic Resonance Based Reconstruction of the Inhomogeneous Admittivity Distribution.** *T. Nara*[1], T. Furuichi[1] and S. Ando[1] *1. The University of Tokyo, Bunkyo, Tokyo, Japan*

9:30

CI-06. Multicore magnetic Fe_3O_4@C beads with enhanced magnetic response for MRI in brain biomedical applications. Z. Vargas-Osorio[1], B. Argibay[2], Y. Piñeiro[1], C. Vázquez-Vázquez[3], M. López Quintela[3], T. Sobrino[2], F. Campos[2], J. Castillo[2] and *J. Rivas*[1] *1. Applied Physics, Univ. Santiago de Compostela, Santiago de Compostela, Spain; 2. Neurosciences Research Laboratory, University Clinical Hospital, Santiago de Compostela, Spain; 3. Physical Chemistry Department, Univ. Santiago de Compostela, Santiago de Compostela, Spain*

9:42

CI-07. Development of Deep Brain TMS Coil: Triple Halo Coil. *P. Rastogi*[1], R.L. Hadimani[1] and D.C. Jiles[1] *1. Department of Electrical and Computer Engineering, Iowa State University, Ames, IA*

9:54

CI-08. Accuracy of MRI-based Magnetic Susceptibility Measurements. *H. Erdevig*[2,1], S.E. Russek[1], K.E. Keenan[1] and K. Stupic[1] *1. 687.03, NIST, Boulder, CO; 2. Physics, University of Colorado, Boulder, CO*

10:06

CI-09. Colloidal structure determination using small angle neutron scattering of polymer coated iron oxide nanoparticles for early detection of disease. *E. Brok*[1,2], K.L. Krycka[1], J. Borchers[1], C. Dennis[5], K. Theis-Bröhl[6], D. Huber[4] and E. Vreeland[3] *1. NIST Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD; 2. Department of Materials Science and Engineering, University of Maryland, College Park, MD; 3. Nanoparticle R & D, Senior Scientific, Albuquerque, NM; 4. Center for Integrated Nanotechnologies, Sandia National Laboratories, Albuquerque, NM; 5. Material Measurement Laboratory, National Institute of Standards and Technology, Gaithersburg, MD; 6. Process Engineering and Energy Technology, University of Applied Sciences Bremerhaven, Bremerhaven, Germany*

10:18

CI-10. Influence of freeze-concentration on protein damage and ice cream production: a magnetic investigation. *G. Sitbon*[1], E. Chagas[2], S.C. Carreira[1] and W. Schwarzacher[1] *1. H.H. Wills Physics Laboratory, University of Bristol, Bristol, United Kingdom; 2. Instituto de Fisica, Universidade Federal de Mato Grosso, Cuiaba, Brazil*

10:30

CI-11. GMR-based Salmonella Detection System: approaching 1 CFU detection. *M.A. Torija*[1], K.D. Dorfman[2], L. Maldonado-Camargo[3], C. Rinaldi[3], J. Sheats[2] and S. Sreevatsan[4] *1. Ad tech, NVE Corporation, Eden Prairie, MN; 2. Chemical Engineering and Material Science, University of Minnesota, Minneapolis, MN; 3. Department of Chemical Engineering, University of Florida, Gainesville, FL; 4. College of Veterinary Medicine, University of Minnesota, St. Paul, MN*

10:42

CI-12. Relevant parameters in magnetic hyperthermia for biological applications: Agglomeration, concentration, viscosity. Y. Piñeiro[1], Z. Vargas-Osorio[1], M. Bañobre-López[2], Y. Kolen'ko[2], M. López Quintela[3] and *J. Rivas*[1] *1. Applied Physics, Univ. Santiago de Compostela, Santiago de Compostela, Spain; 2. International Iberian Nanotechnology Laboratory, Braga, Portugal; 3. Dept. Physical Chemistry, Univ. Santiago de Compostela, Santiago, Spain*

10:54

CI-13. Multifunctional Magnetic and Magneto-Plasmonic Nanoparticles for Enhanced Hyperthermia Applications. E. Fantechi[1], A.G. Roca[1], C. Innocenti[2], M. Albino[2], N. Bastus[1], V. Puntes[1,3], C. Sangregorio[2,4] and *J. Nogues*[1,3] *1. ICN2- Institut Catala de Nanociencia i Nanotecnologia, Bellaterra, Spain; 2. INSTM-LAMM, Universitá di Firenze, Sesto Fiorentino, Italy; 3. ICREA, Barcelona, Spain; 4. CNR-Istituto di Chimica dei Composti OrganoMetallici, Sesto Fiorentino, Italy*

11:06

CI-14. Magnonic crystals as dynamic nanoparticle detectors. M. Sushruth[1], J. Ding[2], R. Begley[1], J. Duczynski[4], R. Woodward[1], I. Maksymov[1], M. Albert[3], W. Wang[3], H. Fangohr[3], B. Fuller[4], A. Adeyeye[2], M. Kostylev[1] and *P. Metaxas*[1] *1. School of Physics, University of Western Australia, Crawley, WA, Australia; 2. Information Storage Materials Laboratory, National University of Singapore, Singapore, Singapore; 3. Engineering and the Environment, University of Southampton, Southampton, United Kingdom; 4. School of Chemistry and Biochemistry, University of Western Australia, Crawley, WA, Australia*

11:18

CI-15. Fabrication and Characterization of Polymer Membranes With Integrated Ordered Arrays of High Performance Micro-Magnets for Use in Biology. *D. Le Roy*[1], N. Dempsey[2,3], G. Shaw[2,3], R. Haettel[2,3], F. Dumas-Bouchiat[2,3], D. Givord[2,3] and K. Hasselbach[2,3] *1. Institut Lumière Matière, UMR 5306 CNRS-Université Lyon 1, Villeurbanne, France; 2. Univ. Grenoble Alpes, Inst Néel, Grenoble, France; 3. CNRS, Inst Néel, Grenoble, France*

Session CJ
ELECTRICAL MACHINES AND APPLICATIONS

Elena Lomonova, Chair
Eindhoven University of Technology, Eindhoven, Netherlands

8:30

CJ-01. Partial Demagnetization Fault Detection of PMSM under Nonstationary Conditions Based on Vold-Kalman Filtering. *C. Wang*[1], L. Romeral[2], M. Delgado[2], Z. Chen[1], F. Blaabjerg[1] and X. Liu[1] *1. Department of Energy Technology, Aalborg University, Aalborg, Denmark; 2. Department of Electronic Engineering, Universitat Politècnica de Catalunya, Terrassa, Spain*

8:42

CJ-02. Reduction of Eddy-Current Losses in Fractional-Slot Concentrated-Winding Synchronous PM Machines. *G. Choi*[1] and T. Jahns[1] *1. Electrical and Computer Engineering, University of Wisconsin at Madison, Madison, WI*

8:54

CJ-03. Non-invasive detection of rotor short-circuit fault in synchronous machines by analysis of stray magnetic field and frame vibrations. *M.A. Cuevas*[1,2], R. Romary[2], J. Lecointe[2] and T. Jacq[1] *1. Electricité de France (EDF) R&D, Clamart, Ile-de-France, France; 2. Laboratoire Systèmes Electrotechniques et Environnement (LSEE), Béthune, Nord-Pas-de-Calais, France*

9:06

CJ-04. Performance Analysis of Novel Dual Mechanical Port Machines with Ferrite-Assisted Reluctance Rotor for Hybrid Electric Vehicles. *Z. Zhang*[1] *1. School of Electrical and Electronic Engineering, Huazhong University of Science and Technology, Wuhan, Hubei, China*

9:18

CJ-05. Construction and Experimental Analysis of A Novel Axially Laminated Flux Switching Permanent Magnet Machine. T. Wang[1], C. Liu[1], W. Xu[2], G. Lei[1], Y. Guo[1] and *J. Zhu*[1] *1. School of Electrical, Mechanical and Mechatronic Systems, University of Technology, Sydney, Sydney, NSW, Australia; 2. School of Electrical and Electronics Engineering, Huazhong University of Science and Technology, Wuhan, Hubei, China*

9:30

CJ-06. Novel Switched Flux Hybrid Excited Machine Having Separate Field Winding Stator. *H. Hua*[1] and Z. Zhu[1] *1. Department of Electronic and Electrical Engineering, University of Sheffield, Sheffield, United Kingdom*

9:42

CJ-07. A 32,000 rpm Axial Flux Permanent Magnet Machine for Energy storage with Mechanical Stress Analysis. *S. Kumar*[1], T. Lipo[2] and B. Kwon[1] *1. Electronic Systems Engineering, Hanyang University, Ansan, The Republic of Korea; 2. Department of Computer and Electrical Engineering, Florida State University, Tallahassee, FL*

9:54

CJ-08. New Non-oriented Electrical Steel of High Magnetic Induction and its Application Effects on Induction Motors. *K. Wajima*[1], R. Hirayama[2], K. Hori[3] and M. Fujikura[4] *1. Instrumentation & Control Research Lab., Nippon Steel and Sumitomo, Futtsu, Chiba, Japan; 2. Occupational Safety Dept., Nippon Steel and Sumitomo, Futtsu, Chiba, Japan; 3. Electrical Steel Sheet Technology Dept., Nippon Steel and Sumitomo, Tokyo, Japan; 4. Yawata R & D Lab., Nippon Steel and Sumitomo, Kitakyushu, Fukuoka, Japan*

10:06

CJ-09. A Linear Magnetic-Geared Wave Energy Generator. *N. Feng*[1], H. Yu[1], M. Hu[1], L. Huang[1] and S. Zhenchuan[1] *1. School of Electrical Engineering, Southeast University, Nanjing, Jiangsu, China*

10:18

CJ-10. Axial Permanent Magnet Generator for Wearable Energy Harvesting. *S. Högberg*[1], J. Sødahl[1], N. Mijatovic[1], J. Holbøll[1], J. Pedersen[2], D. Vuckovic[2] and B.B. Jensen[3] *1. Department of Electrical Engineering, Technical University of Denmark, Kongens Lyngby, Denmark; 2. IdemoLab, Delta, Hørsholm, Denmark; 3. Department of Science and Technology, University of the Faroe Islands, Torshavn, Faroe Islands*

10:30

CJ-11. Magneto-Thermal Analysis of a Totally Enclosed Self-Cooled Doubly Salient Electro-magnetic Generator for Stand-alone Power System. *Y. Wang*[1], Z. Zhang[1], Y. Sang[1] and W. Jiang[1] *1. Nanjing University of Aeronautics and Astronautics, Nanjing, China*

10:42

CJ-12. Development of High-Speed 12/8-pole Switched Reluctance Motor for Electric Power Tools. *K. Nakamura*[1], Y. Kumasaka[1] and O. Ichinokura[1] *1. Graduate School of Engineering, Tohoku University, Sendai, Japan*

10:54

CJ-13. Loss Determination of Large Direct-Drive Permanent Magnet Machines using Back-to-Back testing. *J. Paulides*[2,1], N. Djukic[2] and L. Encica[2] *1. TU Einthoven, Eindhoven, Netherlands; 2. Advanced Electromagnetics BV, Waalwijk, Netherlands*

11:06

CJ-14. Investigation of Magnet Demagnetization and Losses in Interior and Surface PMSMs during Integrated Charging Operation in Electric Vehicles. *L. Iyer*[1], C. Lai[1], S. Mukundan[1], H. Dhulipati[1], K. Mukherjee[2,1] and N. Kar[1] *1. University of Windsor, Windsor, ON, Canada; 2. Electrical engineering, Indian Institute of Engineering Science and Technology, Shibpur, Shibpur, West Bengal, India*

11:18

CJ-15. Analytic and Experimental Analysis of the Kelvin's Force Equations. S. Gama[2], L.D. Ferreira[1], *C.V. Bessa*[1], R. Araujo[3], A. Coelho[4], F.C. Gandra[4] and P.W. Egolf[3] *1. Mechanical Engineering, Polytechnic School of the University of São Paulo, Sao Paulo, Sao Paulo, Brazil; 2. Federal University of São Paulo, Diadema, Sao Paulo, Brazil; 3. School of Business and Engineering Vaud, University of Applied Sciences, Yverdon-les-Bains, Switzerland; 4. University of Campinas, Campinas, Sao Paulo, Brazil*

WEDNESDAY
MORNING
9:30

SAPPHIRE BALLROOM SOUTH

Session CP
ELECTRONIC STRUCTURE OF MAGNETIC MATERIALS (Poster Session)

Alexander Grutter, Co-Chair
NIST, Gaithersburg, MD
Elke Arenholz, Co-Chair
LBNL, Berkeley, CA

CP-01. Carrier-dependent magnetic anisotropy of Gd-adsorbed graphene. Y. Lu[2], B. Shao[3], P. Liu[1], W. Qian[1] and *X. Zuo*[1] *1. College of Electronic Information and Optical Enginnering, Nankai University, Tianjin, China; 2. Department of Computer Science, New Jersey Institute of Technology, Newark, NJ; 3. Department of Physics, Tsinghua University, Beijing, China*

CP-02. Evidence for Ionic Nature of Bonding of B and C dopants with the CoFeX/MgO (X = B, C) Interface. *A.P. Chen*[1,3], J.D. Burton[2], E.Y. Tsymbal[2] and J. Chen[1] *1. Department of Materials Science and Engineering, National University of Singapore, Singapore, Singapore; 2. Department of Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE; 3. NUS Graduate School of Integrative Sciences and Engineering, National University of Singapore, Singapore, Singapore*

CP-03. The origin of ferromagnetism in α-K_2AgF_4. *X. Zhang*[1], Z. Zeng[1,2] and T. Jia[1] *1. Solid State Physics, Chinese Academy of Sciences, Hefei, Anhui, China; 2. University of Science and Technology of China, Hefei, Anhui, China*

CP-04. Investigation on the magnetic and electronic properties of Y_2FeCrO_6: A first-principles study. *V.G. Nair*[1], C. Ganeshraj[1], V. Subramanian[1] and P. Santhosh[1] *1. Physics, Indian Institute of Technology Madras, Chennai, Tamilnadu, India*

CP-05. First-principles study of skyrmion-pinning effect in MnSi. *H. Choi*[1], S. Lin[1] and J. Zhu[1] *1. Los Alamos Ntional Laboratory, Los Alamos, NM*

CP-06. First Principles Calculation of Electronic Structure of Multiferroic $BiFeO_3$ Solid Solution. *Y. Peng*[1], H. Ouyang[1], C. Tu[2] and C. Hsiao[1] *1. Materials Science and Engineering, National Tsing Hua University, Hsinchu City, Taiwan; 2. Physics, Fu Jen Catholic University, New Taipei City, Taiwan*

CP-07. Temperature dependence of the magnetic hyperfine field at a Cd impurity diluted in RNi_2. *A. de Oliveira*[2], C.M. Chaves[1], N.A. de Oliveira[3] and A. Troper[1] *1. Centro Brasileiro de Pesquisas Fisicas, Rio de Janeiro, Rio de Janeiro, Brazil; 2. Instituto Federal de Educação, Ciencia e Tecnologia, Nilopolis, Rio de Janeiro, Brazil; 3. Instituto de Fisica, Uerj, Rio de Janeiro, RJ, Brazil*

CP-08. Magnetic and Electronic Structures of Fe_3Se_4. *Y. Hong*[1], J. Park[1] and H. Ok[2] *1. The University of Alabama, Tuscaloosa, AL; 2. Department of Physics, Yonsei University, Seoul, The Republic of Korea*

CP-09. Strain-Induced magnetism study of vacancy defect WS_2 monolayer. *R.K. Chouhan*[1,2] and P. Raghani[1] *1. Physics, Boise State University, Boise, ID; 2. Critical Materials Institute, Ames Laboratory, Ames, IA*

CP-10. Magnetic effects produced by interstitial H in ferromagnetic Ni. *P. Vargas*[1], A. León[1], E.A. Velasquez[1,2] and J.M. Florez[1] *1. Physics Department, Universidad Santa María, Valparaíso, Chile; 2. Physics Department, Universidad Católica, Santiago, Chile*

CP-11. Spin short range order in palladium. *V. Antropov*[1] and A.L. Kutepov[1] *1. Ames Laboratory, Ames, IA*

CP-12. Large Magneto-crystalline Anisotropy of Transition Metal intercalated WSe. *P. Kumar*[1], P. Manchanda[2], R. Skomski[2] and P. Raghani[1] *1. Department of Physics, Boise State University, Mandi, Himachal Pradesh, India; 2. Department of Physics and Astronomy and NCMN, University of Nebraska, Lincoln, NE*

CP-13. Electronic and magnetic properties of Si substituted Fe_3Ge. S.K. Veedu[1], *D. Parker*[1] and M.A. McGuire[1] *1. Oak Ridge National Lab, Oak Ridge, TN*

CP-14. Tunable magnetism in concentrated solid solution alloys: From binaries to High Entropy Alloys. *G.M. Stocks*[1], M. Daene[2], J. Yin[3], M. Eisenbach[4], K. Odbadrakh[3], J. Morris[1], S. Kahn[1], C. Troparevsky[1], K. Jin[1], B. Sales[1], W. Weber[3], Y. Zhang[1] and H. Bei[1] *1. Materials Science and Technology, Oak Ridge National Laboratory, Oak Ridge, TN; 2. Lawrence Livermore National Laboratory, Livermore, CA; 3. University of Tennessee, Knoxville, TN; 4. Center for Computational Sciences, Oak Ridge National Laboratory, Oak Ridge, TN*

WEDNESDAY MORNING 9:30 — SAPPHIRE BALLROOM SOUTH

Session CQ
SOFT MAGNETIC MATERIALS: CRYSTALLINE ALLOYS I (Poster Session)

Carlo Ragusa, Chair
Politecnico di Torino, Turin, Italy

CQ-01. Magnetic properties of lithium zinc ferrites synthesized by microwave sintered method. *Q. Yang*[1] *1. University of Electronic Science and Technology of China, Chengdu, Sichuan, China*

CQ-02. LiZnTi ferrites-$Li_2ZnTi_3O_8$ based spinel-structured magneto-dielectric ceramics with low dielectric loss for high frequency applications. *C. Liu*[1] *1. School of Microelectronics and Solid-state Electronics, University of Electronic Science and Technology of China, Chengdu, Sichuan, China*

CQ-03. The Effect of Co_2O_3 Addition on the Stability of Permeability of NiCuZn Ferrites After Sustaining Magnetic Field. *S. Yan*[1], L. Deng[1] and Z. Feng[2] *1. 1) School of Physics and Electronics, Institute of Super-microstructure and Ultrafast Process in Advanced Materials, Central South University, Changsha, Hunan, China; 2. 2) School of Optical and Electric Information, Huazhong University of Science and Technology, Wuhan, Hubei, China*

CQ-04. Synthesis of Metallic Ni Hierarchical Nanostructured Microspheres and microwave absorption properties. *H. Luo*[1], R. Gong[1], X. Wang[1], K. Song[1] and J. Yang[1] *1. Huazhong University of Science and Technology, Wuhan, China*

CQ-05. Electric field modulation of magnetic anisotropy and microwave absorption properties in $Fe_{50}Ni_{50}$/Teflon composite films. Z. Xia[1,4], *J. He*[1,2], X. Ou[1,2], Y. Wang[1,2], S. He[3], D. Zhao[1,2] and G. Yu[4] *1. Functional Materials Research Institute, Central Iron and Steel Research Institute, Beijing, China; 2. Beijing Key Laboratory of precision Alloys, Beijing, China; 3. Department of Physics, The Capital Normal University, Beijing, China; 4. Department of Materials Physics and Chemistry, University of Science and Technology Beijing, Beijing, China*

CQ-06. Influence of Planar Stress on Magnetic Property of Silicon Steel Lamination. J. Chen[1], D. Wang[1], *Y. Zhu*[2], S. Cheng[1], Z. Yu[3], Y. Wang[1] and B. Liu[2] *1. Research Institute of Power Electronics, Naval University of Engineering, Wuhan, China; 2. Hunan Forever Elegance Technology Co., Ltd, Loudi, Hunan, China; 3. Zhejiang Province Institute of Metrology, Hangzhou, Zhejiang, China*

CQ-07. Cationic distribution assisted tuning of magnetic properties of $Li_{0.5-x/2}Zn_xFe_{2.5-x/2}O_4$. S. Panchal[1], S. Raghuvanshi[1], K. Gehlot[1], F. Mazaleyrat[2] and *S. Kane*[1] *1. School of Physics, Devi Ahilya University, Indore, Madhya Pradesh, India; 2. SATIE, ENS de Cachan, Cachan, France*

CQ-08. Electrical transport properties of $CoMn_{0.2-x}Ga_xFe_{1.8}O_4$ ferrites using complex impedance spectroscopy. *C. Tsay*[1], Y. Lin[1], Y. Wang[2], H. Chang[2], C. Lei[3] and S. Jen[4] *1. Department of Materials Science and Engineering, Feng Chia University, Taichung, Taiwan; 2. Department of Marine Engineering, National Taiwan Ocean University, Keelung, Taiwan; 3. Department of Chemical and Materials Engineering, Chinese Culture University, Taipei, Taiwan; 4. Institute of Physics, Academia Sinica, Taipei, Taiwan*

CQ-09. Structure and magnetic properties of $Mn_{0.5}Zn_{0.5}Fe_2O_4$ films formed by Sol-Gel for spin thermoelectric generator. *D. Zhongxia*[1] *1. Institute of Electrical Engineering Chinese Academy of Sciences, Beijing, China*

CQ-10. Orientation-induced enhancement in low-frequency microwave permeability of $ZnFe_2O_4/SiO_2$/PANI core/shell/shell nanostructured disks. *J. Wang*[1] and S. Or[1] *1. Department of Electrical Engineering, The Hong Kong Polytechnic University, Kowloon, Hong Kong*

CQ-11. Microwave and magnetic properties of Al-doped M-type barium hexaferrite thick films by tape casting. *D. Chen*[2], Y. Chen[2], Y. Li[1], Y. Liu[1], J. Li[1] and H. Zhang[1] *1. School of Microelectronics and Solid-State Electronics, University of Electronic Science and Technology of China, Chengdu, Sichuan, China; 2. College of Materails and Chemical Engineering, Hainan University, Haikou, Hainan, China*

CQ-12. Synthesis and Microwave Absorbing Characteristics of Functionally Graded Carbonyl Iron/Polyurethane Composites. *R. Yang*[1], W. Liang[1], C. Wu[1] and C. Chen[2] *1. Aerospace and Systems Engineering, Feng Chia University, Taichung, Taiwan; 2. Ph.D. Program of Mechanical and Aeronautical Engineering, Feng Chia University, Taichung, Taiwan*

CQ-13. Temperature dependence of FMR Study on magnetic order nanocrystalline Zinc Ferrite Thin Films. B. Sahu[1], A. Doshi[2], P. Rajagiri[1], *N. Venkataramani*[3], S. Prasad[1] and K. Ramanathan[4] *1. Physics, IIT Bombay, Mumbai, Maharastra, India; 2. Dept. Of Electrical Engineering, IIT Bombay, Mumbai, Maharashtra, India; 3. Department of Metallurgical Engineering & Materials Science,, IIT Bombay, Mumbai, Maharashtra, India; 4. Retired scientists, CNRS/Universite de Versailles-St-Quentin, 78035, Versailles Cedex, France*

CQ-14. Alternative magnetic field heat behaviors of electrospun fibrous mats filled with iron oxide nanoparticles. *K. Kim*[1], J. Kim[1], J. Choi[2], H. Yang[2] and F. Ko[2] *1. Physics, Yeungnam University, Gyeongsan, The Republic of Korea; 2. Materials Engineering, University of British Columbia, Vancouver, BC, Canada*

WEDNESDAY
MORNING
9:30

SAPPHIRE BALLROOM SOUTH

Session CR
MAGNETO-CALORIC AND MAGNETO-OPTICAL MATERIALS (Poster Session)

Karl Sandeman, Chair
Brooklyn College, Brooklyn, NY

CR-01. The in-plane easy magnetization magneto-optical bismuth substituted yttrium iron garnet single crystal film prepared by LPE method. *Q. Yang*[1] *1. University of Electronic Science and Technology of China, Chengdu, Sichuan, China*

CR-02. Structural and magnetic states of complex Heusler alloys. *V.D. Buchelnikov*[1], V.V. Sokolovskiy[1], M.A. Zagrebin[1] and Y. Sokolovskaya[1] *1. Condensed Matter Physics Department, Chelyabinsk State University, Chelyabinsk, Russian Federation*

CR-03. First Principles Calculations of Structural and Magnetic Properties of Ni-Co-Mn-Cr-Sn Heusler Alloys. *M.A. Zagrebin*[1], E.E. Smolyakova[1], V.V. Sokolovskiy[1] and V.D. Buchelnikov[1] *1. Physics, Chelyabinsk State University, Chelyabinsk, Russian Federation*

CR-04. Effect of Ag on the Magnetoresistance and Magnetocaloric Properties of Ni-Mn-In Heusler Alloys. *S. Pandey*[1], A. Quetz[1], A. Aryal[1], I. Dubenko[1], S. Stadler[2] and N. Ali[1] *1. Physics, Southern Illinois University Carbondale, Carbondale, IL; 2. Physics, Louisiana State University, Baton Rouge, LA*

CR-05. Withdrawn

CR-06. The impact of substrate stimulated functional interface on magnetic and magneto-transport signature of martensitic transformation in NiMnIn shape memory alloy. *A. Sokolov*[1], E. Kirianov[2], A. Zlenko[2], A. Quetz[3], A. Aryal[3], S. Pandey[3], I. Dubenko[3], N. Ali[3], S. Stadler[4], N. Al-Aqtash[5] and R. Sabirianov[5] *1. University of Nebraska-Lincoln, Lincoln, NE; 2. Lincoln South-West High School, Lincoln, NE; 3. Department of Physics,, Southern Illinois University, Carbondale, IL; 4. Department of Physics & Astronomy, Louisiana State University, Baton Rouge, LA; 5. Department of Physics, University of Nebraska at Omaha, Omaha, NE*

CR-07. Improving the magnetocaloric operation range in Ni-Mn-In Heusler alloy by Cu doping. *E. Stern-Taulats*[1], A. Planes[1], L. Mañosa[1], J.P. Camarillo[2], H. Flores-Zúñiga[2] and D. Ríos-Jara[2] *1. Estructura i Constituents de la Matèria, Universitat de Barcelona, Barcelona, Catalonia, Spain; 2. Advanced Materials, Instituto Potosino de Investigación Científica y Tecnológica, San Luis Potosí, Mexico*

CR-08. The critical behaviour and magnetism of $MnCoGe_{1-x}Al_x$. *M. Md Din*[2,1], J. Wang[1], S.J. Campbell[3], S. Dou[1] and S. Kennedy[4] *1. Isem, University Of Wollongong, Wollongong, NSW, Australia; 2. E, National Defence University of Malaysia, Sungai Besi, Kuala Lumpur, Malaysia; 3. School of Physical, Environmental and Mathematical Sciences, The University of New South Wales, Canberra, ACT, Australia; 4. Bragg Institute, Australian Nuclear Science and Technology Organization, Lucas Heights, NSW, Australia*

CR-09. Wide Temperature Window of Magnetostructural Transition Achieved in $Mn_{0.4}Fe_{0.6}NiSi_{1-x}Ga_x$ System via Two Steps Isostructurally Alloying. *J. Chen*[1], H. Zhang[1], E. Liu[2], M. Yue[1], Q. Lu[1], W. Wang[2] and G. Wu[2] *1. College of Materials Science and Engineering, Beijing University of Technology, Beijing 100124, China, Beijing, China; 2. State Key Laboratory of Magnetism, Institute of Physics, Chinese Academy of Sciences, Beijing 100190, China, Beijing, China*

CR-10. Natural hyperbolic antiferromagnets as route to tunable slab lensing. *R. Macedo*[1], R. Stamps[1] and T. Dumelow[2] *1. SUPA School of Physics and Astronomy, University of Glasgow, Glasgow, G12 8QQ, United Kingdom; 2. Departamento de Fisica, Universidade do Estado do Rio Grande do Norte, Costa e Silva, Mossoro, 59625620, RN, Brazil*

CR-11. Colorization three dimensional holographic display composed of multi-cavity magneto-photonic crystal. *K. Kudo*[1], K. Nakamura[1], S. Sakai[1], T. Goto[1], H. Takagi[1], L. Pang Boey[1] and M. Inoue[1] *1. Electrical and Electronic Information Engineering, Toyohashi University of Technology, Toyohashi, Aichi, Japan*

CR-12. Withdrawn

CR-13. Gd & $Gd_5(Si_xGe_{1-x})_x$ Based Alloys in Magnetic Refrigeration: An Overview from Nanostructure Perspective. K.S. Khattak[1], *E.D. Torre*[1], A. Siddique[1], L. Bennett[1] and C.A. Nwokoye[1] *1. ECE, The George Washington University, Washington, DC*

CR-14. Tuning the magnetization direction of pulsed laser deposited epitaxial yttrium iron garnet thin film by controlling stress-induced anisotropy. M. Hua[1], J. Fu[1], R. Wu[1], S. Liu[1], J. Han[1], C. Wang[1], H. Du[1] and *J. Yang*[1] *1. School of physics, Peking University, Beijing, China*

Session CS
NEW FUNCTIONAL MAGNETIC MATERIALS II (Poster Session)

Francis Johnson, Co-Chair
General Electric Global Research, Niskayuna, NY
Raju Ramanujan, Co-Chair
Nanyang Technological University, Singapore, Singapore

CS-01. Rapidly solidified Fe-rich Fe-Si-B metastable phase alloys with saturation magnetization exceeding 1.9 T and unique magnetic properties. *Y. Han*[1], A. Inoue[1,2], F. Kong[2], S. Zhu[1], E. Shalaan[3] and F. Al-Marzouki[3] *1. School of Materials Science and Engineering, Tianjin University, Tianjin, China; 2. International Institute of Green Materials, Josai International University, Togane, Japan; 3. Department of Physics, King Abdulaziz University, Jeddah, Saudi Arabia*

CS-02. High Ms $Fe_{16}N_2$ with Ag under layer on GaAs substrate. *X. Zhang*[1], Y. Jiang[1], M. Yang[1] and J. Wang[1] *1. University of Minnesota, Minneapolis, MN*

CS-03. Magnetic Behavious in $DyCo_2Mn$ and $DyCo_2$ Compounds. *J. Wang*[1], C. Fang[1] and Z. Cheng[1] *1. Institute for Superconducting & Electronic Materials, University of Wollongong, Wollongong, NSW, Australia*

CS-04. Growth and Characterization of $MnAu_2$ films. *S.F. Cheng*[1] *1. Naval Research Laboratory, Washington, DC*

CS-05. First Principle High-throughput Search for Half-metallic electrode material in Half-Heulser Alloy Family. *J. Ma*[1], K. Munira[2], Y. Xie[1], S. Keshavarz[2,3], A.W. Ghosh[1] and W.H. Butler[2,3] *1. Department of Electrical and Computer Engineering, University of Virginia, Charlottesville, VA; 2. Center for Materials for Information Technology, University of Alabama, Tuscaloosa, AL; 3. Department of Physics and Astronomy, University of Alabama, Tuscaloosa, AL*

CS-06. Influence of Atomic Ordering on Possible Structural Phase Transition in Mn_2CrZ Family. *H. Zhang*[1], E. Liu[2], J. Chen[1], M. Yue[1], Q. Lu[1], W. Wang[2] and G. Wu[2] *1. College of Materials Science and Engineering, Beijing University of Technology, Beijing, China; 2. Institute of Physics, Chinese Academy of Sciences, Beijing, China*

CS-07. Magnetic properties of hexagonal $(Mn_{1-x}Fe_x)_3Ga$. *M. Boeije*[1], N. van Dijk[1] and E. Brück[1] *1. FAME, TU Delft, Den Haag, Netherlands*

CS-08. Magnetocrystalline anisotropy in nearly-compensated Mn_2Ru_xGa. *C. Fowley*[1], K. Rode[2], D. Betto[2], Y. Lau[2], N. Thiyagarajah[2], G. Atcheson[2], J. Lindner[1], J. Fassbender[1,3], A.M. Deac[1] and M. Coey[2] *1. Institute for Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden - Rossendorf, Dresden, Germany; 2. Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN), Trinity College Dublin, Dublin 2, Ireland; 3. Institute for Physics of Solids, TU Dresden, Dresden, Germany*

CS-09. Intermartensitic Transformation and Enhanced Exchange Bias in Pd(Pt)-Doped Ni-Mn-Sn Alloys. S. Dong[1,2], B. Qian[1], *Z. Han*[1], D. Wang[3], Y. Fang[1] and C. Zhang[4] *1. Department of Physics, Changshu Institute of Technology, Changshu, Jiangsu, China; 2. School of Materials Science and Engineering, China University of Mining & Technology, Xuzhou, Jiangsu, China; 3. Department of Physics, Nanjing Univ, Nanjing, Jiangsu, China; 4. Department of Physics, Jiangnan Univ, Wuxi, Jiangsu, China*

CS-10. The effect of Pd on martensitic transformation and magnetic properties for $Ni_{50}Mn_{38-x}Pd_xSn_{12}$ Heusler alloys. *C. Jing*[1], D. Zheng[1], L. Yu[1], Y. Liu[1], J. Sun[1], Z. Li[2], D. Deng[1], W. Yang[3] and J. Zhang[4] *1. Physics Department, Shanghai University, Shanghai, China; 2. College of Physics and Electronic Engineering, Key Laboratory for Advanced Functional and Low Dimensional Materials of Yunnan Higher Education Institutes, Qujing Normal University, Jujing, Yunnan, China; 3. Shanghai Key Laboratory of High Temperature Superconductors, Shanghai, China; 4. Materials Genome Institute, Shanghai University, Shanghai, China*

CS-11. Size-dependent Magnetic and Mechanical Properties of Fe-Ni-Co-Al-Ta-B Rapidly Quenched Microwires. *F. Borza*[1], N. Lupu[1], I. Murgulescu[1], V. Dobrea[1] and H. Chiriac[1] *1. National Institute of Research and Development for Technical Physics, Iasi, Romania*

CS-12. Hysteresis of Nanodisks with DMI and the Role of Demagnetisation Effects. *R. Carey*[1], M. Beg[1], M. Albert[1], M. Bisotti[1], D. Chernyshenko[1], D.I. Cortes[1], M. Vousden[1], W. Wang[1], O. Hovorka[1] and H. Fangohr[1] *1. University of Southampton, Southampton, United Kingdom*

CS-13. Core/shell-structured nitrogen-doped onion-like carbon/nickel nanocapsules with improved electromagnetic absorption properties. N. Wu[1,2], *X. Liu*[1,2] and S. Or[2] *1. School of Materials Science and Engineering, Anhui University of Technology, Maanshan, Anhui, China; 2. Department of Electrical Engineering, The Hong Kong Polytechnic University, Kowloon, Hong Kong*

CS-14. Structural evolution and magnetic properties of $L1_0$-type $Mn_{54.5}Al_xGa_{45.5-x}$ (x=0, 10.5, 20.5, 30.5, 45.5) phase. H. Zhao[1], D. Zhou[2], W. Yang[1], S. Liu[1], H. Du[1], J. Han[1], C. Wang[1], Y. Yang[1] and *J. Yang*[1,3] *1. School of Physics, Peking University, Beijing, China; 2. Central Iron and Steel Research Institute, Beijing, China; 3. Collaborative Innovation Center of Quantum Matter, Beijing, China*

Session CT

MICROMAGNETICS II (Poster Session)

Alexandru Stancu, Chair
Alexandru Ioan Cuza University of Iasi, Iasi, Romania

CT-01. Micromagnetic simulations of magnetic domain walls in laterally confined exchange-biased bilayers. *A. Kovacs*[1], D. Mitin[2], D. Holzinger[3], H. Huckfeldt[3], A. Ehresmann[3], M. Albrecht[2] and T. Schrefl[1] *1. Center of integrated sensor systems, Danube Universtity Krems, 2700 Wiener Neustadt, Lower Austria, Austria; 2. Institute of Physics, University of Augsburg, D-86159 Augsburg, Germany; 3. Institute of Physics and Center for Interdisciplinary Nanostructure Science and Technology, University of Kassel, D-34132 Kassel, Germany*

CT-02. Expansion of the reverse Monte Carlo method for reconstruction of the magnetic domain structure. *M. Tokii*[1], E. Kita[1], C. Mitsumata[2], K. Ono[3], H. Yanagihara[1] and M. Matsumoto[1] *1. Univ. of Tsukuba, Tsukuba, Japan; 2. National Institute for Materials Science, Tsukuba, Japan; 3. High Energy Accelerator Research Organaization, Tsukuba, Japan*

CT-03. Analysis of Thermal Fluctuations and Chaotic Dynamics for Magnetic Nanoparticles. *M. d'Aquino*[1], C. Serpico[2], G. Bertotti[3], A. Quercia[2], S. Perna[2], I. Mayergoyz[4] and P. Ansalone[3] *1. Dipartimento di Ingegneria, Università degli Studi di Napoli "Parthenope", Napoli, Italy; 2. DIETI, Università di Napoli Federico II, Napoli, Italy; 3. INRIM, Torino, Italy; 4. ECE Dept. and UMIACS, University of Maryland, College Park, MD*

CT-04. Micromagnetic Simulation of $L1_0$-FePt based Exchange Coupled Composite Bit Patterned Media with Microwave Assisted Magnetic Recording at Ultrahigh Areal Density. *A. Kaewrawang*[1], N. Wannawong[1], A. Siritaratiwat[1] and A. Kruesubthaworn[2] *1. Electrical Engineering, Khon Kaen University, Khon Kaen, Thailand; 2. Faculty of Applied Science and Engineering, Khon Kaen University, Nong Khai, Nong Khai, Thailand*

CT-05. Effect of the Gilbert damping constant on domain wall pinning in permanent magnets. *K. Yamada*[1] and Y. Nakatani[1] *1. Graduate School of Informatics and Engineering, University of Electro-Communications, Chofu, Tokyo, Japan*

CT-06. Field induced domain wall chirality in thin films. *N.R. Lee-Hone*[1], R. Thanhoffer[2], M. Arora[1], D. Suess[2], B. Heinrich[1], D.M. Broun[1] and E. Girt[1] *1. Physics, Simon Fraser University, Surrey, BC, Canada; 2. Institute of Solid State Physics, Vienna University of Technology, Vienna, Wien, Austria*

CT-07. Pinning and release of a transverse domain wall moved by a spin-polarized current from a square impurity in a magnetic wire. *F. Tejo*[1], N. Vidal[1], Á. Espejo[1] and J. Escrig[1] *1. Departamento de Física, Universidad de Santiago Chile, Santiago, Chile*

CT-08. Skyrmionic texture stabilisation mechanisms in confined helimagnetic nanostructures. *M. Beg*[1], R. Carey[1], W. Wang[1], D.I. Cortes[1], M. Vousden[1], M. Bisotti[1], M. Albert[1], D. Chernyshenko[1], O. Hovorka[1], R. Stamps[2] and H. Fangohr[1] *1. Faculty of Engineering and the Environment, University of Southampton, Southampton, Hampshire, United Kingdom; 2. SUPA School of Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom*

CT-09. Skyrmion core size dependence as a function of the perpendicular anisotropy and radius in magnetic nano-dots. *S. Allende*[1] and M.A. Castro[1] *1. Physics department, CEDENNA, Universidad de Santiago de Chile, Santiago, Chile*

CT-10. Micromagnetic investigations of spatial fluctuations of the first order perpendicular anisotropy. *K. Cole*[1], J. Beik Mohammadi[1], T. Mewes[1] and C.K. Mewes[1] *1. Physics and Astronomy / MINT, University of Alabama, Tuscaloosa, AL*

CT-11. Deterministic Magnetization Control of Single Domain Magnetic Elements in Multiferroic Heterostructures. *A. Kundu*[1], J. Cui[1], C. Liang[1] and C. Lynch[1] *1. Mechanical Engineering, UCLA, Los Angeles, CA*

CT-12. Comparison of control mechanisms of different models of magnonic multiplexers. *C.S. Davies*[1] and V.V. Kruglyak[1] *1. School of Physics, University of Exeter, Exeter, Devon, United Kingdom*

CT-13. Micromagnetic simulations of skyrmion stability and field-induced annihilation in thin-film ferromagnets. *A. Churikova*[1], L.M. Caretta[1] and G. Beach[1] *1. Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA*

CT-14. Theory of linear mode coupling in spin torque oscillators in a thermal magnon bath. *S. Zhang*[1], Y. Zhou[2,3], D. Li[4] and O. Heinonen[5,6] *1. Department of Physics and Astronomy, University of Missouri, Columbia, MO; 2. Department of Physics, The University of Hong Kong, Hong Kong, China; 3. Center of Theoretical and Computational Physics, University of Hong Kong, Hong Kong, China; 4. Department of Physics, Centre for Nonlinear Studies, and Beijing-Hong Kong-Singapore Joint Centre for Nonlinear and Complex Systems (Hong Kong),Hong Kong Baptist University, Kowloon Tong, Hong Kong, China; 5. Material Science Division, Argonne National Laboratory, Lemont, IL; 6. Department of Physics and Astronomy, Northwestern University, Evanston, IL*

Session CU

OPTICAL AND MICROWAVE DRIVEN DYNAMICS (Poster Session)

Jürgen Fassbender, Chair
Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany

CU-01. Ferromagnetic Resonance in Multi-layer Perpendicular Films. G. Parker[1] and *R. Wood*[1] *1. Recording Technology Group, HGST, A Western Digital Company, San Jose, CA*

CU-02. Tabletop soft x-ray magnetic circular dichroism measurements using a circularly polarized high harmonic source. *P. Grychtol*[1], T. Fan[1], R. Knut[1], C. Hernández-García[1,9], D.D. Hickstein[1], D. Zusin[1], C. Gentry[1], F. Dollar[1], C. Mancuso[1], O. Kfir[2], D. Legut[3,4], K. Carva[4], J. Ellis[1], K. Dorney[1], C. Chen[1], O. Shpyrko[5], E.E. Fullerton[6], O. Cohen[2], P.M. Oppeneer[7], D. Milošević[8], A. Becker[1], A. Jaron-Becker[1], T. Popmintchev[1], M. Murnane[1] and H. Kapteyn[1] *1. JILA, University of Colorado, Boulder, CO; 2. Physics Department, Technion, Haifa, Israel; 3. IT4Innovations Center, VSB Technical University of Ostrava, Ostrava-Poruba, Czech Republic; 4. Department of Condensed Matter Physics, Charles University, Prague, Czech Republic; 5. Department of Physics, University of California San Diego, La Jolla, CA; 6. Center for Magnetic Recording Research, University of California San Diego, La Jolla, CA; 7. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden; 8. Faculty of Science, University of Sarajevo, Sarajevo, Bosnia and Herzegovina; 9. Grupo de Investigación en Óptica Extrema, Universidad de Salamanca, Salamanca, Spain*

CU-03. Visualization of Optically-Induced Magnetization Reversal in TbCo Thin Films via *In Situ* Fresnel Transmission Electron Microscopy. *K. Schliep*[1], J. Chen[2], D.J. Flannigan[1] and J. Wang[2] *1. Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN; 2. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN*

CU-04. Influence of Antiferromagnetic Interfaces on Thermally Induced Magnetization Switching of Gd/Fe Multilayers. *C. Xu*[1,2], T.A. Ostler[1,3] and R. Chantrell[1] *1. Physics, The University of York, York, United Kingdom; 2. College of Electric Engineer, South China Agricultural University, Guangzhou, Guangdong, China; 3. Engineering, Mathematics and Physical Science, University of Exeter, Exeter, United Kingdom*

CU-05. Determining the intrinsic damping from time-resolved precession decay measurement in perpendicularly magnetized thin films using an analytical approach. *A. Capua*[1], S. Yang[1], T. Phung[1] and S.S.P. Parkin[1,2] *1. IBM Almaden Research Center, San Jose, CA; 2. Max Planck Institute for Microstructure Physics, Halle, Germany*

CU-06. Laser induced ultrafast electron, spin, and phonon dynamics in Fe_3O_4. *X. Lu*[1], L. Bo[2], Y. Wang[1], H. Ling[3], J. Sizeland[1], J. Wu[1], X. Ruan[2], V. Lazarov[1], R. Chantrell[1] and Y. Xu[3]
1. Department of Physics, University of York, York, North Yorkshire, United Kingdom; 2. School of Electronics Science and Engineering, Nanjing University, Nanjing, Jiangsu, China; 3. Department of Electronics, University of York, York, North Yorkshire, United Kingdom

CU-07. VNA Ferromagnetic Resonance Measurements of Hybrid Anisotropy Structures. *A. Johansson*[1] and T. Thomson[1]
1. Computer Science, University of Manchester, Manchester, Greater Manchester, United Kingdom

CU-08. Shock induced Magnon-Phonon Coupling in $Fe_{81.6}Ga_{16.4}$. *J.P. Domann*[1], R. Crum[1], V. Gupta[1,2] and G. Carman[1]
1. Mechanical and Aerospace Engineering, University of California, Los Angeles, Los Angeles, CA; 2. Materials Science and Engineering, University of California, Los Angeles, Los Angeles, CA

CU-09. Layer-resolved magnetization dynamics in asymmetric exchange coupled trilayers. *Y. Pogoryelov*[1], D.A. Arena[2], S. Jana[1], S. Akansel[3], Y. Wei[3], M. Ranjbar[4], J. Åkerman[4], P. Svedlindh[3] and O. Karis[1] *1. Dept. of Physics and Astronomy, Uppsala University, Uppsala, Sweden; 2. University of South Florida, Tampa, FL; 3. Dept. of Engineering Sciences, Uppsala University, Uppsala, Sweden; 4. Dept. of Physics, University of Gothenburg, Gothenburg, Sweden*

CU-10. Magnetic damping in micro-structured yttrium iron garnet nanometer-thick films: Brillouin light scattering studies. *X. Ma*[1], C. Tang[2], K. An[1], K. Olsson[1], K. Sobotkiewich[1], J. Li[2], J. Shi[2] and X. Li[1] *1. Physics, University of Texas at Austin, Austin, TX; 2. Physics and Astronomy, University of California at Riverside, Riverside, CA*

CU-11. Time dependent anisotropy in cobalt ferrite nano-cubes. *M. Vomir*[1], R. Turnbull[2], P. André[2] and J. Bigot[1] *1. CNRS, Université de Strasbourg, IPCMS UMR 7504, 67034 Strasbourg, France; 2. University of St Andrews, School of Physics & Astronomy, St Andrews, United Kingdom*

CU-12. Nonlinear magneto-optics of garnets probed with four-wave mixing generation. *M. Sanches Piaia*[1], M. Barthelemy[1], P. Molho[2], B. Barbara[2] and J. Bigot[1] *1. DON, Institut de Physique et Chimie de Matériaux de Strasbourg, Strasbourg, Bas-Rhin, France; 2. Institut Néel, Grenoble, France*

CU-13. Perpendicular standing spin wave and magnetic anisotropic study on amorphous FeTaC film. *B. Samantaray*[1], A. Singh[2], A. Perumal[2] and P. Mandal[1] *1. Condensed Matter Physics, Saha Institute of Nuclear Physics, Calcutta -700064, West Bengal, India; 2. Department of Physics, Indian Institute of Technology Guwahati, Guwahati-781039, Assam, India*

CU-14. High perpendicular magnetic anisotropy and low Gilbert damping in Mn rich Ni-Mn-Sn film. R. Modak[1], *B. Samantaray*[2], P. Mandal[2] and A. Srinivasan[1] *1. Department of Physics, Indian Institute of Technology Guwahati, Guwahati, Assam, India; 2. Experimental Condensed Matter Physics Division, Saha Institute of Nuclear Physics, Calcutta, West Bengal, India*

WEDNESDAY MORNING 9:30 — SAPPHIRE BALLROOM SOUTH

Session CV
ENERGY ASSISTED MAGNETIC RECORDING II (Poster Session)

Boris Livshitz, Chair
Western Digital, San Jose, CA

CV-01. Effect of FeRh Interlayer in FePt Based Hybrid Structures. *C.W. Barton*[1] and T. Thomson[1] *1. School of Computer Science, University of Manchester, Manchester, Greater Manchester, United Kingdom*

CV-02. Characterizing the Effect on Surface Plasmon Resonance When Using Cr or Cu Interface Layers using ATR for HAMR. *C. Chow*[1] and J.A. Bain[1] *1. Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA*

CV-03. Cross Track Temperature Gradient Measurement for Heat Assisted Magnetic Recording. *K. Gao*[1], M. Ma[1], H. Zhou[1], D.A. Saunders[1] and E. Gage[1] *1. Seagate Technology LLC, Bloomington, MN*

CV-04. All optical helicity dependent switching in FePt-C granular media. *Y. Takahashi*[1], R. Medapali[2], K. Ishioka[1], S. Kasai[1], J. Wang[1], S. Wee[3], O. Hellwig[3], K. Hono[1] and E.E. Fullerton[2] *1. National Institute of Materials Science - Tsukuba, Tsukuba, Japan; 2. UCSD, San Diego, CA; 3. HGST, San Jose, CA*

CV-05. Composite Structure with Superparamagnetic Writing Layer for HAMR. *Z. Liu*[1] and R. Victora[1] *1. MINT, Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN*

CV-06. Microstructure and magnetic properties of $L1_0$ FePt-C-SiO_2 films on TiON-MgO intermediate layer. *J. Deng*[1], K. Dong[1], Y. Peng[2], G. Ju[2], J. Hu[3], G. Chow[1] and J. Chen[1] *1. Materials Science and Engineering, National University of Singapore, Singapore, Singapore; 2. Seagate Technology, Fremont, CA; 3. Data Storage Institute, Singapore, Singapore*

CV-07. Media property effects on recording performances of heat assisted magnetic recording by short pulse laser heating. *B. Xu*[1], H. Wang[1], Z. Cen[1] and Z. Liu[1] *1. Data Storage Institute, Singapore, Singapore*

CV-08. Granular nanostructures and magnetic characteristics of FePt-GeO_2/FePt-C stacked granular films. *T. Ono*[1,2], T. Moriya[1,2], M. Hatayama[2], K. Tsumura[2], N. Kikuchi[3], S. Okamoto[3], O. Kitakami[3] and T. Shimatsu[3,4] *1. Fuji Electric Co., Ltd., Sendai, Miyagi, Japan; 2. FRIS, Tohoku University, Sendai, Miyagi, Japan; 3. IMRAM, Tohoku University, Sendai, Miyagi, Japan; 4. RIEC, Tohoku University, Sendai, Miyagi, Japan*

CV-09. Bending Loss Analysis of GaAs/AlGaAs Quantum Dot Ridge-Guided Ring Lasers for Coupling to HAMR NFT. *H. Liang*[1], L. Chomas[1], K. Kkuriyama[2], T. Schlesinger[3] and J.A. Bain[1] *1. Electrical & Computer Engineering, Carnegie Mellon University, Pittsburgh, PA; 2. Pioneer Corporation, Kawasaki, Kanagawa, Japan; 3. Whiting School of Engineering, Johns Hopkins University, Baltimore, MD*

CV-10. Microwave assistance effect on magnetization switching in antiferromagnetically coupled CoCrPt granular media. *Y. Nakayama*[1], Y. Kusanagi[2], T. Shimatsu[1,3], N. Kikuchi[2], S. Okamoto[2] and O. Kitakami[2] *1. Frontier Research Institute for Interdisciplinary Sciences, Tohoku University, Sendai, Japan; 2. IMRAM Tohoku University, Sendai, Japan; 3. Research Institute of Electrical Communication Tohoku University, Sendai, Japan*

CV-11. Micromagnetic simulation of STO for microwave-assisted magnetic recording - Interaction of write head and STO and optimum injected current -. *Y. Kanai*[1], T. Katayama[1], K. Yoshida[2], S. Greaves[3] and H. Muraoka[3] *1. IEE, Niigata Institute of Technology, Kashiwazaki, Niigata-ken, Japan; 2. ICE, Kogakuin University, Tokyo, Japan; 3. RIEC, Tohoku University, Sendai, Miyagi-ken, Japan*

CV-12. Microwave assisted magnetic recording on exchange coupled composite media. *S. Greaves*[1], Y. Kanai[2] and H. Muraoka[1] *1. RIEC, Tohoku University, Sendai, Japan; 2. Niigata Institute of Technology, Kashiwazaki, Japan*

CV-13. Optimum Design of $[CoX/Pt]_n$ media in Microwave Assisted Magnetic Recording. *J. Li*[1], Z. Zhao[1], L. Wang[1], M. Zhang[1], D. Wei[1] and K. Gao[2] *1. School of Materials Science and Engineering, Tsinghua University, Beijing, China; 2. Research and Technology Development, Seagate Technology, Shakopee, MN*

CV-14. Single- and multiple-shot imaging of all-optical magnetization reversal on various time scales. Y. Tsema[1], *G. Kichin*[1], D. Afanasiev[1], M. Savoini[1], A. Tsukamoto[2], O. Hellwig[3], V. Mehta[3], A. Kimel[1], A. Kirilyuk[1] and T. Rasing[1] *1. Institute for Molecules and Materials, Radboud University, Nijmegen, Netherlands; 2. Nihon University, Chiba, Japan; 3. 3. HGST, a Western Digital Company, San Jose, CA*

Session CW
INSTRUMENTATION AND MEASUREMENT TECHNIQUES (Poster Session)

Andras Kovacs, Co-Chair
Forschungszentrum Juelich, Juelich, Germany
Vlado Lazarov, Co-Chair
University of York, York, United Kingdom

CW-01. Measurement of Temperature Dependence of Anisotropy Field in Heat-Assisted Magnetic Recording Media. *K. Wang*[1], P. Huang[1], T. Klemmer[1], E. Chang[1], Y. Peng[1], X. Zhu[1], B. Varaprasad[2], J. Wang[2], Y. Takahashi[2], K. Hono[2], R.F. Evans[3], R. Chantrell[3], J. Thiele[1] and G. Ju[1] *1. Seagate Technology, Fremont, CA; 2. Magnetic Materials, National Institute for Material Science, Tsukuba, Japan; 3. Physics, The University of York, York, United Kingdom*

CW-02. Medium Frequency Magnetic Measurements for a Wide Temperature Range. B. Ahmadi[1], *F. Mazaleyrat*[1], G. Chaplier[1], V. Loyau[1] and M. LoBue[1] *1. CNRS, UniverSud, SATIE, ENS Cachan, Cachan, Ile de France, France*

CW-03. Measurement and modeling of polarized specular neutron reflectivity in large magnetic fields. *B.B. Maranville*[1], B.J. Kirby[1], A.J. Grutter[1], P.A. Kienzle[1], C.F. Majkrzak[1] and Y. Liu[2] *1. Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD; 2. Quantum Condensed Matter Division, Oak Ridge National Laboratory, Oak Ridge, TN*

CW-04. Spatially resolved ferromagnetic resonance (FMR) using x-rays and thermal excitation. *T. Schaffers*[1,2], A. Ney[1], R. Meckenstock[2], D. Spoddig[2], C. Schöppner[2], H. Ohldag[3], S. Bonetti[3] and M. Farle[2] *1. Institute of Semiconductor and Solid State Physics, Johannes Kepler University Linz, Linz, Austria; 2. Faculty of Physics and Center for Nanointegration Duisburg-Essen (CENIDE), Duisburg-Essen, Germany; 3. Stanford Synchrotron Radiation Laboratory, Stanford, CA*

CW-05. Measurement of Néel (T_N) Temperatures in Thin Films. *J. Sinclair*[1] and A. Hirohata[2] *1. Department of Physics, University of York, Heslington, York, United Kingdom; 2. Department of Electronics, University of York, Heslington, York, United Kingdom*

CW-06. High temperature resolution direct measurement of the magnetic entropy change. *C.R. Bahl*[1], K.K. Nielsen[1], H.N. Bez[1], A.R. Insinga[1], R. Bjørk[1] and A. Smith[1] *1. Department of Energy Conversion and Storage, Technical University of Denmark, Roskilde, Denmark*

CW-07. Towards broad-band x-ray detected ferromagnetic resonance in longitudinal geometry. *K.J. Ollefs*[1,2], R. Meckenstock[1], D. Spoddig[1], F. Römer[1], C. Hassel[1], C. Schöppner[1], V. Ney[3], M. Farle[1] and A. Ney[3] *1. Universität Duisburg-Essen, Duisburg, Germany; 2. ESRF, Grenoble, France; 3. Johannes Kepler University, Linz, Austria*

CW-08. Phase-resolved ferromagnetic resonance using heterodyne detection method. *S. Yoon*[1,2] and R.D. McMichael[1] *1. Center for Nanoscale Science and Technology (CNST), National Institute of Standards and Technology (NIST), Gaithersburg, MD; 2. Maryland Nanocenter, University of Maryland, College Park, MD*

CW-09. Full Pulse Analysis: A Pulsed Magneto-Optic Technique to Characterize Magnetic, Optical, and Geometric Properties of Magnetic Nanoparticles. *T. Foulkes*[1] and M. Syed[2] *1. Electrical Engineering, Rose-Hulman Institute of Technology, Terre Haute, IN; 2. Physics & Optical Engineering, Rose-Hulman Institute of Technology, Terre Haute, IN*

CW-10. High-field Point Contact Andreev Reflection Spectroscopy using Nb-Ti and MgB_2 Superconductors. *K. Borisov*[1], M. Gregor[2], A. Plecenik[2] and P.S. Stamenov[1] *1. School of Physics and CRANN, Trinity College Dublin, Dublin, Dublin, Ireland; 2. Department of Experimental Physics, Comenius University in Bratislava, Bratislava, Bratislava, Slovakia*

CW-11. Thickness dependence of spin polarized low energy electron scattering from pseudomorphic Fe(100) on Ir(100). *A. Pradeep*[1], P. Kumar[1] and K. Jürgen[2] *1. Physics, Indian Institute of Science, Bangalore, Karnataka, India; 2. Max-Planck-Institut für Mikrostrukturphysik, Weinberg 2, D-06120 Halle/Saale, Germany, Germany*

CW-12. Construction of a Pulsed Magnet System having Distinctive Dimension and Application for Biological Membrane Model. *A. Hamasaki*[1] and S. Ozeki[1] *1. Chemistry, Shinshu Univ., Matsumoto, Japan*

CW-13. 1fm/√Hz Noise Level Low Temperature Atomic Force & Magnetic Force Microscope (LT-AFM/MFM) in 20mK-300K Temperature Range. O. Karci[1], U. Celik[1], M. Dede[1] and *A. Oral*[2,1] *1. NanoMagnetics Instruments Ltd., Ankara, Turkey; 2. Orta Dogu Teknik Universitesi, Ankara, Turkey*

CW-14. Investigation of spin transport in β-Ta using spin pumping. *P. Omelchenko*[1], E. Montoya[1], C. Coutts[1], B. Heinrich[1] and E. Girt[1] *1. Physics, Simon Fraser University, Burnaby, BC, Canada*

Session CX
PERMANENT MAGNET ROTATING MACHINES (Poster Session)

Sheng-Ming Yang, Chair
National Taipei University of Technology, Taipei, Taiwan

CX-01. A Quantitative, Comparative Study of Novel Magnetic-Geared Permanent Magnet Machines. Q. Wang[1] and *S. Niu*[1] *1. The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

CX-02. Analytical Calculation and Experimental Verification of Cogging Torque and Optimal Point in Permanent Magnet Synchronous Motors with Fractional Slot/Pole Number Combination. *K. Shin*[1], H. Park[1], H. Shin[1] and J. Choi[1] *1. Chungnam National University, Daejeon, The Republic of Korea*

CX-03. Analysis and Design of a Double-Stator Flux-Switching Permanent Magnet Machine Using Ferrite Magnet in Hybrid Electric Vehicles. *D. Kim*[1], H. Hwang[1] and C. Lee[1] *1. Electrical and Computer Engineering, Pusan National University, Pusan, The Republic of Korea*

CX-04. Study on DC Operation of a Permanent-Magnet Venrier Machine. *D. Jang*[1] and J. Chang[1] *1. Electrical Engineering, Dong-A University, Busan, The Republic of Korea*

CX-05. A Small Axial-Flux Vernier Machine with Ring-Type Magnets for the Auto-Focusing Lens Drive System. F. Zhao[1] and *B. Kwon*[2] *1. Harbin Institute of Technology Shenzhen Graduate School, Shenzhen, China; 2. Hanyang University, Ansan, The Republic of Korea*

CX-06. A study on the estimation of excitation force of 200kW IPMSM. *Y. Cho*[1] and G. Kang[1] *1. Electric & Electronic Research Division, KOMERI, Busan, The Republic of Korea*

CX-07. Performance Evaluation of an Axial-Flux Permanent Magnet Vernier Motor by FEM and Experiment with Rotor Optimal Design. F. Zhao[1] and *B. Kwon*[2] *1. Harbin Institute of Technology Shenzhen Graduate School, Shenzhen, China; 2. Hanyang University, Ansan, The Republic of Korea*

CX-08. High-Speed BLDC Motor Design considering Eddy Current Loss caused by Stator Welding. *H. Hong*[1], S. Won[2], S. Cho[1], W. Shim[1] and J. Lee[1] *1. Hanyang University, Seoul, The Republic of Korea; 2. Dongyang Mirae University, Seoul, The Republic of Korea*

CX-09. A Study of Performance Degradation Caused by Axial Leakage Flux in Spoke-type BLDC. *S. Lee*[2], J. Lee[1], W. Shim[1] and W. Kim[3] *1. Hanyang University, Seoul, The Republic of Korea; 2. Digital Appliance, Samsung Electronics, Suwon, The Republic of Korea; 3. Samsung Advanced Institute of Technology, Samsung Electronics, Suwon, The Republic of Korea*

CX-10. Design and Analysis of A New Coreless Stator Axial-Flux Permanent Magnet Motor/Generator for Flywheel Energy Storage Sysytem. *W. Geng*[1] and Z. Zhang[1] *1. Department of Electrical Engineering College of Automation Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing, China*

CX-11. A Study of the Influence of Quasi-Halbach Arrays on a Torus Machine. I.P. Wiltuschnig[1], *P.R. Eckert*[1], D. Dorrell[2] and A.F. Flores Filho[1] *1. PPGEE/LMEAE, Federal University of Rio Grande do Sul, Porto Alegre, Rio Grande do Sul, Brazil; 2. School of Elec, Mech and Mechatronic Systems, University of Technology Sydney, Sydney, ACT, Australia*

CX-12. A Novel Method of Post Assembly Magnetization for Spoke-type BLDC. *S. Lee*[2], W. Kim[3], W. Shim[1] and J. Lee[1] *1. Hanyang University, Seoul, The Republic of Korea; 2. Digital Appliance, Samsung Electronics, Suwon, The Republic of Korea; 3. Samsung Advanced Institute of Technology, Samsung Electronics, Suwon, The Republic of Korea*

CX-13. Studies of High-Frequency Iron Core Loss for Synchronous Electric Machines Used in Electric Vehicles. *R. Pei*[1], M. Li[2], J. Wang[3] and T. Coombs[4] *1. Shanghai Innmag New Energy Co.,Ltd., Shanghai, China; 2. Electrical Engineering, Zhejiang University, Hangzhou, China; 3. Electrical Engineering, China University of Mining and Technology, Beijing, China; 4. Engineering Department, Cambridge University, Cambridge, United Kingdom*

CX-14. Analysis of 3D Static Coupled Magnetic-Thermal Fields of Water Cooling Permanent Magnet Flux-Switching Motors in Electric Vehicles by An Axially Segmented Model. *G. Zhang*[1], H. Wei[1], M. Tong[1] and M. Cheng[1] *1. School of Electrical Engineering, Southeast University, Nanjing, China*

Session CY
POWER AND MOTOR MODELING AND NEW APPLICATIONS (Poster Session)
Taiying Zheng, Chair
Zhejiang University, Hangzhou, China

CY-01. Electromagnetic Guidance System Design and Yaw Motion Control for High-Speed Maglev Vehicles. C. Kim[2], C. Ha[2], J. Lim[2], H. Han[2] and *H. Cho*[1] *1. Dept. Electric, Electronic, and Commucation Eng. Edu., Chungnam National Univ., Daejeon, The Republic of Korea; 2. Korea Institute of Machinery and Materials, Daejeon, The Republic of Korea*

CY-02. A New Multicoil Smart Inductive-Power-Transfer System for Dynamic Metro Charging. *C. Liu*[2,1], K. Chau[1] and F. Lin[1] *1. Department of Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong, China; 2. School of Energy and Environment, City University of Hong Kong, Hong Kong, China*

CY-03. Coil Design for Implantable Micro-Robot using Magnetic Resonant Wireless Power Transfer and Magnetic Propulsion. *D. Kim*[1], K. Hwang[1], H. Park[2] and S. Ahn[1] *1. The Cho Chun Shik Graduate School for Transportation, KAIST, Daejeon, ChungNam, The Republic of Korea; 2. Department of Electronic Enegineering, The University of Suwon, Hwaseong, Gyeonggi-do, The Republic of Korea*

CY-04. Optimum magnetic field for guide and power supply for medical microrobot. *Y. Shibata*[1], Y. Taira[1], T. Yamada[1] and Y. Takemura[1] *1. Yokohama National University, Yokohama, Japan*

CY-05. Design and Implementation of a Low-Speed Permanent-Magnet Synchronous Generator for Applying to a MCT System. *Z. Gaing*[1] and B. Chen[2] *1. Electrical Engineering, Kao Yuan University, Kaohsiung City, Taiwan; 2. Marine Environment and Engineering, National Sun Yat-Sen University, Kaohsiung City, Taiwan*

CY-06. Design and Analysis of Brushless Doubly-Fed Reluctance Generator for Renewable Energy Applications. *M. Hsieh*[1], Y. Chang[1] and D.G. Dorrell[2] *1. National Cheng Kung University, Tainan, Taiwan; 2. University of Technology, Sydney, NSW, Australia*

CY-07. Comparative Study of Electromagnetic Performances of High-Speed Synchronous Motors with Rare-Earth and Ferrite Permanent Magnets. *K. Kim*[1], S. Jang[1], J. Choi[1], H. Park[1] and D. You[2] *1. Chungnam National University, Daejeon, The Republic of Korea; 2. Fire Safety Engineering, Chungnam State University, Cheongyang, The Republic of Korea*

CY-08. Numerical Modeling of Metamaterials Using 3-D Finite-Element Method Including Capacitive Effect. *W. Li*[1,2] and W. Fu[2] *1. Tongji University, Shanghai, China; 2. Hong Kong Polytechnic University, Hong Kong, China*

CY-09. A novel design of induction motor with auxiliary bars for high power density. Y. Shin[1] and *K. Kim*[1] *1. Dept. of Electrical Engineering, Hanbat National University, Daejeon, The Republic of Korea*

CY-10. Electromagnetic Performance Analysis of a New Stator-Partitioned Flux Memory Machine Capable of On-line Flux Control. L. Yang[1], X. Zhu[1], C. Yunyun[2], *Z. Xiang*[1] and L. Quan[1] *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China; 2. Physical Science & Technology, Yangzhou Univeristy, Yang Zhou, Jiang Su, China*

CY-11. Electromagnetic, Computational Fluid Dynamics, Vibration and Noise Coupled Analysis of Novel Shaftless Water-Jet Propulsor. *P. Hu*[1], Y. Shen[1], S. Jin[1], S. Zhuang[1], R. Lan[1], K. Wang[1], J. Chen[1] and D. Wang[1] *1. National Key Laboratory of Science and Technology on Vessel Integrated Power System, Naval Univ. of Engineering, Wuhan, Hubei, China*

CY-12. Reduction of Cogging Torque and Torque Ripple in Interior PM Machines According to Asymmetrical V-shape Rotor Design. *W. Ren*[1] and Q. Xu[1] *1. School of Electrical and Electronic Engineering, Huazhong University of Science & Technology, Wuhan, China*

CY-13. Fast Analysis and Design of Axial Flux Permanent Magnet Motor via Field Reconstruction Method. *H. Park*[1], D. Woo[2], S. Jung[3] and H. Jung[1] *1. Seoul National University, Seoul, The Republic of Korea; 2. Yeungnam University, Gyeongsan, The Republic of Korea; 3. Sungkyunkwan University, Seoul, The Republic of Korea*

CY-14. Influence of Parameters on Back-EMF of Dual Consequent Hybrid Excitation Synchronous Machine. *J. Wu*[1], B. Zhuang[2], Q. Zhao[1], C. Yang[1], Z. Dou[1] and G. Cui[1] *1. Department of Electrical Engineering, Zhengzhou University of Light Industry, Zhengzhou, Henan, China; 2. ANSYS China, Shenzhen, Guangdong, China*

WEDNESDAY AFTERNOON 1:30 — SAPPHIRE ABEF

Session DA
PERMANENT MAGNETS APPLICATIONS: FROM NEURAL ARCHITECTURES TO SMART CITIES DEVELOPMENT

Alberto Bollero, Chair
IMDEA Nanoscience, Madrid, Spain

1:30

DA-01. High performance hard magnetic films: From materials studies to bio-medical applications. ***(Invited)*** *N. Dempsey*[1] *1. Institut Néel - CNRS/Univ. Grenoble Alpes, Grenoble, France*

2:06

DA-02. Development of Radically Enhanced Alnico Magnets. ***(Invited)*** *I.E. Anderson*[1,2], A. Kassen[2], E. White[1], A. Palasyuk[1], L. Zhou[1], W. Tang[1], K. Dennis[1] and R.W. McCallum[1] *1. Division of Materials Sciences and Engineering, Ames Lab (USDOE), Ames, IA; 2. Materials Science and Engineering, Iowa State University, Ames, IA*

2:42

DA-03. Permanent magnets: field-cooling from tectonic plates to internet security. ***(Invited)*** *X. Marti*[1] *1. Academy of Sciences of the Czech Republic, Prague, Czech Republic*

WEDNESDAY AFTERNOON 1:30 — SAPPHIRE IJ

Session DB
PROBES FOR CHIRAL MAGNETIC SYSTEMS AND SKYRMIONS

Liliana Buda-Prejbeanu, Chair
SPINTEC, Grenoble, France

1:30

DB-01. Room temperature skyrmion ground state stabilized through interlayer exchange coupling. *G. Chen*[1], A. Mascaraque[2], A.T. N'Diaye[1] and A.K. Schmid[1] *1. Lawrence Berkeley National Laboratory, Berkeley, CA; 2. Universidad Complutense de Madrid, Madrid, Spain*

1:42

DB-02. Magnetic Force Microscopy of Skyrmions in Thin Multilayers with Interfacially-Induced Dzyaloshinskii-Moriya Interaction. *H.J. Hug*[1,2], J. Schwenk[1,2], M. Bacani[1], S. Romer[1], A. Guiller[1], X. Zhao[1,2] and M.A. Marioni[1] *1. Nanoscale Materials Science, Empa, Swiss Federal Laboratories for Materials Science and Technology, Duebendorf, Switzerland; 2. Physics, University of Basel, Basel, Switzerland*

1:54

DB-03. X-ray dichroism of chiral molecular magnets. *A. Rogalev*[1], R. Sessoli[2], F. Wilhelm[1], M. Boulon[3], M. Mannini[2], L. Poggini[2] and A. Canneschi[2] *1. ESRF, Grenoble, France; 2. Università degli Studi di Firenze, Sesto Fiorentino, Italy; 3. The University of Manchester, Manchester, United Kingdom*

2:06

DB-04. Interfacial Dzyaloshinskii-Moriya Interaction in Ultrathin Films Measured by Brillouin Light Scattering. ***(Invited)*** *A. Thiaville*[1], M. Belmeguenai[2], J. Adam[3], Y. Roussigné[2], S. Eimer[3], T. Devolder[3], J. Kim[3], S.M. Chérif[2], A. Stashkevich[2,4] and S. Rohart[1] *1. Lab. Physique des Solides, Univ. Paris-Sud & CNRS, Orsay, France; 2. LSPM, CNRS & Univ. Paris 13, Villetaneuse, France; 3. Institut d'Electronique Fondamentale, Univ. Paris-Sud & CNRS, Orsay, France; 4. International laboratory "MultiferrLab", ITMO University, St Petersburg, Russian Federation*

2:42

DB-05. Observation of three-dimensional magnetic skyrmion crystal by quasi-tomographic resonant x-ray surface diffraction. *S. Zhang*[1], A. Bauer[2], A. Figueroa[3], R. Fan[3], G. van der Laan[3], C. Pfleiderer[2] and T. Hesjedal[1] *1. Clarendon Laboratory, Department of Physics, University of Oxford, Oxford, United Kingdom; 2. Physik-Department E21, Technische Universität München, Garching, Germany; 3. Diamond Light Source, Didcot, United Kingdom*

2:54

DB-06. Elastic Scattering of Electron Vortex Beams in Magnetic Matter. *A. Edström*[1], A. Lubk[2], V. Grillo[3] and J. Rusz[1] *1. Physics and Astronomy, Uppsala University, Uppsala, Sweden; 2. Triebenberg Laboratory, TU Dresden, Dresden, Germany; 3. CNR-Instituto Nanoscienze, Modena, Italy*

3:06

DB-07. Room temperature study of individual magnetic skyrmions by Magnetic Force Microscopy. *C. Moreau-Luchaire*[1], N. Reyren[1], K. Garcia[1], D. Maccariello[1], K. Bouzehouane[1], C. Deranlot[1], J. George[1], V. Cros[1] and A. Fert[1] *1. Unité Mixte CNRS/Thales, Palaiseau, France*

Session DC
ELECTRONIC AND CRITICAL PHENOMENA

Yves Idzerda, Co-Chair
Montana State University, Bozeman, MT
Christopher Marrows, Co-Chair
University of Leeds, Leeds, United Kingdom

1:30

DC-01. Magneto-structural phase transition in FeRh revisited: new insights from x-ray nanoprobes. *(Invited)* *Y. Choi*[1], D.J. Keavney[1], M.V. Holt[3], V. Uhlir[2], D. Arena[4], E.E. Fullerton[2], P.J. Ryan[1] and J. Kim[1] *1. X-ray Science Division, Argonne National Laboratory, Argonne, IL; 2. Center for Magnetic Recording Research, University of California, San Diego, La Jolla, CA; 3. Center for Nano-Materials, Argonne National Laboratory, Argonne, IL; 4. National Synchrotron Light Source, Brookhaven National Laboratory, Upton, NY*

2:06

DC-02. Absence of crystallographic phase transition in the metal-insulator transition of VO_2 B-A composite - Evidence for primary role of V-V dimerization. A. Srivastava[1,2], H. Rotella[2,3], S. Saha[2], *B. Pal*[4,6], Y. Ping[3], D. Sarma[4,6] and T. Venkatesan[2,5] *1. Department of Physics, National University of Singapore, Singapore, Singapore; 2. NUSNNI-NanoCore, National University of Singapore, Singapore, Singapore; 3. Singapore Synchrotron Light Source, National University of Singapore, Singapore, Singapore; 4. Solid State and Structural Chemistry Unit, Indian Institute of Science, Bangalore, India; 5. ECE, MSE and NGS Departments, National University of Singapore, Singapore, Singapore; 6. Council of Scientific and Industrial Research - Network of Institutes for Solar Energy (CSIR-NISE), New Delhi, India*

2:18

DC-03. 'Treasure Maps' for 4- and 5-Component Alloys that Order Magnetically near 300K. *C.W. Miller*[1], F. Körmann[2], D. Ma[3], D.D. Belyea[1], M. Lucas[4], B. Grabowski[3] and M. Sluiter[2] *1. Materials Science, Rochester Institute of Technology, Rochester, NY; 2. Materials Science and Engineering, TU Delft, Delft, Netherlands; 3. Max Planck Institute, Dusseldorf, Germany; 4. Air Force Research Lab, Wright-Patterson AFB, OH*

2:30

DC-04. Topological Phase Transition of a Fractal Spin System: The Relevance of the Network Complexity. *M. Kiwi*[1,2], F. Torres[1,2], J. Rogan[1,2] and J. Valdivia[1,2] *1. Physics, Universidad de Chile, Santiago, RM, Chile; 2. CEDENNA, Santiago, RM, Chile*

2:42

DC-05. Superexchange as the origin of ferromagnetism in semiconductors without carriers. *(Invited)* *A. Bonanni*[1] *1. Semiconductor and Solid State Physics, Johannes Kepler University, Linz, Austria*

Session DD
PEROVSKITES, SPINELS AND OTHER OXIDES
Ramanathan Mahendiran, Chair
National University of Singapore, Singapore, Singapore

1:30

DD-01. Ferromagnetic clustering and complex phase diagram in multiferroic $EuTiO_3$. *R. Das*[1], L. Li[2], V. Keppens[2], D. Mandrus[2], H. Diep[3], H. Srikanth[1] and M. Phan[1] *1. Department of Physics, University of South Florida, Tampa, FL; 2. Department of Materials Science and Engineering, The University of Tennessee, Knoxville, TN; 3. Laboratoire de Physique Theorique et Modelisation, Universite de Cergy-Pontoise, CNRS, UMR 80892, Avenue Adolphe Chauvin, 95302 Cergy-Pontoise Cedex, France*

1:42

DD-02. Pressure induced decoupling of Mn-Gd spin systems in multiferroic $GdMn_2O_5$. *N. Poudel*[1], M.J. Gooch[1], B. Lorenz[1], C. Chu[1,2], J. Kim[3] and S. Cheong[3] *1. Texas Center for Superconductivity and Department of Physics, University of Houston, Houston, TX; 2. Lawrence Berkeley National Laboratory, Berkeley, CA; 3. Rutgers Center for Emerging Materials and Department of Physics and Astronomy, Rutgers University, Piscataway, NJ*

1:54

DD-03. Magnetic, magneto-optical, and structural properties of $Tm_3Fe_5O_{12}$ (TmIG) garnet thin films exhibiting perpendicular magnetic anisotropy. *A. Tang*[1], A. Quindeau[1], C. Pai[1], M. Onbasli[1], G. Beach[1] and C. Ross[1] *1. Materials Science and Engineering, MIT, Cambridge, MA*

2:06

DD-04. Unconventional magnetism in ultrathin spinel oxides: $NiFe_2O_4$ on $SrTiO_3$ M. Hoppe[1], M. Zinner[3], K. Fauth[3], F. Bertram[4] and *M. Müller*[1,2] *1. Peter Grünberg Institute, Research Center Jülich, Jülich, Germany; 2. Department of Physics, University Duisburg-Essen, Duisburg, Germany; 3. Institute of Physics, Würzburg University, Würzburg, Germany; 4. Photon Science, DESY, Hamburg, Germany*

2:18

DD-05. Magnetic exchange interaction between Fe^{3+} and R^{3+} ions in hexagonal $RFeO_3$ (R = Ho, Yb) thin films. *X. Wang*[1], Y. Liu[2], Z. Xiao[1], X. Xu[3], K. Sinha[3], W. Wang[4], J. Shen[4], D.J. Keavney[5] and X. Cheng[1] *1. Department of Physics, Bryn Mawr College, Bryn Mawr, PA; 2. Quantum Condensed Matter Division, Oak Ridge National Laboratory, Oak Ridge, TN; 3. Department of Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE; 4. Department of Physics, Fudan University, Shanghai, Shanghai, China; 5. Advanced Photon Source, Argonne National Laboratory, Argonne, IL*

2:30

DD-06. Magnetic and ferroelectric order parameters of $SrTi_{1-x}Co_xO_{3-\delta}$: An oxygen-vacancy modulated multiferroic. *J.M. Florez*[1,2], M. Onbasli[2], S.P. Ong[3], P. Vargas[1] and C. Ross[2] *1. Departamento de Física, Universidad Técnica Federico Santa María, Valparaíso, Valparaíso, Chile; 2. Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA; 3. Department of NanoEngineering, University of California San Diego, La Jolla, CA*

2:42

DD-07. Structural Phase Transition Induced Giant Magnetization Switching in BTO-FeRh Heterostructures. *S.P. Bennett*[1], A.T. Wong[8,2], Z. Liu[3], A.G. Glavic[1,7], A. Herklotz[2], C. Urban[4], I. Valmianski[4], I.K. Schuller[4], M. Biegalski[3], H. Christen[3], R. Ramesh[5,6], T.Z. Ward[2] and V. Lauter[1] *1. Quantum Condensed Matter Division, Oak Ridge National Laboratory, Knoxville, TN; 2. Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN; 3. Center for Nanoscale Materials Science, Oak Ridge National Laboratory, Oak Ridge, TN; 4. Department of Physics, University of California, San Diego, San Diego, CA; 5. Department of Materials Science and Engineering, University of California, Berkeley, Berkeley, CA; 6. Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA; 7. Laboratory for Neutron Scattering and Imaging, Paul Scherrer Institut, Villigen PSI, Switzerland; 8. Department of Materials Science and Engineering, The University of Tennessee, Knoxville, TN*

2:54

DD-08. Electric field control of the magnetic order parameter of magnetic pillars embedded in a ferroelectric matrix. *M. Fitzsimmons*[1], Q. Wang[2], T. Lookman[3], A. Chen[3], Q. Jia[3], D. Gilbert[4], J. Borchers[4], B. Holladay[5] and S. Sinha[5] *1. ORNL, Knoxville, TN; 2. ANL, Argonne, IL; 3. LANL, Los Alamos, NM; 4. NIST, Gaithersburg, MD; 5. UCSD, La Jolla, CA*

3:06

DD-09. Observation of magnetic moment orientation in epitaxial single crystal iron thin films. *K. Maksimova*[1], A. Hloskovsky[1], D.V. Novikov[1] and P. Medvedskaya[2] *1. Deutsches Elektronen-Synchrotron, Hamburg, Germany; 2. Immanuel Kant Baltic Federal University, Kaliningrad, Russian Federation*

Session DE
PERPENDICULAR ANISOTROPY AND MAGNETIC NANOSTRUCTURES

Joseph Davies, Co-Chair
NVE Corporation, Eden Prairie, MN
Phanwadee Chureemart, Co-Chair
Mahasarakham University, Kantarawichai, Thailand

1:30

DE-01. Perpendicular Magnetic Anisotropy and Microstructure Properties of Ti(Ta)/Co/Au Multilayers. *C. Rizal*[1], J. Wingert[3] and E.E. Fullerton[1,2] *1. Center for Magnetic Recording Research, UC San Diego, La Jolla, CA; 2. Department of Nanoengineering, UC San Diego, La Jolla, CA; 3. Physics, UC San Diego, La Jolla, CA*

1:42

DE-02. Effect of roughness on perpendicular magnetic anisotropy in $(Co_{90}Fe_{10}/Pt)_n$ superlattices. *J. Qiu*[1], Z. Meng[1,2], Y. Yang[1], J. Ying[1], Q. Yap[1] and G. Han[1] *1. Data Storage institute, Singapore, Singapore; 2. Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore*

1:54

DE-03. Effect of the MgO seed layer thickness on perpendicular magnetic anisotropy in Cr/ultrathin Fe/MgO. *A. Koziol-Rachwal*[1,2], T. Nozaki[1], V. Zayets[1], H. Kubota[1], A. Fukushima[1], S. Yuasa[1] and Y. Suzuki[1,3] *1. Spintronics Research Center, AIST, Tsukuba, Japan; 2. AGH University of Science and Technology, Krakow, Poland; 3. Graduate School of Engineering Science, Osaka University, Osaka, Japan*

2:06

DE-04. Perpendicular Magnetic Anisotropy of Co / Pt bilayers on ALD HfO_2. *K.M. Martens*[1], J. Swerts[2], G. Rampelberg[3], S. Mertens[2], S. Couet[2], Y.F. Tomczak[1], I. Radu[2], C. Detavernier[3] and A. Thean[2] *1. KU Leuven - imec, Leuven, Belgium; 2. imec, Leuven, Belgium; 3. University of Gent, Gent, Belgium*

2:18

DE-05. Structural engineering of spin orbit torques and Dyzyaloshinskii-Moriya interaction in dual-interfaced Co-Ni multilayers. *J. Yu*[1], X. Qiu[1] and H. Yang[1] *1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore*

2:30

DE-06. Perpendicular anisotropy, epitaxial $DyCo_5$ thin films with spin compensation. *V. Neu*[1], B. Schleicher[1], M. Seifert[1] and L. Schultz[1] *1. Institute for Metallic Materials, IFW Dresden, Dresden, Germany*

2:42

DE-07. Dzyaloshinskii-Moriya Interaction (DMI) as a function of annealing temperature in Ta/CoFeB/MgO thin films. *R.A. Khan*[1], A. Hrabec[1], P.M. Shepley[1], A.W. Wells[1], S. Moretti[2], B. Ocker[3], E. Martinez[2], C.H. Marrows[1] and T. Moore[1] *1. School of Physics and Astronomy, University of Leeds, Leeds, West Yorkshire, United Kingdom; 2. Fisica Aplicada, Universidad de Salamanca, Salamanca, Spain; 3. Singulus Technologies AG, Kahl am Main, Germany*

2:54

DE-08. Effect of insert layer (X) on magnetic anisotropy in β-W/X/CoFeB/MgO/Ta, where X= Ta, Mo and CoFe. *A. Jayanthi Narasimham*[1], M. Zhu[2], P. Khare[2] and V.P. LaBella[2] *1. College of Nanoscale Science and Engineering, State University of New York, Albany, NY; 2. College of Nanoscale Science and Engineering, SUNY Polytechnic Institute, Albany, NY*

3:06

DE-09. Tailoring Curie temperature and magnetic anisotropy in ultrathin Pt/Co/Pt films. V. Parakkat[1], G.K. Rajan[1], P. Buragohain[1] and *P. Kumar*[1] *1. Physics, Indian Institute of Science, Bangalore, Karnataka, India*

WEDNESDAY AFTERNOON 1:30 — AQUA AB

Session DF
HALF-METALLIC MATERIALS II
Kazuhiro Hono, Chair
NIMS, Tsukuba, Japan

1:30

DF-01. Magnetic Vortex Formation and its Dynamics for Co-Based Heusler Alloys. *T. Seki*[1,2], T. Yamamoto[1] and K. Takanashi[1] *1. Institute for Materials Research, Tohoku University, Sendai, Japan; 2. JST-PRESTO, Saitama, Japan*

1:42

DF-02. Co_2FeSiAl/Si(111) heterointerface: magnetic and atomic structure. *B. Kuerbanjiang*[1], L. Lari[1], Z. Nedelkovski[1], S. Yamada[2], T. Saerbeck[3], S. Glover[4], T.P. Hase[4], P. Hasnip[1], A. Hirohata[1] and V. Lazarov[1] *1. University of York, York, United Kingdom; 2. Osaka University, Osaka, Japan; 3. ILL, Grenoble, France; 4. University of Warwick, Coventry, United Kingdom*

1:54

DF-03. Co_2MnSi half-metal magnetic character studied by photoemission and ferromagnetic resonance. *S. Andrieu*[1], A. Neggache[1,2], T. Hauet[1], T. Devolder[3], A. Hallal[4], M. Chshiev[4], A.M. Bataille[5], P. Le Fevre[2] and F. Bertran[2] *1. Institut Jean Lamour, Universite de Lorraine, Vandoeuvre, France; 2. Synchrotron SOLEIL, Gif-sur-Yvette, France; 3. IEF, Orsay, France; 4. SPINTEC, Grenoble, France; 5. CEA/IRAMIS, Saclay, France*

2:06

DF-04. Interfacial Structure of Co_2MnSi/GaAs(001) Heterostructures for Spin Injection. *A. Rath*[1], S. Patel[2], C. Palmstrøm[2], K. Christie[3], T. Peterson[3], G. Stecklein[3], P. Crowell[3], C. Sivakumar[4], W.H. Butler[4] and P. Voyles[1] *1. Department of Materials Science and Engineering, University of Wisconsin-Madison, Madison, WI; 2. Department of Materials Science and Engineering, University of California-Santa Barbara, Santa Barbara, CA; 3. School of Physics and Astronomy, University of Minnesota, Minneapolis, MN; 4. Department of Physics and Center for Materials and Information Technology, University of Alabama, Tuscaloosa, AL*

2:18

DF-05. Investigation of spin-polarization of non-stoichiometric Co-Mn-Fe-Si Heusler alloy thin films by anisotropic magnetoresistance measurements. *Y. Sakuraba*[1] and K. Hono[1] *1. Magnetic Materials Unit, National Institute for Materials Science, Tsukuba, Ibaraki, Japan*

2:30

DF-06. Zero Bias Anomaly in Point Contact Andreev Reflection Spectroscopy. *J.A. Gifford*[1], G. Zhao[1], J. Zhang[1], D.R. Kim[1], T. Chen[1] and B.C. Li[1] *1. Arizona State University, Tempe, AZ*

2:42

DF-07. Co_2MnSi and Co_2MnGa magnetic Heusler alloy thin films: optimal growth properties and anomalous Hall effect for magnetic sensing. *S. Granville*[1,2], I.L. Farrell[3], C. Emeny[3], R.J. Reeves[3,2], R. Knibbe[1,2] and S.J. Callori[4,5] *1. Robinson Research Institute, Victoria University of Wellington, Lower Hutt, New Zealand; 2. MacDiarmid Institute for Advanced Materials and Nanotechnology, New Zealand, New Zealand; 3. University of Canterbury, Christchurch, New Zealand; 4. School of Physics, The University of New South Wales, Sydney, NSW, Australia; 5. The Bragg Institute, Australian Nuclear Science and Technology Organisation, Lucas Heights, NSW, Australia*

2:54

DF-08. Crystallographic, magnetic and electrical properties of sputter deposited Mn-Fe-Ga thin films. *A. Niesen*[1], M. Glas[1], E. Arenholz[2], J. Schmalhorst[1] and G. Reiss[1] *1. Center for Spinelectronic Materials and Devices, Physics Department, Bielefeld University, Bielefeld, NRW, Germany; 2. Lawrence Berkeley National Laboratory, Berkeley, CA*

3:06

DF-09. Electrical properties of Co_2MnSi/graphene heterostructures grown on n-Ge(001) substrates. *G. Li*[1], J. Hu[1], S. Liu[1] and Y. Du[1] *1. Northwestern Polytechnical University, Xi'An, China*

WEDNESDAY AFTERNOON 1:30 — AQUA SALON CD

Session DG
MAGNETIC TUNNEL JUNCTIONS II

Guohan Hu, Chair
IBM T.J. Watson Research Center, Yorktown Heights, NY

1:30

DG-01. Enhancement of the Co magnetic moment in bcc $Co_{1-x}Mn_x$ on MgO. *R.J. Snow*[1], H. Bhatkar[1], A.T. N'Diaye[2], E. Arenholz[2] and Y.U. Idzerda[1] *1. Department of Physics, Montana State University, Bozeman, MT; 2. Advanced Light Source, Lawrence Berkeley National Laboratories, Berkeley, CA*

1:42

DG-02. Ferromagnetic antiperovskite MnGaN films with perpendicular magnetic anisotropy for magnetic tunnel junctions. *H. Lee*[1], H. Sukegawa[1], J. Liu[1,2], Z. Wen[1], T. Ohkubo[1], S. Kasai[1], S. Mitani[1,2] and K. Hono[1,2] *1. Magnetic Materials Unit, National Institute for Materials Science, Tsukuba, Ibaraki, Japan; 2. Graduate School of Pure and Applied Sciences, University of Tsukuba, Tsukuba, Japan*

1:54

DG-03. Long range phase coherence in double barrier magnetic tunnel junctions with large thick metallic quantum well. *Y. Lu*[1], B. Tao[1,2], H. Yang[3], Y. Zuo[1], X. Devaux[1], G. Lengaigne[1], M. Hehn[1], D. Lacour[1], S. Andrieu[1], M. Chshiev[3], T. Hauet[1], F. Montaigne[1], S. Mangin[1] and X. Han[2] *1. Departement P2M, Institut Jean Lamour, Vandoeuvre Les Nancy, France; 2. Beijing National Laboratory of Condensed Matter Physics, Institute of Physics, Beijing, China; 3. UMR 8191, CEA-INAC/CNRS/UJF-Grenoble 1/G-INP, SPINTEC, Grenoble, France*

2:06

DG-04. Competing PMA and TMR Correlation of the CoFeB/MgO Perpendicular Magnetic Tunnel Junction Realized by Angle-Resolved X-ray Spectroscopy. C. Yang[1], S. Chang[1], K. Shen[2], H. Lin[3] and *Y. Tseng*[1] *1. Materials Science & Engineering, National Chiao-Tung University, Hsin-Chu, Taiwan; 2. Industrial Technology Research Institute, Hsin-chu, Taiwan; 3. National Synchrotron Radiation Research Center, Hsin-chu, Taiwan*

2:18

DG-05. Large Magnetocapacitance Effect in Magnetic Tunnel Junctions Based on Debye-Fröhlich Model. *H. Kaiju*[1], M. Takei[1], T. Misawa[1], T. Nagahama[2], J. Nishii[1] and G. Xiao[3] *1. Research Institute for Electronic Science, Hokkaido University, Sapporo, Japan; 2. School of Engineering, Hokkaido University, Sapporo, Hokkaido, Japan; 3. Department of Physics, Brown University, Providence, RI*

2:30

DG-06. In-plane Seebeck contributions in tunnel-magneto Seebeck experiments. *A. Boehnke*[1], U. Martens[2], T. Huebner[1], C. Sterwerf[1], M. von der Ehe[2], C. Franz[3], T. Kuschel[1], A. Thomas[1,4], C. Heiliger[3], M. Münzenberg[2] and G. Reiss[1] *1. Center for Spinelectronic Materials and Devices, Physics Department, Bielefeld University, Bielefeld, Germany; 2. Institut für Physik, Ernst-Moritz-Arndt-University, Greifswald, Germany; 3. I. Physikalisches Institut, Justus-Liebig-University, Giessen, Germany; 4. IFW Dresden, Dresden, Germany*

2:42

DG-07. Thermal Transport and Nonequilibrium Temperature Drop Across a Magnetic Tunnel Junction. J. Zhang[1,2], M. Bachmann[1], M. Czerner[1] and *C. Heiliger*[1] *1. Institut für Theoretische Physik, Giessen, Germany; 2. University of Nebraska, Physics and Astronomy, Lincoln, NE*

2:54

DG-08. Magnetic tunnel junctions with monolayer h-BN tunnel barriers. *M. Piquemal-Banci*[1,2], B. Dlubak[1,2], S. Caneva[3], R.S. Weatherup[3], M. Martin[3], R. Galceran[1,2], K. Bouzehouane[1,2], S. Xavier[4], P. Kidambi[3], M. Anane[1,2], F. Petroff[1,2], A. Fert[1,2], J. Robertson[3], S. Hofmann[3] and P. Seneor[1,2] *1. Unite Mixte de Physique CNRS/Thales, Palaiseau Cedex, France; 2. Université de Paris-Sud, Orsay, France; 3. Department of Engineering, University of Cambridge, Cambridge, United Kingdom; 4. Thales Research and Technology, Palaiseau, France*

3:06

DG-09. Spin-Orbit Logic with Magneto-Electric Nodes Mediated by Charge Interconnects. *S. Manipatruni*[1], D.E. Nikonov[1] and I. Young[1] *1. Intel Components Research, Portland, OR*

Session DH
MN-BASED HARD MAGNETIC MATERIALS

Josef Fidler, Chair
TU Vienna, Vienna, Austria

1:30

DH-01. Estimating maximum coercivity in MnAl permanent magnets. *S. Bance*[1], F. Bittner[2], T.G. Woodcock[2], L. Schultz[2] and T. Schrefl[3] *1. St. Poelten University of Applied Sciences, St. Poelten, Austria; 2. Institute for Metallic Materials, IFW Dresden, Dresden, Germany; 3. Center for Integrated Sensor Systems, Danube University, Krems, Austria*

1:42

DH-02. Bulk Mn-Al-(C) permanent magnets. R. Madugundo[1] and *G.C. Hadjipanayis*[1] *1. Department of Physics and Astronomy, University of Delaware, Newark, DE*

1:54

DH-03. Tailored synthesis and processing routes to exchange-spring MnAl–Fe nanocomposites. *L.G. Marshall*[1,2], I.J. McDonald[1,2] and L. Lewis[1,2] *1. College of Engineering, Northeastern University, Boston, MA; 2. George J. Kostas Research Institute for Homeland Security, Northeastern University, Boston, MA*

2:06

DH-04. Phase formation and stability of the $L1_0$ phase in the Mn-Al-Ga system. *T. Mix*[1,2], F. Bittner[1,3], K. Müller[1], L. Schultz[1,2] and T.G. Woodcock[1] *1. Institute for Metallic Materials, IFW Dresden, Dresden, Germany; 2. Department of Physics, TU Dresden, Dresden, Germany; 3. Institute for Materials Science, TU Dresden, Dresden, Germany*

2:18

DH-05. Crystal structure and the intrinsic magnetic properties of the $Mn_{1+x}Ga$ rare-earth-free permanent magnet system. R. Rejali[1], *D. Ryan*[1], Z. Altounian[1], C. Boyer[2], Q. Lu[3], M. Wang[3], H. Zhang[3] and M. Yue[3] *1. McGill University, Montreal, QC, Canada; 2. Canadian Neutron Beam Centre, Chalk River Laboratories, Chalk River, ON, Canada; 3. College of Materials Science and Engineering, Beijing University of Technology, Beijing, China*

2:30

DH-06. Electronic structures of $D0_{22}$-MnGe thin films studied by photoelectron spectroscopy. *M. Mizuguchi*[1], J. Kim[1], S. Ueda[2] and K. Takanashi[1] *1. Institute for Materials Research (IMR), Tohoku University, Sendai, Japan; 2. National Institute for Materials Science, Sayo-cho, Japan*

2:42

DH-07. Structural behavior of MnBi under high pressure. X. Jiang[1], W. Bi[2], Y. Choi[2], D. Popov[2], C. Kenney-Benson[2], E. Polikarpov[1], *D. Haskel*[2], J. Cui[1,3] and S. Jiang[2] *1. Pacific Northwest National Lab, Richland, WA; 2. Argonne National Laboratory, Argonne, IL; 3. Iowa State University, Ames, IA*

2:54

DH-08. Model of magnetic anisotropy in LTP and HTP MnBi: Critical role of two-ion contribution. J. Barker[1,3], A. Kalitsov[1,2], S. Okatov[1,4], S. Faleev[1,5] and *O.N. Mryasov*[1,2] *1. MINT Center, University of Alabama, Tuscaloosa, AL; 2. Western Digital Corporation, San Jose, CA; 3. Institute for Materials Research, Tohoku University, Sendai, Japan; 4. Ural Federal University, Ekaterinburg, Russian Federation; 5. IBM Almaden Research Center, San Jose, CA*

3:06

DH-09. Nanoscale Morphology of High Performance MnBi Bulk Magnets. *N. Poudyal*[1], X. Liu[1], W. Wang[1], V. Nguyen[1], Y. Ma[1], K.H. Gandha[1], K. Elkins[1], P. Liu[1], K. Sun[2], M.J. Kramer[2] and J. Cui[2] *1. Physics, University of Texas at Arlington, Arlington, TX; 2. Ames Laboratory,Iowa State University, Ames, IA*

WEDNESDAY AFTERNOON 1:30 — AQUA 310

Session DI
NEW APPLICATIONS: MAGNETO-ELASTIC, MAGNETO-ELECTRIC AND OTHER DEVICES

Hao Wu, Chair
Ferric Semiconductor, Inc., New York, NY

1:30

DI-01. FEM-based optimization of an inverse-magnetostrictive pressure sensor. *M. Löffler*[1], M. Nierla[1], M. Kadur[1], A. Sutor[1] and R. Lerch[1] *1. Chair of Sensor Technology, Friedrich-Alexander-University Erlangen-Nuremberg, Erlangen, Germany*

1:42

DI-02. Multilayer MEMS Reed Sensors for Low Field Sensing. *S. Nazari Nejad*[1] and R. Mansour[1] *1. University of Waterloo, Waterloo, ON, Canada*

1:54

DI-03. Magnetic nanowires used in magnetic pick-up sensors. R. Perez del Real[1], *E.M. Palmero*[1], C. Bran[1] and M. Vázquez[1] *1. ICMM, Madrid, Madrid, Spain*

2:06

DI-04. Pulse wave detection magnetoelastic sensor based on nanocrystalline microwires. *H. Chiriac*[1], C. Hlenschi[1], S. Corodeanu[1], M. Grecu[2], T. Ovari[1] and N. Lupu[1] *1. National Institute of R&D for Technical Physics, Iasi, Romania; 2. Electrophysiology Department, Cardiovascular Diseases Institute, Iasi, Romania*

2:18

DI-05. Magnetic Nanocomposite Cilia Energy Harvester. *M. Khan*[1], A. Alfadhel[1] and J. Kosel[1] *1. CEMSE, King Abdullah Univeristy of Science and Technology, Thuwal, Makkah, Saudi Arabia*

2:30

DI-06. Magnetohydrodynamic Power Generation – a Renewable, Emission Free Energy Solution. *E. Cosoroaba*[1] *1. Electrical Engineering, The University of Texas at Dallas, Richardson, TX*

2:42

DI-07. Comparison of Three Permanent Magnet Models on an Energy Harvesting Cantilever Beam. *J. van Dam*[1], J. Paulides[1] and E.A. Lomonova[1] *1. Electrical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands*

2:54

DI-08. Magnetic Sensors with Perfect Linear Response Obtained from a Weakly Pinned Free Layer MTJ Stack using a Three Step Annealing Process. *E. Paz*[1], R. Ferreira[1] and P. Freitas[1] *1. International Iberian Nanotechnology Laboratory, Braga, Portugal*

3:06

DI-09. A Linear Synchronous Superconducting Generator for Power Generation from Seawaves. A.M. Colucci[1], *D. Curto*[1], V. Franzitta[1] and M. Trapanese[1] *1. DEIM, Palermo University, Palermo, Italy*

WEDNESDAY AFTERNOON 1:30 — AQUA 300

Session DJ
MODELING AND SIMULATIONS OF MOTORS I

Johannes Paulides, Chair
TU Einthoven, Eindhoven, Netherlands

1:30

DJ-01. Scaling of Pseudo Direct-Drives for Wind Turbine Applications. *A. Penzkofer*[1] and K. Atallah[1] *1. Electronic and Electrical Engineering, University of Sheffield, Sheffield, United Kingdom*

1:42

DJ-02. Vibration-type energy harvesting element using a large Barkhausen jump in magnetic wires. *A. Takebuchi*[1], N. Kameda[1], T. Yamada[1] and Y. Takemura[1] *1. Yokohama National University, Department of Electrical and Computer Engineering, Yokohama, Japan*

1:54

DJ-03. Design of a Gust-Dampening Permanent Magnet Coupling. *S. Högberg*[1], N. Mijatovic[1], J. Holbøll[1], K. Buhagiar[1], J. Mortensen[3] and B.B. Jensen[2] *1. Department of Electrical Engineering, Technical University of Denmark, Kongens Lyngby, Denmark; 2. Department of Science and Technology, University of the Faroe Islands, Torshavn, Faroe Islands; 3. TechnoFlex, Silkeborg, Denmark*

2:06

DJ-04. Alternatives to Determine Permanent Magnet Generators Parameters. *G. Homrich*[1], A.F. Flores Filho[1] and R. Homrich[1] *1. Graduate Electrical Engineering Department, Federal University of Rio Grande do Sul, Porto Alegre, Rio Grande do Sul, Brazil*

2:18

DJ-05. A New Coreless Axial Flux Interior Permanent Magnet Synchronous Motor With Sinusoidal Rotor Segments. *M. Aydin*[1] and M. Gulec[1] *1. Mechatronics Engr., Kocaeli University, Kocaeli, Turkey*

2:30

DJ-06. A Thermomagnetic Motor for Space Applications. G. Cipriani[1], *D. Curto*[1], V. Di Dio[1], V. Franzitta[1], M. Trapanese[1] and D. Bellone[1] *1. DEIM, Palermo University, Palermo, Italy*

2:42

DJ-07. Rapid Magnetic De-Fluxing Approach for a Novel ASRM Design with a Push-Pull Winding Arrangement. *A. Labak*[1], J. Tjong[1] and N. Kar[1] *1. University of Windsor, Windsor, ON, Canada*

2:54

DJ-08. Rotor Pole Optimization of Novel Axial Flux Brushless Doubly Fed Reluctance Machine for Torque Enhancement. *S. Khaliq*[1], S. Atiq[1], T.A. Lipo[2] and B. Kwon[1] *1. Electronics & System Engineering, Hanyang University, ERICA Campus, South Korea, Ansan, Gyeonggi, The Republic of Korea; 2. Department of Electrical and Computer Engineering, Florida State University, Tallahassee, FL*

3:06

DJ-09. Analysis of Two-Dimensional Magnetic Properties of Silicon Steel Sheet Under Stress. *Y. Xiong*[1], X. Ding[1] and S. Ren[1] *1. School of Automation Science and Electrical Engineering, Beihang University, Beijing, China*

Session DP

NANOSTRUCTURED HARD MAGNETIC MATERIALS I (Poster Session)

Balamurugan Balasubramanian, Co-Chair
University of Nebraska - Lincoln, Lincoln, NE
Kunihiro Koike, Co-Chair
Yamagata University, Yonezawa, Japan

DP-01. ***Ex Situ* Synthesis of Exchange Coupled $SrFe_{12}O_{19}$/Fe-Co Composites.** *X. Xu*[1], Y. Hong[1], J. Park[1], W. Lee[1] and A.U. Lane[1] *1. The University of Alabama, Tuscaloosa, AL*

DP-02. **Rare-earth-free permanent magnets based on hexaferrite / metal nanocomposites.** *V. Nachbaur*[1], N. Maat[1], E. Folcke[1] and J. Le Breton[1] *1. Groupe de Physique des Matériaux, Université de Rouen, Saint Etienne du Rouvray, France*

DP-03. **Magnetic Properties of Hard (LTP MnBi)/Soft ($Fe_{65}Co_{35}$) Composites.** *J. Park*[1], Y. Hong[1], W. Lee[1], S. Kim[2] and C. Choi[3] *1. The University of Alabama, Tuscaloosa, AL; 2. Mississippi State University, Mississippi State, MS; 3. Korea Institute of Materials Science, Changwon, The Republic of Korea*

DP-04. **Magnetic and Structural Properties of Mn-Ga Thin Films.** *S. Zhao*[1,2] and T. Suzuki[1,3] *1. Center for Materials for Information Technology, The University of Alabama, Tuscaloosa, AL; 2. Metallurgical and Materials Engineering Department, the University of Alabama, Tuscaloosa, AL; 3. Metallurgical and Materials Engineering Department & Electrical and Computer Engineering Department, the University of Alabama, Tuscaloosa, AL*

DP-05. **Structural and Magnetic Properties of Rare Earth Free Mn-Al-Cu/Fe Exchange Coupled Nanocomposites.** P. Saravanan[1], *J. Hsu*[2], V. Vinod[3] and M. Černík[3] *1. Defence Metallurgical Research Laboratory, Hyderabad, India; 2. Department of Physics, National Taiwan Univeristy, Taipei, Taiwan; 3. Institute for Nanomaterials, Dept. of Natural Sciences, Technical University of Liberec, Liberec, Czech Republic*

DP-06. **Epitaxial growth, characterization and nano-patterning of τ-MnAl thin films with perpendicular magnetic anisotropy.** *J.C. Kally*[1], D. Rench[1], K. Tu[3], D. Reifsnyder Hickey[2], J. Jeong[2], A. Mkhoyan[2], C. Ross[3] and N. Samarth[1] *1. Pennsylvania State University, University Park, PA; 2. University of Minnesota, Minneapolis, MN; 3. Massachusetts Institute of Technology, Cambridge, MA*

DP-07. **Magnetic properties and coercivity mechanism of $Sm_{1-x}Pr_xCo_5$ (x=0-0.6) nanoflakes prepared by surfactant-assisted ball milling.** *M. Xu*[1], M. Yue[1], Q. Wu[1], Y. Li[1] and Q. Lu[1] *1. Beijing University of Technology, Beijing, China*

DP-08. Effect of flake thickness on coercivity of nanocrystalline $SmCo_5$ flakes and bulks. *Y. Shen*[1,2], S. Leontsev[1,2], A. Sheets[3,2], J. Horwath[2] and Z. Turgut[2] *1. University of Dayton, Dayton, OH; 2. Air Force Research Laboratory, Wright-Patterson Air Force Base, OH; 3. UES Inc., Dayton, OH*

DP-09. Study of magnetization reversal of permanent magnet $SmCo_{6.6}Nb_{0.4}$ nanoflakes. *Y. Li*[1], M. Yue[1], Q. Wu[1], W. Liu[1] and Q. Lu[1] *1. Beijing University of Technology, Beijing, China*

DP-10. Cerium-Based Nanocrystalline Permanent Magnet Alloys for Resource Efficient Hot-Pressed Magnets Production. *I. Poenaru*[1,2], A. Lixandru[1,2], A. Dirks[1], J. Gassmann[1], R. Hord[1], O. Diehl[1], S. Sawatzki[2], A. Buckow[1], K. Güth[1], R. Gauss[1] and O. Gutfleisch[1,2] *1. Project Group Materials Recycling and Resource Strategies IWKS, Fraunhofer ISC, 63457 Hanau, Germany; 2. Functional Materials Department, Technical University Darmstadt, 64287 Darmstadt, Germany*

DP-11. Coercivity and Nanostructure of Melt-Spun Fe-Co-Ni Derivatives. *W. Zhang*[1,2], R. Skomski[1,2], X. Li[2], S. Valloppilly[2] and D.J. Sellmyer[1,2] *1. Physics and Astronomy, University of Nebraska, Lincoln, NE; 2. Nebraska Center for Materials and Nanoscience, University of Nebraska, Lincoln, NE*

DP-12. Solution Phase Synthesis of Zr_2Co_{11} Nanoparticles. *F. Wang*[1], L. Jin[1], F. Sun[2], X. Xu[1] and H. Zeng[2] *1. School of Chemistry and Materials Science, Shanxi Normal University, Linfen, Shanxi, China; 2. Department of Physics, University at Buffalo-SUNY, Buffalo, NY*

DP-13. Chemically synthesized CrTe nanostructures with hard magnetic properties. F. Sun[1], F. Wang[2], J. Du[2], X. Xu[2], R. Sabirianov[3] and *H. Zeng*[1] *1. Department of Physics, University at Buffalo, SUNY, Buffalo, NY; 2. Shanxi Normal University, Linfen, Shanxi, China; 3. Department of Physics, University of Nebraska-Omaha, Omaha, NE*

DP-14. Magnetization Reversal in Single Crystalline Cobalt Nanowires with High Coercivity. *K.H. Gandha*[1], K. Elkins[1], N. Poudyal[1] and P. Liu[1] *1. Department of Physics, University of Texas at Arlington, Arlington, TX*

WEDNESDAY AFTERNOON 1:30 — SAPPHIRE BALLROOM SOUTH

Session DQ

MAGNETO-ELECTRIC MATERIALS AND DEVICES II (Poster Session)

Dustin Gilbert, Chair
NIST, Gaithersburg, MD

DQ-01. Enhanced magnetoelectric effect in FeGa/PZT composites by the employment of high-μ FeSiB magnetic concentrator. C. Yang[1], *P. Li*[1], Y. Wen[1], D. Wang[1] and F. Zhang[1] *1. Research Center of Sensors and Instruments, College of Optoelectronic Engineering, Chongqing University, Chongqing, China*

DQ-02. Effective-Medium Model Applied in Converse Magnetoelectric Effect. *F. Xue*[1], J. Hu[1], S. Wang[2] and J. He[1] *1. Department of Electrical Engineering, Tsinghua University, Beijing, China; 2. Stanford University, Stanford, CA*

DQ-03. Enhanced sensitivity in five-phase laminate heterostructure magnetoelectric sensor at low magnetic bias field. *L. Chen*[1,2] and Y. Wang[3] *1. Key Lab of Computer Vision and Intelligent Information System, Chongqing University of Art and Sciences, Chongqing, China; 2. College of Optoelectronic Engineering, Chongqing University, Chongqing, China; 3. Electrical and Computer Engineering Department, Carnegie Mellon University, Pittsburgh, PA*

DQ-04. The magnetoelectric torque sensor for the detection of α-fetoprotein tumor markers. *Y. Wu*[1], Y. Liu[1], Q. Zhan[1], D. Sun[1], S. Mao[1] and R. Li[1] *1. Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, NingBo, ZheJiang, China*

DQ-05. The role of magnetoelectric laminated composite in rotational parameters detect. *Z. Wu*[1], L. Bian[2] and X. Wang[1] *1. Chongqing University of Technology, Chongqing, China; 2. Nanjing University of Science and Technology, Nanjing, China*

DQ-06. Planar Excitations Technique on Magnetoelectric Thin Film for ME Sensor and Devices. *S. Zare*[1], H. Izadkhah[1], S. Somu[1] and C. Vittoria[1] *1. Northeastern University, Boston, MA*

DQ-07. Electric-field-induced strain transfer effect on magnetic phase in FeRh/BaTiO$_3$ heterostructures. *R. Iijima*[1], I. Suzuki[1], M. Itoh[1] and T. Taniyama[1] *1. Materials and Structures Laboratory, Tokyo Institute of Technology, Yokohama, Japan*

DQ-08. FNon-volatile switching of perpendicular magnetic anisotropy in Co/PMN-PT(001) multiferroic heterostructures. Q. Yang[1], T. Nan[2], Y. Zhang[1], X. Wang[2], W. Ren[1], Z. Ye[1,3], N.X. Sun[1,2] and *M. Liu*[1] *1. Electronic Materials Research Laboratory, Key Laboratory of the Ministry of Education & International Center for Dielectric Research, Xian Jiaotong University, Xian, China; 2. Electrical and Computer Engineering, Northeastern University, Boston, MA; 3. Department of Chemistry and 4D LABS, Simon Fraser University, Burnaby, BC, Canada*

DQ-09. A Large Magneto-Dielectric Effect in ZnFe$_2$O$_4$/PMN-PT Composite Multiferroic Thin Films. T. Garg[1,2], A.R. Kulkarni[1] and *N. Venkataramani*[1] *1. Department of Metallurgical Engineering & Materials Science, Indian Institute of Technology Bombay, Mumbai, Maharashtra, India; 2. Department of Physics, University of Petroleum & Energy Studies, Dehradun, Uttarakhand, India*

DQ-10. Novel Epitaxial Low-Loss Oxide Magnetoelectric Heterostructures. *B.N. Howe*[1], H. Jeon[1], B.A. Gray[1], D. Fullager[1] and N.X. Sun[2] *1. Materials and Manufacturing Directorate, Air Force Research Lab, Wright Patterson Air Force Base, OH; 2. Northeastern University, Boston, MA*

DQ-11. Effects of cobalt substitutions on the ME coupling of M-type hexaferrite films. *H. Izadkhah*[1], S. Zare[1], S. Somu[2] and C. Vittoria[1] *1. Electrical Engineering, Northeastern University, Boston, MA; 2. Northeastern University, Boston, MA*

DQ-12. Magnetocapacitance in $CdCr_{1.8}In_{0.2}S_4$ single crystal annealed in cadmium vapor. Y. Xie[1], X. Chen[2,3], Z. Zhang[2], W. Song[2], S. Zhou[4] and *Z. Yang*[2,3] *1. State Key Laboratory of Structural Chemistry, Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences, Fuzhou, Fujian, China; 2. Key Laboratory of Materials Physics, Institute of Solid State Physics, Chinese Academy of Sciences, Hefei, Anhui, China; 3. High Magnetic Field Laboratory, Chinese Academy of Sciences, Hefei, Anhui, China; 4. Institute of Ion Beam Physics and Materials Research, Dresden, Germany*

DQ-13. Magnetic and magnetodielectric behavior of $GdCrTiO_5$. T. Basu[1], K. Singh[1,2] and *E.V. Sampathkumaran*[1] *1. Tata Institute of Fundamental Research, Mumbai, India; 2. UGC-DAE Consortium for Scientific Research, Khandwa Road, Indore, Madhya Pradesh, India*

DQ-14. Conductance switching and tunneling characteristics of remotely controlled magnetostriction-based nanocontacts. *S. Jammalamadaka*[1], S. Kuntz[2], O. Berg[2], W. Kittler[2], U. Kannan[1], J. Chelvane[3] and C. Suergers[2] *1. Department of Physics, Indian Institute of Technology Hyderabad, Hyderabad, Andhra Pradesh, India; 2. Physikalisches Institut, Karlsruhe Institute of Technology, Karlsruhe, Germany; 3. Defence Metallurgical Research Laboratory, Hyderabad, Telangana, India*

WEDNESDAY AFTERNOON 1:30 — SAPPHIRE BALLROOM SOUTH

Session DR
SOFT MAGNETIC MATERIALS: CRYSTALLINE ALLOYS II (Poster Session)

Satoru Kobayashi, Chair
Iwate University, Morioka, Japan

DR-01. Adjustable Multipeak Magnetoelectric Effect in Laminate Composite of FeCoV Alloy and $Pb(Zr,Ti)O_3$ with Segment Electrodes. D. Wang[1], *P. Li*[1], Y. Wen[1], C. Yang[1] and F. Zhang[1] *1. Research Center of Sensors and Instruments, Department of Optoelectronic Engineering, Chongqing University, Chongqing, China*

DR-02. Evaluation of Stress Distribution Due to Shearing in Non-Oriented Electrical Steel using Synchrotron Radiation. *Y. Zaizen*[1], T. Omura[1], M. Fukumura[1], K. Senda[1] and H. Toda[1] *1. JFE Steel Corporation, Kurashiki, Japan*

DR-03. Formation of high electrical-resistivity thin surface layer on carbonyl-iron powder (CIP) and thermal stability of nanocrystalline structure and curling magnetic structure of CIP. *K. Sugimura*[1], Y. Miyajima[1], F. Hayashi[1], M. Sonehara[1], T. Sato[1], N. Zettsu[1], K. Teshima[1] and H. Mizusaki[1,2] *1. Faculty of Engineering, Shinshu University, Nagano, Japan; 2. Precision and Electronics Technology Department, Nagano Prefecture General Industrial Technology Center, Okaya, Japan*

DR-04. CrAlN coating to reduce the power loss and magnetostriction in grain oriented electrical steel. *V. Goel*[1], P.I. Anderson[1], J.P. Hall[1], F. Robinson[2] and S. Bohm[3] *1. Wolfson Centre for Magnetics, Cardiff University, Cardiff, Wales, United Kingdom; 2. Cogent Power ltd., Newport, Wales, United Kingdom; 3. Advanced coating technology, Tata Steel RD&T, Rotherham, England, United Kingdom*

DR-05. Mechanically tunable magnetic properties and structure of FeGa films electrodeposited on different curvature substrates. D. Cao[1], Z. Wang[1], J. Wang[1,2] and *Q. Liu*[1] *1. Key Laboratory for Magnetism and Magnetic Materials of the Ministry of Education, Lanzhou University, Lanzhou, Gansu, China; 2. Key Laboratory of Special Function Materials and Structure Design, Ministry of Education., Lanzhou, Lanzhou, Gansu, China*

DR-06. Effect of quenching on the magnetic properties of Mg-ferrite thin films. *H. Roy Dakua*[1,2], N. Venkataramani[3] and S. Prasad[1] *1. Physics, Indian Institute of Technology, Bombay, Mumbai, Maharastra, India; 2. Physics, National University of Singapore, Singapore, Singapore; 3. Department of Metallurgical Engineering and Materials Science, Indian institute of Technology, Bombay, Mumbai, Maharastra, India*

DR-07. Low temperature sintering and ferromagnetic properties of $Li_{0.38}Zn_{0.27}Ni_{0.08}Ti_{0.11}Fe_{2.06}O_4$ ferrites co-doped with Bi_2O_3 and CuO. F. Xie[1], *L. Jia*[1], Y. Zhao[1], N. Jia[1] and H. Zhang[1] *1. University of Electronic Science and Technology of China, Chengdu, China*

DR-08. Size and shape tunable iron oxide with core-shell nanoparticles for magnetic hyperthermia applications. *Sarveena*[2], S. Kumar[1], M. Singh[2], D. Shukla[3] and S.K. Sharma[1,2] *1. Physics, Universidade Federal do Maranhão, Sao Luis, MA, Brazil; 2. Physics, H P University, Shimla, India; 3. UGC DAE Consortium for Scientific Research, Indore, India*

DR-09. Chemical epitaxial growth and ferromagnetic properties of nm-thick single crystal yttrium iron garnet films. D. Zhang[1,2], *L. Jin*[1], H. Zhang[1], C.T. Zhou[1], Q. Yang[1], X. Tang[1] and Z. Zhong[1] *1. Microelectronics and Solid-State Electronics, University of Electronic Science and Technology of China, Chengdu, China; 2. Department of Electrical and Computer Engineering, University of Delaware, Newark, DE*

DR-10. Studies of magnetic spectra of $Ce_xY_{3-x}Fe_5O_{12}$ ferrite ceramics. *F. Chen*[1], X. Wang[1], Z. Feng[1], Y. Chen[2] and V.G. Harris[2] *1. Huazhong University of Science and Technology, Wuhan, China; 2. Department of Electrical and Computer Engineering, Northeastern University, Boston, MA*

DR-11. Electro-magnetic properties of composites with alligned Fe-Co hollow fibers. *S. Lee*[1], S. Cho[1], J. Choi[1], B. Jung[1], U. Choi[1], S. Lee[1] and K. Kim[2] *1. Composites Research Divison, Korea Institute of Materials Science, Changwon, The Republic of Korea; 2. Physics, Yeungnam University, Gyeongsan, The Republic of Korea*

DR-12. Effect of annealing on soft magnetic properties of electroplated Fe-Ni films. *K. Azuma*[1], K. Eguchi[1], Y. Watanabe[1], T. Yanai[1], M. Nakano[1] and H. Fukunaga[1] *1. Nagasaki-University, Nagasaki, Japan*

DR-13. Electroplated Fe-Co-Ni films prepared from Deep-Eutectic-Solvent-based plating baths. *K. Shiraishi*[1], T. Akiyoshi[1], K. Azuma[1], Y. Watanabe[1], T. Yanai[1], T. Ohgai[1], M. Nakano[1] and H. Fukunaga[1] *1. Nagasaki University, Nagasaki, Japan*

DR-14. Direct fabrication of Fe_3O_4 microcrystals from iron powders by using hydrothermal synthesis. K. Lee[1], J. Kwon[2], Y. Kim[2], B. Cho[2], Y. Nah[3] and *C. Nam*[1] *1. Photonics and Sensors, Hannam University, Daejeon, The Republic of Korea; 2. School of Materials Science and Engineering, GIST, Gwangju, The Republic of Korea; 3. School of Energy, Materials, and Chemical Engineering, Korea University of Technology and Education, Cheonan, The Republic of Korea*

WEDNESDAY AFTERNOON 1:30 — SAPPHIRE BALLROOM SOUTH

Session DS
PATTERNED FILMS AND NANOPARTICLES (Poster Session)

Amanda Petford-Long, Chair
Argonne National Laboratory, Argonne, IL

DS-01. Defect introduced magnetic domain wall pinning. *K. Chetry*[1], Z. Sun[1], M. Sun[1], F. Liu[1], X. Yang[1] and J. Zhang[1] *1. Western Digital Corp, Fremont, CA*

DS-02. Magnetization control of $CoFe_2O_4$ thin films by Kr ion implantation. *Y. Liu*[1], E. Kita[1], H. Yanagihara[1], D. Oshima[2], T. Kato[3], S. Iwata[2] and K. Mibu[4] *1. Institute of Applied Physics, University of Tsukuba, Tsukuba, Ibaraki, Japan; 2. EcoTopia Science Institute, Nagoya University, Nagoya, Aichi, Japan; 3. Department of Electrical Engineering and Computer Science, Nagoya University, Nagoya, Aichi, Japan; 4. Graduate School of Engineering, Nagoya Institute of Technology, Nagoya, Aichi, Japan*

DS-03. Size dependence of damping in ion-milled CoFeB/MgO nanomagnet arrays. *B.K. Mahato*[1], Y. Yahagi[1], M. Jaris[1], A. Shalini[1], V. Nikitin[2] and H. Schmidt[1] *1. Jack Baskin School of Engineering, University of California, Santa Cruz, Santa Cruz, CA; 2. New Memory Technology Lab, Semiconductor R&D Center, Samsung Electronics, Milpitas, CA*

DS-04. Easy axis re-orientation of magnetization in rhombic and honeycomb $Ni_{80}Fe_{20}$ antidot structures. *C. Tian*[1], G. Shimon[1] and A. Adeyeye[1] *1. Electrical & Computer Engineering, National University of Singapore, Singapore, Singapore*

DS-05. Angle Dependent Ferromagnetic Resonance Peak Splitting in Nanopatterned Magnetic Films. *I. Nekrashevich*[1], L. Chang[1] and D. Litvinov[1] *1. Materials Engineering, University of Houston, Houston, TX*

DS-06. Control of the Spin Vortex Resonance Frequency in Patterned Elements via Topography Alteration. *J. Ding*[1], S. Jain[1], P.N. Lapa[1,2], S. Lendinez[1,3], C.M. Posada[1], W. Zhang[1], J.E. Pearson[1], A. Hoffmann[1] and V. Novosad[1] *1. Materials Science Division, Argonne National Laboratory, Argonne, IL; 2. Texas A&M University, College Station, TX; 3. Departament de Fisica Fonamental, Universitat de Barcelona, Barcelona, Spain*

DS-07. Influence of magnetic bias fields on the magnetic vortex nucleation. T. Wurft[1,2], *W. Raberg*[2], J. Zimmer[2], K. Pruegl[2], S. Luber[2] and H. Brueckl[3] *1. Department of Physics - Thin Films & Physics of Nanostructures, University Bielefeld, Bielefeld, Germany; 2. Infineon Technologies AG, Neubiberg, Germany; 3. Institute of Integrated Sensor Systems, Danube University Krems, Wiener Neustadt, Austria*

DS-08. Magnetic and Transport Properties of Co/Pd Multilayers Deposited in Modulated Substrates. *J.C. Denardin*[1,2], S. Vidal[1], S. Michea[1] and S. Oyarzun[1] *1. Dep. Fisica, Universidad de Santiago, Santiago, Chile; 2. Cedenna, Santiago, Chile*

DS-09. Magnetic properties and spin structure of MnO and FePt@MnO nanoparticles. *X. Sun*[1], A. Klapper[1], Y. Su[2], K. Nemkovskiy[2], A. Wildes[3], H. Bauer[4], O. Koehler[4], A. Schilmann[4], W. Tremel[4], O. Petracic[1] and T. Brückel[1] *1. Jülich Centre for Neutron Science JCNS and Peter Grünberg Institut PGI, JARA-FIT, Forschungszentrum Jülich GmbH, Jülich, Germany; 2. Jülich Centre for Neutron Science JCNS, Outstation at MLZ, Forschungszentrum Jülich GmbH, Garching, Germany; 3. Institut Laue-Langevin, Grenoble, France; 4. Institut für Anorganische Chemie und Analytische Chemie, Johannes Gutenberg - Universität Mainz, Mainz, Germany*

DS-10. Characterization of Nanostructure Ferrite Material on Gallium Nitride on SiC Substrate for Millimeter Wave Integrated Circuit. *T. Liang*[1], M. Afsar[1], V. Koomson[1], C. Lee[2] and X. Gu[2] *1. Tufts University, Medford, MA; 2. Qorvo, Richardson, TX*

DS-11. Size control and reaction dynamics of monodisperse Fe nanoparticles synthesized by thermolysis of $Fe(CO)_5$ with slow injection for high frequency soft magnetic materials. *T. Ogawa*[1] and H. Kura[1] *1. Department of Electronic Engineering, Tohoku University, Sendai, Japan*

DS-12. Core loss properties of chemically synthesized Fe nanoparticle assembly. *M. Kin*[1], H. Kura[1], H. Watanabe[1], Y. Hayashi[1] and T. Ogawa[2] *1. Research Laboratories, DENSO Corporation, Nisshin, Aichi, Japan; 2. Department of Electronic Engineering, Tohoku University, Sendai, Japan*

DS-13. Magnetic domain walls coupled in closely placed double Co ring thin films. K. Lee[1] and *C. Nam*[1] *1. Photonics and Sensors, Hannam University, Daejeon, The Republic of Korea*

DS-14. Magnetic properties of cubic FeCo nanoparticles with anisotropic long chain structure. *J. Liu*[1], K. Wu[1] and J. Wang[1] *1. Electrical and Computer Engineering, University of Minnesota, Twin Cities, Minneapolis, MN*

WEDNESDAY AFTERNOON 1:30 — SAPPHIRE BALLROOM SOUTH

Session DT
SPIN INJECTION II (Poster Session)

Yu Shiratsuchi, Co-Chair
Osaka University, Osaka, Japan
Takahiro Moriyama, Co-Chair
Kyoto University, Uji, Japan

DT-01. Demonstration of room-temperature spin transport in Si spin-MOSFET structure and its fabrication. *T. Sasaki*[1], Y. Ando[2,3], M. Kameno[2], T. Tahara[3], H. Koike[1], T. Oikawa[1], Y. Suzuki[2], T. Suzuki[4] and M. Shiraishi[2,3] *1. ICT Device Development Center, TDK Corporation, Ichikawa-shi, Chiba, Japan; 2. Graduate School of Engineering Science, Osaka University, Toyonaka-shi, Osaka, Japan; 3. Department of Electronic Science and Engineering, Kyoto University, Kyoto-shi, Kyoto, Japan; 4. Akita Prefectural Industrial Center, Akita-shi, Akita, Japan*

DT-02. Spin accumulation signals in CoFe/MgO/n^+-Si devices deposited on Si (1×1) and Si (2×1) surfaces. *Y. Saito*[1], M. Ishikawa[1], T. Inokuchi[1], H. Sugiyama[1], T. Ajay[1], K. Hamaya[2] and N. Tezuka[3] *1. Corporate R&D Center, Toshiba Corporation, Kawasaki, Kanagawa, Japan; 2. Graduate School of Engineering Science, Osaka University, Osaka, Japan; 3. Department of Materials Science, Tohoku University, Sendai, Japan*

DT-03. Impacts of Growth Condition on Photoluminescence Polarization in (100)-Oriented GaAs Quantum Wells at Room Temperature. *S. Iba*[1], H. Saito[1], K. Watanabe[2], Y. Ohno[2] and S. Yuasa[1] *1. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki, Japan; 2. University of Tsukuba, Tsukuba, Ibaraki, Japan*

DT-04. Determining the Origins of Magnetoresistance in Three Terminal Oxide Tunnel Junctions. *N. Harmon*[1], H. Inoue[2], A. Swartz[2], T. Tachikawa[3,4], Y. Hikita[3], M.E. Flatte[1] and H. Hwang[2,3] *1. Physics, University of Iowa, Iowa City, IA; 2. Applied Physics, Stanford University, Stanford, CA; 3. SLAC National Accelerator Laboratory, Stanford Institute for Materials and Energy Sciences, Menlo Park, CA; 4. Advanced Materials Science, The University of Tokyo, Kashiwa, Chiba, Japan*

DT-05. Spin injection into silicon using CoFe/TiO_2/Si tunnel contacts. *Y. Ikuse*[1], T. Akushichi[1], Y. Shuto[1], Y. Takamura[2] and S. Sugahara[1] *1. Imaging Science and Engineering Laboratory, Tokyo Institute of Technology, Yokohama, Kanagawa Pref., Japan; 2. Department of Physical Electronics, Tokyo Institute of Technology, Tokyo, Japan*

DT-06. Adjustment of Co/Fe ratio for efficient thermal spin injection in CoFeAl alloy. *G. Uematsu*[1], T. Ogawa[1], S. Hu[2], K. Yamanoi[1], M. Kawakita[1] and T. Kimura[1,2] *1. Physics, Kyushu University, Fukuoka, Japan; 2. Reserch Center for Quantum Nano-Spin Sciences, Kyushu University, Fukuoka, Japan*

DT-07. Local Spin Signals in a Lateral Spin Transport Device with Co_2Fe(Al,Si)/n-GaAs Schottky Tunnel Junctions. *N. Tezuka*[1], T. Saito[1], M. Matsuura[1] and S. Sugimoto[1] *1. Tohoku Univ., Sendai, Japan*

DT-08. Interplay between the superconducting and magnetic proximity effects in Nb/Cu/NiFe tri-layered structures. *Y. Ono*[1], M. Sakamoto[1], K. Ohnishi[1,2] and T. Kimura[1,2] *1. Dept. of Physics, Kyushu Univ., Fukuoka, Japan; 2. Research Center for Quantum Nano-Spin Science, Kyushu Univ., Fukuoka, Japan*

DT-09. Dynamic detection of electron spin accumulation in ferromagnet-semiconductor devices by ferromagnetic resonance. *C. Liu*[1], T. Peterson[1], C. Geppert[1], K. Christie[1], G. Stecklein[1], S. Patel[2], C. Palmstrøm[2,3] and P. Crowell[1] *1. School of Physics and Astronomy, University of Minnesota, Minneapolis, MN; 2. Materials, University of California, Santa Barbara, CA; 3. Electrical and Computer Engineering, University of California, Santa Barbara, CA*

DT-10. Origin and tunnel resistance dependence of the Hanle signals in CoFe/SiO_2/n^+-Si tunnel junctions: A comparative study. *J. Lee*[1,2], S. He[1,3], P. Grünberg[2,3] and B. Cho[1,2] *1. School of Materials Science and Engineering, Gwangju Institute of Science and Technology, Gwangju, The Republic of Korea; 2. Grüenberg Center for Magnetic Nanomaterials, Gwangju Institute of Science and Technology (GIST), Gwangju, The Republic of Korea; 3. Grüenberg Research Center, Nanjing University of Posts and Telecommunications, Nanjing, China*

DT-11. Demonstration of efficient spin injection and detection in various systems using Fe_3O_4 based spin injector. *S.G. Bhat*[1] and P. Kumar[1] *1. Department of Physics, Indian Institute of Science, Bangalore, Karnataka, India*

DT-12. Spin injection from half-metallic Heusler Co_2MnSi into diamond semiconductors. *K. Ueda*[1], M. Nishiwaki[1] and H. Asano[1] *1. Graduate School of Engineering, Nagoya University, Nagoya, Japan*

DT-13. Evaluations of heating effect and thermal spin injection due to ferromagnetic resonance. *K. Yamanoi*[1], Y. Yokotani[1], S. Yakata[2] and T. Kimura[1,3] *1. Dept. of Physics, Kyushu-University, Hakozaki, Fukuoka, Japan; 2. FIT, Wajiro, Fukuoka, Japan; 3. Research Center for Quantum Nano-spin Sciences, Fukuoka, Japan*

DT-14. Sign Inversion of Spin Signal and Spin Filtering in Ferromagnet Hexagonal Boron Nitride-Graphene van der Waals Heterostructures. *M. Kamalakar*[1,2], A. Dankert[1], P. Kelly[3] and S.P. Dash[1] *1. Department of Microtechnology and Nanoscience, Chalmers University of Technology, Göteborg, Sweden; 2. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden; 3. Faculty of Science and Technology, University of Twente, Enschede, Netherlands*

WEDNESDAY AFTERNOON 1:30 — SAPPHIRE BALLROOM SOUTH

Session DU
SPIN CURRENTS, SPIN HALL AND RELATED EFFECTS I (Poster Session)

Oleg Tretiakov, Chair
Tohoku University, Sendai, Japan

DU-01. Electric field controlled spin interference in a system with Rashba spin-orbit coupling. *O. Ciftja*[1] *1. Physics, Prairie View A&M University, Prairie View, TX*

DU-02. Effect of Pt Resistivity on the Spin-Orbit Torque in Pt/Co/AlO_x Structure. *J. Lee*[1], Y. Oh[1] and B. Park[1] *1. Materials Science and Engineering, KAIST, Daejeon, The Republic of Korea*

DU-03. Symmetry of impurity-induced spin-orbit torque. *S. Nikolaev*[1], A. Kalitsov[2,3], O.N. Mryasov[2,3] and M. Chshiev[4] *1. Ural Federal University, Yekaterinburg, Russian Federation; 2. MINT Center, University of Alabama, Tuscaloosa, AL; 3. Western Digital Corporation, San Jose, CA; 4. SPINTEC, CEA/CNR/UJF, Grenoble, France*

DU-04. Separation of spin Seebeck effect and anomalous Nernst effect. H. Wu[1], C. Wan[1], Z. Yuan[1], X. Zhang[1] and *X. Han*[1] *1. Institute of Physics, Chinese Academy of Sciences, Beijing, China*

DU-05. Domain wall dynamics along curved strips under current pulses: the influence of Joule heating. V. Raposo[1], E. Martinez[1], *S. Moretti*[1] and M. Hernandez[1] *1. Fisica Aplicada, Universidad de Salamanca, Salamanca, Spain*

DU-06. Spin Hall amplification of magnetic eigenmodes in transversely magnetized rectangular NiFe dots with different width. *M. Madami*[1], G. Gubbiotti[2], T. Moriyama[3], K. Tanaka[3], G. Siracusano[4], M. Carpentieri[5], G. Finocchio[4], T. Ono[3], S. Tacchi[2] and G. Carlotti[1] *1. Dipartimento di Fisica e Geologia, Università di Perugia, Perugia, Italy; 2. Istituto Officina dei Materiali (CNR-IOM), Perugia, Italy; 3. Institute for Chemical Research, Kyoto University, Kyoto, Japan; 4. Department of Electronic Engineering, Industrial Chemistry and Engineering, University of Messina, Messina, Italy; 5. Department of Electrical and Information Engineering, Politecnico of Bari, Bari, Italy*

DU-07. Spin Hall Effect Induced Magnetization Switching in Double CoFeB/MgO Interface Structure with Perpendicular Easy Axis. *M. Wang*[1,2], Y. Zhang[1,2], S. Peng[1,2], D. Ravelosona[3], J. Wang[4] and W. Zhao[1,3] *1. Spintronics Interdisciplinary Centre, Beihang University, Beijing, China; 2. School of Electronic and Information Engineering, Beihang University, Beijing, China; 3. Institute of Fundamental Electronics, University of Paris-Sud, Orsay, France; 4. Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN*

DU-08. The Role of Local Environment on Spin Hall Angle in Impurity Doped Noble Metals. *D. Stewart*[1] *1. San Jose Research Center, HGST, Inc., San Jose, CA*

DU-09. Iterative and in-situ quantification of nonlocal spin valves with low-resistance oxide barriers. *Y. Cai*[1], Y. Luo[2], C. Zhou[2], C. Qin[1], S. Chen[1], Y. Wu[2] and Y. Ji[1] *1. Department of Physics and Astronomy, University of Delaware, Newark, DE; 2. Department of Physics, Fudan University, Shanghai, China*

DU-10. Spin Transport through Oxide Interfaces Induced by Dynamical Method. *R. Ohshima*[1,2], Y. Ando[2], T. Shinjo[2], K. Matsuzaki[3], T. Susaki[3] and M. Shiraishi[2] *1. Graduate School of Engineering Science, Osaka University, Toyonaka, Osaka, Japan; 2. Department of Electronic Science and Engineering, Kyoto University, Kyoto, Japan; 3. Secure Materials Center, Materials and Structures Laboratory, Tokyo Institute of Technology, Yokohama, Kanagawa, Japan*

DU-11. Spatial Spin-Polarization Distribution at Benzene/Fe_4N Interfaces. *Q. Zhang*[1] and W. Mi[1] *1. Department of Applied Physics, Tianjin University, Tianjin, China*

DU-12. Electron interaction effect on the spin diffusion and transport in half metallic magnets. *S. Chui*[1] *1. Department of Physics and Astronomy, Univ. Delaware, Newark, DE*

DU-13. Space symmetry of spin pumping effect in Pt/YIG induced by alternating current. L. Cui[1], *X. Fan*[1] and H. Zhou[1] *1. The Key Lab for Magnetism and Magnetic Materials of Ministry of Education, Lanzhou University, Lanzhou, China*

DU-14. Dynamical mass of a skyrmion. *J.C. Martinez*[1] and M.B. Jalil[1] *1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore*

Session DV
SPIN CURRENTS, SPIN HALL AND RELATED EFFECTS II (Poster Session)

Thomas Hayward, Chair
University of Sheffield, Sheffield, United Kingdom

DV-01. Anisotropic spin current absorption effect in a lateral spin valve. *T. Ogawa*[1], G. Uematsu[1], Y. Yokotani[1], K. Yamanoi[1], T. Nomura[1], M. Kawakita[1] and T. Kimura[1,2] *1. Department of Physics, Kyushu University, Fukuoka, Japan; 2. Research Center for Quantum Nano-Spin Sciences, Kyushu University, Fukuoka, Japan*

DV-02. Anomalous Hall and Nernst effect measurements of highly spin polarized Mn_2Ru_xGa thin films. *Z. Gercsi*[1], A. Boehnke[2], D. Betto[1], Y. Lau[1], K. Rode[1], P.S. Stamenov[1] and M. Coey[1] *1. CRANN, AMBER and School of Physics, Trinity College Dublin, Dublin, Ireland; 2. Physics Department, Bielefeld University, Bielefeld, Germany*

DV-03. Gate-controlled spin current diverter using 2D topological insulator and normal metal junction. *K. Chen*[1], C. Chang[2], M. Hsu[1] and C. Chang[1] *1. National Taiwan University, Taipei, Taiwan; 2. Academia Sinica, Taipei, Taiwan*

DV-04. Detection of DC currents generated in longitudinal spin Seebeck effect measurements on Pt/YIG and Pt/NFO. D. Meier[1], *T. Kuschel*[1], S. Meyer[2], M. Schreier[2], S. Goennenwein[2], L. Shen[3], A. Gupta[3], J. Schmalhorst[1] and G. Reiss[1] *1. Department of Physics, Center for Spinelectronic Materials and Devices, Bielefeld University, Bielefeld, Germany; 2. Walther-Meissner-Institut, Bayerische Akademie der Wissenschaften, Garching, Germany; 3. Center for Materials for Information Technology, University of Alabama, Tuscaloosa, AL*

DV-05. Temperature dependence of longitudinal spin-Seebeck effect in epitaxial cobalt-ferrite thin film. *T. Niizeki*[1,3], T. Kikkawa[2], K. Uchida[2,4], M. Oka[5], K.Z. Suzuki[5], H. Yanagihara[5], E. Kita[5] and E. Saitoh[1,2] *1. WPI-AIMR, Tohoku University, Sendai, Miyagi, Japan; 2. IMR, Tohoku University, Sendai, Japan; 3. ERATO-SQR, Sendai, Japan; 4. PRESTO-JST, Sendai, Japan; 5. Institute of Applied Physics, University of Tsukuba, Tsukuba, Japan*

DV-06. Thermally stable spin wave differential circuit based on yttrium iron garnet. *T. Goto*[1], N. Kanazawa[1], Y. Nakamura[1], H. Takagi[1], S. Okajima[2], T. Hasegawa[2], A.B. Granovsky[3], K. Sekiguchi[4], C. Ross[5] and M. Inoue[1] *1. Department of Electrical and Electronic Information Engineering, Toyohashi University of Technology, Toyohashi, Aichi, Japan; 2. Murata Manufacturing Co., Ltd., Kyoto, Japan; 3. Moscow State University, Moscow, Russian Federation; 4. Keio University, Yokohama, Japan; 5. Massachusetts Institute of Technology, Cambridge, MA*

DV-07. Phase-sensitive inductive detection of microwave current generation via spin-pumping/inverse spin Hall effect in an unpatterned permalloy/Pt bilayer. *T. Silva*[1], H. Nembach[2], J. Shaw[1], A.D. Karenowska[3] and M. Weiler[4] *1. Div. 687, NIST, Boulder, CO; 2. JILA, University of Colorado, Boulder, CO; 3. Physics, University of Oxford, Oxford, United Kingdom; 4. Walther-Meissner-Institut, Garching, Germany*

DV-08. Acoustic Spin Pumping in ZnO–GGG –YIG–Pt - Magnetoelectric Bulk Acoustic Wave Resonator. *N. Polzikova*[1], S. Alekseev[1], I. Pyataikin[1], I. Kotelyanskii[1], V. Luzanov[1] and A. Orlov[1] *1. Kotel'nikov Institute of Radio-engineering and Electronics of RAS, Moscow, Russian Federation*

DV-09. Non-local spin-valves using tri-magnetic terminals with wide pin configuration. *S. Shirotori*[1], H. Iwasaki[1], S. Hashimoto[1] and M. Takagishi[1] *1. Toshiba Corp., Kawasaki, Kanagawa, Japan*

DV-10. Withdrawn

DV-11. Large anomalous Nernst angle in Fe-MgO nanocomposite thin films. *S. Mitani*[1], Y. Sakuraba[1] and T. Mori[1] *1. National Institute for Materials Science, Tsukuba, Japan*

DV-12. Spin Current Detection by a Molecular Paramagnetic Probe. T. Marzi[1], *S. Masur*[1], R. Meckenstock[1] and M. Farle[1] *1. Experemental Physics - AG Farle, University Duisburg-Essen, Duisburg, Germany*

DV-13. Theory of spin-orbit torque in ferromagnetically-coupled topological insulators – ballistic, diffusive and gauge-field approaches. *M.B. Jalil*[1], S. Tan[2] and Z. Siu[3] *1. Information Storage Materials Laboratory, Electrical and Computer Engineering Department, National University of Singapore, Singapore, Singapore; 2. Data Storage Institute, Singapore, Singapore; 3. Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore*

DV-14. Transport of Spin Current *via* Magnetic Insulators. *S. Su*[1], G. Yin[1], Y. Barlas[2] and R.K. Lake[1] *1. Electrical and Computer Engineering, University of California Riverside, Riverside, CA; 2. Physics and Astronomy, University of California, Riverside, Riverside, CA*

WEDNESDAY AFTERNOON 1:30 — SAPPHIRE BALLROOM SOUTH

Session DW
MOTOR DESIGN AND ACTUATORS (Poster Session)

Cheng-Tsung Liu, Chair
National Sun Yat-Sen University, Kaohsiung, Taiwan

DW-01. Withdrawn

DW-02. A Novel Magnetic Gear for Power Conversion between Rotary Motion and Linear Motion. *W. Li*[1,2] and W. Fu[2] *1. Tongji University, Shanghai, China; 2. Hong Kong Polytechnic University, Hong Kong, China*

DW-03. The Reduction Design of Radial Magnetic Force for Vibration Mitigation in IPM Type BLDC Motor. G. Lee[1], *W. Lee*[1] and G. Kim[1] *1. Electrical Engineering, Changwon National University, Changwon-si, The Republic of Korea*

DW-04. Design of eddy current brake using the winding change technique. *S. Cho*[1], H. Ahn[1], J. Lee[1] and H. Lee[2] *1. Electrical Engineering, Hanyang University, Seoul, The Republic of Korea; 2. Railway Vehicle System Engineering, Korea National University of Transportation, Uiwang, The Republic of Korea*

DW-05. Investigation of Unbalanced Magnetic Force in Magnetic Geared Machine Using Analytical Methods. *X. Zhang*[1], X. Liu[1] and Z. Chen[1] *1. Department of Energy Technology, Aalborg University, Aalborg, Denmark*

DW-06. Electromagnetic Performance and Stress Characteristic Analyses of the Less Rare Earth Interior Permagent Magnet Synchronous Machine Used for Electric Vehicles. P. Zheng[1], *W. Wang*[1], J. Bai[1], L. Cheng[1] and J. Liu[1] *1. Institute of Electromagnetic and Electronic Technology, Harbin Institute of Technology, Harbin, China*

DW-07. Characteristic Improvement of a Magnetic Actuator Capable of Movement on a Magnetic Substance. *H. Yaguchi*[1] and S. Sakuma[1] *1. Tohoku Gakuin University, Tagajo, Japan*

DW-08. Design and Experimental Verification of Iron Rib-Less Type IPMSM for Leakage Flux Reduction. *S. Chai*[1], D. Ahn[1], M. Yoon[1], J. Jung[2] and J. Hong[1] *1. Automotive Engineering, Hanyang University, Seoul, The Republic of Korea; 2. R&D center, Hyundai Mobis, Yong-in, The Republic of Korea*

DW-09. Continuous-Behavior and Discrete-Time Combined Control of Linear Induction Motors for Urban Rail Transit. J. Li[1], W. Li[1], *G. Deng*[1] and Z. Ming[1] *1. Shenzhen University, Shenzhen, China*

DW-10. Sensorless Torque and Thrust Estimation of a Rotational/ Linear 2 Degrees-of-Freedom Switched Reluctance Motor. *Y. Sato*[1], K. Murakami[1] and Y. Tsuboi[1] *1. Department of Mechanical Engineering, Yokohama National University, Yokohama, Kanagawa, Japan*

DW-11. Comparison of Characteristics of Permanent Magnet Linear Oscillating Actuator According to Laminated Method of Stator Core. *K. Kim*[1], S. Jang[1], H. Park[1], S. Jeong[2] and J. Choi[1] *1. Chungnam National University, Daejeon, The Republic of Korea; 2. LG Electronics, Seoul, The Republic of Korea*

DW-12. Design and Analysis of a New Double-Sided Linear Flux Switching Permanent Magnet Motor with Yokeless Mover. *R. Cao*[1] and Y. Jin[1] *1. College of Automation Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu, China*

DW-13. Design of Magnetic Circuit and Parameter Analysis for Improving Performance of Fuel Injector. *H. Liu*[1], S. Kim[1], W. Sim[1], H. Ahn[1] and J. Lee[1] *1. Electrical Engineering, Hanyang University, Seoul, The Republic of Korea*

DW-14. Minimization of Cogging Force in Fractional-Slot Linear Permanent Magnet Motors with Double-Layer Non-Overlapping Windings. Q. Wang[1], B. Zhao[1], J. Li[1] and *J. Zou*[1] *1. Electrical Engineering, Harbin Institute of Technology, Harbin, China*

WEDNESDAY AFTERNOON 1:30 — SAPPHIRE BALLROOM SOUTH

Session DX

MOTOR DESIGN AND ANALYSIS II (Poster Session)

Ronghai Qu, Chair
Huazhong University of Science and Technology, Wuhan, China

DX-01. Analysis and Design of an Ironless Linear Synchronous Motor with Double-Side Halbach Permanent Magnet Array. *L. Zhang*[1], B. Kou[1], Y. Jin[1] and B. Zhao[1] *1. Department of Electrical Engineering, Harbin Institute of Technology, Harbin, Heilongjiang, China*

DX-02. A Fast Algorithm for Computation of Efficiency Map of Permanent-Magnet Synchronous Machines Using Finite-Element Method. *W. Li*[1,2] and W. Fu[2] *1. Tongji University, Shanghai, China; 2. Hong Kong Polytechnic University, Hong Kong, China*

DX-03. Optimum Flux-Passing Pole Design of Tubular Linear Synchronous Machine with Double-Sided Axially Magnetized Permanent Magnet Considering Leakage Flux. *K. Shin*[1], J. Choi[1], H. Cho[1], J. Kim[1] and H. Park[1] *1. Chungnam National University, Daejeon, The Republic of Korea*

DX-04. Design and Analysis of Low-Cost Tubular Fault-Tolerant Interior Permanent-Magnet Motors for Active Vehicle Suspensions. H. Zhou[1], Z. Lu[1], *W. Zhao*[1] and G. Liu[1] *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*

DX-05. Hysteresis Torque Estimation Method Based on Iron-Loss Analysis for Permanent Magnet Synchronous Motor. *S. Hwang*[1], M. Lim[1] and J. Hong[1] *1. Department of Automotive Engineering, Hanyang University, Seoul, The Republic of Korea*

DX-06. Optimization Rotor Structure for Maximum Magnetic Performance of the Spoke-Type Interior Permanent Magnet Motor. *D. Kang*[1], T. Jeong[2], H. Ahn[2] and J. Lee[2] *1. Electrical Energy Engineering, Keimyung University, Daegu, The Republic of Korea; 2. Electrical Engineering, Hanyang University, Seoul, The Republic of Korea*

DX-07. Design Optimization of an SPM Motor with Minimized Usage of Rare-Earth Magnets. C. Liu[3], *C. Hwang*[1] and C. Chang[2] *1. Electrical Engineering, Feng Chia University, Taichung, Taiwan; 2. Electrical Engineering, National Chin-Yi University of Technology, Taichung, Taiwan; 3. Electrical Engineering, National Sun Yat-sen University, Kaohsiung, Taiwan*

DX-08. Design Optimization of an Ultra High Speed PM Generator with Concentrated Windings. H. Zhang[1], *X. Zhang*[2,1], C. Gerada[1], M. Galea[1], D. Gerada[1] and J. Li[1] *1. The University of Nottingham, Notingham, United Kingdom; 2. School of Electrical Engineering, Beijing Jiaotong University, Beijing, China*

DX-09. Thrust Analysis and Experiments of Low-Speed Single-Sided Linear Induction Motor. *J. Jeong*[1], J. Choi[1], J. Lim[2] and S. Sung[3] *1. Chungnam National University, Daejeon, The Republic of Korea; 2. Magnetic Levitation and Linear Drive, Korea Institute of Machinery and Materials, Daejeon, The Republic of Korea; 3. Korea Research Institute of Ships & Ocean Engineering, Daejeon, The Republic of Korea*

DX-10. Analysis and Design of a Hybrid Rare-Earth-Free Permanent Magnet Reluctance Machine by Frozen Permeability Method. *H. Hwang*[1], D. Kim[1] and C. Lee[1] *1. Electrical and Computer Engineering, Pusan Nationaly University, Pusan, The Republic of Korea*

DX-11. Development of a Dual-Stator, 12-Slot, 7-Pole, Wound-Field Flux Switching Machine With Reduced Shaft Radial Force. *S. Yang*[1], J. Jiang[1] and H. Nguyen[1] *1. Electrical Engineering, National Taipei University of Technology, Taipei, Taiwan*

DX-12. Improved Analytical Method for Armature Reaction Field and Inductance Calculations for a Double-Sided Permanent Magnet Linear Synchronous Machine Based on Subdomain Model. *K. Shin*[1], H. Park[1], M. Koo[1], H. Cho[1] and J. Choi[1] *1. Chungnam National University, Daejeon, The Republic of Korea*

DX-13. A Novel Axial Flux Stator and Rotor Dual Permanent Magnet Machine. Y. Wang[1], *W. Fu*[1] and S. Niu[1] *1. Electrical Engineering, Hong Kong Polytechnic University, Hong Kong, Hong Kong*

DX-14. Design Criteria and Verification of Tubular Transverse Flux Machines for Force/Current Ratio Improvement in Direct Drive Applications. Q. Wang[1], Y. Xu[1], Y. Li[1] and *J. Zou*[1] *1. Electrical Engineering, Harbin Institute of Technology, Harbin, China*

Session DY
NOVEL APPLICATIONS: MOTORS, POWER AND BIO (Poster Session)

Jung-Il Hong, Chair
Daegu Gyeongbuk Institute of Science and Technology, Daegu, The Republic of Korea

DY-01. Wireless Power Transfer Based on the Structure of Plane-Shaped Cores. *J. Zhang*[1] and C. Zhu[1] *1. School of Electrical Engineering Automation, Harbin Institute of Technology, Harbin, China*

DY-02. Electrically Tunable Filtering Balun Enabled with Patterned Permalloy Thin Film. *Y. Peng*[1], T. Wang[1], Y. Huang[2,1], W. Jiang[1] and G. Wang[1] *1. Electrical Engineering, University of South Carolina, Columbia, SC; 2. University of Electronic Science and Technology, Chengdu, China*

DY-03. Magneto-light scattering determination of alignment directions in meso- to micro-scale objects. *M. Iwasaka*[1] *1. Research Institute for Nanodevice and Bio Sytems, Hiroshima University, Higashi-Hiroshima, Japan*

DY-04. Energy scavenging from electrical cords by using high-permeability magnetic materials for wireless sensor monitoring. *J. Zhang*[1], M. Li[2], W. He[3] and M. Zhang[4] *1. Zhengzhou University of Light Industry, Zhengzhou, China; 2. Institute of Guangdong Qingyuan Quality and Metrology Supervision Testing, Qingyuan, China; 3. Baise University, Baise, China; 4. Air Defense Forces Academy, Zhengzhou, China*

DY-05. Virtual Blood-Flow Controlling System: Optimization of Human Bioactivity under Exposure to Magnetic Fields. *H. Nakagawa*[1] and M. Ohuchi[1] *1. Department of Electrical and Electronic Engineering, Tokyo Denki University, Tokyo, Japan*

DY-06. The Vector Matching Method in Geomagnetic Navigation. *Z. Song*[1], J. Zhang[2] and X. Xi[1] *1. Xi'an University of Technology, Xi'an, China; 2. Xi'an Research Inst of Hi-Tech, Xi'an, Shannxi, China*

DY-07. Oscillation characteristics of electromagnetic levitation considering induced current. H. Li[1], *S. Wang*[1], D. Yuan[1], Y. Huangfu[1] and J. Zhu[2] *1. State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, China; 2. School of Electrical, Mechanical and Mechatronic Systems, University of Technology at Sydney, Sydney, NSW, Australia*

DY-08. Terahertz wave magnetic field modulator based on yttrium iron garnet single crystal films. *D. Zhang*[1,2], L. Jin[1] and K. James[2] *1. Microelectronics and Solid-State Electronics, University of Electronic Science and Technology of China, Chengdu, China; 2. Department of Electrical and Computer Engineering, University of Delaware, Newark, DE*

DY-09. Pulsed Electromagnetic Field Stimulates Proliferation of Different Types of Cells. *H. Cho*[1], S. Choi[1], S. Kim[1], K. Kim[1], K. Kim[1] and K. Kim[1] *1. Chungnam National University, Daejeon, The Republic of Korea*

DY-10. Enhanced cyclability in rechargeable lithium–oxygen batteries based on high-performance Mn_3O_4 hollow nanocage/ketjenblack catalytic air cathode. *Y. Cao*[1] and S. Or[1] *1. Department of Electrical Engineering, The Hong Kong Polytechnic University, Kowloon, Hong Kong*

DY-11. Quasi-3D Field-Circuit Coupled Electromagnetic Analysis of HTS Cable Considering Magnetic Hysteresis and Eddy Current Losses by Using Improved XFEM. N. Duan[1], W. Xu[1,2], S. Wang[1], *J. Zhu*[2] and Y. Guo[2] *1. Xi'an Jiaotong University, Xi'an, China; 2. University of Technology, Sydney, Sydney, NSW, Australia*

DY-12. Investigation of Effect of Brain-Skull Distance on the Efficacy of Transcranial Magnetic Stimulation Treatment in Depression. E.G. Lee[1], W. Duffy[2,3], *R.L. Hadimani*[1], Z. Choudhry[2,3], M. Waris[2,3], F. Islam[2,3], M. Rajamani[2,3], W. Siddiqui[2,3], R. Nathan[2,3] and D.C. Jiles[1] *1. Department of Electrical and Computer Engineering, Iowa State University, Ames, IA; 2. Premier Psychiatric Research Institute, Premier Psychiatric Group LLC, Lincoln, NE; 3. Nebraska Neuropsychiatric Institute, Lincoln, NE*

DY-13. Coil design and efficiency analysis for dynamic wireless charging system for electric vehicles. *Z. Yuan*[1], X. Zhang[1], Q. Yang[1], X. Wu[1] and P. Zhang[1] *1. Tianjin Polytechnic University, Tianjin, China*

DY-14. Multiobjective Optimization Design for a Six-Phase Copper Rotor Induction Motor Mounted with a Scroll Compressor. *C. Lin*[1] *1. Electrical Engineering, National United University, Miaoli, Taiwan*

WEDNESDAY AFTERNOON 4:30 — SAPPHIRE ABEF IJMN

Session YA
PLENARY
Bruce Gurney, Chair
General Chair

4:30

YA-01. Magnetic Solutions for Diagnostics and Therapeutics. *(Invited)* *A. Hajimiri*[1] *1. California Institute of Technology, Pasadena, CA*

Session EA
NOVEL CHARACTERIZATION METHODS FOR MAGNETIC NANOPARTICLES

Sara Majetich, Chair
Carnegie Mellon University, Pittsburgh, PA

8:30

EA-01. The magnetism of the interface in core-shell nanoparticles. ***(Invited)*** E. Skoropata[1], R.D. Desautels[1], H. Ouyang[2], J.W. Freeland[3], M.P. Rowe[4] and *J. van Lierop*[1] *1. Physics & Astronomy, University of Manitoba, Winnipeg, MB, Canada; 2. Materials Science and Engineering, National Tsing Hua University, Hsinchu, Taiwan; 3. Advanced Photon Source, Argonne National Laboratory, Argonne, IL; 4. Toyota Research Institute of North America, Ann Arbor, MI*

9:06

EA-02. Interface Driven Functionality in Magnetic Nanohybrids. ***(Invited)*** *M. Farle*[1] *1. Physics, Universität Duisburg-Essen, Duisburg, Germany*

9:42

EA-03. Investigating the Magnetic Behavior of Single Nanodots. ***(Invited)*** *H. Oepen*[1] *1. Institute of Nanostructure and Solid State Physics, University of Hamburg, Hamburg, Germany*

10:18

EA-04. High Frequency Hysteresis Characterization of Magnetic Nanoparticles. ***(Invited)*** C. Whitaker[1], P. Lenox[1], K. Plummer[2], J. Hutchison[2] and *P. Dhagat*[1] *1. School of Electrical Engineering and Computer Science, Oregon State University, Corvallis, OR; 2. Department of Chemistry and Biochemistry, University of Oregon, Eugene, OR*

10:54

EA-05. 2D Magnetic Particle Imaging Using Second Harmonic Response. ***(Invited)*** *S. Tanaka*[1], T. Suzuki[1], K. Kobayashi[1], S. Liao[2], H. Horng[2] and H. Yang[2] *1. Environmental and Life Sciences, Toyohashi University of Technology, Toyohashi, Aichi, Japan; 2. National Taiwan Normal University, Taipei, Taiwan*

Session EB
SPIN CURRENTS AND DAMPING

Olivier Klein, Chair
Service de Physique de l'État Condensé, Gif-Sur-Yvette, France

8:30

EB-01. Magnetization damping in noncollinear spin valves with antiferromagnetic interlayer couplings. *T. Chiba*[1], G.E. Bauer[1,2] and S. Takahashi[1] *1. Institute for Materials Research (IMR), Tohoku University, Sendai, Japan; 2. Kavli Institute of NanoScience, TU Delft, Delft, Netherlands*

8:42

EB-02. Intrinsic contribution to the non-adiabatic spin-transfer torque. *K. Kim*[1,2], K. Lee[3], H. Lee[4] and M. Stiles[1] *1. CNST, National Institute of Standards and Technology, Gaithersburg, MD; 2. IREAP, The University of Maryland, College Park, MD; 3. Department of MSE, Korea University, Seoul, The Republic of Korea; 4. Department of Physics, POSTECH, Pohang, Kyungbuk, The Republic of Korea*

8:54

EB-03. Detection of ferromagnetic resonance on Pt layers of a Co/Pt multilayer single dot by micro-XMCD magnetometry. *N. Kikuchi*[1], S. Okamoto[1], O. Kitakami[1], T. Shimatsu[2,3] and M. Suzuki[4] *1. IMRAM, Tohoku University, Sendai, Japan; 2. FRIS, Tohoku University, Sendai, Japan; 3. RIEC, Tohoku University, Sendai, Japan; 4. JASRI/SPring-8, Sayo, Japan*

9:06

EB-04. Damping in NiCo, NiFe and CoFe alloys. *M. Schoen*[1], J. Shaw[2], H. Nembach[2], T. Silva[2], D. Thonig[3], O. Eriksson[3] and M. Schneider[2] *1. Universitaet Regensburg, Regensburg, Germany; 2. NIST, Boulder, CO; 3. University Uppsala, Uppsala, Sweden*

9:18

EB-05. *Ab-initio* calculations of Gilbert damping in transiton metals/rare-earth alloys. F. Pan[1,2], J. Hellsvik[1], A. Delin[1,2], A. Bergman[3] and *L. Bergqvist*[1,2] *1. Materials and Nano Physics, KTH Royal Institute of Technology, Kista, Sweden; 2. Swedish e-Science Research Centre (SeRC), Stockholm, Sweden; 3. Physics and Astronomy, Uppsala University, Uppsala, Sweden*

9:30

EB-06. Magnetization relaxation and temperature dependent coupling in CoFe/Ru/CoFe bilayers. *B. Khodadadi*[1], J. Beik Mohammadi[1], J.M. Jones[1], C.K. Mewes[1], T. Mewes[1], C. Kaiser[2] and Q. Leng[2] *1. Physics, University of Alabama, Tuscaloosa, AL; 2. Western Digital, Fremont, CA*

9:42

EB-07. Spin-orbit torques in crystalline magnets: moving towards room temperature. ***(Invited)*** *C. Ciccarelli*[1], L. Andreson[1], A. Ferguson[1], F. Gerhard[2], C. Gould[2], J. Gayles[3], J. Zelezny[4], L. Smejkal[4], Y. Zhe[3], J. Sinova[3], F. Freimuth[5] and T. Jungwirth[4] *1. Physics, University of Cambridge, Cambridge, United Kingdom; 2. University of Wuerzburg, Würzburg, Germany; 3. Johannes Gutenberg Universitat Mainz, Mainz, Germany; 4. Institute of Physics ASCR, Cracow, Czech Republic; 5. Peter Grunberg Institut and Institute for Advanced Simulation, Julich, Germany*

10:18

EB-08. Ultra-thin Yttrium Iron garnet films grown by liquid phase epitaxy: thickness dependence of dynamical properties in YIG and YIG/Pt. *N. Beaulieu*[2,1], V.V. Naletov[3], O. Klein[4], G. de Loubens[1] and J. Ben Youssef[2] *1. Service de Physique de l'Etat Condensé, CEA Saclay, Gif-sur-Yvette, France; 2. Laboratoire de Magnétisme de Bretagne CNRS, Université de Bretagne Occidentale, Brest, France; 3. Institute of Physics, Kazan Federal University, Kazan, Russian Federation; 4. INAC-SPINTEC, CEA/CNRS and Université Joseph Fourier, Grenoble, France*

10:30

EB-09. Ferromagnetic resonance and perpendicular anisotropy in Pt/Co/Pt films with asymmetric interfacial behavior. A. Caprile[1], A. Magni[1], M. Kuepferling[1], G. Durin[1], *M. Pasquale*[1], Y. Won[2] and S. Lim[2] *1. Nanoscience e materials, INRIM, Torino, Italy; 2. 1Department of Nano Semiconductor Engineering, Korea University, Seoul, The Republic of Korea*

10:42

EB-10. Characterization of spin relaxation anisotropy in Co using spin pumping. *Y. Li*[1], W. Cao[1] and W. Bailey[1] *1. Applied Physics and Applied Mathematics, Columbia University, New York, NY*

10:54

EB-11. Magnetic and dynamic properties of high quality nanometre thick sputtered Yttrium iron garnet films. *A. Mitra*[1], O. Cespedes[1], M. Haertinger[2], C.H. Back[2] and B. Hickey[1] *1. Condensed Matter Physics, University of Leeds, Leeds, United Kingdom; 2. University of Regensburg, Regensberg, Germany*

11:06

EB-12. Dependence of damping upon sink layer thickness in CoMnGe (5) / Ag (6) / NiFe (*x* nm) spin valve structures. *L. Shelford*[1], C. Durrant[1], R.A. Valkass[1], A. Figueroa[2], A. Baker[3,2], P. Shafer[4], E. Arenholz[4], J. Childress[5], J. Katine[5], G. van der Laan[2] and R.J. Hicken[1] *1. School of Physics, University of Exeter, Exeter, Devon, United Kingdom; 2. Magnetic Spectroscopy Group, Diamond Light Source, Didcot, Oxfordshire, United Kingdom; 3. University of Oxford, Oxford, Oxfordshire, United Kingdom; 4. Advanced Light Source, Berkeley, CA; 5. San Jose Research Center, HGST, San Jose, CA*

11:18

EB-13. Resonant transfer of spin waves along linear array of magnetic inclusions embedded into a ferromagnetic thin - film matrix. Y. Barabanenkov[1], S. Osokin[1,2], D. Kalyabin[1,2] and *S. Nikitov*[1,2] *1. Russian Academy of Sciences, Kotel'nikov Institute of Radioengineering and Electronics, Moscow, Russian Federation; 2. State University, Moscow Institute of Physics and Technology, Dolgoprudny, Russian Federation*

THURSDAY MORNING 8:30 SAPPHIRE MN

Session EC

DZYALOSHINSKII-MORIYA INTERACTIONS

Kai Liu, Co-Chair

University of California Davis, Davis, CA

Thomas Moore, Co-Chair

University of Leeds, Leeds, United Kingdom

8:30

EC-01. Electronic reconstruction as a pathway to control antiferromagnetic spins. *A.G. Glavic*[2,1], H. Dixit[3], V.R. Cooper[3] and A.A. Aczel[2] *1. Laboratory for Neutron Scattering and Imaging, Paul Scherrer Institut, Villigen PSI, Switzerland; 2. Quantum Condensed Matter Division, Oak Ridge National Laboratory, Oak Ridge, TN; 3. Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN*

8:42

EC-02. Skyrmionic Spin Textures and their Field Evolution in Interfacial Additive DMI Films. *J.F. Pulecio*[1,2], A. Hrabec[3], Y. Zhu[2] and C.H. Marrows[3] *1. Physical Measurements Laboratory, National Institute of Standards and Technology, Boulder, CO; 2. Condensed Matter Physics and Materials Science, Brookhaven National Laboratory, Upton, NY; 3. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom*

8:54

EC-03. Skyrmion bubble stability in thin films with strong Dzyaloshinskii-Moriya interaction. *L.M. Caretta*[1], U. Bauer[1], A. Churikova[1], M. Mann[1] and G. Beach[1] *1. Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA*

9:06

EC-04. Skyrmion Bound Pairs in FeGd Thin Films. *J.C. Lee*[3], J. Chess[3], S.A. Montoya[2], X. Shi[3], S. Mishra[1], D. Parks[3], P. Fischer[1], B. McMorran[3], E.E. Fullerton[2], S. Kevan[1,3] and S. Roy[1] *1. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA; 2. Center for Magnetic Recording Research, University of California, San Diego, CA; 3. Physics, University of Oregon, Eugene, OR*

9:18

EC-05. Helical magnetic structure in $Fe_{1-x}Co_xGe$ epilayers.
C.S. Spencer[1], J. Gayles[2,3], N.A. Porter[1], R.C. Temple[1], C.J. Kinane[4], T. Charlton[4], S. Langridge[4], F. Freimuth[5], Y. Mokrousov[5], S. Blügel[5], J. Sinova[2,3] and C.H. Marrows[1] *1. Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 2. Institut für Physik, Johannes Gutenberg Universität Mainz, Mainz, Germany; 3. Department of Physics and Astronomy, Texas A&M University, College Station, TX; 4. ISIS, STFC Rutherford Appleton Laboratory, Didcot, United Kingdom; 5. Peter Grünberg Institut and Institute for Advanced Simulation, Forschungszentrum Jülich, Jülich, Germany*

9:30

EC-06. Domain Wall Chirality in Exchange Spring Co/Pd Multilayers. *J.E. Davies*[1], A.L. Balk[2], S. Bowden[2], A. Lintel[5], R. Shull[4], K. Liu[3] and J. Unguris[2] *1. Advanced Technology, NVE Corp., Eden Prairie, MN; 2. Center for Nanoscience and Technology, National Institute of Standards and Technology, Gaithersburg, MD; 3. Physics Department, University of California, Davis, CA; 4. Functional Nanomaterials Group, MML, National Institute of Standards and Technology, Gaithersburg, MD; 5. University of Nebraska, Lincoln, NE*

9:42

EC-07. Anatomy of Dzyaloshinskii-Moriya Interaction at Co/Pt Interfaces. *H. Yang*[1,3], A. Thiaville[2], S. Rohart[2], A. Fert[3] and M. Chshiev[1] *1. Univ. Grenoble Alpes, INAC-SPINTEC, Grenoble, France; 2. Laboratoire de Physique des Solides, Université Paris-Sud, CNRS UMR 8502, F-91405 Orsay Cedex, France, Orsay, France; 3. Unité Mixte de Physique CNRS/ Thales, Palaiseau, France*

9:54

EC-08. Topological stability of magnetic domain walls in films with perpendicular anisotropy. *A. Hrabec*[1], M. Benitez[2], N.A. Porter[1], A.W. Wells[1], P.M. Shepley[1], G. Burnell[1], D. McGrouther[2], T. Moore[1], S. McVitie[2] and C.H. Marrows[1] *1. University of Leeds, Leeds, United Kingdom; 2. University of Glasgow, Glasgow, United Kingdom*

10:06

EC-09. Revealing interfacial Dzyaloshinskii-Moriya interaction in thin ferromagnets with a scanning Nitrogen-Vacancy magnetometer. *I. Gross*[1,2], L. Martinez[1], T. Hingant[1], J. Tetienne[1], J. Roch[1], K. García[3], J. Adam[3], J. Kim[3], J. Torrejon[4], M. Hayashi[4] and V. Jacques[1,2] *1. Laboratoire Aime Cotton, CNRS, ENS Cachan, Paris, France; 2. Laboratoire Charles Coulomb, Université Montpellier 2 and CNRS, Montpellier, France; 3. Institut d'Electronique Fondamentale, University Paris-Sud and CNRS, Orsay, France; 4. National Institute for Material Science, Tsukuba, Japan*

10:18

EC-10. Spin wave power flow in chiral magnetic systems. *J. Kim*[1], R.E. Camley[3] and R. Stamps[2] *1. Institut d'Electronique Fondamentale, CNRS / Univ. Paris-Sud, Orsay, France; 2. SUPA School of Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom; 3. Department of Physics and Energy Science, University of Colorado at Colorado Springs, Colorado Springs, CO*

10:30

EC-11. Conservation of total angular momentum in ultrathin ferromagnetic films. *P. Borys*[1], J. Kim[2] and R. Stamps[1] *1. University of Glasgow, Glasgow, United Kingdom; 2. Institut d'Electronique Fondamentale, Orsay, France*

10:42

EC-12. Surprising dynamic results in confined geometries with Dzyaloshinskii-Moriya interactions. *R.E. Camley*[1] and R. Stamps[2] *1. Physics, University of Colorado, Colorado Springs, Colorado Springs, CO; 2. University of Glasgow, Glasgow, United Kingdom*

10:54

EC-13. Tuning the Dzyaloshinskii-Moriya interaction via interface engineering in epitaxial Co/Pt. *A.W. Wells*[1], C.H. Marrows[1] and T. Moore[1] *1. School of Physics and Astronomy, University of Leeds, Leeds, West Yorkshire, United Kingdom*

11:06

EC-14. A new Dzyaloshinskii-Moriya anisotropy in nanomagnets with in-plane magnetization. *M. Cubukcu*[1], J. Sampaio[1,2], A.V. Khvalkovskiy[3,4], D. Apalkov[3], V. Cros[1] and N. Reyren[1] *1. Unité Mixte de Physique CNRS/Thales, Palaiseau, France; 2. Laboratoire de Physique des Solides CNRS/Université Paris-Sud, Orsay, France; 3. Samsung Electronics, San Jose, CA; 4. Moscow Institute of Physics and Technology, Moscow, Russian Federation*

11:18

EC-15. Universality of chiral-domain-wall motion by the Dzyaloshinskii-Moriya interaction in the creep and flow regimes. *D. Kim*[1], S. Yoo[1,2], D. Kim[1], B. Min[2] and S. Choe[1] *1. Department of Physics and Institute of Applied Physics, Seoul National University, Seoul, The Republic of Korea; 2. Spin Convergence Research Center, Korea Institute of Science and Technology, Seoul, The Republic of Korea*

Session ED
NUMERICAL METHODS
Gleb Kakazei, Chair
University of Porto, Porto, Portugal

8:30

ED-01. Kinetic effects observed in dynamic FORCs of magnetic wires: experiment and theoretical description. *D. Cimpoesu*[1], I. Dumitru[1] and A. Stancu[1] *1. Physics, Alexandru Ioan Cuza University of Iasi, Iasi, Romania*

8:42

ED-02. A generalized Preisach-type model for superconducting hysteresis. *H. ElBidweihy*[1] *1. Electrical and Computer Engineering, United States Naval Academy, Annapolis, MD*

8:54

ED-03. A Cross-Platform Micromagnetic Simulation Software On Graphics Processing Units. *R. Zhu*[1] *1. Graceland University, Lamoni, IA*

9:06

ED-04. Development of Generalized Preisach Model Considering Demagnetization Effect of Soft Magnetic Materials for Satellite Application. *O.K. Chougule*[1], N. Shah[2], J.A. Deshpande[4], S.R. Barve[3], M. Bondre[4] and S. Vijay[5] *1. Aerospace Engineering, Indian Institute of Technology, Madras, Chennai, Tamil Nadu, India; 2. University of Massachusetts, Amherst, MA; 3. Electronics and Telecommunication, College of Engineering Pune, Pune, Maharashtra, India; 4. D. E. Shaw & Co., Hyderabad, India; 5. Civil Engineering, College of Engineering Pune, Pune, Maharashtra, India*

9:18

ED-05. Power Spectral Density of Magnetization Dynamics Driven by a Jump-Noise Process. A.W. Lee[1], G. Bertotti[2], C. Serpico[3] and *I. Mayergoyz*[1] *1. University of Maryland, College Park, MD; 2. INRiM, Torino, Italy; 3. University of Naples Federico II, Naples, Italy*

9:30

ED-06. Stochastic Dynamics and Dynamic Response in a Composite Multiferroic Thin Film. *Z. Wang*[1] and M. Grimson[1] *1. Physics, University of Auckland, Auckland, New Zealand*

9:42

ED-07. Importance of the dynamic magnetization behavior for magnetic particle imaging – a trajectory analysis. M. Gräser[1], K. Bente[1], *A. Neumann*[1] and T.M. Buzug[1] *1. Institute of Medical Engineering, Universität zu Lübeck, Lübeck, Schleswig-Holstein, Germany*

9:54

ED-08. A predictive method for the calculation of high frequency permeability of magnetic nanoparticles with different shapes. *Y. Yang*[1,2], Y. Yang[2], W. Xiao[2], C.P. Neo[3] and J. Ding[2] *1. Temasek Laboratories, National University of Singapore, Singapore, Singapore; 2. Department of Materials Science and Engineering, National University of Singapore, Singapore, Singapore; 3. DSO National Laboratories, Singapore, Singapore*

10:06

ED-09. Implicit Time Stepping for Magnetic Multilayered Oxide Meida Simulation under Thermal Fields. *S. Fu*[1,2], V. Lomakin[1,2], A. Torabi[3] and B. Lengsfield[3] *1. Center for Magnetic Recording Research, University of California, San Diego, La Jolla, CA; 2. Department of Electrical and Computer Engineering, University of California, San Diego, La Jolla, CA; 3. HGST, a Western Digital Company, San Jose, CA*

10:18

ED-10. Energy minimization methods for micromagnetics. *T. Schrefl*[1], J. Fischbacher[1], A. Kovacs[1], H. Oezelt[1] and L. Exl[2] *1. Center for Integrated Sensor Systems, Danube University Krems, Wiener Neustadt, Austria; 2. University Vienna, Vienna, Austria*

10:30

ED-11. Characterization of the magnetization reversal of perpendicular nanomagnetic logic clocked in the ns-range. *G. Ziemys*[1], S. Breitkreutz-v. Gamm[1], I. Eichwald[1], D. Schmitt-Landsiedel[1] and M. Becherer[1] *1. Institute for Technical Electronics, Technische Universität München, Munich, Germany*

10:42

ED-12. Study of the individual magnetic wires switchings in 2D interacting wire arrays as a function of the system temperature. *A. Stancu*[1] and M. Nica[1] *1. Department of Physics, Alexandru Ioan Cuza University of Iasi, Iasi, Romania*

10:54

ED-13. Large-scale micromagnetic simulation with dipolar interaction using all-to-all communication. *S. Lee*[1], H. Tsukahara[2], K. Iwano[2], N. Inami[2], C. Mitsumata[3], H. Yanagihara[1], E. Kita[1] and K. Ono[2] *1. University of Tsukuba, Tsukuba, Japan; 2. High Energy Accelertaor Research Organization, Tsukuba, Japan; 3. NIMS, Tsukuba, Japan*

11:06

ED-14. Quantitative simulation of temperature-dependent magnetization dynamics and equilibrium properties of elemental ferromagnets. *R.F. Evans*[1], U. Atxitia[2] and R. Chantrell[1] *1. Department of Physics, University Of York, York, England, United Kingdom; 2. Fachbereich Physik and Zukunftskolleg, Universitat Konstanz, Konstanz, Germany*

11:18

ED-15. Stochastic Resonance in Magnetic Systems Described by Jiles Atherton Model. *M. Trapanese*[1] *1. DEIM, Università di Palermo, Palermo, Italy*

THURSDAY MORNING 8:30 — SAPPHIRE 410

Session EE
MAGNETO-CALORIC MATERIALS II
Julia Lyubina, Chair
Imperial College London, London, United Kingdom

8:30

EE-01. Multicaloric phase transitions in magnetocaloric Ni-Mn-Ga-Co films on ferroelectric substrates. *B. Schleicher*[1,2], R. Niemann[1,2], S. Schwabe[1], A. Diestel[1], A. Waske[1], R. Huehne[1], P. Walter[3,4], L. Schultz[1,2] and S. Faehler[1,2] *1. IFW Dresden, Dresden, Germany; 2. Institute for Solid State Physics, TU Dresden, Dresden, Germany; 3. Deutsches Elektronen-Synchrotron DESY, Hamburg, Germany; 4. 2nd Institute of Physics B and JARA-FIT, RWTH Aachen University, Aachen, Germany*

8:42

EE-02. Martensitic transformation under different time scales. *T. Gottschall*[1], K.P. Skokov[1], F. Scheibel[2], M. Acet[2], M. Farle[2], M. Ghorbani Zavareh[3], Y. Skourski[3], J. Wosnitza[3] and O. Gutfleisch[1] *1. Materialwissenschaft, TU Darmstadt, Darmstadt, Germany; 2. Fakultät für Physik und CENIDE, Universität Duisburg-Essen, Duisburg, Germany; 3. Dresden High Magnetic Field Laboratory, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany*

8:54

EE-03. Scaling and Deconvolution as Methods to Probe Inhomogeneity in Magnetocaloric Materials. *D.D. Belyea*[2] and C.W. Miller[1] *1. Materials Science, Rochester Institute of Technology, Rochester, NY; 2. Physical Sciences, Leto Collegiate Academy, Tampa, FL*

9:06

EE-04. High Temperature Magnetocaloric Performance of $Fe_{80}Ga_5Al_{15}$. *P. Andalib*[1], Y. Chen[1], L. Jiang[2], G. Zhang[2], H. Hao[2] and V.G. Harris[1] *1. CM3IC, Electrical Engineering, Northeastern University, Boston, MA; 2. Baotou Research Institute of Rare Earths, Baotou, Inner Mongolia, China*

9:18

EE-05. Fingerprinting Morphology of Magnetic Shape Memory Alloys Using First Order Reversal Curves (FORC) and Neutron Scattering. P.N. Lapa[1,2], K.L. Krycka[3], B.B. Maranville[3], J. Monroe[4], B.E. Franco[4], I. Karaman[4,5] and *I.V. Roshchin*[1,5] *1. Department of Physics and Astronomy, Texas A&M University, College Station, TX; 2. Materials Science Division, Argonne National Laboratory, Argonne, IL; 3. Center for Neutron Research, NIST, Gaithersburg, MD; 4. Department of Mechanical Engineering, Texas A&M University, College Station, TX; 5. Department of Materials Science and Engineering, Texas A&M University, College Station, TX*

9:30

EE-06. FORC analysis of the magnetocaloric effect of Heusler-type alloys. *V. Franco*[1], T. Gottschall[2], K.P. Skokov[2] and O. Gutfleisch[2] *1. Condensed Matter Physics, Sevilla University, Sevilla, Spain; 2. TU Darmstadt, Darmstadt, Germany*

9:42

EE-07. Tricriticality in the metamagnetic non-collinear antiferromagnets CoMnSi and NiMn(Ge,Si). *O. Baumfeld*[1], Z. Gercsi[2], P. Manuel[4], L. Cohen[1] and K. Sandeman[1,3] *1. Department of Physics, Imperial College London, London, United Kingdom; 2. CRANN and School of Physics, Trinity College, Dublin, Ireland; 3. Department of Physics, Brooklyn College, New York, NY; 4. ISIS, Rutherford Appleton Laboratory, Harwell Oxford, United Kingdom*

9:54

EE-08. Synthesis and magnetocaloric effect of HoN particles as magnetic refrigerant for hydrogen re-liquefaction. *D. Kim*[1], J. Ahn[1], J. Kim[1] and C. Choi[1] *1. Powder & Ceramics Division, Korea Institute of Materials and Science, Changwon, Gyeongnam, The Republic of Korea*

10:06

EE-09. Tunable Magnetocaloric effects in Gd_xTb_{1-x} thin films. *C. Lambert*[1], M. El Hadri[1], O. Mounkachi[2] and S. Mangin[1] *1. Institut Jean Lamour, UMR CNRS 7198, Université de Lorraine, Nancy, France; 2. MAScIR, Institute of Nanomaterials and Nanotechnology, Rabat, Morocco*

10:18

EE-10. Large rotating magnetocaloric effect in rare earth compounds with low magnetic ordering temperature. *N.A. Oliveira*[1] and P. von Ranke[1] *1. Eletronica Quantica, Universidade do Estado do Rio de Janeiro, Rio de Janeiro, Brazil*

10:30

EE-11. Direct and Indirect Measurement of Magnetocaloric Effect in La-Sr,Ba Manganites. *D. Salazar*[1], P. Alvarez-Alonso[2], M.A. López de la Torre[3] and J. Barandiaran[1,2] *1. BCMaterials, Derio, Spain; 2. Dept. Electricity & Electronics, University of the Basque Country, Bilbao, Spain; 3. Dept. Applied Physics and INEI, University of Castilla-La Mancha, Ciudad Real, Spain*

10:42

EE-12. Suppression of the Thermal Hysteresis in Magnetocaloric Thin Films by Highly Charged Ion Bombardment.
M. Trassinelli[1], M. Marangolo[1], S. Cervera[1], A. Bartok[2], L. Bernard Carlsson[1], L. Bessais[4], M. Eddrief[1], V.H. Etgens[1,3], V. Gafton[1,5], E. Lamour[1], M. LoBue[2], A. Lévy[1], S. Macé[1], F. Mazaleyrat[2], A. Pasko[2], C. Prigent[1], J. Rozet[1], S. Steydli[1], K. Zehani[4], Y. Zheng[1] and D. Vernhet[1] *1. Institut des NanoSciences de Physique, UMR7588, CNRS, Sorbonne Universités, UPMC Univ., Paris, France; 2. ENS Cachan, CNRS, Universite Paris-Saclay, SATIE, Cachan, France; 3. LISV, Université Versailles St-Quentin, Versailles, France; 4. CNRS-UPEC, CMTR, ICMPE, Thiais, France; 5. Faculty of Physics, Alexandru Ioan Cuza University, Iasi, Romania*

10:54

EE-13. Effects of an Applied Magnetic Field on the Magnetic and Structural Phase Transformation of $Ni_{52}Mn_{25}In_{16}Co_7$ Heusler Alloy. *A.S. Madiligama*[1], P. Ari-Gur[1], Y. Ren[2], V. Shavrov[3], V. Koledov[3], A. Mashirov[3] and A. Kamantsev[3] *1. Western Michigan University, Kalamazoo, MI; 2. X-ray Science Division, Argonne National Laboratory, Argonne, IL; 3. Kotelnikov Institute of Radio-engineering and Electronics of RAS, Moscow, Russian Federation*

11:06

EE-14. Magnetocaloric Effect and Magnetic Properties of Nanostructured $Ni_{51}Mn_{33.4}In_{15.6}$ Heusler Alloy.
M. Ghahremani[1], A. Aslani[2], L. Bennett[2] and E. Della Torre[2] *1. CME, Shepherd University, Shepherdstown, WV; 2. ECE, George Washington University, Washington, DC*

11:18

EE-15. New insights and directions for magnetocaloric materials based on rare earth intermetallics. P. Alvarez-Alonso[1], P. Gorria[2] and *J.A. Blanco*[2] *1. Departamento de Electricidad y Electrónica, University of Basque Country, Leioa, Bizkaia, Spain; 2. Physics, University of Oviedo, Oviedo, Asturias, Spain*

Session EF
EXCHANGE BIAS I
Ganping Ju, Chair
Seagate Technology, Fremont, CA

8:30

EF-01. Role of Cu in Exchange Bias in FeMn Revealed with Neutron Reflectometry. *I.V. Roshchin*[1], P.N. Lapa[1,2], A.G. Glavic[3,4], H. Ambaye[3], V. Lauter[3], K. Belashchenko[5], T. Eggers[6] and C.W. Miller[6,7] *1. Department of Physics and Astronomy, Texas A&M University, College Station, TX; 2. Materials Science Division, Argonne National Laboratory, Argonne, IL; 3. Neutron Sciences Directorate, Oak Ridge National Laboratory, Oak Ridge, TN; 4. Laboratory for Neutron Scattering and Imaging, Paul Scherrer Institute, Villigen, PSI, Switzerland; 5. Department of Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE; 6. Department of Physics, University of South Florida, Tampa, FL; 7. School of Chemistry and Materials Science, Rochester Institute of Technology, Rochester, NY*

8:42

EF-02. Growth and magnetic properties of ultrathin epitaxial FeO films and Fe/FeO bilayers on MgO(001). *A. Koziol-Rachwal*[1,2], T. Slezak[2], B. Matlak[2], K. Matlak[2] and J. Korecki[2,3] *1. Spintronics Research Center, AIST, Tsukuba, Japan; 2. Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, Krakow, Poland; 3. Jerzy Haber Institute of Catalysis and Surface Chemistry, Polish Academy of Sciences, Krakow, Poland*

8:54

EF-03. First observation of positive (anticlockwise) and negative/ inverse (clockwise) hysteresis loop formation in the Ni,Fe film. *T. Maity*[1], D. Mallick[1] and S. Roy[1] *1. Tyndall National Institute, Cork, Ireland*

9:06

EF-04. Unidirectional relaxation in CoFe/IrMn Exchange biased samples. *J. Beik Mohammadi*[2,3], J.M. Jones[2,1], S. Paul[2,1], B. Khodadadi[2,1], C.K. Mewes[2,3], T. Mewes[2,3], C. Kaiser[4] and Q. Leng[4] *1. Physics, MINT, University of Alabama, Tuscaloosa, AL; 2. Center for Information Technology, University of Alabama, Tuscaloosa, AL; 3. Department of Physics and Astronomy, University of Alabama, Tuscaloosa, AL; 4. Western Digital, Fremont, CA*

9:18

EF-05. Inducing magnetic domain memory by switching exchange couplings in [Co/Pd]IrMn perpendicular magnetic thin films. *K. Chesnel*[1], A. Safsten[1], M. Rytting[1] and E.E. Fullerton[2] *1. Physics, BYU, Provo, UT; 2. Magnetic Recording Center, UCSD, San Diego, UT*

9:30

EF-06. Unexpected width of minor magnetic hysteresis loops in nanostructures. *A. Bachleitner-Hofmann*[1], C. Abert[1], R. Windl[1], F. Bruckner[1], D. Suess[1], A. Satz[2], P. Palmesi[1], C. Vogler[1], G. Wautischer[1] and R. Thanhoffer[1] *1. Institute of Solid State Physics, CD-Laboratory: Advanced Magnetic Sensing and Materials, Vienna University of Technology, Vienna, Vienna, Austria; 2. Infineon Technologies Austria AG, Villach, Carinthia, Austria*

9:42

EF-07. New Reversal Mode in Exchange Coupled Antiferromagnetic/Ferromagnetic Disks: Distorted Viscous Vortex. ***(Invited)*** *J. Nogues*[1,2], D. Gilbert[3], L. Ye[3], A. Varea[4], S. Agramunt-Puig[5], N. Del Valle[5], C. Navau[5], J.F. López-Barbera[1], K. Buchanan[6], A. Hoffmann[7], A. Sánchez[5], J. Sort[2,5] and K. Liu[3] *1. ICN2- Institut Catala de Nanociencia i Nanotecnologia, Bellaterra, Spain; 2. ICREA, Barcelona, Spain; 3. University of California Davis, Davis, CA; 4. Universitat de Barcelona, Barcelona, Spain; 5. Universitat Autònoma de Barcelona, Bellaterra, Spain; 6. Colorado State University, Fort Collins, CO; 7. Argonne National Laboratory, Argonne, IL*

10:18

EF-08. Tuning unprecedented exchange-bias effects in orthogonally-coupled ferromagnetic bilayers: the effect of competing anisotropies. *F. Pedrosa*[1], J. Cuñado[1], J. Camarero[1], M. Seifert[2], V. Neu[2], V. Baltz[3], D. Serantes[4], O. Chubykalo-Fesenko[4], R. del Real[4], M. Vázquez[4], L. Schultz[2], B. Dieny[3], R. Miranda[1] and A. Bollero[1] *1. Division of Permanent Magnets and Applications, IMDEA Nanoscience, Madrid, Spain; 2. IFW Dresden, Institute for Metallic Materials, Dresden, Germany; 3. SPINTEC, UMR-8191 CNRS/CEA, Grenoble, France; 4. Instituto de Ciencias de Materiales de Madrid, ICMM-CSIC, Madrid, Spain*

10:30

EF-09. Uncovering the mystery of pinned interfacial spins responsible for exchange bias. S. Jenkins[1], W.J. Fan[2], R. Gaina[3], R. Chantrell[1], T. Klemmer[4] and *R.F. Evans*[1] *1. Department of Physics, University of York, York, England, United Kingdom; 2. Shanghai Key Laboratory of Special Artificial Microstructure Materials and Technology and Pohl Institute of Solid State Physics and School of Physics Science and Engineering, Tongji University, Shanghai, China; 3. Department of Physics, Alexandru Ioan Cuza University, Iasi, Romania; 4. Seagate Technology, Fremont, CA*

10:42

EF-10. Positive Exchange Bias in Molecular/Ferromagnetic Exchange Springs. *T. Moorsom*[1], W. Deacon[1], F. Al Ma'Mari[1], M.C. Wheeler[1], M. Ali[1], G. Teobaldi[2], G. Burnell[1], B. Hickey[1] and O. Cespedes[1] *1. University of Leeds, Leeds, United Kingdom; 2. University of Liverpool, Liverpool, United Kingdom*

10:54

EF-11. Direct observation of ferromagnetic and antiferromagnetic domains in magnetoelectric perpendicular exchange biased system. *Y. Shiratsuchi*[1], Y. Kotani[2], S. Yoshida[1], Y. Yoshikawa[1], R. Nakatani[1] and T. Nakamura[2] *1. Osaka University, Osaka, Japan; 2. Japan Synchrotron Radiation Research Institute, Hyogo, Japan*

11:06

EF-12. Room temperature exchange bias in $BiFeO_3$/Co-Fe bilayers. *C. Sterwerf*[1], M. Meinert[1], J. Schmalhorst[1], E. Arenholz[2] and G. Reiss[1] *1. Center for Spinelectronic Materials and Devices, Physics Department, Bielefeld University, Bielefeld, Germany; 2. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA*

11:18

EF-13. Coexistence of two magnetic states of an asymmetrically terminated FeRh(001) thin film. *S. Jekal*[1], S. Rhim[1] and S. Hong[1] *1. Physics, University of Ulsan, Ulsan, The Republic of Korea*

THURSDAY MORNING 8:30 — AQUA SALON CD

Session EG
ELECTRIC FIELD CONTROL OF MAGNETISM I

Jun Woo Choi, Chair
Korea Institute of Science and Technology, Seoul, The Republic of Korea

8:30

EG-01. Electric field control of magnetism and magnetization switching in CoFeB-MgO. ***(Invited)*** *S. Kanai*[1,2], Y. Nakatani[3], H. Sato[2,4], F. Matsukura[5,1] and H. Ohno[1,2] *1. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 2. Center for Spintronics Integrated Systems, Tohoku University, Sendai, Japan; 3. University of Electro-Communications, Chofu, Japan; 4. Center for Innovative Integrated Electronic Systems, Tohoku University,, Sendai, Japan; 5. EWPI-Advanced Institute for Materials Research (WPI-AIMR), Tohoku University, Sendai, Japan*

9:06

EG-02. Electrical control of an antiferromagnet. ***(Invited)*** *P. Wadley*[1], B. Howells[1], C. Andrews[1], M. Grzybowski[1,2], V. Hills[1], R. Campion[1], V. Novak[3], A. Rushforth[1], K. Edmonds[1], B. Gallagher[1], J. Zelezny[3] and T. Jungwirth[3,1] *1. School of Physics and Astronomy, The University of Nottingham, Nottingham, United Kingdom; 2. IFPAN, Warsaw, Poland; 3. Department of Spintronics and Nanoelectronics, Institute of Physics AS CR, Prague, Czech Republic*

9:42

EG-03. Controlling Magnetism by Electric Field Moderated Forced Oxygen Migration. *D.A. Gilbert*[1], A. Grutter[1], E. Arenholz[2], K. Liu[3], B.J. Kirby[1], J. Borchers[1] and B.B. Maranville[1] *1. NIST Center for Neutron Research, National Institute of Standards and Technology, Germantown, MD; 2. Lawrence Berkeley National Laboratory, Berkeley, CA; 3. Physics, University of California Davis, Davis, CA*

9:54

EG-04. Anatomy of electric field control of perpendicular magnetic anisotropy of Fe/MgO interfaces. F. Ibrahim[1], *A. Hallal*[1], H. Yang[1], B. Dieny[1] and M. Chshiev[1] *1. SPINTEC, CEA/CNRS/UJF-Grenoble-INP, INAC, Grenoble, France*

10:06

EG-05. Large voltage-induced magnetic anisotropy change in epitaxial Cr/ultrathin Fe/MgO/Fe magnetic tunnel junctions. *T. Nozaki*[1], A. Koziol-Rachwal[1], W. Skowronski[3], V. Zayets[1], Y. Shiota[1], S. Tamaru[1], H. Kubota[1], A. Fukushima[1], S. Yuasa[1] and Y. Suzuki[1,2] *1. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology, Tsukuba, Ibaraki, Japan; 2. Department of Engineering Science, Osaka Univ., Toyonaka, Japan; 3. Department of Electronics, AGH Univ., Krakow, Poland*

10:18

EG-06. Voltage controlled magnetic anisotropy in alloys with Fe and 4*f*-metals. *K. Tanaka*[1], S. Miwa[1], M. Goto[1], N. Mizuochi[1] and Y. Suzuki[1] *1. Graduate School of Engineering Science, Osaka Univ., Toyonaka, Osaka, Japan*

10:30

EG-07. Giant Voltage Manipulation of MgO Magnetic Tunnel Junctions via Localized Anisotropic Piezostrain. *Z. Zhao*[1], M. Jamali[1], N.M. D'Souza[2], D. Zhang[1], S. Bandyopadhyay[3], J. Atulasimha[2] and J. Wang[1] *1. Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN; 2. Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA; 3. Department of Electrical and Computer Engineering, Virginia Commonwealth University, Richmond, VA*

10:42

EG-08. Determination of the electric field induced anisotropy change in sub-100 nm perpendicularly magnetized devices. *J. Huang*[1], M. Tran[1], S. Lim[1], A. Huang[2], C. Yang[3], Q. Yap[1] and G. Han[1] *1. Non-Volatile Memory Division, Data Storage Institute, Singapore, Singapore; 2. Engineering Operations, Data Storage Institute, Singapore, Singapore; 3. National University of Singapore, Singapore, Singapore*

10:54

EG-09. Enhancement of voltage-induced magnetic anisotropy change by preventing ferromagnetic surface oxidation in CoFeB/Al_2O_3 and CoFeB/ZrO_2 stacks. *R. Oishi*[1] and K. Kita[1] *1. Department of Materials Engineering, The University of Tokyo, Bunkyo-ku, Tokyo, Japan*

11:06

EG-10. In-plane magnetic field effect on switching voltage and thermal stability in perpendicular CoFeB/MgO magnetic tunnel junctions. *C. Grezes*[1], A. Rojas Rozas[1], F. Ebrahimi[1,2], J. Katine[3], J. Langer[4], B. Ocker[4], P. Khalili[1,2] and K.L. Wang[1] *1. Electrical Engineering, University of California Los Angeles, Los Angeles, CA; 2. Inston Inc., Los Angeles, CA; 3. HGST Inc., San Jose, CA; 4. Singulus Technologies AG, Kahl am Main, Germany*

11:18

EG-11. Voltage control of spin-orbit torques in PMN-PT/CoFeB/Pt multiferroic composites probed by spin-torque ferromagnetic resonance. *T. Nan*[1], S. Emori[2], X. Wang[1], Z. Hu[1], B. Howe[3], G. Brown[3] and N.X. Sun[1] *1. ECE, Northeastern University, Boston, MA; 2. Stanford University, Stanford, CA; 3. Air Force Research Lab, Dayton, OH*

THURSDAY MORNING 8:30 — AQUA SALON EF

Session EH
MAGNETIC RECORDING HEADS AND MEDIA
Hiromi Yuasa, Chair
Kyushu University, Fukuoka, Japan

8:30

EH-01. CPP-GMR using continuous MgAlCu-O spacer with low RA and high MR ratio. *H. Iwasaki*[1], S. Hashimoto[1], M. Takagishi[1], S. Shirotori[1] and S. Kasai[2] *1. R & D Center, Toshiba, Kawaaski, Kanagawa, Japan; 2. National Institute for Materials Science, Tsukuba, Japan*

8:42

EH-02. Enhanced SNR in CPP-GMR sensors by suppressing spin torque effects. *G. Mihajlovic*[1], T. Nakatani[1], N. Smith[1], J.C. Read[1], Y. Choi[1], H. Tseng[1] and J. Childress[1] *1. HGST, a Western Digital Company, San Jose, CA*

8:54

EH-03. Design Optimization of Write Head for Shingled Magnetic Recording. *H. Wang*[1], Y. Kanai[2], K. Chan[1], Z. Yuan[1] and S. Shafi'ee[1] *1. Data Storage Institute, Singapore, Singapore; 2. Niigata Institute of Technology, Kashiwazaki, Japan*

9:06

EH-04. Tape Technology for ≥ 10 TB Cartridge Capacity — A Contrast with HDD Technology. ***(Invited)*** *R. Fontana*[1], R. Biskeborn[1] and G. Decad[1] *1. IBM Systems, San Jose, CA*

9:42

EH-05. Bias point shift in the TMR sensor under the media field. *V. Venugopal*[1], G. Wu[1] and S. Stokes[1] *1. Seagate Technology, Bloomington, MN*

9:54

EH-06. Magnetic film stress effect on magnetic domain wall formed at the film interface in Writer shield. *C. Yu*[1], D. Han[2], E. Salhi[1] and W. Si[1] *1. Western Digital, Fremont, CA; 2. No longer at Western Digital, Fremont, CA*

10:06

EH-07. Area Density Gain via Medium Grain Stack Design: Notched Distribution of Anisotropy. *J. Zhu*[1] *1. Data Storage Systems Center, Carnegie Mellon University, Pittsburgh, PA*

10:18

EH-08. TEM Study of FePt-X Granular Nanostructures for Heat-Assisted Magnetic Recording Application. *Y. Zhang*[1], J. Ciston[2], B. Ozdol[1], J. Zhu[1], O. Mryasov[1], M. Chapline[1], O. Krupin[1], A. Chernyshov[1], B. Livshitz[1], C. Song[2], A. Ajan[1], S. Pirzada[1], P. Dorsey[1], G. Bertero[1], A. Greene[1], A. Minor[2] and S. Myers[1] *1. Western Digital, San Jose, CA; 2. NCEM, Molecular Foundry, Lawrence Berkeley National Laboratory, Berkeley, CA*

10:30

EH-09. HAMR Media Based on Exchange Bias. K. Elphick[1], G. Vallejo-Fernandez[1], T. Klemmer[2] and *K. O'Grady*[1] *1. Univ. of York, York, Yorkshire, United Kingdom; 2. Seagate Media Research Center, Fremont, CA*

10:42

EH-10. Measurement of The Magnetic Cluster Size Using Two Dimensional Readback Images. *M. Grobis*[1] and P. Jubert[1] *1. HGST, San Jose, CA*

10:54

EH-11. Fabrication of Bit Patterned Media using Templated Growth. *V. Sundar*[1], X. Yang[2], Z. Dai[1], Y. Liu[1], J. Zhu[3,4], K. Lee[2], T. Chang[2], D. Laughlin[1] and J. Zhu[1] *1. Data Storage Systems Center, Carnegie Mellon University, Pittsburgh, PA; 2. Seagate Technology, Fremont, CA; 3. Sun Yat-sen University–Carnegie Mellon University Joint Institute of Engineering, Guangzhou, China; 4. Sun Yat-sen University–Carnegie Mellon University Shunde International Joint Research Institute, Guangdong, China*

11:06

EH-12. Effect of mask erosion on patterning of FePt for HAMR media using embedded mask patterning. *J. Zhu*[1], P. Quarterman[1] and J. Wang[1] *1. Electrical and Computer Engineering, University of Minnesota, Minnesapolis, MN*

11:18

EH-13. Ion irradiation induced magnetic transition of MnGa alloy films studied by X-ray magnetic circular dichroism and low-temperature hysteresis loops. *D. Oshima*[2], M. Tanimoto[3], T. Kato[1], Y. Fujiwara[4], T. Nakamura[5], Y. Kotani[5], S. Tsunashima[6] and S. Iwata[2] *1. Electrical Engineering and Computer Science, Nagoya University, Nagoya, Japan; 2. EcoTopia Science Institute, Nagoya University, Nagoya, Japan; 3. Quantum Engineering, Nagoya University, Nagoya, Japan; 4. Physics Engineering, Mie University, Tsu, Japan; 5. Japan Synchrotron Radiation Research Institute, Sayo, Japan; 6. Nagoya Industrial Science Research Institute, Nagoya, Japan*

THURSDAY MORNING 8:30 | AQUA 310

Session EI
MAGNETIC FLUIDS AND SEPARATIONS
Tomoyuki Ogawa, Chair
Tohoku University, Sendai, Japan

8:30

EI-01. Confinement effect of magnetic nanoparticles in the decontamination of heavy metals. *M. Hemadi*[1], A.S. Helal[1,2], S. Ammar[1] and J. El Hage chahine[1] *1. Université Paris Diderot, Paris, France; 2. Nuclear Materials Authority, Cairo, Egypt*

8:42

EI-02. Compact AC susceptometer for rapid monitoring of magnetic particle solutions. *J. Moreland*[1] and Y. Nakashima[2] *1. NIST, Boulder, CO; 2. Kyushu University, Fukuoka, Japan*

8:54

EI-03. Anisotropic Ferromagnetic Polymer for Implementation of Magnetic Functions in Microfluidic Systems. *D. Le Roy*[1], D. Dhungana[2], L. Ourry[3], M. Faivre[2], A. Tamion[1], R. Ferrigno[2], V. Salles[3], V. Dupuis[1] and A. Deman[2] *1. Institut Lumière Matière, UMR 5306 CNRS-Université Lyon 1, Villeurbanne, France; 2. Institut des Nanotechnologies de Lyon, UMR CNRS 5270, Lyon, France; 3. Laboratoire des Multimatériaux et Interfaces, UMR CNRS 5615, Villeurbanne, France*

9:06

EI-04. Progress in Force Microscopy in Liquids. ***(Invited)*** P. Ares[2], M. Jaafar[1], A. Gil[3], J. Gomez-Herrero[2] and *A. Asenjo*[1] *1. MIT, ICMM-CSIC, Madrid, Spain; 2. Física de la Materia Condensada, UAM, Madrid, Spain; 3. CNB-CSIC, Madrid, Spain*

9:42

EI-05. Electromagnetic Valves via Volumetric Energy Conversion. *M. Wu*[1] *1. The University of Texas at Dallas, Richardson, TX*

9:54

EI-06. A novel magnetic field-assisted polishing method using magnetic compound slurry and its performance in mirror surface finishing of miniature V-grooves. *Y. Wu*[1], Y. Wang[1] and M. Nomura[1] *1. Dept. of Machine Intelligence and Systems Engineering, Akita Prefectural University, Yurihonjou, Akita, Japan*

10:06

EI-07. Magnetically Assisted Three-Dimensional Self-Assembly. *L. Abelmann*[1,2], P. Loethman[1,2], T. Hageman[1,2], M. Pichel[1,2] and A. Manz[1] *1. KIST Europe, Saarbrücken, Saarland, Germany; 2. MESA+ Research Institute, University of Twente, Enschede, Netherlands*

10:18

EI-08. Effect of the magnetic force on thermal convection of diamagnetic fluids. *N. Hirota*[1], Y. Wang[1,2], H. Okada[1] and Y. Sakka[1] *1. National Institute for Materials Science, Tsukuba, Japan; 2. University of Tsukuba, Tsukuba, Japan*

10:30

EI-09. L1-norm Regularization for Estimation of Currents in Polymer Electrolyte Fuel Cell from the Measurements of the Magnetic Flux Density. *T. Nara*[1], M. Koike[1], S. Ando[1], Y. Gotoh[3] and M. Izumi[2] *1. The University of Tokyo, Bunkyo, Tokyo, Japan; 2. The University of Kitakyushu, Kitakyushu, Fukuoka, Japan; 3. Oita University, Oita, Japan*

10:42

EI-10. Ferrofluid-molding PDMS micro cones with anisotropy wettibility. *C. Huang*[1] and Z. Wei[1] *1. Department of Power Mechanical Engineering (PME), National Tsing Hua University, Hsinchu, Taiwan*

10:54

EI-11. Water-based nickel magnetic fluids. D.R. Assis[1], W.R. Viali[1,2], *R.F. Marques*[1], G.G. Couto[1], M.A. Novak[3], W.W. Melo[3] and M. Jafelicci Jr.[1] *1. Institute of Chemistry, UNESP, Araraquara, SP, Brazil; 2. Chemistry Departament, UFSCar, São Carlos, SP, Brazil; 3. IF, UFRJ, Rio de Janeiro, RJ, Brazil*

11:06

EI-12. Large-area patterned substrates for micromagnetic actuation of superparamagnetic microbeads. *M. Ouk*[1] and G. Beach[1] *1. DMSE, MIT, Cambridge, MA*

11:18

EI-13. Controlling ferrofluid droplet motion using wedge-shaped surface tension gradients and external magnetic fields. *K. Eid*[1], T. Ody[1], M. Panth[1] and A. Sommers[2] *1. Physics, Miami University, Oxford, OH; 2. Mechanical and Manufacturing Engineering, Miami University, Oxford, OH*

Session EJ
MODELING AND SIMULATIONS OF MOTORS II

Kenji Nakamura, Chair
Tohoku University, Sendai, Japan

8:30

EJ-01. Magnetic Characteristics Analysis of Armature Reaction Leading to Irreversible Demagnetization in Spoke-Type BLDC Motors with Ferrite Permanent Magnet. *C. Jeong*[1] and J. Hur[2] *1. University of Ulsan, Ulsan, The Republic of Korea; 2. Incheon National University, Incheon, The Republic of Korea*

8:42

EJ-02. Cogging Force Analysis of Linear Permanent Magnet Machines Using a Hybrid Analytical Model. S. Ouagued[1], *Y. Amara*[1] and G. Barakat[1] *1. GREAH, Université du Havre, Le Havre, France*

8:54

EJ-03. Calculation and Measurement of 3-D Rotating Anomalous Loss Considering Harmonics and Skin Effect in SMC Materials. *J. Li*[1], Q. Yang[1,2], Y. Li[1] and C. Zhang[1] *1. Province-Ministry Joint Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability, Hebei University of Technology, Tianjin, China; 2. Tianjin Key Laboratory of Advanced Electrical Engineering and Energy Technology, Tianjin Polytechnic University, Tianjin, China*

9:06

EJ-04. Optimal Design of Skewed Rotor Induction Machine for Space Harmonic Reduction Considering *z*-Axis Magnetic Flux Density Variation. *A. Mollaeian*[1], M. Sangdehi[1], A. Balamurali[1] and N. Kar[1] *1. Electrical and Computer Engineering, University of Windsor, Windsor, ON, Canada*

9:18

EJ-05. Sustainable design of power systems: A fully magnetic multi-scale model dedicated to grid stability. *V.G. Mazauric*[1,2], N. Maïzi[2] and V. Krakowski[2] *1. Strategy & Technology, Schneider Electric, Grenoble Cedex 9, France; 2. Centre for Applied Mathematics, MINES ParisTech, PSL Research University, Sophia-Antipolis, France*

9:30

EJ-06. Analytical Computation of the Magnetic-field Distribution in an Axial Magnetic-Geared Machine. C. Tong[1], *Z. Song*[1], J. Bai[1], S. Zhang[1] and P. Zheng[1] *1. Department of Electrical Engineering, Harbin Institute of Technology, Harbin, China*

9:42

EJ-07. A New Hybrid Synchronous Motor With Two Part Rotor. *O. Ocak*[1] *1. Akim Metal A.S., Istanbul, Turkey*

9:54

EJ-08. Optimal Design of a New Interior Permanent Magnet Motor Using Flared-Shape Arrangement of Ferrite Magnets. *K. Yoon*[1] and B. Kwon[1] *1. Mechatronics Engineering, Hanyang University, Ansan, Gyeonggi-do, The Republic of Korea*

10:06

EJ-09. Optimal Design for Vibration Reduction and Average Torque Improvement of IPM BLDC Motor according to Magnetization Direction and Motor Shape. *H. Kim*[1] and B. Kwon[1] *1. Electronic Systems Engineering, Hanyang, Ansan-si, Gyeonggi-do, The Republic of Korea*

10:18

EJ-10. A Ferrite Tubular Linear Permanent Magnet Generator: Analysis and Design. *G. Cipriani*[1], M. Corpora[1], V. Di Dio[1], V. Franzitta[1] and M. Trapanese[1] *1. Department of Energy, Information Engineering and Mathematical Models, University of Palermo, Palermo, Italy*

10:30

EJ-11. Performance Analysis of SRM with Actual B-H Curve of Electrical Steel. *S. Song*[1] and S. Chen[1] *1. Northwestern Polytechnical University, Xi'an, Shaanxi, China*

10:42

EJ-12. Performance Comparison of Two-Phase and Three-Phase BLDC Machines Considering the Demagnetization. *T. Yazdan*[1], W. Zhao[1], T.A. Lipo[2] and B. Kwon[1] *1. Department of Electronic Systems Engineering, Hanyang University, Ansan, The Republic of Korea; 2. Department of Electrical and Computer Engineering, Florida State University, Tallahassee FL*

10:54

EJ-13. Analytical Investigation of Magnet Eddy Current Losses in Interior Permanent Magnet Motor using Modified Winding Function Theory Accounting for Pulse Width Modulation Harmonics. *A. Balamurali*[1], C. Lai[1] and N. Kar[1] *1. University of Windsor, Windsor, ON, Canada*

11:06

EJ-14. Novel PM Assisted, Brushless Wound Rotor Synchronous Machine. *Q. Ali*[1], T.A. Lipo[2] and B. Kwon[1] *1. Department of Electronic Systems Engineering, Hanyang University, Ansan, The Republic of Korea; 2. Department of Electrical and Computer Engineering, Florida State University, Tallahassee, FL*

11:18

EJ-15. Performance Analysis of a Novel Triple-permanent-magnet-excited Magnetic Gear and its Design Method. Y. Chen[1] and *W. Fu*[1] *1. Department of Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

Session EP
PEROVSKITE 3D OXIDES AND COMPOSITES (Poster Session)

P.S. Anil Kumar, Chair
Indian Institute of Science, Bangalore, India

EP-01. The Magnetism and Electronic Structure of $LaTiO_3$/*T*-$BiFeO_3$ Superlattices. *L. Yin*[1] and W. Mi[1] *1. Department of Applied Physics, Tianjin University, Tianjin, China*

EP-02. Multiferroicity in orthorhombic $HoMnO_3$ thin films. *T. Han*[1] and Y. Liu[1] *1. Department of Applied Physics, National University of Kaohsiung, Kaohsiung, Taiwan*

EP-03. Surface magnetism of $SrTiO_3$. *M. Coey*[1], M. Venkatesan[1] and S.B. Porter[1] *1. Trinity College, Dublin, Dublin, Ireland*

EP-04. Improved magnetoelectric characterstics in Mn doped multiferroic ceramics. B.D. Lakshmi[2], *P. Kollu*[1], P. Balaga[2], C. Barnes[1] and P.S.V. Rao[2] *1. Physics, University of Cambridge, Cambridge, United Kingdom; 2. Department of Physics, Andhra University, Visakhapatnam, Andhra Pradesh, India*

EP-05. Enhanced Ferromagnetic Behavior and Spin-Reorientation Transition in (100) Oriented $BiFeO_3$ Single Crystal. *C. Chen*[1], C. Lin[2], C. Tu[2], P. Chen[3] and V.H. Schmidt[4] *1. Mechanical Engineering, Hwa Hsia University of Technology, New Taipei City, Taiwan; 2. Physics, Fu Jen Catholic University, New Taipei City, Taiwan; 3. Mechanical Engineering, Ming Chi University of Technology, New Taipei City, Taiwan; 4. Physics, Montana State University, Bozeman, MT*

EP-06. Effects of excess and deficiency of iron in $BiFeO_3$. S. Chandel[1], P. Thakur[1,2], P. Kumar[2,3], *J. Hsu*[4] and A. Thakur[2] *1. School of Physics and Materials Science, Shoolini University, Solan, H.P., India; 2. Centre of Excellence in Nanotechnology, Shoolini University, Solan, H.P., India; 3. Nanotechnology Wing, Innovative Science Research Society, Shimla (HP), India; 4. Physics, National Taiwan University, Taipei, Taiwan*

EP-07. Evidence of rhombohedral structure within hetro-epitaxial $BiFeO_3$ thin films. *I. Bae*[1], K. Sato[2] and H. Naganuma[3] *1. Small Scale Systems Integration and Packaging, State University of New York at Binghamton, Binghamton, NY; 2. Institute of Materials Research, Tohoku University, Sendai, Japan; 3. Department of Applied Physics, Tohoku University, Sendai, Japan*

EP-08. Improved electrical and dielectric properties of polycrystalline $BiFeO_3$ with Ca and Ba doping. *R. Balakrishanan*[1,3], A. Dixit[2,4], R. Naik[2], G. Lawes[2] and M. Rao[3] *1. Departement of Physics, National Dong Hwa University, Taiwan, Hualien, Taiwan; 2. Department of Physics, Wayne State University, Detroit, MI; 3. Department of Physics, Nano Functional Materials Technology Centre and Materials Science Research Centre, Indian Institute of Technology Madras, Chennai, Tamil Nadu, India; 4. Center for Energy, Indian Institute of Technology Jodhpur, Jodhpur, Rajasthan, India*

EP-09. Withdrawn

EP-10. Second Harmonic Generation Imaging of magnetoelectric coupling in $BiFeO_3$. *J. Chauleau*[1], S. Fusil[2], C. Carrétéro[2] and M. Viret[1] *1. S.P.E.C., C.E.A, Regensburg, Germany; 2. Unité Mixte de Physique CNRS/Thales, Palaiseau, France*

EP-11. Structural, Magnetic and Transport Properties of $Bi_{0.5-x}Pr_xCa_{0.5}MnO_3$ ($0 \leq x \leq 0.50$) manganites. *R. Singh*[1] and R. Ade[1] *1. School of Physics, Univesity of Hyderabad, Hyderabad, Telengana, India*

EP-12. Magnetic and Magnetocaloric Properties of $La_{0.8-x}Ag_xCa_{0.2}MnO_3$ Manganites Exhibiting the Crossover of First- and Second-Order Magnetic Phase Transitions. *C. Dinh*[1], N. Tuyen[2], M.V. Tien[1], T. Thanh[1] and S. Yu[1] *1. Department of Physics, Chungbuk National University, Cheongju, The Republic of Korea; 2. Dept. of Natural Science, Nha Trang Pedagogic College, Nha Trang, Vietnam*

EP-13. Size effect on $LuMn_2O_5$ nanorods. T. Hsu[1], *C. Yang*[1], H. Tu[2,1], Y. Tong[1] and K. Lin[3] *1. Department of Physics, Chung Yuan Christian University, Chung-Li, Taoyuan, Taiwan; 2. National Synchrotron Radiation Reasearch Center, HsinChu, Taiwan, Taiwan; 3. Department of Chemical Engineering and Material Science, Yuan Ze University, Chung Li, Taoyuan, Taiwan*

EP-14. Magnetic Studies of Double Perovskite Nd_2NiMnO_6 Thin Films Grown on Different Substrates. *G. Singh*[1], P. Singh[1], R. Choudhary[2] and A. Dogra[1] *1. National Physical Laboratory, New Delhi, New Delhi, India; 2. UGC-DAE Consortium for Scientific Research, Indore, India*

Session EQ

SPIN ICE, FRUSTRATED MAGNETS AND CRITICAL PHENOMENA (Poster Session)

Hans-Benjamin Braun, Chair
University College Dublin, Dublin, Ireland

EQ-01. Critical behavior study of $R_{0.6}Sr_{0.4}MnO_3$ (R=Pr, Nd): 3D-Ising universality class. *A. Oleaga*[1], A. Salazar[1], M. Ciomaga Hatnean[2] and G. Balakrishnan[2] *1. Fisica Aplicada I, Universidad del Pais Vasco UPV/EHU, Bilbao, Spain; 2. Department of Physics, University of Warwick, Warwick, United Kingdom*

EQ-02. Dynamic Critical Phenomena and Universal Behavior of Soft Modes in Low-Dimensional Periodic Magnetic Systems. *R. Zivieri*[1] *1. Dipartimento di Fisica e Scienze della Terra, Cnism, University of Ferrara, Ferrara, Italy*

EQ-03. Structural and Magnetic Phase Transitions in $CeCu_{6-x}T_x$ (T = Ag, Pd). *L. Poudel*[1,2], C. de la Cruz[2], E. Payzant[3], A.F. May[4], M. Koehler[5], A. Taylor[2], H.B. Cao[2], M.A. McGuire[4], W. Tian[2], M. Matsuda[2], T. Hong[2], S. Calder[2], M.D. Lumsden[2], V. Keppens[5], D. Mandrus[4,5] and A.D. Christianson[1,2] *1. Department of Physics and Astronomy, University of Tennessee, Knoxville, TN; 2. Quantum Condensed Matter Division, Oak Ridge National Laboratory, Oak Ridge, TN; 3. Chemical and Engineering Materials Division, Oak Ridge National Laboratory, Oak Ridge, TN; 4. Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN; 5. Department of Material Science and Engineering, University of Tennessee, Knoxville, TN*

EQ-04. Critical exponents of inhomogeneous ferromagnetic $La_{0.8}Sr_{0.2}CoO_3$ single crystal. *N. Khan*[1], B. Samantaray[1], P. Mandal[1] and D. Prabhakaran[2] *1. Condensed Matter Physics, Saha Institute of Nuclear Physics, Calcutta, West Bengal, India; 2. Clarendon Laboratory, Department of Physics, University of Oxford, Oxford, United Kingdom*

EQ-05. Magnetic-field driven second-order phase transition to the first order in Pr-doped $La_{0.7}Ca_{0.3}MnO_3$. *T. Phan*[1], T. Ho[2], C. Jung[1], C. Liu[1], B. Lee[1], M. Phan[3], T. Thanh[4] and S. Yu[2] *1. Hankuk University of Foreign Studies, Yongin, The Republic of Korea; 2. Chungbuk National University, Cheongju, The Republic of Korea; 3. University of South Florida, Florida, FL; 4. Vietnam Academy of Science and Technology, Hanoi, Vietnam*

EQ-06. Magnetic ordering in Gd_5Ir_2Bi and Gd_5Ir_2Sb. *D. Ryan*[1], N. Mas[1], R. Rejali[1], T. Miller[1], B. Gerke[2], R. Pottgen[2] and R. Flacau[3] *1. McGill University, Montreal, QC, Canada; 2. Institut für Anorganische und Analytische Chemie, WestfälicheWilhelms-Universität Münster, Münster, Germany; 3. Canadian Neutron Beam Centre, Chalk River Laboratories, Chalk River, ON, Canada*

EQ-07. Ferromagnetic Ordered Phase of Quantum Spin Ice System $Yb_2Ti_2O_7$ under [001] Magnetic Field. *N. Hamachi*[1], Y. Yasui[1], K. Araki[2,3], S. Kittaka[2] and T. Sakakibara[2] *1. Physics, Meiji University, Kawasaki, Kanagawa, Japan; 2. Institute for Solid State Physics, The University of Tokyo, Kashiwa, Chiba, Japan; 3. Applied Physics, National Defense Academy, Yokosuka, Kanagawa, Japan*

EQ-08. Observation of ferromagnetic and reentrant spin glass behavior in CrAlGe. *M.U. Khan*[1], J.A. Brock[1], A. Provino[2,3], C. Belfortini[2] and P. Manfrinetti[2,3] *1. Physics, Miami University, Oxford, OH; 2. Department of Chemistry, University of Genova, Genova, Italy; 3. Institute SPIN-CNR, Genova, Italy*

EQ-09. Structure and magnetic properties of $Fe_2V_{2-x}Al_x$ alloy. *S. Hari*[1] and V. Srinivas[1] *1. Department of Physics, Indian Institute of Technology Madras, Chennai, Tamil Nadu, India*

EQ-10. Low-energy singlet excitations in spin-1/2 J_1-J_2 Heisenberg antiferromagnet on a square lattice. *A. Aktersky*[1] and A. Syromyatnikov[1] *1. Petersburg Nuclear Physics Institute, St. Petersburg, Russian Federation*

EQ-11. Frozen spin dynamics and complex phase diagram of the quasi-one dimensional Ising spin chain $Ca_3Co_{2-x}Mn_xO_6$. B. Casas[1], R. Das[1], P. Lampen-Kelley[1], J. Kováč[2], I. Skorvanek[2], M. Phan[1] and *H. Srikanth*[1] *1. Department of Physics, University of South Florida, Tampa, FL; 2. Institute of Experimental Physics, Slovak Academy of Sciences, Watsonova 47, 040 01, Kosice, Slovakia*

EQ-12. Exchange bias-like effect tuned by the cooling field in the spin glass $La_{1.5}Ca_{0.5}CoIrO_5$. L. Tolentino Coutrim[1], *E.M. Bittar*[2] and L. Bufaiçal[1] *1. Universidade Federal de Goiás (UFG), Goiânia, GO, Brazil; 2. Centro Brasileiro de Pesquisas Físicas (CBPF), Rio de Janeiro, RJ, Brazil*

EQ-13. Ferroquadrupolar phase of the $S = 1$ bilinear-biquadratic triangular lattice antiferromagnet with third-nearest eighbor interactions. *A.S. Pires*[1] *1. Physics, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil*

EQ-14. Magnetic dimers and trimers in the disordered $S = 3/2$ spin system $BaTi_{1/2}Mn_{1/2}O_3$. *R.L. Serrano*[1], F.A. Garcia[2], U. F. Kaneko[3], E. Granado[3], J. Sichelschmidt[4], R.P. Amaral[1], J.G.S. Duque[5] and P. Marques-Ferreira[1] *1. Instituto de Fisica, Universidade Federal de Uberlandia, Uberlandia, Minas Gerais, Brazil; 2. IFUSP, Univ. de São Paulo, São Paulo, Brazil; 3. Instituto de Fisica 'Gleb Wataghin' UNICAMP, Campinas, São Paulo, Brazil; 4. Max Planck Institute for Chemical Physics of Solids, Dresden, Germany; 5. Nucleo de Fisica, Campus Itabaiana, UFS, Itabaiana, Sergipe, Brazil*

Session ER
BIO APPLICATIONS AND MAGNETIC FLUIDS (Poster Session)

Johann Fischbacher, Chair
Danube University Krems, Wiener Neustadt, Austria

ER-01. Bio-mimic magnetic light control by uric acid crystals in firefly bioluminescence. *M. Iwasaka*[1] *1. Research Institute for Nanodevice and Bio Sytems, Hiroshima University, Higashi-Hiroshima, Japan*

ER-02. Cluster evolution in 3D spin crossover molecular magnets. L. Stoleriu[1], A. Stancu[1], A. Hauser[2] and *C. Enachescu*[1] *1. Al. I. Cuza University Iasi, Iasi, Romania; 2. University of Geneva, Geneva, Switzerland*

ER-03. Fabrication of Nano-Sized Iron Oxide Coated Polyaniline Composite and its Magnetorheological Characteristics. B. Sim[1], S. Kwon[1] and *H. Choi*[1] *1. Department of Polymer Science and Engineering, Inha Univ, Incheon, The Republic of Korea*

ER-04. Magneto-viscosity of Paraffin Based Barium Ferrite Ferrofluid. R. Singh[1], *N. Gautam*[1] and G. Thirupathy[1] *1. School of Physics, Univesity of Hyderabad, Hyderabad, Andhra Pradesh, India*

ER-05. Experimental characterization of magnetorheological fluids using a custom Searle magnetorheometer: Influence of the rotor shape. A. Becnel[1], *N. Golinelli*[1,2], A. Spaggiari[2] and N.M. Wereley[1] *1. Aerospace Engineering, Univ. of Maryland College Park, College Park, MD; 2. INTERMECH, Universita Degli Studi Di Modena E Reggio Emilia, Modena, Emilia-Romagna, Italy*

ER-06. Magnetic honeycomb thin film structures for effective cell trapping and patterning. *C. Huang*[1] and Z. Wei[1] *1. Department of Power Mechanical Engineering, National Tsing Hua University, Hsinchu, Taiwan*

ER-07. Measurement of the Monosodium Urate Crystals using the Magnetic Field and Near-infrared Light for Gout Diagnosis. *Y. Takeuchi*[1] and M. Iwasaka[2] *1. Muroran Institute of Technology, Muroran, Japan; 2. Research Institute for Nanodevice and Bio Sytems, Hiroshima University, Higashi-Hiroshima, Japan*

ER-08. Magnetic microrobot with dual-spiral mechanisms for stent transportation and installation. *S. Kim*[1], C. Yu[2], S. Hashi[4], K. Ishiyama[4] and K. Kim[3] *1. Department of Electronics Convergence Engineering, Wonkwang University, Iksan, The Republic of Korea; 2. Division of Biomedical Engineering, Chonbuk National University, Jeonju, The Republic of Korea; 3. R&D Division, Chonbuk National University Automobile-Parts & mold Technology Innovation Center, Jeonju, The Republic of Korea; 4. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan*

ER-09. 3D Self-assembled Shape Transformation of Iron Oxide Nanoparticles for the Applications to Biological Systems. *J. Hong*[1] and S. Khizroev[2] *1. UC Berkeley, Berkeley, CA; 2. FIU, Miami, CA*

ER-10. Magnetic Navigation System Utilizing the Resonance Effect of RLC Circuit to Effectively Generate Alternating Magnetic Field. *J. Nam*[1], W. Lee[1], B. Jang[1] and G. Jang[1] *1. Dept of Mechanical Convergence Engineering, Hanyang University, Seoul, The Republic of Korea*

ER-11. Computational Study of Kinematics of Capture of Magnetic Particles by Stent: 2D Model. *S. Vyas*[1], V. Genis[2] and G. Friedman[1] *1. Electrical and Computer Engineering, Drexel University, Philadelphia, PA; 2. Engineering Technology, Drexel University, Philadelphia, PA*

ER-12. Power Generation Properties with a Mixture of Magnetic Nanofluid and Bubbles in Circulating System for Flow Energy Harvesting. *S. Kim*[1], I. Kim[1], J. Park[1] and S. Lee[1] *1. Department of Electrical Engineering, Kyungpook National University, Daegu, The Republic of Korea*

ER-13. Magnetoresistance Based Beads Counter Flowing in Microfluidic Channel. *P. Wu*[1], C. Su[1], S. Lou[1] and T. Ger[1] *1. Biomedical Engineering, Chung Yuan Christian University, Taoyuan City, Taiwan*

ER-14. One pot synthesis of Co@Sb_2O_3 nanoparticles. W.R. Viali[2,1], M. Jafelicci Jr.[1], A. Millan[3] and *M. Nalin*[1,2] *1. Institute of Chemistry, UNESP, Araraquara, SP, Brazil; 2. Chemistry Department, UFSCar, São Carlos, SP, Brazil; 3. Instituto de Ciencia de Materiales de Aragón, Universidad de Zaragoza, Zaragoza, Spain*

Session ES
MAGNETO-ELASTIC AND MAGNETO-FUNCTIONAL MATERIALS (Poster Session)

Shuichiro Hashi, Chair
Tohoku University, Sendai, Japan

ES-01. Grain size refinement and magnetic properties of $Fe_{66}Pd_{30}Rh_2Ni_2$ ferromagnetic shape memory alloy. *C. Lin*[1] *1. National Kaohsiung University of Applied Sciences, Kaohsiung, Taiwan*

ES-02. Evolution of spin phonon coupling in the frustrated spinel $ZnCr_2Se_4$. X. Chen[1] and *Z. Yang*[1] *1. Key Laboratory of Materials Physics, Institute of Solid State Physics, Chinese Academy of Sciences, Hefei, Anhui, China*

ES-03. Synthesis and magnetostrictive properties of $Pr_{1-x}Dy_x(Fe_{0.8}Co_{0.2})_{1.93}$ cubic Laves compounds. Z. Chen[1], *Y. Shi*[1], L. Wang[1], C. Hu[1], Q. Pan[1] and D. Shi[1] *1. Department of Applied Physics, Nanjing University of Aeronautics and Astronautics, Nanjing, JIangsu, China*

ES-04. Effect of cooling rate on magnetostriction gradients of $Tb_{0.27}Dy_{0.73}Fe_{1.95}$ alloys solidified in high magnetic field gradients. *T. Liu*[1], P. Gao[1], M. Dong[1] and Q. Wang[1] *1. Northeastern University, China, Shenyang, China*

ES-05. Torque Induction in Terfenol-D Rod: Numerical and Experimental Analysis. *H. Lee*[1], Y. Park[1] and M.D. Noh[1] *1. Mechatronics Engineering, Chungnam Natational University, Daejeon, The Republic of Korea*

ES-06. Structural transformations and magnetic properties of Cu_2MnGe Heusler alloy. *V. Khovaylo*[1], D. Karpenkov[1], K.P. Skokov[2], S.V. Taskaev[3], R. Kainuma[4] and T. Kanomata[4] *1. National University of Science and Technology "MIS&S", Moscow, Russian Federation; 2. TU Darmstadt, Darmstadt, Germany; 3. Chelyabinsk State University, Chelyabinsk, Russian Federation; 4. Department of Materials Science, Graduate School of Engineering, Tohoku University, Sendai, Japan*

ES-07. Structure, magnetization and magnetostriction of $Pr(Fe_{0.75}Co_{0.15}Cu_1Nb_4B_5)_{1.93}$ nanocrystalline synthesized under high pressure. *C. Hu*[1] *1. Department of Applied Physics, Nanjing University of Aeronautics and Astronautics, State College, PA*

ES-08. Stress-anneal-induced magnetic anisotropy in highly textured Fe-Ga and Fe-Al magnetostrictive strips for bending-mode vibrational energy harvesters. *J. Park*[1], S. Na[1], G. Raghunath[1] and A.B. Flatau[1] *1. Aerospace engineering, University of Maryland, College Park, MD*

ES-09. Magnetic behavior of quadruple perovskite *A*Mn_7O_{12} (*A*=Ca, Sr) thin films. *E. Moon*[1], A.C. Lang[1], A. Huon[1], M. Taheri[1] and S. May[1] *1. Drexel University, Philadelphia, PA*

ES-10. Ion irradiation effect on magnetic and structural properties of FeRh thin films with energetic carbon single and cluster ion beam. *T. Matsui*[1], T. Koide[2], Y. Saitoh[3], M. Sakamaki[4], K. Amemiya[4] and A. Iwase[2] *1. Research Organization for the 21st Century, Osaka Prefecture University, Sakai, Osaka, Japan; 2. Graduate School of Engineering, Osaka Prefecture University, Sakai, Osaka, Japan; 3. Japan Atomic Energy Agency, Takasaki, Gumma, Japan; 4. High Energy Accelerator Research Organization, Tsukuba, Ibaraki, Japan*

ES-11. Magnetic transition of FeRh films epitaxially grown on different substrates. Y. Xie[1], Q. Zhan[1], T. Shang[1], H. Yang[1], *Z. Zuo*[1], Y. Liu[1], B. Chen[1], B. Wang[1] and R. Li[1] *1. Ningbo Institute of Industrial Technology, Chinese Academy of Sciences, Ningbo, China*

ES-12. Magnetic measurements on the layered III-VI Diluted Magnetic Semiconductor $Ga_{1-x}Fe_xTe$. *T.M. Pekarek*[1], T. Olejniczak[1], I. Miotkowski[2] and A. Ramdas[2] *1. Physics, University of N. Florida, Jacksonville, FL; 2. Physics, Purudue University, W. Lafayette, IN*

ES-13. The electronic and magnetic properties in black phosphorene by doping B, C, N, O, F, S and Se atom. *L. Yang*[1] and W. Mi[1] *1. Department of Applied Physics, Tianjin University, Tianjin, China*

ES-14. Composition, microstuctures and ferromagnetic properties of Bi-modified LiZnTi-ferrite for LTCC application. *L. Jia*[1], Y. Zhao[1], F. Xie[1], Q. Li[1] and H. Zhang[1] *1. University of Electronic Science and Technology of China, Chengdu, China*

THURSDAY MORNING 9:30 — SAPPHIRE BALLROOM SOUTH

Session ET
MRAM AND SPIN LOGIC II (Poster Session)

Dimitri Houssameddine, Chair
Everspin Technologies, Chandler, AZ

ET-01. Writing in Thermally-Assisted MRAM for High-Temperature Application. *P.L. Trouilloud*[1], A.J. Annunziata[1], S. Bandiera[2], S. Brown[1], E. Gapihan[2], E.J. O'Sullivan[1], L. Lombard[2] and D. Worledge[1] *1. IBM-Crocus MRAM Alliance, IBM T.J. Watson Research Center, Yorktown Heights, NY; 2. IBM-Crocus MRAM Alliance, Crocus Technology, Grenoble, France*

ET-02. Self-initializing dual MTJ MRAM cell design. *A.V. Khvalkovskiy*[1], A.P. Mikhaylov[1] and D. Apalkov[2] *1. Moscow Institute of Physics and Technology (State University), Dolgoprudny, Russian Federation; 2. Semiconductor R&D Center, New Memory Technology Lab, Samsung Electronics, Milpitas, CA*

ET-03. Characterization of perpendicular SAF reference layers and pMTJ device behavior for ST-MRAM. *H. Chia*[1], R. Whig[1], D. Houssameddine[1], L. Ye[1], S. Ikegawa[1], F.B. Mancoff[1], S. Deshpande[1], K. Nagel[1], S. Karre[1], M. Lin[1], S. Aggarwal[1] and J.M. Slaughter[1] *1. Everspin Technologies, Chandler, AZ*

ET-04. Nonlinear dynamics of spin-torque nano-oscillators with delayed feedback. J. Williame[1], D. Rontani[3], S. Petit-Watelot[2], M. Sciamanna[3] and *J. Kim*[1] *1. Institut d'Electronique Fondamentale, CNRS/Univ. Paris-Sud, Orsay, France; 2. Institut Jean Lamour, CNRS/Univ. Lorraine, Vandoeuvre-lès-Nancy, France; 3. Optics and Electronics Department & Laboratoire Matériaux Optiques, Photonique et Systèmes, CentraleSupélec, Metz, France*

ET-05. Extraordinary Hall effect based magnetic logic applications. *T. Hauet*[1], T. Liu[1,2], D. Lacour[1], F. Montaigne[1], M. Hehn[1] and S. Le Gall[1,3] *1. Institut Jean Lamour, Université de Lorraine, Nancy, France; 2. colorado state university, Fort Collins, CO; 3. LPEP, Université Paris Sud-CNRS, Gif-sur-Yvette, France*

ET-06. Current-limiting challenges for all-spin logic devices. *L. Su*[1,2], Y. Zhang[1], J. Klein[2], Y. Zhang[1], A. Bournel[2], A. Fert[1,3] and W. Zhao[1,2] *1. Fert Beijing Institute, Beihang University, Beijing, China; 2. Physics, Institut d'Electronique Fondamentale, Orsay, Île-de-France, France; 3. Unité Mixte de Physique CNRS-Thales, Palaiseau, France*

ET-07. Write–read operations in antiferromagnetic resistor. *N. Matsuzaki*[1], T. Moriyama[1], K. Kim[1], I. Suzuki[2], T. Taniyama[2] and T. Ono[1] *1. Institute for Chemical Research, Kyoto University, Uji, Kyoto, Japan; 2. Materials and Structures Laboratory, Tokyo Institute of Technology, Tokyo, Japan*

ET-08. Tunability of thermal stability and switching voltage of perpendicular magnetic tunnel junctions by varying free layer thickness. *L. Xue*[1], C. Ching[1], J. Ahn[1], L.E. Nistor[1], Z. Li[1], R. Wang[1] and M. Pakala[1] *1. Applied Materials, Sunnyvale, CA*

ET-09. Multiscale atomistic simulations of the temperature dependent properties of Fe/MgO(001) ultrathin films. *A. Meo*[1], R. Cuadrado[1,2], L. Oroszlany[4], A. Deák[4], R. Chepulskyy[3], D. Apalkov[3], L. Szunyogh[4], R. Chantrell[1] and R.F. Evans[1] *1. Physics, University of York, York, United Kingdom; 2. Theory and Simulation Group, Institut Català de Nanociència i Nanotecnologia, Bellaterra, Barcelona, Spain; 3. Samsung Electronics, Semiconductor R&D Center (Grandis), San Jose, CA; 4. Department of Theoretical Physics, Institute of Physics, Budapest University of Technology and Economics, Budafoki, Budapest, Hungary*

ET-10. Ta-doped W/CoFeB/MgO Stacks with Perpendicular Magnetic Anisotropy for MRAM Application. *A. Kaidatzis*[1], C. Bran[2], M. Vázquez[2], J. García-Martín[3] and D. Niarchos[1] *1. Institute of Nanoscience and Nanotechnology, NCSR Demokritos, Aghia Paraskevi, Greece; 2. ICMM-Instituto de Ciencia de Materiales de Madrid (CSIC), Madrid, Spain; 3. IMM-Instituto de Microelectrónica de Madrid (CNM-CSIC), Madrid, Spain*

ET-11. Thermal stability of magnetic states in circular thin film nanomagnets with large perpendicular magnetic anisotropy. *G. Wolf*[1], G.D. Chaves-O'Flynn[1], J. Sun[2] and A.D. Kent[1] *1. Department of Physics, New York University, New York, NY; 2. IBM T. J. Watson Research Center, Yorktown Heights, NY*

ET-12. Strong Interlayer Exchange Coupling and High Post-annealing Stability in Perpendicularly Magnetized [Pt/Co]/Ru/[Co/Pt] Structures. *S. Yun*[1], S. Lim[1] and S. Lee[1] *1. Materials Science and Engineering, Korea University, Seoul, The Republic of Korea*

ET-13. Theoretical study of magnetic damping and anisotropy of FePd(001) thin films. *T. Qu*[1,2], S.C. Pandey[2], G.S. Sandhu[2] and R.H. Victora[3] *1. School of Physics & Astronomy, University of Minnesota-Twin Cities, Minneapolis, MN; 2. Emerging Memory and Technology Development Group, Micron Technology Inc., Boise, ID; 3. Department of Electrical Engineering, University of Minnesota-Twin Cities, Minneapolis, MN*

ET-14. Burst-mode manipulation of magnonic vortex crystals. M. Hänze[1], C.F. Adolff[1], M. Weigand[3] and *G. Meier*[2,1] *1. University of Hamburg, Hamburg, Germany; 2. Max Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany; 3. Max Planck Institute for Intelligent Systems, Stuttgart, Germany*

THURSDAY MORNING 9:30 — SAPPHIRE BALLROOM SOUTH

Session EU
SPIN CURRENTS, SPIN HALL AND RELATED EFFECTS III (Poster Session)

Masaki Mizuguchi, Chair
Tohoku University, Sendai, Japan

EU-01. Spin torque in thin topological insulator films. C. Ho[1], *M.B. Jalil*[1] and S. Tan[2] *1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; 2. Data Storage Institute, Singapore, Singapore*

EU-02. Modification of current-induced spin-orbit torques in Pt/Co/AlOx due to thermal annealing. A. Ghosh[1], *K. Garello*[1], C. Avci[1], M. Gabureac[1] and P. Gambardella[1] *1. Department of Materials, ETHZ, Zurich, Switzerland*

EU-03. Spin-orbit torque in antiferromagnetic Cr and paramagnetic Ru based epitaxial magnetic heterostructures. *Z. Wen*[1], J. Kim[1], H. Sukegawa[1], M. Hayashi[1] and S. Mitani[1] *1. National Institute for Materials Science, Tsukuba, Japan*

EU-04. External Field Free Spin Hall Switching of Perpendicular CoFeB Using a Coupled Composite Structure. *A.K. Smith*[1], M. Jamali[1], Z. Zhao[1] and J. Wang[1] *1. Electrical and Computer Engineering, University of Minnesota, New Brighton, MN*

EU-05. Spin relaxation through Kondo scattering in Cu/Py lateral spin valves. *J. Batley*[1], M.C. Rosamond[2], M. Ali[1], E. Linfield[2], G. Burnell[1] and B. Hickey[1] *1. Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 2. Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom*

EU-06. Electrical oblique Hanle effect in CoFe/SiO_2/Si tunnel contacts. *S. He*[1,2], J. Lee[1,3], P. Grünberg[3,2] and B. Cho[1,3] *1. School of Materials Science and Engineering, Gwangju Institute of Science and Technology (GIST), Gwangju, The Republic of Korea; 2. Grüenberg Research Center, Nanjing University of Posts and Telecommunications, Nanjing, China; 3. Grünberg Center for Magnetic Nanomaterials, Gwangju Institute of Science and Technology (GIST), Gwangju, The Republic of Korea*

EU-07. Systematic study on dynamical spin injection from CoFeAl using laterally configured structure. *Y. Yokotani*[1], K. Yamanoi[1], S. Yakata[2] and T. Kimura[1,3] *1. Physics, Kyushu University, Fukuoka, Japan; 2. Fukuoka Institute of Technology, Fukuoka, Japan; 3. Research Center for Quantum Nano-Spin Sciences, Kyushu University, Fukuoka, Japan*

EU-08. Thermal Spin Injection, Thermoelectric Effects, and Empirical Thermal Modeling of Metallic Non-Local Spin Valves. *A. Hojem*[1], D. Wesenberg[1] and B. Zink[1] *1. Physics and Astronomy, University of Denver, Denver, CO*

EU-09. Structural and Thermal Disorder in the Spin-Gapless Semiconductor CoFeCrAl. R. Choudhary[1,3], P.R. Kharel[2,3], S. Valloppilly[3], Y. Jin[3], A. O'Connell[3], *P. Manchanda*[3], Y. Huh[2], S. Gilbert[2], A. Kashyap[1], D.J. Sellmyer[3] and R. Skomski[3] *1. School of Basic Sciences (Physics), Indian Institute of Technology,Mandi, Mandi, Himachal Pradesh, India; 2. Department of Physics, South Dakota State University, Brookings, SD; 3. Department of Physics and Astronomy, University of Nebraska, Lincoln, NE*

EU-10. Synthesis and Optical Control of Circular Polarization in Monolayer Tungsten Disulfide. *K.M. McCreary*[1], A. Hanbicki[1], G. Kioseoglou[2], M. Currie[1], A.L. Friedman[1] and B. Jonker[1] *1. Naval Research Laboratory, Washington, DC; 2. University of Crete, Heraklion, Crete, Greece*

EU-11. Spin Hall Effects from Mesoscopic Pt Films with High Resistivity. *C. Qin*[1], Y. Luo[2,3], C. Zhou[2,3], Y. Cai[1], S. Chen[1], Y. Wu[2,3] and Y. Ji[1] *1. Department of Physics and Astronomy, Unversity of Delaware, Newark, DE; 2. Department of Physics, Fudan University, Shanghai, China; 3. State Key Laboratory of Surface Physics, Fudan University, Shanghai, China*

EU-12. Spin Hall voltages from a.c. and d.c. spin currents. *D. Wei*[1,2], M. Obstbaum[1], M. Ribow[1,3], C.H. Back[1] and G. Woltersdorf[1,3] *1. Physics Department, Regensburg University, Regensburg, Bayern, Germany; 2. State Key Laboratory of Superlattices and Microstructures, Institute of Semiconductors, Beijing, China; 3. Physics Department, Martin Luther University Halle-Wittenberg, Halle (Saale), Germany*

EU-13. Spin currents injected electrically and thermally from highly spin polarized Co_2MnSi. *A. Pfeiffer*[1], S. Hu[2], R.M. Reeve[1], A. Kronenberg[1], M. Jourdan[1], T. Kimura[2] and M. Kläui[1] *1. Institut für Physik, Johannes Gutenberg Universität Mainz, Mainz, Germany; 2. Research Center for Quantum Nano-Spin Sciences, Kyushu University, Fukuoka, Japan*

EU-14. Thermal spin injection and transport in non-degenerate *n*-type Si. *N. Yamashita*[1], M. Kameno[1,2], Y. Ando[1], H. Koike[3], T. Sasaki[3], Y. Suzuki[2] and M. Shiraishi[1] *1. Kyoto University, Kyoto, Japan; 2. Osaka university, Osaka, Japan; 3. TDK Corporation, Tokyo, Japan*

THURSDAY MORNING 9:30 — SAPPHIRE BALLROOM SOUTH

Session EV
DYNAMICS OF WALLS AND REVERSAL (Poster Session)

Rantej Bali, Chair
Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany

EV-01. Evolution of dynamic relaxation in Co_2MnSi Heulser alloys upon He^+ irradiation. *I. Abdallah*[1], N. Biziere[1], N. Ratel-Ramond[1], B. Pecassou[1], R. Cours[1], C. Magen[2], J. Bobo[1], G. Benassayag[1] and E. Snoeck[1] *1. CEMES-CNRS, Toulouse, France; 2. LMA-INA, Universidad de Zaragoza, Zaragoza, Spain*

EV-02. Non-Markovian magnetization dynamics for uniaxial nanomagnets. *P. Thibaudeau*[1], J. Tranchida[1,2] and S. Nicolis[2] *1. DAM, Commissariat à l'Energie Atomique, Monts, France; 2. CNRS-Laboratoire de Mathématiques et Physique Théorique (UMR 7350), Université des Sciences et Techniques, Tours, France*

EV-03. Magnetization reversal of high coercivity $L1_0$ ordered FePt granular film by femtosecond (fs) pulsed laser assist through a nanoparticle array. *Y. Chen*[1], Z. Pan[1], V. Vytautas[1], H. Yang[1], A. Kuznetsov[1], S. Leong[1], B. Xu[1] and J. Hu[1] *1. Data Storage Institute, A*STAR, Singapore, Singapore*

EV-04. Effects of Disorder and Grain Size on Domain Wall Propagation in CoFeB Thin Films. *M. Voto*[1], L. Lopez-Diaz[1] and L. Torres[1] *1. Department of Applied Physics, Universidad de Salamanca, Salamanca, Spain*

EV-05. Withdrawn

EV-06. Substrate influence on the magnetization dynamics of Ni-Fe thin films. *Y. Endo*[1], Y. Mitsuzuka[1], Y. Shimada[1] and M. Yamaguchi[1] *1. Department of Electrical Engineering, Tohoku University, Sendai, Japan*

EV-07. Dynamics of inter-layer exchange-coupled nanomagnets. *H.S. Dey*[1], X. Hu[2], A. Papp[1], G. Csaba[1], H.W. Schumacher[2], A. Orlov[1], G.H. Bernstein[1] and W. Porod[1] *1. Electrical Engineering, University of Notre Dame, South Bend, IN; 2. Physikalisch-Technische Bundesanstalt (PTB), Braunschweig, Germany*

EV-08. Dynamic Magnetic Properties of Continuous/Non-Continuous FeNi Nanowire Arrays. *H. Yang*[1,2], Y. Li[2], W. Bailey[2] and R. Yu[1] *1. School of materials Science and Engineering, Beihang Univesity, Beijing, Beijing, China; 2. Materials Science & Engineering, Department of Applied Physics & Applied Mathematics, Columbia University, New York, NY*

EV-09. Dynamic Behavior of Modulated $Ni_{80}Fe_{20}$ Nanowires. *L. Xiong*[1] and A. Adeyeye[1] *1. Information Storage Materials Laboratory, Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore*

EV-10. Magnetization dynamics and reversal mechanisms in electrodeposited $Ni_{80}Fe_{20}$ nanowires with different aspect ratios. *N. Ahmad*[1,2], J. Chen[1], A. Majid[3], S.A. Shah[4] and X. Han[1] *1. Institute of Physics, Beijing, Beijing, Pakistan; 2. Physics, International Islamic University, Islaambd, Pakistan; 3. Physics, University of Gujrat, Gujrat, Pakistan; 4. Materials Science, University of Washington, Seattle, Washington, WA*

EV-11. In-plane current induced domain wall nucleation and oscillations in perpendicular anisotropy Hall cross structures. *P. Sethi*[1], C. Murapaka[1], G. Joseph Lim[1] and W. Lew[1] *1. Division of Physics and Applied Physics, School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore*

EV-12. Magnetic domain motion triggered by high frequency strain. *U. Singh*[1,2] and S. Adenwalla[1,2] *1. Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE; 2. Nebraska Center for Materials and Nanoscience, University of Nebraska-Lincoln, Lincoln, NE*

EV-13. Impact of Biquadratic Coupling on Current Induced Magnetization Switching in Co/Cu/Ni-Fe Nanopillar. *A. Devarasu*[1], S. Ponraj[2] and M. Daniel[1] *1. Physics, Bharathidasan University, Tiruchirappalli, Tamilnadu, India; 2. School of Electrical and Electronics Engineering, SASTRA University, Thanjavur, Tamilnadu, India*

EV-14. Correlation between the field-driven microscopic magnetization reversal and the disorders in ferromagnetic systems. *K. Ryu*[1] and S. Shin[2] *1. Dep. of Physics Education, Korea National University of Education, Cheongju, Chungbuk 361-892, The Republic of Korea; 2. Department of Emerging Materials Science, Daegu Gyeongbuk Institute of Science and Technology, Daegu, The Republic of Korea*

Session EW
MAGNETIC NANOWIRES AND ARRAYS (Poster Session)
Lance De Long, Chair
University of Kentucky, Lexington, KY

EW-01. Brillouin Light Spectroscopy Study Of Ultrathin Co/Pt Nanowire Arrays In Presence Of Interfacial Dzyaloshinskii-Moriya Interaction. A. Akarid[1], K. Narayanapillai[2], *J. Yoon*[2], Y. Roussigné[1], S.M. Chérif[1], H. Yang[2], M. Belmeguenai[1] and A. Stashkevich[1,3] *1. LSPM, University Paris 13, Villetaneuse, France; 2. National University of Singapore, Singapore, Singapore; 3. MultiferrLab, ITMO University, St. Petersburg, Russian Federation*

EW-02. Domain Wall Structure and Interactions in Arrays of 40 nm Wide Cobalt Nanowires Patterned by Block Copolymer Lithography. *K. Tu*[1] and C. Ross[1] *1. Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA*

EW-03. Magneto-Optical Kerr Effect Measurements on Single FeCoCu Nanowires with periodical Diameter Modulations. E.M. Palmero[1], C. Bran[1], J. Fernández-Roldán[1], R. Perez del Real[1] and *M. Vázquez*[1] *1. Institute of Materials Science of Madrid (ICMM-CSIC), Madrid, Spain*

EW-04. Magnetic properties of the uniform array of high aspect-ratio single crystal <0001> Co nanowires. *A. Ognev*[1], K. Ermakov[1], A. Samardak[1], A.S. Samardak[1] and L. Chebotkevich[1] *1. School of Natural Sciences, Far Eastern Federal University, Vladivostok, Russian Federation*

EW-05. Influence of domain walls on the heat transport of the ferromagnetic nanowire. *H. Huang*[1] and Z. Wei[2] *1. Institute of Nanoengineering and Microsystems, National Tsing Hua University, Hsinchu, Taiwan; 2. Department of Power Mechanical Engineering, National Tsing Hua University, Hsinchu, Taiwan*

EW-06. Manipulation of Electromagnetic Waves Using Arrays of Magnetic Nano-Elements. *I. Lisenkov*[1,2], L. Levin-Pompetzki[1], V. Tyberkevych[1], S. Nikitov[2,3] and A.N. Slavin[1] *1. Department of Physics, Oakland University, Rochester, MI; 2. Kotelnikov Institute of Radio-Engineering and Electronics of RAS, Moscow, Russian Federation; 3. Department of Physical and Quantum Electronics, Moscow Institute for Physics and Technology, Moscow, Russian Federation*

EW-07. Thickness Dependent Ferromagnetic Domain Structure in Antiferromagnetic/Ferromagnetic Bilayer Nanostructures. *A.D. Bang*[1], F.K. Olsen[1], S. Slöetjes[1], A. Scholl[2], A. Young[2], S.T. Retterer[4], Y. Takamura[3], T. Tybell[1], E. Folven[1] and J.K. Grepstad[1] *1. Department of Electronics and Telecommunications, Norwegian University of Science and Technology, Trondheim, Norway; 2. Advanced Light Source, Berkeley, CA; 3. UC Davis, Davis, CA; 4. Oak Ridge National Laboratory, Oak Ridge, TN*

EW-08. 2D-periodic template systems for electrodeposition of modulated magnetic nanowires: The use of nanochannels. *P. Sergelius*[2], J.M. Montero Moreno[2], W. Rahimi[2], M. Waleczek[2], R. Zierold[2], D. Görlitz[2] and K. Nielsch[2,1] *1. Leibnitz Institute for Solid State and Materials Research (IFW), Dresden, Germany; 2. University of Hamburg, Institute for Nanostructure and Solid State Physics, Hamburg, Germany*

EW-09. Investigation of the Magnetization Reversal Mechanism of Electrolessly Deposited Co-B Nanotubes. *F.M. Rhen*[1,2], S. Kingston[1,2] and D. Richardson[1,2] *1. Department of Physics and Energy, University of Limerick, Limerick, Ireland; 2. Materials and Surface Science Institute, University of Limerick, Limerick, Ireland*

EW-10. Temperature dependence of magnetic properties for Ni nanotube arrays. *A. Pereira*[1], J.L. Palma[1], J. Denardin[1,2] and J. Escrig[1,2] *1. Departamento de Física, Universidad de Santiago Chile, Santiago, Chile; 2. Center for the Development of Nanoscience and Nanotechnology, Santiago, Chile*

EW-11. Ferromagnetic resonance power absorption by a magnetic nanowire. P. Yarbrough[1], N. Christian[1], I. Harward[1], Z. Celinski[1] and *K. Livesey*[1] *1. Department of Physics, University of Colorado at Colorado Springs, Colorado Springs, CO*

EW-12. Tuned morphology of FePt nanocrystals synthesized by wet chemical method under high magnetic field. *C. Wu*[1], W. Pei[2], K. Wang[1], X. Wang[1], Y. Zhao[1], Q. Wang[1] and J. He[1] *1. Key Laboratory of Electromagnetic Processing of Materials, Northeastern University of China, Shenyang, Liaoning, China; 2. Key Laboratory of Anisotropy and Texture of Materials (Ministry of Education), Northeastern University of China, Shenyang, Liaoning, China*

EW-13. Non-reciprocal electromagnetic wave propagation in Permalloy (NiFe) nano-strips. *B.K. Kuanr*[2,1] and Z. Celinski[1] *1. Department of Physics, University of Colorado at Colorado Springs, Colorado Springs, CO; 2. Special Centre for Nanoscience, Jawaharlal Nehru University, New Delhi, India*

EW-14. The investigation of ferromagnetic resonance linewidth of patterned permalloy films with submicron rectangular element. D. Zhang[1,2], J. Yue[1], Z. Kou[1], *Y. Zhai*[1,3] and H. Zhai[3] *1. Department of Physics, Southeast University, Nanjing, Jiangsu, China; 2. School of Physical Science and Information Engineering, Liaocheng University, Liaocheng, Shangdong, China; 3. National Laboratory of Solid Microstructures, Nanjing University, Nanjing, Jiangsu, China*

Session EX
MODELING AND SIMULATIONS OF MOTORS III (Poster Session)

Vincent Mazauric, Chair
Schneider Electric, Grenoble, France

EX-01. High Performance Fault Tolerant Halbach Permanent Magnet Vernier Machines for Safety-Critical Applications. L. Xu[1], *G. Liu*[1], W. Zhao[1] and J. Ji[1] *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, Jiangsu, China*

EX-02. Numerical Model of AC Losses for superconducting MgB_2/ Monel Wires. *K. Dong*[1] and H. Yu[1] *1. school of electrical engineering, southeast university, Nanjing, Jiangsu, China*

EX-03. Maximizing Performance of Synchronous Reluctance Motor Using Coupled Electromagnetic and Structural Analysis. M. Hsieh[1], *C. Lee*[1], H. Kuo[1] and Y. Li[1] *1. National Cheng Kung University, Tainan, Taiwan*

EX-04. Armature Reaction Magnetic Field and Inductance of Tubular Linear Synchronous Machine with Axially Magnetized Permanent Magnets Accounting for Flux Passing Iron Pole Effect. *K. Shin*[1], J. Choi[1], H. Park[1], H. Shin[1] and H. Cho[1] *1. Chungnam National University, Daejeon, The Republic of Korea*

EX-05. Analysis and Modeling of A Novel Moving-Magnet-Type Linear Synchronous Motor with Ring Structure Winding. *L. Zhang*[1], B. Kou[1], Z. Zhang[2] and Y. Jin[1] *1. Department of Electrical Engineering, Harbin Institute of Technology, Harbin, Heilongjiang, China; 2. College of Mechanical and Electrical Engineering, Central South University, Changsha, Hunan, China*

EX-06. Optimization of Disk Coreless In-wheel Permanent Magnet Synchronous Motor. F. Liu[1], R. Zhang[1], Z. Zhao[1] and *Y. Li*[1] *1. Province-Ministry Joint Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability, Hebei University of Technology, Tianjin, China*

EX-07. Design of Magnetization Yoke and Rotor of Ferrite Spoke-Type PMSM considering Post-Assembly Magnetization. C. Park[2], *H. Seol*[1], H. Ahn[1] and S. Cho[1] *1. Hanyang University, Seoul, The Republic of Korea; 2. Korea National University of Transportation, Uiwang-si, The Republic of Korea*

EX-08. Optimal Arrangement of Permanent Magnets in a Dual-permanent-magnet-excited Synchronous Motor. Y. Chen[1], *W. Fu*[1] and W. Zhu[1] *1. Department of Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

EX-09. Design and Analysis of a Shoe-Embedded Power Harvester Based on Magnetic Gear. *Y. Liu*[2,1], W. Fu[1] and M. Sun[2] *1. The Hong Kong Polytechnic University, Hong Kong, Hong Kong; 2. The University of Pittsburgh, Pittsburgh, PA*

EX-10. Research on Magnet Loss of Surface Permanent Magnet Machines with Different Fractional Slot Concentrated Windings. J. Li[1], *J. Zou*[1], Y. Xu[1] and W. Liang[1] *1. Harbin Institute of Technology, Harbin, China*

EX-11. Dragonfly Algorithm for Brushless DC Wheel Motor Design. X. Zhang[1], *X. Zhang*[1] and W. Fu[2] *1. College of Electronic and Communication Engineering, Tianjin Normal University, Tianjin, China; 2. Department of Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

EX-12. Design of Novel Shaftless Pump-Jet Propulsor for Multi-Purpose Long Range and High Speed Autonomous Underwater Vehicle. *P. Hu*[1], Y. Shen[1], S. Jin[1], S. Zhuang[1], R. Lan[1], K. Wang[1], J. Chen[1] and D. Wang[1] *1. National Key Laboratory of Science and Technology on Vessel Integrated Power System, Naval Univ. of Engineering, Wuhan, Hubei, China*

EX-13. Performance Comparison between the Normal-conducting Magnet LSM and the Superconducting Magnet LSM. *C. Park*[1], H. Lee[2], J. Lee[3] and C. Lee[4] *1. Department of Railway Operation System Engineering, Korea National University of Transprotation, Uiwang-si, The Republic of Korea; 2. Korea National University of Transportation, Uiwang-si, The Republic of Korea; 3. Hanyang University, Seoul, The Republic of Korea; 4. Korea Railroad Research Institute, Uiwang-si, The Republic of Korea*

EX-14. Characteristic of Squirrel-cage Induction Machine with Double Skew Rotor for Different Slot Combination. *L. Wang*[1], X. Bao[1], C. Di[1] and Y. Zhou[1] *1. School of Electrical Engineering and Automation, Hefei University of Technology, Hefei, Anhui, China*

THURSDAY MORNING 9:30 — SAPPHIRE BALLROOM SOUTH

Session EY
MODELING AND SIMULATIONS OF MOTORS IV (Poster Session)

Yang-Ki Hong, Chair
University of Alabama, Tuscaloosa, AL

EY-01. Performance Improvement of Partitioned Stator Switched Flux Memory Machine with Triple-Magnet Configuration. *H. Yang*[1,2], Z. Zhu[2], H. Lin[1], Y. Zhang[1], S. Fang[1] and Y. Huang[1] *1. Engineering Research Center for Motion Control of Ministry of Education, Southeast University, Nanjing, China; 2. Department of Electronic and Electrical Engineering, University of Sheffield, Sheffield, United Kingdom*

EY-02. Modeling and Study of Permanent Magnet Synchronous Machine with Phase to Phase Fault. J. Hang[1], J. Zhang[1], *P. Han*[1] and M. Cheng[1] *1. Electrical Engineering, Southeast University, Nanjing, Jiangsu, China*

EY-03. Design and Analysis of Brushless Wound Rotor Synchronous Machine with Balanced Radial Force. *Q. Ali*[1], S. Atiq[1], T.A. Lipo[2] and B. Kwon[1] *1. Electronic Systems Engineering, Hanyang University, Ansan, The Republic of Korea; 2. Department of Electrical and Computer Engineering, Florida State University, Tallahassee, FL*

EY-04. Analysis on the Pitching Moment in Permanent Magnet Linear Synchronous Motor for Linear Motion Stage Systems. C. Han[1], K. Shin[1], *H. Cho*[1], C. Park[2] and G. Khim[2] *1. Chungnam National University, Daejeon, The Republic of Korea; 2. Korea Institute of Machinery and Materials, Daejeon, The Republic of Korea*

EY-05. Flux Weakening Performance of Permanent Magnet Synchronous Motors with a Conical Rotor. F. Chai[1], *K. Zhao*[1,2] and L. Yuan[1] *1. Department of Electrical Engineering, Harbin Institute of Technology, Harbin, China; 2. Department of Information and Electronic Technology, Jiamusi University, Jiamusi, China*

EY-06. A Study on the Effects of the FSS Structured Anti-Scattering Tube on the Eddy Current Loss in the Permanent Magnet of the SPM Motor. *S. Won*[2], H. Jun[1], H. Ahn[1] and W. Shim[1] *1. Electric Engineering Department, Hanyang University, Seoul, The Republic of Korea; 2. 1Department of Electronic and Communication Engineering, Dongyangmirae University, Seoul, The Republic of Korea*

EY-07. Dynamic Performance Analysis of Slotted Limited-Angle Torque Motor by Means of Field-Circuit Coupling Simulation. G. Yu[1], *J. Zou*[1], Y. Xu[1], J. Li[1], Q. Wang[1] and B. Zhao[1] *1. Harbin Institute of Technology, Harbin, China*

EY-08. SynRM Driven CVT System Using Blend Recurrent Gegenbauer OPNNAPSO Control. *C. Lin*[1] *1. Electrical Engineering, National United University, Miaoli, Taiwan*

EY-09. Investigation of a Magnetic-Field Modulated Brushless Double-Rotor Machine with the High-Strength and Low-Loss Modulating Ring Rotor. *J. Bai*[1] and P. Zheng[1] *1. Harbin Institute of Technology, Harbin, Heilongjiang, China*

EY-10. Minimization of Vibration in Flux-Switching Permanent-Magnet Motors Based on Double Fault-tolerant Teeth. G. Liu[1], Z. Wang[1], *W. Zhao*[1], Y. Mao[1] and J. Ji[1] *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*

EY-11. Evaluation of Magnetic Characteristic of Ultra Thin Electrical Steel Sheet. *T. Sato*[1] and M. Enokizono[1] *1. Oita University, Oita, Japan*

EY-12. **Electromagnetic Analysis and Experimental Verification of Double-sided Permanent Magnet Linear Synchronous Generator with Slotted Stator Based on Electromagnetic Transfer Relations.** *S. Seo*[1], J. Choi[1], M. Koo[1] and J. Jeong[1] *1. Chungnam National University, Dae-jeon, The Republic of Korea*

EY-13. **Analysis and Measurement of the Influence of Auxiliary Teeth and Notches on the Reduction of the Detent Force of a Permanent Magnet Linear Synchronous Machine.** *M. Koo*[1], J. Choi[1], K. Shin[1] and H. Park[1] *1. Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea*

EY-14. **Analysis of dynamic unbalanced magnetic pull in induction motor with dynamic eccentricity during starting period.** *Y. Zhou*[1] and X. Bao[1] *1. School of Electrical Engineering and Automation, Hefei University of Technology, Hefei, Anhui, China*

THURSDAY
AFTERNOON
1:30

SAPPHIRE ABEF

Session FA

ANTIFERROMAGNETIC SPINTRONICS BORN AGAIN

Aurelien Manchon, Co-Chair
King Abdullah University of Science and Technology, Thuwal, Saudi Arabia

Vincent Baltz, Co-Chair
SPINTEC, Grenoble, France

1:30

FA-01. **Current-induced switching of antiferromagnets.** ***(Invited)*** *T. Jungwirth*[1,2] *1. Department of Spintronics and Nanoelectronics, Institute of Physics, Academy of Sciences of the Czech Republic, Praha 6, Czech Republic; 2. School of Physics and Astronomy, University of Nottingham, Nottingham, United Kingdom*

2:06

FA-02. **Spin-Hall effects in metallic antiferromagnets.** ***(Invited)*** *W. Zhang*[1], M. Jungfleisch[1], F. Freimuth[3], J. Sklenar[1,2], W. Jiang[1], J.E. Pearson[1], Y. Mokrousov[3], J.B. Ketterson[2] and A. Hoffmann[1] *1. Material Science Division, Argonne National Laboratory, Lemont, IL; 2. Department of Physics and Astronomy, Northwestern University, Evanston, IL; 3. Peter Grünberg Institut and Institute for Advanced Simulation, Jülich, Germany*

2:42

FA-03. Insulating antiferromagnets for spintronics. *(Invited)*
M. Viret[1], J. Chauleau[1], C. Hahn[1], G. de Loubens[1], O. Klein[1], J. Ben Youssef[2], M. Goiran[3], B. Raquet[3], M. Elzo[4] and N. Jaouen[5] *1. DSM/IRAMIS/SPEC, CEA Saclay, Gif sur Yvette, France; 2. Université de Bretagne Occidentale, Brest, France; 3. LNCMI, Toulouse, France; 4. Laboratoire Louis Néel, Grenoble, France; 5. Synchrotron Soleil, Saint Aubin, France*

3:18

FA-04. Interconnections between magnetic state and transport currents in antiferromagnetic Sr_2IrO_4. *(Invited)* *M. Tsoi*[1] *1. Physics Department, University of Texas at Austin, Austin, TX*

3:54

FA-05. Anomalous Hall Effect in Noncollinear Antiferromagnets. *(Invited)* *C. Suergers*[1] *1. Physikalisches Institut, Karlsruhe Institute of Technology, Karlsruhe, Germany*

THURSDAY AFTERNOON 1:30 — SAPPHIRE IJ

Session FB
MRAM AND SPIN LOGIC III

Kay Yakushiji, Chair
AIST, Tsukuba, Japan

1:30

FB-01. Write error rate ballooning in perpendicular STT-MRAM cell: Underlying mechanism and relation to back-hopping.
D. Apalkov[1], S. Schäfer[1], V. Voznyuk[1], R. Beach[1] and V. Nikitin[1] *1. New Memory Technology, Semiconductor R&D Center, Samsung Electronics, San Jose, CA*

1:42

FB-02. Nanosecond-Scale Switching in Perpendicularly Magnetized STT-MRAM Cells. *T. Devolder*[1], J. Kim[1], F. Garcia-Sanchez[1], A. Le Goff[1], J. Swerts[2], W. Kim[2], S. Couet[2], G.S. Kar[2] and A. Furnemont[2] *1. Univ. Paris-sud, IEF, Orsay, France; 2. IMEC, Leuven, Belgium*

1:54

FB-03. Bit-error-rate dependence on write voltage and write time in individual sub-40 nm MRAM Devices. *J.J. Nowak*[1,2], R. Robertazzi[1,2], J. Sun[1,2], G. Hu[1,2], J. Park[2], J. Lee[2], G. Lauer[1,2], C. Kothandaraman[1,2], A.J. Annunziata[1,2] and D. Worledge[1,2] *1. IBM TJ Watson Research Center, IBM-Micron MRAM Alliance, Yorktown Heights, NY; 2. IBM TJ Watson Research Center, IBM-Samsung MRAM Alliance, Yorktown Heights, NY*

2:06

FB-04. Conceptual adiabatic control of magnetic free-layers in TMR devices by the use of non-collinear material gating. *K. Bussmann*[1] *1. Naval Research Laboratory, Washington, DC*

2:18

FB-05. Four resistance states in $Ni_{50.3}Mn_{36.9}Sb_{12.8}/BiFeO_3/Ni_{50.3}Mn_{36.9}Sb_{12.8}$ in multiferroic tunnel junction. *R. Barman*[1] and D. Kaur[1] *1. Physics Department, IIT Roorkee, Roorkee, India*

2:30

FB-06. Optimum boron composition difference between single and double CoFeB/MgO interface perpendicular magnetic tunnel junctions (MTJs) with high thermal tolerance and its mechanism. *H. Honjo*[1,5], H. Sato[1,2], S. Ikeda[1,5], S. Sato[1,5], T. Watanabe[1,5], S. Miura[1,5], T. Nasuno[1,5], Y. Noguchi[1,5], M. Yasuhira[1,5], T. Tanigawa[1,5], H. Koike[1,5], M. Muraguchi[1,4], M. Niwa[1,5], K. Ito[1], H. Ohno[1,3] and T. Endoh[1,4] *1. Center for Innovative Integrated Electronic Systems, Tohoku University, Sendai, Japan; 2. Center for Spintronics Integrated Systems, Tohoku University, Sendai, Japan; 3. Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 4. Graduate School of Engineering, Tohoku University, Sendai, Japan; 5. JST ACCEL, Tohoku University, Sendai, Japan*

2:42

FB-07. A first principles study of the oscillatory behavior of tunnel magnetoresitance: On the impact of magnetic and tunneling barrier layers and of the capping metals. *K. Sankaran*[1], J. Swerts[1], S. Couet[1], A. Furnemont[1], K. Stokbro[2] and G. Pourtois[1,3] *1. imec, Leuven, Belgium; 2. QuamtumWise A/S, Copenhagen, Denmark; 3. PLASMANT, Department of Chemistry, University of Antwerp, Antwerpen, Belgium*

2:54

FB-08. Magnetic tunnel junctions with a tetragonal Heusler Mn_3Ge electrode. *A. Sugihara*[1], K.Z. Suzuki[1], T. Miyazaki[1] and S. Mizukami[1] *1. Tohoku University, Sendai, Japan*

3:06

FB-09. Thermal Response of Tunneling Magneto-Resistance in Magnetic Tunnel Junctions. *R.R. Katti*[1] *1. Honeywell Aerospace, Plymouth, MN*

3:18

FB-10. Thermally Activated Magnetization Fluctuations in Perpendicular Magnetic Tunnel Junctions. *S.K. Piotrowski*[1] and S. Majetich[1] *1. Physics, Carnegie Mellon University, Pittsburgh, PA*

3:30

FB-11. Rock-salt $Mg_{1-x}Ti_xO$ barriers for polycrystalline magnetic tunnel junctions with large tunneling magnetoresistance. *I. Ikhtiar*[1,2], S. Kasai[1], P. Chen[1,2], T. Ohkubo[1], Y. Takahashi[1], T. Furubayashi[1] and K. Hono[1,2] *1. National Institute for Materials Science, Tsukuba, Japan; 2. University of Tsukuba, Tsukuba, Japan*

3:42

FB-12. Tunnel anisotropic magnetoresistance in CoFeB|MgO|Ta junctions. *S. Hatanaka*[1], S. Miwa[1], K. Matsuda[1], K. Nawaoka[1], K. Tanaka[1], H. Morishita[1], M. Goto[1], N. Mizuochi[1] and Y. Suzuki[1] *1. Graduate School of Engineering Science, Osaka University, Toyonaka, Osaka, Japan*

3:54

FB-13. Spin torque majority gate devices: towards 300 mm wafer integration. *M. Manfrini*[1], A. Vaysset[1,2], F. Ciubotaru[1,2], J. Yan[1,2], D. Radisic[1], M. Ercken[1], D. Trivkovic[1], J. Swerts[1], B. Briggs[1], C.J. Wilson[1], D. Lin[1], A.C. Mocuta[1], I. Radu[1], A. Thean[1], D.E. Nikonov[3], S. Sayan[1,3], S. Manipatruni[3] and I. Young[3] *1. Logic Technologies, imec, Leuven, Belgium; 2. KU Leuven, Leuven, Belgium; 3. Exploratory Integrated Circuits, Intel Corporation, Hillsboro, OR*

4:06

FB-14. Exchange bias in IrMn/[Co/Pt] multilayer for perpendicular magnetized magnetic tunnel junctions. *K. Nakamura*[1], H. Maehara[2], H. Tomita[1], Y. Tanaka[1], T. Kitada[1], S. Furukawa[1] and N. Watanabe[1] *1. Tokyo Electron Yamanashi Limited, Nirasaki City, Yamanashi, Japan; 2. Tokyo Electron Limited, Tokyo, Japan*

4:18

FB-15. Detrimental effect of interfacial Dzyaloshinskii-Moriya interaction on perpendicular magnetic random access memory. *P. Jang*[1] and K. Lee[1,2] *1. Dept. of Mater. Sci. & Eng., Korea University, Seoul, The Republic of Korea; 2. KU-KIST Graduate School, Korea University, Seoul, The Republic of Korea*

THURSDAY AFTERNOON 1:30 — SAPPHIRE MN

Session FC
WALLS, VORTICES AND SKYRMIONS II
Sug-Bong Choe, Chair
Seoul National University, Seoul, The Republic of Korea

1:30

FC-01. Skyrmion oscillators with inhomogeneous polarizer. F. Garcia-Sanchez[1], *J. Kim*[1], N. Reyren[2] and V. Cros[2] *1. Institut d'Electronique Fondamentale, CNRS / Univ. Paris-Sud, Orsay, France; 2. Unite Mixte de Physique CNRS/Thales and Univ. Paris Sud, Palaiseau, France*

1:42

FC-02. Vortex Dynamics-Mediated Magnetization Switching in $L1_0$-FePt | $Ni_{81}Fe_{19}$ Nanodots. *T. Seki*[1,2], W. Zhou[1], H. Arai[2,3], H. Imamura[3] and K. Takanashi[1] *1. Institute for Materials Research, Tohoku University, Sendai, Japan; 2. JST-PRESTO, Saitama, Japan; 3. National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan*

1:54

FC-03. Velocity asymmetry of chiral Néel domain walls in the creep and flow propagation regimes. *S. Pizzini*[1], M. Vanatka[1], J. Rojas Sanchez[4], J. Vogel[1], M. Bonfim[2], M. Belmeguenai[3] and A. Thiaville[4] *1. Institut Néel, CNRS, Grenoble, France; 2. Departamento de Engenharia Eletrica, Universidade Federal do Parana,, Curitiba, Brazil; 3. LSPM, Université Paris 13, Villetaneuse, France; 4. Laboratoire de Physique des Solides, CNRS, Orsay, France*

2:06

FC-04. Instanton droplet driven by spin-transfer torque in perpendicular materials with Dzyaloshinskii–Moriya Interaction. *M. Carpentieri*[1], R. Zivieri[2], R. Tomasello[3] and G. Finocchio[4] *1. Ingegneria Elettrica e dell'Informazione, Politecnico of Bari, Bari, Italy; 2. Physics and Earth Sciences and CNISM Unit of Ferrara, University of Ferrara, Ferrara, Italy; 3. Computer Science, Modelling, Electronics and System Science, University of Calabria, Rende, Italy; 4. Electronic Engineering, Industrial Chemistry and Engineering, University of Messina, Messina, Italy*

2:18

FC-05. Temperature and field dependent investigation of the non-collinear magnetic structures of the double and triple layers Fe on Ir(111) using spin-polarized scanning tunneling microscopy (SP-STM). *A. Finco*[1], P. Hsu[1], N. Romming[1], T. Eelbo[1], L. Schmidt[1], A. Kubetzka[1], K. von Bergmann[1] and R. Wiesendanger[1] *1. Institute of Applied Physics, University of Hamburg, Hamburg, Germany*

2:30

FC-06. The effect of interfaces and impurities on current driven skyrmion dynamics. K. Koumpouras[1] and *A. Bergman*[1] *1. Dept. of Physics and Astronomy, Uppsala University, Uppsala, Sweden*

2:42

FC-07. Creep Turns Linear in Narrow Ferromagnetic Nanostrips. J. Leliaert[1,2], *B. Van de Wiele*[1], A. Vansteenkiste[2], L. Laurson[3], G. Durin[4,5], L. Dupre[1] and B. Van Waeyenberge[2] *1. Department of Electrical Energy, Systems and Automation, Ghent University, Ghent, Belgium; 2. Department of Condensed Matter Physics, Ghent University, Ghent, Belgium; 3. Department of Applied Physics, Aalto University School of Science, Espoo, Finland; 4. Istituto nazionale di Ricerca Metrologica, Torino, Italy; 5. ISI Foundation, Torino, Italy*

2:54

FC-08. Spin Distributions in Thick $Ni_{80}Fe_{20}$ Nanodisks. *D. Kumar*[1], P. Lupo[1], A. Haldar[1] and A. Adeyeye[1] *1. Information Storage Materials Laboratory, Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore*

3:06

FC-09. Two-body problem of core-region coupled magnetic vortex stacks. *M. Hänze*[1], C.F. Adolff[1], S. Velten[1], M. Weigand[2] and G. Meier[3,1] *1. University of Hamburg, Hamburg, Germany; 2. Max-Planck-Institute for Intelligent Systems, Stuttgart, Germany; 3. Max-Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany*

3:18

FC-10. Magnetization dynamics in out-of-plane magnetized nanostructures in the presence of Dzyaloshinskii-Moriya interaction. ***(Invited)*** *L.D. Buda-Prejbeanu*[1], O. Boulle[1], N. Mikuszeit[1], M. Miron[1], S. Pizzini[2], J. Vogel[2], K. Garello[3], P. Gambardella[3] and G. Gaudin[1] *1. Univ. Grenoble Alpes, CNRS, CEA, SPINTEC, Grenoble, France; 2. Univ. Grenoble Alpes, CNRS, Institut Néel, Grenoble, France; 3. Department of Materials, ETH Zurich, Zurich, Switzerland*

3:54

FC-11. Gyrational modes of benzenelike magnetic vortex molecules. *C.F. Adolff*[1], M. Hänze[1], M. Pues[1], M. Weigand[2] and G. Meier[3,1] *1. University of Hamburg, Hamburg, Germany; 2. Max Planck Institute for Intelligent Systems, Stuttgart, Germany; 3. Max-Planck-Institute for the Structure and Dynamics of Matter, Hamburg, Germany*

4:06

FC-12. Asymmetric field-driven domain wall creep in [Hf, TaN, W]/CoFeB/MgO ultrathin films. *R. Soucaille*[1], F. Garcia-Sanchez[1], J. Kim[1], T. Devolder[1], J. Adam[1], M. Belmeguenai[2], I. Gross[3], T. Hingant[3], L. Martinez[3], V. Jacques[3], M. Hayashi[4] and J. Torrejon[4] *1. Institut d'Electronique fondamentale, UMR CNRS 8622, Université Paris Sud, Orsay, 91405, France; 2. Laboratoire des Sciences des Procédés et des Matériaux, CNRS-UPR 3407, Université Paris 13, Sorbonne Paris Cité, Villetaneuse, 93430, France; 3. Laboratoire Aimé Cotton, CNRS, Université Paris-Sud, ENS Cachan, Orsay, 91400, France; 4. National Institute for Materials Sciences, Tsukuba, 305-0047, Japan*

4:18

FC-13. Laser-induced Magnetic Vortex Networks in Iron Thin Films. *T. Eggebrecht*[1], M. Möller[2], J. Gatzmann[2], N. da Silva[2], A. Feist[2], M. Münzenberg[3], C. Ropers[2] and S. Schäfer[2] *1. I. Physical Institute, Georg-August-University, Göttingen, Germany; 2. IV. Physical Institute, Georg-August-University, Göttingen, Germany; 3. Interface and Surface Physics, Ernst-Moritz-Arndt-University, Greifswald, Germany*

Session FD

AMORPHOUS AND NANO CRYSTALLINE SOFT MAGNETIC MATERIALS II

Martino LoBue, Chair
CNRS, Cachan, France

1:30

FD-01. Outstanding efficiency in energy conversion for electric motors constructed by nanocrystalline soft magnetic alloy "NANOMET®" cores. *N. Nishiyama*[1], K. Tanimoto[2] and A. Makino[1] *1. Institute for Materials Research, Tohoku University, Sendai, Japan; 2. Production Engineering Laboratory, Panasonic Corporation, Kadoma, Osaka, Japan*

1:42

FD-02. Calculation of Core and Copper Losses in High Frequency Transformers with Amorphous/Nanocrystalline Cores. *X. Liu*[1,2], Y. Wang[1], J. Zhu[2], Y. Guo[2] and C. Liu[1,2] *1. Province-Ministry Joint Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability, Tianjin, China; 2. University of Technology, Sydney, Sydney, NSW, Australia*

1:54

FD-03. Magnetic properties and domain wall velocity evolution versus annealing conditions for FINEMET nanowires. *N. Lupu*[1], S. Corodeanu[1], M. Lostun[1], T. Ovari[1] and H. Chiriac[1] *1. Magnetic Materials and Devices, National Institute of Research and Development for Technical Physics, Iasi, Romania*

2:06

FD-04. Application of FORC analysis to soft magnetic systems: random noise and smoothing effects. *(Invited)* *M. Rivas*[1] and J.C. Martínez-García[1] *1. Physics Department, Universidad de Oviedo, Gijón, Spain*

2:42

FD-05. Dependence of Giant Strain Induced Anisotropy in Co-based Nanocomposites on Early Transition Metal Virtual Bound States (VBS) for Inductor Applications. V. Keylin[1], A. Leary[1], A. Devaraj[3], V.G. DeGeorge[1], P. Ohodnicki[2] and *M.E. McHenry*[1] *1. Carnegie Mellon University, Pittsburgh, PA; 2. National Energy Technology Laboratory, Pittsburgh, PA; 3. Pacific Northwest National Laboratory, Richland, WA*

2:54

FD-06. Structure and magnetic properties of Fe-SiO_2 nanogranular composite thin films co-evaporated under high magnetic field. Y. Ma[1], *G. Li*[1], J. Du[1], M. Li[1] and Q. Wang[1] *1. Northeastern University, Shenyang, China*

3:06

FD-07. Three- dimensional atom probe analysis and magnetic properties of $Fe_{84.3-85}Si_{2-4}B_8P_{3-4}Cu_{0.7-1}$ melt spun ribbons. *S. Jafari*[1,2], A. Beitollahi[2], T. Ohkubo[1], V. Budinsky[3], M. Marsilius[3], G. Herzer[3] and K. Hono[1] *1. Magnetic Materials Unit, National Institue for Material Science (NIMS), Tsukuba, Ibaraki, Japan; 2. Center of Excellence for Ceramics in Energy and Environment, School of Metallurgy and Materials Engineering,Iran University of Science and Technology (IUST), Tehran, The Islamic Republic of Iran; 3. Vacuumschmelze GmbH & Co. KG, D-63450 Hanau, Germany, Hanau, Germany*

3:18

FD-08. Magnetic anisotropy and microstructure in Joule heated cold drawn FINEMET microwires. *H. Chiriac*[1], S. Corodeanu[1], M. Lostun[1], T. Ovari[1] and N. Lupu[1] *1. National Institute of R&D for Technical Physics, Iasi, Romania*

3:30

FD-09. Mechanically strong nanocrystalline Fe-Si-B-P-Cu soft magnetic powder cores utilizing magnetic metallic glass as a binder. *J. Luan*[1], P. Sharma[1], N. Yodoshi[1], Y. Zhang[1] and A. Makino[1] *1. Institute for Materials Research, Tohoku University, Sendai, Miyagi, Japan*

3:42

FD-10. Electronic Structures of Nanocrystalline $Fe_{90-x}Cu_xSi_{10-y}B_y$ *J. Park*[1], Y. Hong[1], W. Lee[1], S. Bae[2], S. Kim[3] and C. Choi[4] *1. The University of Alabama, Tuscaloosa, AL; 2. LG Innotek, Ansan, Gyeonggi, The Republic of Korea; 3. Mississippi State University, Mississippi State, MS; 4. Korea Institute of Materials Science, Changwon, Kyungsangnam, The Republic of Korea*

3:54

FD-11. Synthesis of bulk iron nitride soft magnetic materials. *T. Monson*[1], B. Zheng[2], Y. Zhou[2] and E. Lavernia[3] *1. Sandia National Labs, Albuquerque, NM; 2. UC Davis, Davis, CA; 3. UC Irvine, Irvine, CA*

4:06

FD-12. Stability of anisotropy of FeSiB magnetostrictive films induced by thermal stress. *S. Hashi*[1], H. Yokoi[1] and K. Ishiyama[1] *1. Research Institute of Electrical Communication, Tohoku Univ, Sendai, Japan*

4:18

FD-13. Magnetic Anisotropy and Electrical Property Of CoZrTaB Thin Films Deposited by Oblique Sputtering. S. Tummalapalli[1], M. Khdour[1] and *H. Yu*[1] *1. Arizona State University, Tempe, AZ*

Session FF

MAGNETIZATION DYNAMICS AND DAMPING

Mathias Kläui, Chair
Johannes Gutenberg - University Mainz, Mainz, Germany

1:30

FF-01. Temperature dependence of intrinsic and extrinsic contributions to the ferromagnetic damping. *C. Wuth*[1], L. Kolbe[1] and G. Meier[1,2] *1. Applied Physics, Institut für Angewande Physik und Zentrum für Mikrostrukturforschung, Universität Hamburg, Hamburg, Germany; 2. Max Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany*

1:42

FF-02. Ferromagnetic Damping and Two Magnon Scattering in $Co_{40}Fe_{40}B_{20}$ thin Films. *N. Ahmad*[1,2], J. Chen[1], J. Iqbal[2], A. Majid[3], S.A. Shah[4] and X. Han[1] *1. Institute of Physics, Beijing, Beijing, Pakistan; 2. Physics, International Islamic University, Islaambd, Pakistan; 3. Physics, University of Gujrat, Gujrat, Pakistan; 4. Materials Science, University of Washington, Seattle, Washington, WA*

1:54

FF-03. Low temperature wide band spin torque ferromagnetic resonance measurement of damping in perpendicular CoFeB. *T. Yu*[1,2], H. Naganuma[1], M. Oogane[1] and Y. Ando[1] *1. Department of Applied Physics, Tohoku University, Sendai, Japan; 2. Department of Physics, Sichuan University, Chengdu, China*

2:06

FF-04. Relaxation to Equilibrium Probability Distributions for Nanomagnets Under the Influence of Thermal Noise Given High Energy Initial States. *N. Kani*[1] and A. Naeemi[1] *1. Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, GA*

2:18

FF-05. Stochastic magnetization dynamics beyond the white-noise limit. *J. Tranchida*[1,2], P. Thibaudeau[1] and S. Nicolis[2] *1. Comissariat à l'Energie Atomique, DAM, Monts, France; 2. Université des Sciences et Techniques, Laboratoire de Mathématiques et Physique Théorique (UMR 7350), Tours, France*

2:30

FF-06. Ultrafast laser pulse assisted magnetization reversal by spin-orbit torque effect. *Y. Yang*[1], J. Gorchon[1,2], R. Wilson[1], A. Pattabi[1], H. Abdel-Raziq[1], D. Bhowmik[1], O. Lee[1], S. Salahuddin[1,2] and J. Bokor[1,2] *1. University of California, Berkeley, Berkeley, CA; 2. Lawrence Berkeley National Lab, Berkeley, CA*

2:42

FF-07. Gateable Skyrmion Transport via Field-induced Potential Barrier Modulation. *H. Fook*[1], W. Gan[1] and W. Lew[1]
1. Physics and Applied Physics, School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore, Singapore

2:54

FF-08. Vortex core polarity switching evidenced via signal loss during magnetoresistive spectroscopy. M. Sushruth[1], J. Fried[1], S. Xavier[3], C. Deranlot[2], M. Kostylev[1], V. Cros[2], A. Anane[2] and *P. Metaxas*[1] *1. School of Physics, University of Western Australia, Crawley, WA, Australia; 2. Unite Mixte de Physique CNRS/Thales and Univ Paris-Sud, Palaiseau, France; 3. Thales TRT, Palaiseau, France*

3:06

FF-09. Vortex wall motion in Py nanowires with branches. J. Brandão[1], A. Mello[1], F. Garcia[1] and *L.C. Sampaio*[1]
1. Brazilian Center for Physics Research, Rio de Janeiro, RJ, Brazil

3:18

FF-10. Gyrotropic modes of the magnetic vortex string. *M. Dvornik*[1,2], A. Vansteenkiste[2] and B. Van Waeyenberge[2]
1. Department of Physics, University of Gothenburg, Gothenburg, Sweden; 2. Department of Solid State Sciences, Ghent University, Ghent, Belgium

3:30

FF-11. Three-dimensional Character of Eigenmodes of Magnetization Dynamics in Magnetic Vortex Systems. *M. Noske*[1], M. Fähnle[1], H. Stoll[1], G. Dieterle[1], J. Förster[1], M. Weigand[1], A. Gangwar[2], G. Woltersdorf[3], A.N. Slavin[4], C.H. Back[2] and G.A. Schuetz[1] *1. Max Planck Institute for Intelligent Systems, Stuttgart, Germany; 2. Department of Physics, University of Regensburg, Regensburg, Germany; 3. Department of Physics, Martin Luther University, Halle, Germany; 4. Department of Physics, Oakland University, Rochester, MI*

3:42

FF-12. Magnetization switching in nanorods via skyrmion lines. *M. Charilaou*[1], H. Braun[2] and J.F. Löffler[1] *1. Department of Materials, ETH Zurich, Zurich, Switzerland; 2. School of Physics, University College Dublin, Dublin, Ireland*

3:54

FF-13. Rectification of skyrmion motion in a circular ratchet channel. *F. Ma*[1], W. Gan[1] and W. Lew[1] *1. School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore*

4:06

FF-14. Non-equilibrium Transports in Skyrmionic Materials. *G. Yin*[2], Y. Liu[2], Y. Barlas[2], R.K. Lake[2] and J. Zang[1] *1. Physics, University of New Hampshire, Durham, NH; 2. Electrical and Computer Engineering, university of california, Riverside, CA*

4:18

FF-15. Spin-orbit torque driven skyrmion dynamics. J. Xia[1], X. Zhang[1,2], H. Braun[3,4], Y. Xu[2] and *Y. Zhou*[1,2] *1. Department of Physics, The University of Hong Kong, Hong Kong, Hong Kong; 2. School of Electronics Science and Engineering, Nanjing University, Nanjing, China; 3. University College Dublin, Dublin, Ireland; 4. ETH Zürich, Zürich, Swaziland*

THURSDAY AFTERNOON 1:30 — AQUA SALON CD

Session FG
ULTRAFAST DYNAMICS, OPTICAL SWITCHING AND MAGNETO-OPTICS
Holger Schmidt, Chair
University of California Santa Cruz, Santa Cruz, CA

1:30

FG-01. Optical Modification of Spin-Spin Exchange Interactions in Iron Oxides. ***(Invited)*** *R. Mikhaylovskiy*[1] *1. Spectroscopy of Solids and Interfaces, Radboud University, Nijmegen, Netherlands*

2:06

FG-02. Ultrafast Study of Dynamic Exchange Coupling in Ferromagnet/Oxide/Semiconductor Heterostructures. *Y. Ou*[1], Y. Chiu[1], N. Harmon[2], P. Odenthal[3], M. Sheffield[1], M. Chilcote[1], R. Kawakami[1,3], M.E. Flatte[2] and E. Johnston-Halperin[1] *1. Department of Physics, The Ohio State University, Columbus, OH; 2. Department of Physics & Astronomy, The University of Iowa, Iowa City, IA; 3. Department of Physics & Astronomy, University of California, Riverside, Riverside, CA*

2:18

FG-03. Magnetic moment of inertia tensor from first principles. *D. Thonig*[1], M. Pereiro[1] and O. Eriksson[1] *1. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden*

2:30

FG-04. Evidence of purely Elliot-Yafet scattering driven demagnetization in metallic ferromagnets. *S. Bonetti*[1], M. Hoffmann[2], Z. Chen[3], M. Sher[3], S. Yang[4], M. Samant[4] and H. Durr[2] *1. Dept. of Physics, Stockholm University, Stockholm, Sweden; 2. SLAC National Accelerator Laboratory, Menlo Park, CA; 3. Materials Science and Engineering Department, Stanford University, Stanford, CA; 4. IBM Almaden Research Center, San Jose, CA*

2:42

FG-05. Coherent spin precession via optical ferromagnet – antiferromagnet exchange torque at Fe/CoO heterostructure. *X. Ma*[1], F. Fang[1], Q. Li[2], J. Zhu[2], Y. Yang[2], Y. Wu[2], H. Zhao[3] and G. Luepke[1] *1. Applied Science, College of William and Mary, Williamsburg, VA; 2. Physics, Fudan University, Shanghai, China; 3. Optical Science and Engineering, Fudan University, Shanghai, China*

2:54

FG-06. Thermal Dependence of the Single-Shot Helicity Independent All-Optical Switching. *J. Gorchon*[1,2], Y. Yang[2], R. Wilson[2], J. Chen[3], L. He[3], J. Wang[3], M. Li[3] and J. Bokor[2,1] *1. Lawrence Berkeley National Lab, Berkeley, CA; 2. University California Berkeley, Berkeley, CA; 3. University of Minessota, Minneapolis, MN*

3:06

FG-07. Investigating femtosecond laser-pulse induced spin currents using spin-transfer-torque. *M.L. Lalieu*[1], P.L. Helgers[1] and B. Koopmans[1] *1. Physics of Nanostructures, Eindhoven University of Technology, Eindhoven, Netherlands*

3:18

FG-08. All-thermal switching of amorphous Gd-Fe alloys: Analysis of structural properties and magnetization dynamics. *R. Chimata*[1], L. Isaeva[1], K. Kadas[1,2], A. Bergman[1], B. Sanyal[1], J.H. Mentink[3], M.I. Katsnelson[3], T. Rasing[3], A. Kirilyuk[3], A. Kirilyuk[3], O. Eriksson[1] and M. Pereiro[1] *1. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden; 2. Institute of Solid State Physics and Optics, Wigner Research Centre for Physics, Hungarian Academy of Sciences, Budapest, Hungary; 3. Institute for Molecules and Materials, Radboud University Nijmegen, Nijmegen, Netherlands*

3:30

FG-09. Inertial terms to magnetization dynamics in ferromagnetic thin films at sub-THz frequencies. *Y. Li*[1,4], A. Barra[2], S. Auffret[3,4], U. Ebels[3,4] and W. Bailey[1] *1. Applied Physics and Applied Mathematics, Columbia University, New York, NY; 2. LNCMI-G/CNRS, Grenoble, France; 3. Univ. Grenoble Alpes, INAC-SPINTEC,, Grenoble, France; 4. SPINTEC, CEA, Grenoble, France*

3:42

FG-10. Ultrafast magnetization dynamics with elemental specificity at the tabletop. *S. Jana*[1], J. Terschlüsen[1], S. Troisi[1], R. Stefanuik[1], S. Plogmaker[1], R. Brucas[2], J. Söderström[1] and O. Karis[1] *1. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden; 2. Department of Engineering Sciences, Uppsala University, Uppsala, Sweden*

3:54

FG-11. Driving spins in FePt magnetic storage media by all optical switching. *R. John*[1], C. Mueller[2], D. Butkovičová[6], E. Schmoranzerová[6], P. Nieves[5], T. Santos[4], S. Pisana[3], J. Walowski[1], O. Chubykalo-Fesenko[5], J. McCord[2] and M. Münzenberg[1] *1. Institut fur Physik, Ernst-Moritz-Arndt Universitat, Greifswald, Mecklenberg-Vorpommern, Germany; 2. Institute for Materials Science, Kiel University, Kiel, Schleswig-Holstein, Germany; 3. Department of Electrical Engineering and Computer Science, York University, Toronto, ON, Canada; 4. San Jose Research Centre, HGST A western Digital Company, San Jose, CA; 5. Instituto de Ciencia de Materiales de Madrid, Madrid, Spain; 6. Department of Chemical Physics and Optics, Charles University in Prague, Prague, Czech Republic*

4:06

FG-12. Disclosing all-optical switching in ferromagnetic Co/Pt multilayers. *Y. Tsema*[1], G. Kichin[1], O. Hellwig[2], V. Metha[2], A. Kimel[1], A. Kirilyuk[1] and T. Rasing[1] *1. Institute for Molecules and Materials, Radboud University Nijmegen, Nijmegen, Netherlands; 2. HGST, a Western Digital Company, San Jose, CA*

4:18

FG-13. Role of thickness in the achievement of all-optical helicity-dependent switching (AO-HDS) in magnetic thin films. *C. Lambert*[1], M. El Hadri[1], M. Hehn[1], E.E. Fullerton[2] and S. Mangin[1] *1. Institut Jean Lamour, Université de Lorraine, Nancy, France; 2. Center for Magnetic Recording Research, University of California San Diego, La Jolla, CA*

THURSDAY AFTERNOON 1:30 | AQUA SALON EF

Session FH
HARD MAGNETIC MATERIALS PROCESSING AND APPLICATIONS II

Kevin Coffey, Chair
University of Central Florida, Orlando, FL

1:30

FH-01. Evolution of texture in die-upset Nd-Fe-B magnets during heat treatment. *Z. Wang*[1], R. Chen[1], W. Yin[1], J. Wang[2], X. Tang[1], C. Jin[1], J. Ju[1], D. Lee[3] and A. Yan[1] *1. Ningbo Institute of Materials Technology & Engineering, Chinese Academy of Sciences, Ningbo, Zhejiang, China; 2. Ningbo University of Technology, Ningbo, China; 3. University of Dayton, Dayton, OH*

1:42

FH-02. Optimisation of NdFeB Strip Cast microstructure for HDDR Processing. *J. Meakin*[1], D. Kennedy[1], I.R. Harris[1], A. Bradshaw[1], C. Mishima[2] and A. Walton[1] *1. Metallurgy and Materials, University of Birmingham, Birmingham, West Midlands, United Kingdom; 2. Aichi Steel Corporation, Tokai-shi, Aichi-ken, Japan*

1:54

FH-03. Influence of non-magnetic phases on the magnetic properties of high-resistivity composite rare-earth permanent magnets. *A.J. Mackie*[1], J. Dean[1] and R. Goodall[1] *1. Materials Science and Engineering, The University of Sheffield, Sheffield, United Kingdom*

2:06

FH-04. Effect of grain size reduction of sintered Nd-Fe-B magnet on thermal stability of coercivity. *G. Ding*[1], S. Guo[1], L. Chen[1], J. Di[1], K. Chen[1], R. Chen[1], D. Lee[1] and A. Yan[1] *1. Key Laboratory of Magnetic Materials and Devices, Zhejiang Province Key Laboratory of Magnetic Materials and Application Technology, Ningbo Institute of Materials Technology & Engineering, Chinese Academy of Sciences, Ningbo, Zhejiang, China*

2:18

FH-05. Microstructural Dependence of Sintered Nd-Fe-B Permanent Magnet Properties. *G. Fadhil*[1], M. Hodges[1], A. Rana[1], W.M. Rainforth[1], A. Thomas[2], A.C. Urda[3], J. Dean[1] and D. Allwood[1] *1. Dept Materials Science and Engineering, University of Sheffield, Sheffield S1 3JD, United Kingdom; 2. Siemens plc, Sheffield S3 7HQ, United Kingdom; 3. Siemens Wind Power A/S, 7330 Brande, Denmark*

2:30

FH-06. The effect of dysprosium content on the hydrogen sorption kinetics of neodymium iron boron magnets (NdFeB). *C. Joensson*[1], L. Pickering[1], V. Mann[1], N. Rowson[2] and A. Walton[1] *1. Metallurgy and Materials, University of Birmingham, Birmingham, United Kingdom; 2. Chemical Engineering, University of Birmingham, Birmingham, United Kingdom*

2:42

FH-07. Improvement of Magnetic Performance of Nd-Fe-B-Type Die-Upset Magnet by RF_3-Doping. J. Kim[1], *H. Kwon*[1], J. Lee[2] and J. Yu[2] *1. Pukyong National University, Busan, The Republic of Korea; 2. Korea Institute of Materials Science, Changwon, The Republic of Korea*

2:54

FH-08. Coercivity enhancement of Nd-Fe-B hot-deformed magnets by the eutectic grain boundary diffusion process using $Nd_{62}Dy_{20}Al_{18}$ alloy. *L. Liu*[1,2], H. Sepehri Amin[1], T. Ohkubo[1], M. Yano[3], A. Kato[3], T. Shoji[3] and K. Hono[1,2] *1. Elements Strategy Initiative Center for Magnetic Materials, National Institute for Materials Science, Tsukuba, Ibaraki, Japan; 2. Graduate School of Pure and Applied Science, University of Tsukuba, Tsukuba, Ibaraki, Japan; 3. Advanced Material Engineering Division, Toyota Motor Corporation, Susuno, Japan*

3:06

FH-09. A Phenomenological Analysis on Anisotropic Shrinkage of Nd-Fe-B Compacts during Sintering Process. J. Byun[1], M. Kim[1], J. Kim[1], S. Kim[2] and *Y. Kim*[1] *1. Department of Materials Science and Engineering, Hanyang University, Seoul, The Republic of Korea; 2. KATECH, Chenan, The Republic of Korea*

3:18

FH-10. Anisotropic Nd-Fe-B spring-exchange magnets produced by high pressure crystallization. *Z. Turgut*[1], Y. Shen[2,1], J. Horwath[1] and S.L. Semiatin[1] *1. Air Force Research Laboratory, Wright-Patterson AFB, OH; 2. University of Dayton Research Institute, Dayton, OH*

3:30

FH-11. Recycling of rare earth permanent magnets by hydrogen treatment. *A. Lixandru*[2,1], I. Poenaru[2,1], R. Hord[2], K. Güth[2], R. Gauss[2] and O. Gutfleisch[1,2] *1. Functional Materials, Technical University Darmstadt, Darmstadt, Hessen, Germany; 2. Project Group Materials Recycling and Resource Strategies IWKS, Fraunhofer ISC, Hanau, Hessen, Germany*

3:42

FH-12. Processing of Alnico permanent magnets by advanced directional solidification methods. *F. Johnson*[1], M. Zou[1], W. Zhang[1], S.F. Rutkowski[1], L. Zhou[2,3] and M.J. Kramer[2,3] *1. Ceramic and Metallurgy Technologies, General Electric Global Research, Niskayuna, NY; 2. Ames Laboratory, Ames, IA; 3. Iowa State University, Ames, IA*

3:54

FH-13. Structural Evolution in Alnico Alloy. *L. Zhou*[1], W. Tang[1], R. McCallum[1], I.E. Anderson[1] and M.J. Kramer[1] *1. Ames Lab, Ames, IA*

4:06

FH-14. Optimally segmented magnetic structures. *A.R. Insinga*[1], C.R. Bahl[1], R. Bjørk[1] and A. Smith[1] *1. Energy Conversion and Storage, Technical University of Denmark - DTU, København, Denmark*

4:18

FH-15. Enhanced relative cooling power in melt-spun ribbons of magnetocaloric $DyCo_2$ compound. *R. Rajivgandhi*[1], R. Nirmala[1], A.C. Jeyaramane[2], A.K. Nigam[3], S. Quezado[4] and S.K. Malik[4] *1. Physics Department, Indian Institute of Technology Madras, Chennai, India; 2. Defence Metallurgical Research Laboratory, Hyderabad, India; 3. DCMPMS, Tata Institute of Fundamental Research, Mumbai, India; 4. Universidade Federal do Rio Grande do Norte, Natal, Brazil*

THURSDAY
AFTERNOON
1:30

AQUA 310

Session FI
MOLECULAR MAGNETS AND MAGNETO-OPTIC MATERIALS

Luis Hueso, Chair
CIC nanoGUNE, San Sebastian, Spain

1:30

FI-01. Ising chain magnetism and Arrhenius magnetic relaxation in the molecular semiconductor β-manganese phthalocyanine ($C_{32}H_{16}MnN_8$). *Z. Wang*[1] and M.S. Seehra[1] *1. Department of Physics and Astronomy, West Virginia University, Morgantown, WV*

1:42

FI-02. Chemically Engineered Ferromagnetism of Graphene. *J. Hong*[1], E. Santos[2], E. Bekyarova[3], A.T. N'Diaye[4], A. Scholl[4], G. Chen[4], M. Nowakowski[1], A. Young[4], E. Arenholz[4], W. de heer[5], S. Khizroev[6], C. Hwang[7], R.C. Haddon[3] and J. Bokor[1] *1. UC Berkeley, Berkeley, CA; 2. Stanford University, Stanford, CA; 3. UC Riverside, Riverside, CA; 4. Lawrence Berkeley National Lab, Berkeley, CA; 5. Georgia Institute of Technology, Atlanta, GA; 6. Florida International University, Miami, FL; 7. POSTECH, Pohang, The Republic of Korea*

1:54

FI-03. First demonstration of magneto-optical Q-switch using magnetic garnet films. *R. Morimoto*[1], T. Goto[1], J.W. Pritchard[2], N. Pavel[3], T. Yoshimoto[1], H. Takagi[1], Y. Nakamura[1], L. Pang Boey[1], M. Mina[2], T. Taira[3] and M. Inoue[1] *1. Electrical and Electronic Information Engineering, Toyohashi University of Technology, Toyohashi, Aichi, Japan; 2. Iowa State University, Ames, IA; 3. Institute for Molecular Science, Okazaki, Aichi, Japan*

2:06

FI-04. Magnetorefractive based index of refraction changes under magnetic field in $La_{0.66}Sr_{0.33}MnO_3$ (LSMO). *S.M. Strutner*[1], A. Garcia[1], C. Adamo[2,4], D. Schlom[2,3] and G. Carman[1] *1. Department of Mechanical and Aerospace Engineering, University of California, Los Angeles, Los Angeles, CA; 2. Department of Materials Science and Engineering, Cornell University, Ithaca, NY; 3. Kavli Institute at Cornell for Nanoscale Science, Ithaca, NY; 4. Department Applied Physics, Stanford University, Stanford, CA*

2:18

FI-05. Effects of different seedlayers on the magneto-optical properties of rare earth iron garnets for applications in non-reciprocal photonics. *P. Dulal*[1], A. Block[1], H.A. Haldren[2], D.C. Hutchings[3] and B. Stadler[1] *1. University of Minnesota, Minneapolis, MN; 2. Liberty University, Lynchburg, VA; 3. University of Glasgow, Glasgow, Scotland, United Kingdom*

2:30

FI-06. Preparation and characterisation of cerium substituted bismuth dysprosium iron garnets for magneto–optic applications. *R. Nachimuthu*[1], R. Jeffery[2], M. Martyniuk[1], R. Woodward[3], M. Saunders[4], K. O'Donnell[5], J. Dell[1] and L. Faraone[1] *1. School of Electrical, Electronic and Computer Engineering, The University of Western Australia, Perth, WA, Australia; 2. Panaroma Synergy Ltd, Sydney, NSW, Australia; 3. School of Physics, The University of Western Australia, Perth, WA, Australia; 4. Center for Microscopy, Characterisation and Analysis, The University of Western Australia, Perth, WA, Australia; 5. Department of Imaging and Applied Physics, Curtin University, Perth, WA, Australia*

2:42

FI-07. Addressing local electronic and magnetic properties of Fe_4 Single Molecule Magnets on *h*-BN. *M. Fonin*[1], P. Erler[1], N. Barth[1], P. Schmitt[2], T. Huhn[2], A. Irmler[1], F. Pauly[1] and L. Gragnaniello[1] *1. Department of Physics, Universität Konstanz, Konstanz, Germany; 2. Department of Chemistry, University of Konstanz, Konstanz, Germany*

2:54

FI-08. Monte Carlo Simulations Explaining the Experimental Observation of Magnetic Molecule Induced Very Strong Antiferromagnetic Exchange Coupling on A Magnetic Tunnel Junction. *P. Tyagi*[1,2], C. Baker[1], C. D'Angelo[3], E. Friebe[1] and T. Goulet[1] *1. Mechanical Engineering, University of the District of Columbia, Washington, DC; 2. Chemical and Materials Engineering, University of Kentucky, Lexington, KY; 3. Mathematics and Statistics, University of the District of Columbia, Washington, DC*

3:06

FI-09. SQUID magnetometry measurements of magnetic polynuclear metal clusters synthesised in acetate ionic liquids. *S. Gray*[1], S. Felton[1], P. Knockemann[2], A. Schmidt[2], C. Ward[1], R.M. Bowman[1], N. Gunaratne[2] and K.V. Hecke[3] *1. Physics, Queen's University Belfast, Belfast, United Kingdom; 2. Chemistry, Queen's University Belfast, Belfast, United Kingdom; 3. Inorganic and Physical Chemistry, Ghent University, Ghent, Belgium*

3:18

FI-10. Tailoring the emergent magnetism at metallo-molecular interfaces. *F. Al Ma'Mari*[1], M. Rogers[1], M.C. Wheeler[1], T. Moorsom[1], M. Ali[1], G. Burnell[1], B. Hickey[1] and O. Cespedes[1] *1. Physics and Astronomy, University of Leeds, Leeds, West Yorkshire, United Kingdom*

3:30

FI-11. Room-temperature Ferromagnetism of Graphite-like Nanostructures in Carbon Microspheres. E.G. Sharoyan[2], A. Mirzakhanyan[2], H. Gyulasaryan[2], C. Sanchez[1], *A.N. Kocharian*[1], O. Bernal[1] and A. Manukyan[2] *1. Physics and Astronomy, California State University, Los Angeles, CA; 2. Institute for Physical Research, Ashtarak, Armenia*

3:42

FI-12. Intermolecular magnetic interactions in phthalocyanine sandwiches. *B. Brena*[1], H.C. Herper[1], J. Lüder[1], R. Sanchez de Armas[1], O. Eriksson[1] and B. Sanyal[1] *1. Dept of Physics and Astronomy, Uppsala University, Uppsala, Sweden*

3:54

FI-13. Magnetic tunnel junctions from alkanethiol Self Assembled Monolayers. *S. Delprat*[1,2], M. Galbiati[1], M. Mattera[3], S. Tatay[3], S. Manas Valero[3], A. Forment[3], C. Deranlot[1,4], S. Collin[1,4], K. Bouzehouane[1,4], P. Seneor[1,4], R. Mattana[1,4] and F. Petroff[1,4] *1. Unité Mixte de Physique CNRS/Thales, Palaiseau, France; 2. Université Pierre et Marie Curie, Paris, France; 3. Instituto de Ciencia Molecular (Universitat de Valencia), Paterna, Spain; 4. Université Paris Sud, Orsay, France*

4:06

FI-14. Light emission and spin-polarized hole injection in OLEDs with an epitaxial MgO tunnel barrier. N. Lee[1], Y. Bae[1], H. Jung[2], C. Lee[2] and *T. Kim*[1] *1. Department of Physics, Ewha Womans University, Seoul, The Republic of Korea; 2. School of Electrical Engineering and Computer Science, Seoul National University, Seoul, The Republic of Korea*

4:18

FI-15. Ultrathin MgO(001) interlayer as an ideal platform for organic spintronic devices. *Y. Bae*[1], N. Lee[1], J. Wade[2], J. Kim[2], E. Ito[3], A. Pratt[4,5] and T. Kim[1] *1. Department of Physics, Ewha Womans University, Seoul, The Republic of Korea; 2. Department of Physics, Imperial College London, London, United Kingdom; 3. Flucto-Order Functions Research Team, RIKEN Advanced Science Institute, Wako, Japan; 4. Department of Physics, University of York, York, United Kingdom; 5. International Center for Young Scientists, National Institute for Materials Science, Tsukuba, Japan*

THURSDAY AFTERNOON 1:30 | AQUA 300

Session FJ

TRANSFORMERS AND LEVITATION

Zung-Hang Wei, Chair
National Tsing Hua University, Taipei, Taiwan

1:30

FJ-01. High DC Current Density On-Chip Strip-Line Inductors Integrated With Magnetic Film. M. Khdour[1], H. Wu[1] and *H. Yu*[1] *1. Arizona State University, Tempe, AZ*

1:42

FJ-02. Estimation of the electrical performances of planar inductor with Fe-system magnetically soft spheres and flakes composite. *Y. Endo*[1], H. Sato[1], U. Erdenebat[1], T. Miyazaki[2], M. Yamaguchi[1], H. Kamada[3], M. Takahashi[3], M. Sakamoto[3], S. Maita[3] and N. Kato[3] *1. Department of Electrical Engineering, Tohoku University, Sendai, Japan; 2. Technical Division, School of Engineering, Tohoku University, Sendai, Miyagi, Japan; 3. Hikaridenshi Company, LTD, Osaki, Miyagi, Japan*

1:54

FJ-03. Optimization of Integrated Closed-Loop Inductors. *A. El-Ghazaly*[1], R.M. White[2] and S. Wang[1,2] *1. Electrical Engineering, Stanford University, Stanford, CA; 2. Materials Science and Engineering, Stanford University, Stanford, CA*

2:06

FJ-04. Ultra-fast and ultra-accurate magnetically levitated systems – from theory to practice. ***(Invited)*** *E.A. Lomonova*[1], J. Jansen[1], T. Overboom[1] and J. Smeets[1] *1. Electrical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands*

2:42

FJ-05. Equivalent Electrical Model of a Ferrite Inductor which Reproduces Saturation, Power Losses and Capacitive Effects. *R. SALAS*[1] *1. Departamento de Tecnología Electrónica, Universidad Carlos III de Madrid, Madrid, Spain*

2:54

FJ-06. Digital Noise Injection and Contermeasure for Integrated Inductors impremented in LTE-Class RF IC Receiver Circuit Chain. S. Tanaka[1], *M. Yamaguchi*[1], F. Peng[1], M. Jingyan[1], H. Aoki[1,4], S. Muroga[2] and M. Nagata[3] *1. Department of Electrical Engineering, Tohoku University, Sendai, Miyagi, Japan; 2. Department of Electrical and Electronic Engineering, National Institute of Technology, Toyota College, Toyota, Aichi, Japan; 3. Graduate School of System Informatics, Kobe University, Kobe, Hyogo, Japan; 4. Frontier Research Institute for Interdisciplinary Sciences, Tohoku University, Sendai, Miyagi, Japan*

3:06

FJ-07. Integrated Transformers with Magnetic Thin-Films. *H. Wu*[1], R. Davies[1], M. Lekas[1], K.L. Shepard[1,2] and N. Sturcken[1] *1. Ferric, Inc., New York, NY; 2. Electrical Eng., Columbia University, New York, NY*

3:18

FJ-08. Dynamic Analysis of Amorphous Transformer in Switching Power Converters Based on Magnetic Circuit Method with LLG Equation. *H. Tanaka*[1], K. Nakamura[1] and O. Ichinokura[1] *1. Tohoku University, Sendai, Japan*

3:30

FJ-09. Planar PCB Transformer Model for Circuit Simulation. *L.R. Tria*[1], D. Zhang[1] and J. Fletcher[1] *1. School of Electrical Engineering and Telecommunications, University of New South Wales, Sydney, NSW, Australia*

3:42

FJ-10. Calculation of Capacitance in High-Frequency Transformer Windings. *X. Liu*[1,2], Y. Wang[1], J. Zhu[2], Y. Guo[2], M. Islam[3] and C. Liu[1,2] *1. Province-Ministry Joint Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability, Tianjin, China; 2. University of Technology, Sydney, Sydney, NSW, Australia; 3. Rajshahi University of Engineering and Technology, Rajshahi, Bangladesh*

3:54

FJ-11. Wireless Power Charger (WPC) Ferrites. *W. Lee*[1,2], Y. Hong[1,2], J. Park[1,2], I. Baek[3], N. Hur[3], W. Seong[3], H. Kim[4] and J. Kim[4] *1. Department of Electrical and Computer Engineering, The University of Alabama, Tuscaloosa, AL; 2. MINT Center, The University of Alabama, Tuscaloosa, AL; 3. Research and Development Center, E.M.W. Co., Ltd., Seoul, The Republic of Korea; 4. Department of Electrical Engineering, Korea Advanced Institute of Technology, Daejeon, The Republic of Korea*

4:06

FJ-12. Efficiency Study of Vertical Distance Variations in *Wireless Power Transfer* for E-Mobility. *M. Ghorbani Eftekhar*[1], E. Schaltz[2], P. Bach Andersen[1], L. Antonio DeSouza Ribeiro[3] and T. Batra[2] *1. Department of Electrical Engineering, Denmark's Technical University, Lyngby, Denmark; 2. Department of Energy Technology, Aalborg University, Aalborg, Denmark; 3. Institute of Electric Energy, Federal University of Maranhao, Bacanga, Brazil*

4:18

FJ-13. 3D Coupled Transient Magneto-mechanical FEM Simulation of a Short Circuit Test on a 570 MVA Mock-up Unit. *B. Bosnjak*[1] *1. Energy Management - Transformers, Siemens AG, Nuremberg, Germany*

THURSDAY AFTERNOON 2:30 — SAPPHIRE BALLROOM SOUTH

Session FP
MAGNETO-CALORIC MATERIALS III (Poster Session)

Michaela Kuepferling, Chair
INRIM, Torino, Italy

FP-01. Electronic structure and metamagnetic transition in doped La(Si,Fe)$_{13}$. *Z. Gercsi*[1,2], N. Fuller[3], A. Fujita[4] and K. Sandeman[2,3] *1. Physics Department, Trinity College Dublin, Dublin, Ireland; 2. Physics Department, Imperial College London, London, United Kingdom; 3. Physics Department, Brooklyn College of The City University of New York, New York, NY; 4. National Institute of Advanced Industrial Science and Technology,, Nagoya, Japan*

FP-02. Solid solubility in 1:13 phase of doping element for La(Fe,Si)$_{13}$ alloys. S. Zong[1], C. Wang[1], Y. Long[1], *B. Fu*[3], J. Shi[1], J. Han[3] and Y. Zhao[2] *1. University of Science and Technology Beijing, Beijing, China; 2. Institute of Physics and Center for Condensed Matter Physics, Chinese Academy of Sciences, Beijing, China; 3. Tianjin University of Technology, Tianjin, China*

FP-03. DRREAM: Reducing Rare Earth Use in Applications of Magnetocalorics. *K. Sandeman*[1,2] *1. Department of Physics, Imperial College London, London, United Kingdom; 2. Department of Physics, Brooklyn College of The City University of New York, Brooklyn, NY*

FP-04. Magnetic short-range order and spin dynamics in the paramagnetic regime of (Mn,Fe)$_2$(P,Si). *X. Miao*[1], L. Caron[2,1], J. Cedervall[3], N. van Dijk[1], P. Gubbens[1], A. Wildes[4], P. de Réotier[5], A. Yaouanc[5], H. Luetkens[6], A. Amato[6] and E. Brück[1] *1. Delft University of Technology, Delft, Netherlands; 2. Max Planck Institute for Chemical Physics of Solids, Dresden, Germany; 3. Uppsala University, Uppsala, Sweden; 4. Institut Laue-Langevin, Grenoble, France; 5. CEA, Grenoble, France; 6. Paul Scherrer Institute, Villigen, Switzerland*

FP-05. X-ray diffraction analysis of the magneto-elastic phase transition in the Mn-Fe-P-Si magnetocaloric alloy. *A. Pasko*[1], A. Bartok[1], K. Zehani[2], L. Bessais[2], F. Mazaleyrat[1] and M. LoBue[1] *1. SATIE, ENS Cachan, CNRS, Cachan, France; 2. CMTR, ICMPE, CNRS, UPEC, Thiais, France*

FP-06. Numerical Analysis of Deformation in Multi-layered Magnetite Nano-sheets. F. Fang[1], *W. Guan*[1], H. Kong[1] and Y. Gao[2] *1. School of Electrical Engineering, Wuhan University, Wuhan, China; 2. Saga University, Saga, Japan*

FP-07. Hydrogenating process and magnetocaloric effect in $La_{1-x}Pr_xFe_{11.4}Si_{1.6}H_y$ hydrides. L. Xu[1,2], J. Zhao[2], H. Zhang[1] and *M. Yue*[1] *1. College of Materials Science and Engineering, Beijing University of Technology, Beijing, China; 2. College of Applied Sciences, Beijing University of Technology, Beijing, China*

FP-08. Microstructure and magnetocaloric properties of non-stoichiometric $La_{1.5}Fe_{12.2-x}Co_{0.8}Si_x$ alloys. *H. Zhang*[1], Z. Zhang[1], M. Zhang[1], Y. Shao[1] and J. Liu[1] *1. Ningbo Institute of Material Technology and Engineering, Ningbo, Zhejiang, China*

FP-09. Anomalous temperature behavior of the transferred hyperfine field on ^{111}Cd probe nuclei in ferro- and antiferromagnetic phases of the ordered FeRh alloys. *V. Krylov*[1,2], B. Bosch-Santos[1], G. Cabrera-Pasca[1], A.W. Carbonari[1], R.N. Saxena[1], J. Mestnik-Filho[1] and N.N. Delyagin[2] *1. Instituto de Pesquisas Energéticas e Nucleares,, São Paulo, Brazil; 2. Skobeltsyn Institute of Nuclear Physics, Moscow State University, Moscow, Russian Federation*

FP-10. Withdrawn

FP-11. The magnetic property and magnetocaloric effect in $Ho_xEr_{12-x}Co_7$ (x=0, 4, 6, 8, 10, 12) compounds. X. Zheng[1], S. Wang[1], B. Zhang[2], Y. Li[2], *B. Gao*[3], Y. Zhao[2], H. Zhang[1], F. Hu[2] and B. Shen[2] *1. School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing, China; 2. Institute of Physics, Chinese Academy of Sciences, Beijing, China; 3. School of Science, Xi'an Jiaotong University, Xi'an, China*

FP-12. Spin-lattice coupling, Jahn-Teller effect and the influence of the measurement rate in $La_{0.7}Ca_{0.3-x}Sr_xMnO_3$ manganites. *L.A. Burrola Gándara*[1,2], R.J. Sáenz[1], C.R. Santillán-Rodríguez[1], J.T. Elizalde Galindo[2] and J.A. Matutes-Aquino[1] *1. CIMAV, Chihuahua, Mexico; 2. Instituto de Ingeniería y Tecnología, Universidad Autónoma de Ciudad Juárez, Ciudad Juárez, Chihuahua, Mexico*

FP-13. Development of an Innovative Rotary Magnetic Refrigerator Prototype. *B. Huang*[1,2], E. Brück[1] and D. Zeng[2] *1. Applied Sciences, Delft University of Technology, Delft, Netherlands; 2. Material Science and Engineering, South China University of Technology, Guangzhou, Guangdong, China*

FP-14. Direct Measurements of Crucial Characteristics of Mce Refrigeration in High Magnetic Fields. *A.P. Kamantsev*[1], V.V. Koledov[1], A. Mashirov[1], E.T. Dilmieva[1], V. Shavrov[1], J. Cwik[2] and I.S. Tereshina[3] *1. Kotelnikov Institute of Radioengineering and Electronics of RAS, Moscow, Russian Federation; 2. International Laboratory of High Magnetic Fields and Low Temperatures, Wroclaw, Poland; 3. Baikov Institute of Metallurgy and Material Science of RAS, Moscow, Russian Federation*

THURSDAY AFTERNOON 2:30 — SAPPHIRE BALLROOM SOUTH

Session FQ
INTERMETALLICS, $L1_0$ AND OTHER HARD MAGNETIC MATERIALS (Poster Session)

Toshiyuki Shima, Co-Chair
Tohoku Gakuin University, Tagajo, Japan
Dario Arena, Co-Chair
University of South Florida, Tampa, FL

FQ-01. Improvement of saturation magnetization of perpendicular $L1_0$-MnAl films by small substitution of Fe, Ni for Mn. *T. Sato*[1], T. Ohsuna[1] and Y. Kaneko[1] *1. Toyota Central R&D Labs., Inc., Nagakute, Aichi, Japan*

FQ-02. Tuning the magnetic properties of MnAl ribbons and ferrite powders by rapid-milling for permanent magnet applications. *A. Bollero*[1], J. Law[1], J. Rial[1], F. Pedrosa[1], M. Guzik[3], S. Deledda[3], L.G. Marshall[2] and L. Lewis[2] *1. Division of Permanent Magnets and Applications, IMDEA Nanoscience, Madrid, Spain; 2. Dept. of Chemical Engineering and Dept. of Mechanical and Industrial Engineering, Northeastern University, Boston, MA; 3. Institute for Energy Technology, IFE, Kjeller, Norway*

FQ-03. Systematic Study of Hard Magnetic Properties of Doped Mn–Ga Intermetallic Compounds. *D. Brown*[1,2], K. Han[2], T. Siegrist[2,3], T. Besara[2], J. Lu[2] and R. Niu[2] *1. Material Science & Engineering, Florida State University, Tallahassee, FL; 2. National High Magnetic Field Laboratory, Tallahassee, FL; 3. Chemical Engineering, Florida Agricultural and Mechanical University-Florida State University, Tallahassee, FL*

FQ-04. Magnetic Properties of Low Temperature Phase MnBi of Island Structure. *T. Suwa*[1,2], Y. Tanaka[2], G. Mankey[1,3], R. Schad[1,3] and T. Suzuki[1,4] *1. Center for Materials for Information Technology (MINT), The University of Alabama, Northport, AL; 2. Materials Development Center, Technology HQ, TDK Corporation, Ichikawa, Japan, Narita, Japan; 3. Department of Physics and Astronomy, The University of Alabama, Tuscaloosa, AL; 4. Departments of Electrical and Computer Engineering, and Metallurgical and Materials Engineering, The University of Alabama, Tuscaloosa, AL*

FQ-05. DFT Calculation and Experimental Investigation of Mn Doping Effects in $Fe_{16}N_2$. *Y. Jiang*[1], B. Himmetoglu[2], M. Cococcioni[2] and J. Wang[1] *1. MINT center, Minneapolis, MN; 2. Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN*

FQ-06. Electroplated Fe-Pt thick films prepared in plating baths with various pH values. *K. Furutani*[1], T. Masaki[1], T. Yanai[1], T. Ohgai[1], M. Nakano[1] and H. Fukunaga[1] *1. Nagasaki University, Nagasaki, Japan*

FQ-07. Improvement of magnetic properties for isotropic PLD-fabricated Fe-Pt thick film magnets. *M. Nakano*[1], R. Ampi[1], T. Yanai[1] and H. Fukunaga[1] *1. Nagasaki University, Nagasaki, Japan*

FQ-08. Intermediate tetragonal chemically disordered phase formed during transformation of highly anisotropic ferromagnetic $L1_0$ FePd. N. Bordeaux[1], A. Montes-Arango[1], *L.G. Marshall*[1,2] and L. Lewis[1,2] *1. College of Engineering, Northeastern University, Boston, MA; 2. George J. Kostas Research Institute for Homeland Security, Northeastern University, Boston, MA*

FQ-09. Process/Structure/Property Relationships for Electroplated $L1_0$ CoPt Thick Films. *O.D. Oniku*[1] and D.P. Arnold[1] *1. Interdisciplinary Microsystems Group, Electrical and Computer Engineering, University of Florida, Gainesville 32611, FL*

FQ-10. Atomic Structure Investigations of Alnico Permanent Magnets by Monte Carlo Simulation. *M. Nguyen*[1,2], C. Wang[1,2] and K. Ho[1,2] *1. Ames Laboratory, U.S. DOE, Ames, IA; 2. Department of Physics and Astronomy, Iowa State University, Ames, IA*

FQ-11. Structures and magnetic properties of Co-Zr-B magnets studied by first-principles calculations. X. Zhao[1], L. Ke[1], M. Nguyen[1], *C. Wang*[1] and K. Ho[1] *1. Ames Laboratory, Ames, IA*

FQ-12. Effect of dipolar interactions in Nd-Fe-B nanocrystalline permanent magnet using large-scale micromagentics simulations. *H. Tsukahara*[1], K. Iwano[1], N. Inami[1], T. Ishikawa[1], C. Mitsumata[2] and K. Ono[1] *1. High Energy Accelertaor Research Organization, Tsukuba, Japan; 2. NIMS, Tsukuba, Japan*

FQ-13. Submicron $R_2Fe_{14}B$ Particles. *O. Koylu-Alkan*[1], J. Barandiaran[2,3], D. Salazar[2,3] and G.C. Hadjipanayis[1] *1. Physics and Astronomy, University of Delaware, Newark, DE; 2. BCMaterials, Derio, Spain; 3. Dept. Electricity & Electronics, Univ. Basque Country, Bilbao, Spain*

FQ-14. Temperature Dependence of Structural and Magnetic Properties of $(Fe_{1-x}Co_x)_2B$. *C.I. Nlebedim*[1], V. Taufour[1], O. Palasyuk[1], K. Dennis[1], T. Lamichhane[1], M.J. Kramer[1], R.W. McCallum[1] and P.C. Canfield[1] *1. Ames Laboratory, US Department of Energy, Iowa State University, Ames, IA*

Session FR

EXCHANGE BIAS II (Poster Session)

Igor Roshchin, Chair
Texas A&M University, College Station, TX

FR-01. Exchange bias associated with phase separation in polycrystalline $Sm_{0.1}Ca_{0.7}Sr_{0.2}MnO_3$. *V. Markovich*[1], I. Fita[2], A. Wisniewski[2], R. Puzniak[2], C. Martin[3], G. Jung[1,2] and G. Gorodetsky[1] *1. Physics, Ben-Gurion University of the Negev, Beer-Sheva, Israel; 2. Institute of Physics, Polish Academy of Sciences, Warsaw, Poland; 3. Laboratoire CRISMAT, UMR 6508, ISMRA, Caen, France*

FR-02. Exchange Bias and Spin-Glass-Like Behavior at the Interface of $Bi_{0.8}Ba_{0.2}FeO_3$ / $La_{0.7}Sr_{0.3}MnO_3$ Heterostructure. *S.J. Chu*[1], M. Zhang[1], W. Liu[1] and H. Deng[1] *1. Materials Science and Engineering, Beijing University of Technology, Beijing, China*

FR-03. Interfacial magnetic coupling of $La_{0.67}Sr_{0.33}MnO_3$ layer with high perpendicularly anisotropic $SrRuO_3$ layer. *Q. Qin*[1], W. Song[2], P. Yang[3], H. Wang[1], H. Yoong[1], W. Lin[1], W. Xiao[1] and J. Chen[1] *1. Materials Science & Engineering, National University of Singapore, Singapore, Singapore; 2. Data Storage Institute, Singapore, Singapore; 3. Singapore Synchrotron Light Source, National University of Singapore, Singapore, Singapore*

FR-04. Atomistic Spin Dynamics Simulations of the Exchange Spring System IrMn/NiFe. *I.C. Stockem*[1], C.H. Schroeder[1] and G. Reiss[2] *1. Department of Engineering Sciences and Mathematics, Bielefeld Institute for Applied Materials Research, Bielefeld University of Applied Sciences, Bielefeld, NRW, Germany; 2. Department of Physics, Center for Spinelectronic Materials and Devices, Bielefeld University, Bielefeld, NRW, Germany*

FR-05. Enhanced Exchange Bias and Spin-Glass-like Freezing in Hollow γ-Fe_2O_3 Nanoparticles: Disentangling the Role of Inner and Outer Surfaces. J. Alonso[1,2], *K. Stojak-Repa*[1], H. Khurshid[1], P. Lampen-Kelley[1], Z. Nemati[1], Ó. Iglesias[3], M. Phan[1], C. Sun[4], M. Saboungi[5] and H. Srikanth[1] *1. Physics, University of South Florida, Tampa, FL; 2. BCMaterials, Derio, Vizcaya, Spain; 3. Física Fonamental, Institut de Nanociència i Nanotecnologia, Barcelona, Barcelona, Spain; 4. Advanced Photon Source, Argonne, IL; 5. IMPMC, Université Pierre et Marie Curie, Paris, France*

FR-06. Probing magnetisation reversal mechanisms of ion-beam-deposited $Ni_{80}Fe_{20}/\alpha\text{-}Fe_2O_3$ bilayers by polarised neutron reflectometry. G.L. Causer[1,2], *S.J. Callori*[1,3], D.L. Cortie[4], P. Manna[5], Y. Chang[6], J. van Lierop[5], K. Lin[6] and F. Klose[1,7] *1. Australian Nuclear Science and Technology Organisation, Lucas Heights, NSW, Australia; 2. Institute for Superconducting and Electronic Materials, University of Wollongong, Wollongong, NSW, Australia; 3. Department of Physics, California State University San Bernardino, San Bernadino, CA; 4. Quantum Matter Institute, University of British Columbia, Vancouver, BC, Canada; 5. Department of Physics and Astronomy, University of Manitoba, Winnipeg, MB, Canada; 6. Department of Materials Science and Engineering, National Chung Hsing University, Taichung 402, Taiwan; 7. Department of Physics and Materials Science, City University of Hong Kong, Hong Kong, Hong Kong*

FR-07. Examining the nature of superexchange interactions at the interface of core (g-Fe_2O_3)/shell (CoO) nanoparticles. *C. Chi*[1], E. Skoropata[2], J. van Lierop[2], H. Ouyang[1] and C. Hsiao[1] *1. Department of Material Science and Engineering, National Tsing Hua University, Hsinchu, Taiwan; 2. Department of Physics and Astronomy, University of Manitoba, Winnipeg, MB, Canada*

FR-08. The effect of varying bombarded voltage and film thickness to microstructure and perpendicular exchange bias of SiO_2/CoO/$[Co/Pt]_3$ multilayer film. *C. Chi*[1], C. Hsiao[1] and H. Ouyang[1] *1. Department of Material Science and Engineering, National Tsing Hua University, Hsinchu, Taiwan*

FR-09. Composition and ordering dependent antiferromagnetic properties of IrMn alloys. S. Jenkins[1], W.J. Fan[3], R. Gaina[2], R. Chantrell[1], T. Klemmer[4] and *R.F. Evans*[1] *1. Department of Physics, University Of York, York, England, United Kingdom; 2. Department of Physics, Alexandru Ioan Cuza University, Iasi, Romania; 3. Shanghai Key Laboratory of Special Artificial Microstructure Materials and Technology and Pohl Institute of Solid State Physics and School of Physics Science and Engineering, Tongji University, Shanghai, China; 4. Seagate Technology, Fremont, CA*

FR-10. Probing morphology of epitaxial Fe/MgO granular multilayers by magnetometric technique. A. Vovk[1], A. Garcia-Garcia[2], Y.G. Pogorelov[2], J. Pardo[3,4], P. Štrichovanec[3], C. Magén[3,5], J. De Teresa[3,4], L. Morellón[3,4], P. Algarabel[3,4], R. Ibarra[3,4] and *G.N. Kakazei*[2] *1. BioISI–Biosystems & Integrative Sciences Institute, Faculdade de Ciências, Universidade de Lisboa, Lisboa, Portugal; 2. IFIMUP-IN/Department of Physics, University of Porto, Porto, Portugal; 3. Instituto de Nanociencia de Aragon, Universidad de Zaragoza, Zaragoza, Spain; 4. ICMA, Universidad de Zaragoza-CSIC, Zaragoza, Spain; 5. Fundacion ARAID, Zaragoza, Spain*

FR-11. Optimal deposition conditions for polycrystalline MnN/CoFe bilayers with high exchange bias at room temperature. *M. Meinert*[1], B. Büker[1], D. Graulich[1] and M. Dunz[1] *1. Department of Physics, Bielefeld University, Bielefeld, Germany*

FR-12. Spin structure of spring-like domain walls and its effect on exchange bias. *R. Morales*[1,2], A.C. Basaran[3,4], J.E. Villegas[5], D. Navas[6], N. Soriano[7], B. Mora[7], C. Redondo[7], X. Batlle[8] and I.K. Schuller[3] *1. Department of Chemical-Physics & BCMaterials, University of the Basque Country UPV/EHU, Leioa, Spain; 2. IKERBASQUE, Basque Foundation for Science, Bilbao, Spain; 3. Department of Physics and Center for Advanced Nanocience, University of California San Diego, La Jolla, CA; 4. Department of Physics, Gebze Technical University, Kocaeli, Turkey; 5. Unité Mixte de Physique CNRS/Thales, 91767 Palaiseau, and Université Paris Sud, Orsay, France; 6. IFIMUP-IN and Departamento Física e Astronomia, Universidade do Porto, Porto, Portugal; 7. Department of Chemical-Physics, University of the Basque Country, UPV/EHU, Leioa, Spain; 8. Departament de Física Fonamental and Institut de Nanociència i Nanotecnologia IN2UB, Universitat de Barcelona, Barcelona, Spain*

FR-13. Intrinsic Exchange Bias and Anomalous Zero-Field-Cooled Magnetization in $(Mn,Zn,Fe)_3O_4$ Films. *U.S. Alaan*[1,2], G. Sreenivasulu[3], E. Arenholz[4], P. Shafer[4], K. Yu[5], G. Srinivasan[3] and Y. Suzuki[1,6] *1. Geballe Laboratory for Advanced Materials, Stanford University, Stanford, CA; 2. Materials Science and Engineering, Stanford University, Stanford, CA; 3. Physics, Oakland University, Rochester, MI; 4. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA; 5. Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA; 6. Applied Physics, Stanford University, Stanford, CA*

FR-14. Exchange Bias Studies in Heusler Alloy Structures. *T. Huminiuc*[1], J. Balluff[2], M. Meinert[2], G. Reiss[2] and A. Hirohata[3] *1. Physics, University of York, York, United Kingdom; 2. Physics, Bielefeld University, Bielefeld, Germany; 3. Electronics, University of York, York, United Kingdom*

THURSDAY AFTERNOON 2:30 — SAPPHIRE BALLROOM SOUTH

Session FS
TOPOLOGICAL INSULATORS AND MAGNETO-TRANSPORT
(Poster Session)

Hyunsoo Yang, Chair
National University of Singapore, Singapore, Singapore

FS-01. Spin Hall effect induced magnetic switching in top structure of MgO/CoFeB/Ta: A study of the polarity effect and Ta thickness dependence. L. Yu[1], *C. Cheng*[1], C. Chung[1], Y. Tsai[1], D. Lee[2] and G. Chern[1] *1. Department of Physics, National Chung Cheng University, Chia-Yi, Taiwan; 2. Electrical Engineering Department, Da-Yeh University, Chunghua, Taiwan*

FS-02. Temperature and microwave power dependencies of the ESR lineshape of Er^{3+} doped SmB_6 topological Kondo insulator. *G.G. Lesseux*[1], P.F. Rosa[2], Z. Fisk[2], P. Pagliuso[1], R.R. Urbano[1] and C. Rettori[1,3] *1. IFGW-Unicamp, Campinas, São Paulo, Brazil; 2. University of California, Irvine, CA; 3. Universidade Federal do ABC, Santo André, SP, Brazil*

FS-03. Influence of demagnetization effects on enhanced self-biased magnetoelectric couplings in multiferroic heterostructures. *J. Zhang*[1], S. Xia[2], M. Li[2], Q. Liu[2], W. He[3] and M. Zhang[4] *1. Zhengzhou University of Light Industry, Zhengzhou, China; 2. Institute of Guangdong Qingyuan Quality and Metrology Supervision Testing, Qingyuan, China; 3. Baise University, Baise, China; 4. Air Defense Forces Academy, Zhengzhou, China*

FS-04. Fabrication and Charactrization of Magnetically Tunable Metal-Semiconductor Schottky Diode using Barium Hexaferrite thin film on gold. J. Kaur[3,1], *V. Sharma*[1], V. Sharma[1] and B.K. Kuanr[1,2] *1. Special Centre for Nanoscience, Jawaharlal Nehru University, New Delhi, India; 2. Physics Department, University of Colorado at Colorado Springs, Colorado Springs, CO; 3. Department of Physics, Punjabi University, Patiala, Punjab, India*

FS-05. Magnetic Behavior of the Extraordinary Complex $R_{117}Co_{54+x}Sn_{112\pm y}$ Compounds. J. Liu[1,2], *Y. Mudryk*[1], R. Rejali[3], D. Ryan[3], V. Pecharsky[1,2] and K.A. Gschneidner[1,2] *1. Ames Laboratory, U.S. Department of Energy, Iowa State University, Ames, IA; 2. Department of Materials Science and Engineering, Iowa State University, Ames, IA; 3. Physics Department and Centre for the Physics of Materials, McGill University, Motreal, QC, Canada*

FS-06. Magnetoelectric coupling characteristics in multiferroic heterostructures with different thickness of nanocrystalline soft magnetic alloy. *L. Chen*[1,2] and Y. Wang[3] *1. Key Lab of Computer Vision and Intelligent Information System, Chongqing University of Arts and Sciences, Chongqing, China; 2. College of Optoelectronic Engineering, Chongqing University, Chongqing, China; 3. Electrical and Computer Engineering Department, Carnegie Mellon University, Pittsburgh, PA*

FS-07. Electric-field tuned magnetic anisotropy in the FeSiBC/PMN-PT heterostructures with different history of induced uniaxial anisotropy. *D. Wen*[1], H. Zhang[1] and F. Bai[1] *1. University of Electronic Science and Technology of China, Chengdu, China*

FS-08. Magnetotransport Study of $(Sb_{1-x}Bi_x)_2Te_3$ Thin Films on Mica Substrate for Ideal Topological Insulator. *Z. Zhang*[1], Y. Ni[1], C.I. Nlebedim[1,2], R.L. Hadimani[1] and D.C. Jiles[1] *1. Department of Electrical and Computer Engineering, Iowa State University, Ames, IA; 2. Ames Laboratory, Ames, IA*

FS-09. Oxygen vacancy and dilute ferromagnetism of $ZnGa_2O_4$ doped with Co at the octahedral site. *I. Nakai*[1,4], R. Hisamatsu[1], Y. Li[2] and M. Kurisu[3] *1. Department of Electrical and Electronic Engineering, Graduated School of Engineering, Tottori University, Tottori, Japan; 2. Inner Mongolia Key Laboratory for Physics and Chemistry of Functional Materials, Physics and Electronic Information College, Inner Mongolia Normal University, Hohhot, China; 3. Department of Physics, Graduate School of Science and Engineering, Ehime University, Matsuyama, Japan; 4. Tottori Integrated Frontier Research Center, Tottori University, Tottori, Japan*

FS-10. Microscopic magnetism in high T_C ferromagnetic oxide semiconductor: anatase Co-doped TiO_2. *T.S. Krasienapibal*[1], T. Fukumura[2,3] and T. Hasegawa[1,3] *1. Department of Chemistry, The University of Tokyo, Tokyo, Japan; 2. Department of Chemistry, Tohoku University, Sendai, Japan; 3. JST-CREST, Tokyo, Japan*

FS-11. Higher Coercivity and Magnetoresistance in Co-Ga Alloys. *S. Yasin*[1], R. Saha[2], V. Srinivas[1], S. Kasiviswanathan[1] and A.K. Nigam[2] *1. Department of Physics, Indian Institute of Technology Madras, Chennai, India; 2. Department of Condensed Matter Physics and Materials Science, Tata Institute of Fundamental Research, Mumbai, India*

FS-12. Anisotropic magneto-resistance and piezoelectric effect in GaAs Hall samples. V. Livingston[1], E. Thomas[1], S. Saganti[1] and *O. Ciftja*[1] *1. Physics, Prairie View A&M University, Prairie View, TX*

FS-13. Temperature dependence of a uniaxial anisotropy along the [100] direction in crystalline Fe film. *S. Bac*[1], H. Lee[1], S. Lee[1], S. Choi[1], T. Yoo[1,2], S. Lee[1], X. Liu[2] and J. Furdyna[2] *1. Physics, Korea University, Seoul, The Republic of Korea; 2. Physics, University of Notre Dame, Notre Dame, IN*

FS-14. Transverse anisotropic magnetoresistance effects in Pseudo-Single-Crystal γ'-Fe_4N thin Films. K. Kabara[1], *M. Tsunoda*[1] and S. Kokado[2] *1. Department of Electronic Engineering, Tohoku University, Sendai, Miyagi, Japan; 2. Graduate School of Engineering, Shizuoka University, Hamamatsu, Shizuoka, Japan*

Session FT
SPIN CURRENTS, SPIN HALL AND RELATED EFFECTS IV (Poster Session)

Oleg Tretiakov, Chair
Tohoku University, Sendai, Japan

FT-01. Phase diagrams and associated symmetry corresponded to the current induced switching as a function of the thickness of CoFeB in perpendicular magnetized MgO/CoFeB/Ta.
C. Cheng[1], L. Yu[1], C. Chung[1], Y. Tsai[1], D. Lee[2] and G. Chern[1] *1. Department of Physics, National Chung Cheng University, Chia-Yi, Taiwan; 2. Electrical Engineering Department, Da-Yeh University, Chunghua, Taiwan*

FT-02. Perfect valley filter in strained graphene with single barrier region. *C. Yesilyurt*[1], S. Tan[1,2], G. Liang[1] and M.B. Jalil[1] *1. Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; 2. Data Storage Institute, Agency for Science, Technology and Research (A* Star), DSI Building, Singapore, Singapore*

FT-03. Spin transport properties in a Cu wire fabricated on a magnetic insulator NiO. *M. Kawakita*[1], K. Okabe[1], Y. Yokotani[1], K. Yamanoi[1] and T. Kimura[1,2] *1. Physics, Kyushu University, Fukuoka, Japan; 2. Nano-Spin Research Center, Fukuoka, Japan*

FT-04. Spin relaxation mechanism in graphene spin valve with sputtered Al_2O_3 tunnel barrier. *W. Amamou*[1], J. van Baren[1], Z. Lin[1], J. Shi[1] and R. Kawakami[2,1] *1. Physics and Astronomy, UC Riverside, Riverside, CA; 2. Physics, The Ohio State University, Columbus, OH*

FT-05. Enhancement of Spin Accumulation in Ballistic Transport Regime. *K. Chen*[1] and S. Zhang[1] *1. University of Arizona, Tucson, AZ*

FT-06. Enhanced inverse spin-Hall voltage in Fe_4N/Pt bilayer films.
S. Isogami[1] and M. Tsunoda[2] *1. Fukushima National College of Technology, Iwaki, Japan; 2. Tohoku University, Sendai, Japan*

FT-07. Optical precession mode modified by a d.c. current in synthetic antiferromagnet. *K. Tanaka*[1], T. Moriyama[1], M. Nagata[1], H. Mizuno[1], T. Seki[2], K. Takanashi[2], T. Chiba[2], S. Takahashi[2], G.E. Bauer[2,3] and T. Ono[1] *1. ICR, Kyoto university, Uji, Kyoto, Japan; 2. IMR, Tohoku University, Sendai, Japan; 3. KIN, Delft university, Delft, Netherlands*

FT-08. Spin filter controlled by asymmetric exchange field in a honeycomb lattice ribbon with staggered potential. *Y. Su*[1], S. Chen[2], C. Hu[1] and C. Chang[3] *1. Physics, National Taiwan University, Taipei, Taiwan; 2. Applied Physics and Chemistry, University of Taipei, Taipei, Taiwan; 3. Graduate Institute of Applied Physics, National Taiwan University, Taipei, Taiwan*

FT-09. Electric probe for spin transition and fluctuation. *Z. Qiu*[1,2], D. Hou[1,2], K. Uchida[3,4] and E. Saitoh[1,2] *1. WPI-AIMR, Tohoku University, Sendai, Miyagi, Japan; 2. ERATO, Japan Science and Technology Agency, Sendai, Miyagi, Japan; 3. Institute for Materials Research, Tohoku University, Sendai, Miyagi, Japan; 4. PRESTO, Japan Science and Technology Agency, Saitama, Japan*

FT-10. Nanomagnetic logic with unstable and non-uniform states of clocking. *V. Puliafito*[1], A. Giordano[1], B. Azzerboni[1] and G. Finocchio[1] *1. Electronic Engineering, Industrial Chemistry and Engineering, University of Messina, Messina, Italy*

FT-11. Correlation between spin-orbit torques and spin Hall magnetoresistance in W/CoFeB/MgO structures. *S.C. Baek*[1], S. Cho[1], Y. Jo[2] and B. Park[1] *1. Korea Advanced Institute of Science and Technology, Daejeon, The Republic of Korea; 2. Korea Basic Science Institute, Daejeon, The Republic of Korea*

FT-12. Spin-orbit torques in Pd(*t*)/Co(0.6)/AlOx trilayers. *K. Garello*[1], A. Ghosh[1], C. Avci[1], M. Gabureac[1] and P. Gambardella[1] *1. Department of Materials, ETHZ, Zurich, Switzerland*

FT-13. Monotonicity of the spin signal by controlling the growth of silver in Py/Ag/Py lateral spin valves. *G. Stefanou*[1], J. Batley[1], M.C. Rosamond[2], G. Burnell[1] and B. Hickey[1] *1. Physics and Astronomy, University of Leeds, Leeds, West Yorkshire, United Kingdom; 2. Department of Electronic and Electrical Engineering, University of Leeds, Leeds, West Yorkshire, United Kingdom*

FT-14. Ballistic Rectification of Vortex Domain Wall Chirality at Nanowire Corners. K.A. Omari[1], R. Bradley[1], T.J. Broomhall[1], M. Hodges[1], M.C. Rosamond[2], M. Im[3,4], P. Fischer[3,5] and *T.J. Hayward*[1] *1. Department of Materials Science and Engineering, University of Sheffield, Sheffield, South Yorkshire, United Kingdom; 2. Department of Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom; 3. Centre for X-Ray Optics, Lawrence Berkeley National Lab, Berkeley, CA; 4. Daegu Gyeongbuk Institute of Science and Technology, Daegu, The Republic of Korea; 5. Department of Physics, University of California, Santa Cruz, Santa Cruz, CA*

Session FU
MAGNONICS II
(Poster Session)

Kyung Jin Lee, Chair
Korea University, Seoul, The Republic of Korea

FU-01. Spin wave propagation in 20 nm thick YIG magnonic crystals. *M. Collet*[1], O. d'Allivy Kelly[1], P. Bortolotti[1], K. Garcia[1], S. Xavier[2], E. Jacquet[1], V. Cros[1] and A. Anane[1] *1. Unité Mixte de Physique CNRS/Thales and Université Paris Sud, Palaiseau, Essone, France; 2. Thales Research and Technology, Palaiseau, Ile-de-France, France*

FU-02. Static and Dynamic Magnetic Behavior of Permalloy Anti-Artificial Spin Ice. *X. Zhou*[1] and A. Adeyeye[1] *1. National University of Singapore, Singapore, Singapore*

FU-03. Ferromagnetic resonance in meta-stable magnetic states for the analysis of the specific heat of low energy spin excitations. *B.W. Zingsem*[1], S. Masur[1], P. Wendtland[1], R. Meckenstock[1] and M. Farle[1] *1. Experimental Physics - AG Farle and CENIDE, University Duisburg-Essen, Duisburg, Germany*

FU-04. Finding Energy Barriers Of Skyrmionic Configurations In Ferromagnetic Nanodisks And Nanotracks. *D.I. Cortes*[1], W. Wang[1], M. Beg[1], M. Albert[1], M. Bisotti[1], D. Chernyshenko[1], R. Carey[1], M. Vousden[1], O. Hovorka[1] and H. Fangohr[1] *1. Faculty of Engineering and the Environment, University of Southampton, Southampton, Hampshire, United Kingdom*

FU-05. Spin waves in irregular narrow ferromagnetic waveguides. D. Kalyabin[1,2], A. Sadovnikov[3], E.N. Beginin[3], Y.P. Sharaevskii[3] and *S. Nikitov*[1,2] *1. IRE RAS, Moscow, Russian Federation; 2. Moscow Institute of Physics and Technology, Dolgoprudny, Russian Federation; 3. Saratov State University, Saratov, Russian Federation*

FU-06. A Spin Wave Diode. J. Lan[1], *W. Yu*[1] and J. Xiao[1] *1. Department of Physics, Fudan University, Shanghai, Shanghai, China*

FU-07. Manipulation of Microwave Properties Using Reconfigurable 2D Anti-ferromagnetic Crystal. A. Haldar[1] and *A. Adeyeye*[1] *1. Information Storage Materials Laboratory, Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore*

FU-08. Collective spin excitations in bi-component magnonic crystals consisting of bi-layered Permalloy/Fe nanostripes. *G. Gubbiotti*[1], S. Tacchi[1], M. Madami[2], G. Carlotti[2], M. Kostylev[3], J. Ding[4], Z.Y. Yang[4] and A. Adeyeye[4] *1. IOM-CNR, Perugia, Italy; 2. Dipartimento di Fisica e Geologia, Università di Perugia, Perugia, Italy; 3. School of Physics, University of Western Australia, Perth, WA, Australia; 4. Information Storage Materials Laboratory, Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore*

FU-09. Angular Band Diagrams for Multidirectional Spin Wave Propagation in Square Antidot Lattices. *F. Montoncello*[1], G. Gubbiotti[2], S. Tacchi[2], M. Madami[3], G. Carlotti[3], L. Giovannini[1], J. Ding[4] and A. Adeyeye[4] *1. Dipartimento di Fisica e Scienze della Terra, Università di Ferrara, Ferrara, Italy; 2. Istituto Officina dei Materiali del Consiglio Nazionale delle Ricerche (IOM-CNR), Perugia, Italy; 3. Dipartimento di Fisica e Geologia, Università di Perugia, Perugia, Italy; 4. Information Storage Materials Laboratory, Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore*

FU-10. Parametric magnetostrictive interaction in YIG sphere for coherent information processing. *X. Zhang*[1], C. Zou[1,2], L. Jiang[2] and H. Tang[1] *1. Electrical Engineering, Yale University, New Haven, CT; 2. Applied Physics, Yale University, New Haven, CT*

FU-11. Micromagnetic Simulations of Three-Dmensional Dot-Based Magnonic Crystals. A. Maksymov[1] and *L. Spinu*[1,2] *1. Advanced Materials Research Institute - AMRI, University of New Orleans, New Orleans, LA; 2. Physics, University of New Orleans, New Orleans, LA*

FU-12. Magnetization dynamics of an artificial spin ice. *M. Jungfleisch*[1], W. Zhang[1], J. Sklenar[1,2], J. Ding[1], W. Jiang[1], J.E. Pearson[1], J.B. Ketterson[2], O. Heinonen[1,2] and A. Hoffmann[1] *1. Materials Science Division, Argonne National Laboratory, Argonne, IL; 2. Department of Physics and Astronomy, Northwestern University, Evanston, IL*

FU-13. Dual tunable magnonic directional coupler based on laterally confined multiferroic waveguides. *A. Sadovnikov*[1,2], E.N. Beginin[1], A. Grachev[1], Y.P. Sharaevskii[1] and S. Nikitov[2] *1. Nonlinear Physics, Saratov State University, Saratov, Russian Federation; 2. Kotel'nikov Institute of Radioengineering and Electronics, Russian Academy of Sciences, Moscow, Russian Federation*

FU-14. A methodology to design spin wave based logic gates in a single ferromagnetic nanostripe using spin-transfer torque effects. X. Chen[1,2], Q. Wang[1,2], F. Bai[1,2], X. Tang[1,2], H. Zhang[1,2] and *Z. Zhong*[1,2] *1. State Key Laboratory of Electronic Thin Films and Integrated Devices, Chengdu, China; 2. University of Electronic Science and Technology of China, Chengdu, China*

Session FV

MAGNETIC RECORDING MEDIA (Poster Session)

Yukiko Takahashi, Co-Chair
NIMS, Tsukuba, Japan
Gunn Choe, Co-Chair
HGST, San Jose, CA

FV-01. Electronic Structures of $Fe_{1-x}Mn_xPt$ Alloys. *J. Park*[1], Y. Hong[1], W. Lee[1], S. Kim[3], L. Gao[2] and J. Thiele[2] *1. The University of Alabama, Tuscaloosa, AL; 2. Seagate Technology LLC, Fremont, CA; 3. Mississippi State University, Mississippi State, MS*

FV-02. Measuring Temperature Dependence of Anisotropy Field in HAMR Media by Pump-Probe Method. *Z. Dai*[1], H. Li[1] and J. Zhu[1] *1. Data Storage Systems Center, Carnegie Mellon University, Pittsburgh, PA*

FV-03. Substrate Bias Effects on Magnetic and Structural Properties of $L1_0$-FePt Based Recording Media. *B. Varghese*[1], K. Cher[1], J. Hu[1], S. Toh[1], Y. Ding[2] and G. Ju[2] *1. Data Storage Institute, (A*STAR) Agency for Science, Technology and Research, Singapore, Singapore; 2. Seagate Technology, Fremont, CA*

FV-04. Micromagnetic study on degree of integration of magnetization distribution near transition between upper and lower layers of stacked media. *H. Saito*[1], S. Kumagai[1] and R. Sugita[1] *1. Media and Telecommunications Engineering, Ibaraki University, Hitachi, Japan*

FV-05. Magnetic anisotropy and crystal domain variant in $L1_0$-FePt poly-crystalline films. *A. Hotta*[1], T. Ono[2,1], T. Shimatsu[1,4], N. Kikuchi[3], S. Okamoto[3] and O. Kitakami[3] *1. Frontier research Institute for Interdisciplinary Science, Tohoku university, Sendai City, Japan; 2. Electron Device Laboratory, Fuji Electric Co., Ltd, Tokyo, Japan; 3. IMRAM Tohoku University, Sendai, Japan; 4. RIEC, Tohoku University, Sendai, Japan*

FV-06. The effect of anisotropic interfacial energy to microstructure of $L1_0$ FePt thin films simulated by using phase field method. *L. Liu*[1], L. Zhang[1], K. Ohsasa[2] and S. Ishio[1,2] *1. Venture Business Laboratory, Akita University, Akita, Japan; 2. Department of Materials Science and Engineering, Akita University, Akita, Japan*

FV-07. Characterization of Segregant Materials in Perpendicular Thin Film CoCrPt Media. *A. Mangal*[1] and V.M. Sokalski[1] *1. Materials Science & Engineering, Carnegie Mellon University, Pittsburgh, PA*

FV-08. Structural and magnetic properties of $L1_0$ FePt (001) film on a FeRu underlayer. L. Lin[2], B. Yu[2], *B. Ma*[1,2], Z. Zhang[2], Q. Jin[2] and J. Wang[1] *1. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN; 2. Fudan University, Shanghai, China*

FV-09. A Hexagonal Half-metallic Heusler: Novel Candidate for Perpendicular Magnetic Media. *S. Keshavarz*[1,2], N. Naghibolashrafi[1], K. Munira[1], D. Mazumdar[3], A. Gupta[1,4], P.R. LeClair[1,2] and W.H. Butler[1,2] *1. Center for Materials for Information Technology,The University of Alabama, Tuscaloosa, AL; 2. Department of Physics and Astronomy, The University of Alabama, Tuscaloosa, AL; 3. Department of Physics, Southern Illinois University, Carbondale, IL; 4. Department of Chemical and Biological Engineering, The University of Alabama, Tuscaloosa, AL*

FV-10. Reduced Latency Multi-track Data Detection Methods for Shingled Magnetic Recording on Bit Patterned Media with 2-D Sector. *Y. Wang*[1] and B. Kumar[1] *1. Electrical and Computer Engineering Department, Carnegie Mellon University, Pittsburgh, PA*

FV-11. Recording on dual-layer and dual-thickness bit patterned media using microwave assisted magnetic recording. *S. Greaves*[1], Y. Kanai[2] and H. Muraoka[1] *1. RIEC, Tohoku University, Sendai, Japan; 2. Niigata Institute of Technology, Kashiwazaki, Japan*

FV-12. Coercivity and switching field distribution tuning in perpendicular magnetization exchange-coupled composite bit-patterned media by thickness of soft layer. *K. Son*[1], G.A. Schuetz[1] and E.J. Goering[1] *1. Modern Magnetic Systems, Max-Planck Institute for Intelligent Systems, Stuttgart, Germany*

FV-13. Two-layer exchange coupled composite (ECC) dot with weakly inclined anisotropy. *N. Honda*[1] and K. Yamakawa[2] *1. Engineering, Tohoku Institute of Technology, Sendai, Miyagi, Japan; 2. Akita Industrial Technology Center, Akita, Japan*

FV-14. Aspect ratio dependence of ferromagnetic resonance in thin film ellipse arrays. *H. Huang*[1] and Z. Wei[2] *1. Institute of Nanoengineering and Microsystems, National Tsing Hua University, Hsinchu, Taiwan; 2. Department of Power Mechanical Engineering, National Tsing Hua University, Hsinchu, Taiwan*

Session FW
MAGNETIC IMAGING AND MICROSCOPY
(Poster Session)

Agustina Asenjo, Chair
ICMM-CSIC, Madrid, Spain

FW-01. Dual experimental-computational approach for assessing effects of defects on magnetic structure of iron. *K. Xu*[2], Y. Li[3], S. Hu[3], D. Schreiber[3], J. Suter[3], P. Ramuhalli[3], B.R. Johnson[3] and J. McCloy[1,2] *1. School of Mechanical and Materials Engineering, Washington State University, Pullman, WA; 2. Materials Science & Engineering Program, Washington State University, Pullman, WA; 3. Pacific Northwest National Laboratory, Richland, WA*

FW-02. Toward Nanoscale Magnetic Imaging of Local Magnetization Dynamics Using Picosecond Thermal Gradients. *J.M. Bartell*[1], D.H. Ngai[2], F. Guo[1], J.C. Karsch[1] and G. Fuchs[1] *1. Applied and Engineering Physics, Cornell University, Ithaca, NY; 2. Department of Physics, Cornell University, Ithaca, NY*

FW-03. *In-situ* Lorentz microscopy on domain wall motion within NdFeB sintered magnets using a 3.5 kOe magnetizing specimen holder. *A. Sugawara*[1], T. Shimakura[2], T. Akashi[1] and Y. Takahashi[1] *1. Center for Exploratory Research, Research & Development Group, Hitachi Ltd., Hatoyama, Saitama, Japan; 2. Central Research Laboratory, Hitachi Ltd., Hatoyama, Saitamaa, Japan*

FW-04. Direct Recording and Imaging of Magnetic Domains in [Co/Pd] Nanowires by Magnetic Domain Scope Method using Contact-scanning of Magnetic Recording Head. *Y. Miyamoto*[1], M. Okuda[1], M. Kawana[1] and N. Saito[1] *1. Science & Technology Research Labs., NHK (Japan Broadcasting Corporation), Tokyo, Japan*

FW-05. Ultra high-resolution magnetic imaging of perpendicular magnetic recording media by near-surface alternating magnetic force microscopy with amorphous FeCoSiB tip. S. Kapa[1], G. Egawa[1], Y. Kinoshita[1], S. Yoshimura[1] and *H. Saito*[1] *1. Research Center for Engineering Science, Graduate School of Engineering and Resource Science, Akita, Akita, Japan*

FW-06. Micromagnetic Structure and Coercivity Mechanism of AlNiCo Magnets Studied by Electron Holography. *S. Zhu*[1,2], J. Zhao[1], Y. Peng[2], J. Du[1], J. Zhang[1], W. Xia[1], Y. Sun[1], A. Yan[1], W. Li[3] and P. Liu[4] *1. Key Laboratory of Magnetic Materials and Devices, Ningbo Institute of Material Technology and Engineering, Chinese Academy of Sciences, Ningbo, Zhejiang, China; 2. Key Laboratory of Magnetism and Magnetic Materials of Ministry of Education, Lanzhou University, Lanzhou, Gansu, China; 3. Division of Functional Materials, Central Iron and Steel Research Institute, Beijing, Beijing, China; 4. Department of Physics, University of Texas at Arlington, Arlington, Arlington, TX*

FW-07. Anisotropy and Domain Structure in Amorphous TbCo Thin Films Grown by Combinatorial Sputtering. *S. George*[1], F. Magnus[1], A. Frisk[1] and G. Andersson[1] *1. Physics and Astronomy, Uppsala University, Uppsala, Sweden*

FW-08. High Resolution Magnetic Imaging of domain wall spin structures in Fe rings using SEMPA. *P. Krautscheid*[1,2], M. Lauf[1], B. Krüger[1], R.M. Reeve[1] and M. Kläui[1] *1. Institut für Physik, Johannes Gutenberg-Universität Mainz, Mainz, Rheinland-Pfalz, Germany; 2. Graduate School Materials Science in Mainz, Mainz, Rheinland-Pfalz, Germany*

FW-09. Centimeter-order view for magnetic domain imaging with local magnetization direction by longitudinal Kerr effect. *S. Meguro*[1], S. Saito[2] and K. Akahane[1] *1. NEOARK Corporation, Hachioji, Tokyo, Japan; 2. Electronic Engineering, Graduate School of Engineering, Tohoku University, Sendai, Japan*

FW-10. Withdrawn

FW-11. Spatial resolution and switching field of magnetic force microscope tips prepared by coating Fe/Co-Pt layers. *R. Nagatsu*[1], M. Ohtake[1,4], M. Futamoto[1], F. Kirino[2] and N. Inaba[3] *1. Faculty of Science and Engineering, Chuo University, Tokyo, Japan; 2. Graduate School of Fine Arts, Tokyo University of the Arts, Tokyo, Japan; 3. Faculty of Engineering, Yamagata University, Yonezawa, Japan; 4. Faculty of Engineering, Kogakuin University, Tokyo, Japan*

FW-12. Lattice strain effects on magnetic domain structure in epitaxial (110) $NiFe_2O_4$ thin films. *B. Kim*[1], S. Ki[1] and J. Dho[1] *1. Physics, Kyungpook National University, Daegu, The Republic of Korea*

FW-13. Off-Axis Electron Holography of Isolated CoFeB Nanowires. *A. Akhtari-Zavareh*[1], L. Carignan[2], A. Yelon[3], D. Menard[3] and K. Kavanagh[1] *1. Simon Fraser University, Burnaby, BC, Canada; 2. Apollo Microwaves, Dorval,, QC, Canada; 3. Physics, Ecole Polytechnique, Montreal, QC, Canada*

FW-14. The construction of a super-resolution magneto-optical Kerr microscope working at extreme conditions. *W. Guan*[1] and A. Huxley[1] *1. School of Physics and Astronomy, University of Edinburgh, Edinburgh, United Kingdom*

Session FX
MODELING AND DESIGN OF MOTORS (Poster Session)

Hiroyuki Yaguchi, Chair
Tohoku Gakuin University, Tagajo, Japan

FX-01. Coil Excited Magnetic Gears for Large Wind Turbines. *A. Penzkofer*[1] and K. Atallah[1] *1. Electronic and Electrical Engineering, University of Sheffield, Sheffield, United Kingdom*

FX-02. Design and Control of a Novel Axial Flux Permanent Magnet In-Wheel Machine for Wide Constant Power Speed Range Operation. *S. Niu*[2] and X. Luo[1,2] *1. School of Naval Architecture, Ocean & Civil Engineering, Shanghai Jiaotong University, Shanghai, China; 2. Department of Electrical Engineering, The Hong Kong Polytechnic University, Hongkong, Hong Kong*

FX-03. Investigation of Electromagnetic, Thermal and Mechanical Characteristics of a Five-Phase Dual-Rotor Permanent-Magnet Synchronous Motor. *W. Liu*[1] and J. Zhao[1] *1. Beijing Institute of Technology, Beijing, China*

FX-04. Electromagnetic performances analysis and verification of a new flux-intensifying permanent magnet brushless motor with two-layer segmented permanent magnets. X. Zhu[1], S. Yang[1], Y. Du[1] and *Z. Xiang*[1] *1. Jiangsu University, School of Electrical and Information Engineering, Zhen Jiang, Jiang Su, China*

FX-05. Development of a High-Speed Permanent Magnet Motor for Active Magnetic Bearing Compressors. *C. Wang*[1], T. Hsiao[1], K. Liang[1] and C. Liu[1] *1. Industrial Technology Research Institute, Hsinchu, Taiwan*

FX-06. Finite Element Model Simplification Methods for Stacks of Superconducting Tapes. *B. de Bruyn*[1], J. Jansen[1] and E.A. Lomonova[1] *1. Electrical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands*

FX-07. A Novel Transverse-Flux PM Linear Machine with Double Ω-hoop Stator. *Z. Jia*[2,1] and W. Chen[2] *1. Engineering Research Center for Motion Control of MOE, Southeast University, Nanjing, Jiangsu, China; 2. School of Information and Control, Nanjing University of Information Science and Technology, Nanjing, Jiangsu, China*

FX-08. Demagnetization Fault Diagnosis of Permanent Magnet Synchronous Motor by Using High Frequency Signal Injection Method and Wavelet Analysis. *J. Yoo*[1], D. Hwang[2] and T. Jung[1] *1. Electrical Engineering, Kyungnam university, Chang-won, The Republic of Korea; 2. Korea Electrotechnology Research Institute, Changwon, The Republic of Korea*

FX-09. Influence of Eccentricity of PM Outer Arc on Unbalanced Magnetic Force in BLDCM with Diametrically Asymmetric Windings. *J. Yan*[1], W. Sun[1], Q. Li[1], Z. Zhao[1] and Q. Zhang[1] *1. Nanjing University of Science and Technology, Nanjing, Jiangsu, China*

FX-10. Prediction of Electric Motor Performance Considering Variation of Initial Magnetization Curve of Electrical Steel Sheet according to Manufacturing Process. *D. Kim*[1], J. Chin[1] and J. Hong[1] *1. Department of Automotive Engineering, Hanyang University, Seoul, The Republic of Korea*

FX-11. An Improved Method for Armature-Reaction Magnetic Field of Interior Permanent Magnet Motors Accounting for Magnetic Bridges. *P. Liang*[1], F. Chai[1], Y. Bi[1] and S. Cheng[1] *1. Department of Electrical Engineering, Harbin Institute of Technology, Harbin, China*

FX-12. Comparative Analysis of End Effect in Partitioned Stator Flux Reversal Machines Having Surface Mounted and Consequent Pole Permanent Magnets. *Z. Wu*[1] and Z. Zhu[1] *1. Department of Electronic and Electrical Engineering, The University of Sheffield, Sheffield, United Kingdom*

FX-13. A Novel Coaxial Magnetic Gear and Its Integration with Permanent-Magnet Brushless Motor. *X. Zhang*[1], X. Liu[1] and Z. Chen[1] *1. Department of energy technology, Aalborg University, Aalborg, Denmark*

FX-14. Cogging-Torque Reduction of Transverse-Flux Motor by Skewing Stator Poles. *Y. Ueda*[1], H. Takahashi[1], A. Ogawa[1], T. Akiba[1] and M. Yoshida[1] *1. Mechanical Systems Laboratory, Corporate R&D Center, Toshiba Corp., Kawasaki, Japan*

THURSDAY AFTERNOON 2:30 — SAPPHIRE BALLROOM SOUTH

Session FY
MOTOR CONTROL AND DRIVES
(Poster Session)

Kais Atallah, Chair
University of Sheffield, Sheffield, United Kingdom

FY-01. Improved Direct Torque Control of a Novel Dual-Stator Brushless Doubly-Fed Induction Generator for Wind Energy Applications. *X. Wei*[1], M. Cheng[1], J. Zhang[1], W. Wang[1] and P. Han[1] *1. Southeast University, Nanjing, China*

FY-02. Sinusoidal Flux Linkage Pulsation Injected Excitation Control for Six-phase Switched Reluctance Motor. *S. Dai*[1], C. Liu[1], M. Guan[1], S. Han[1] and C. Zhou[1] *1. College of Atuomation, Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu, China*

FY-03. Investigation of A Vector Controlled Five-Phase Flux-Switching Permanent Magnet Machine Drive System. *M. Tong*[1], H. Wei[1] and M. Cheng[1] *1. School of Electrical Engineering, Southeast University, Nanjing, Jiangsu, China*

FY-04. Rotor Magnetic Forces Analysis of an Intelligent Radial Position System of a Bearingless Induction Motor. *L.P. Santos*[1], J.B. Lopes[1], J.D. Fernandes[1] and A.O. Salazar[2] *1. IFRN, Natal, RN, Brazil; 2. UFRN, Natal, Rn, Brazil*

FY-05. Precise Estimation of Initial Pole Position for Surface PMLSM Based on Three Reference Frame Method. *S. Paul*[1] and J. Chang[1] *1. Electrical engineering, Dong-A University, Busan, The Republic of Korea*

FY-06. Current Control of WRSM considering magnetic saturation phenomenon. *H. Seol*[1], H. Ahn[1], W. Shim[1], J. Lee[1] and H. Lee[2] *1. Hanyang University, Seoul, The Republic of Korea; 2. Korea National University of Transportation, Uiwang-si, The Republic of Korea*

FY-07. Power Factor Improvement of a Linear Vernier Permanent-Magnet Machine using Auxiliary DC field Excitation. *T. Ching*[2], K. Chau[1] and W. Li[1] *1. The University of Hong Kong, Hong Kong, Hong Kong; 2. University of Macau, Macao, Macao*

FY-08. Phase Current Reconstruction for Dual Three-Phase Permanent Magnet Synchronous Motor Drive Using Two DC Link Current Sensors. H. Yan[1], Y. Xu[1], *J. Zou*[1], J. Li[1], Q. Wang[1] and B. Zhao[1] *1. Harbin Institute of Technology, Harbin, Heilongjiang, China*

FY-09. Blend modified recurrent Gegenbauer orthogonal polynomial neural network control for six-phase copper rotor induction motor servo-driven continuously variable transmission system. *C. Lin*[1] *1. Electrical Engineering, National United University, Miaoli, Taiwan*

FY-10. A Novel High-efficiency Dual-stator Flux-modulated Electric Motor and its Decoupling Control. X. Guo[1,2], *S. Wu*[1], Y. Chen[2] and W. Fu[2] *1. College of Information Science and Engineering, National Huaqiao University, Xiamen, Fujian, China; 2. Department of Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, China*

FY-11. Robust Speed Control for BLDC Motors via Convex Combination Method. C. Kim[1], T. Kim[1], *H. Ahn*[2] and G. Kang[1] *1. Korea Marine Equipment Research Institute, Busan, The Republic of Korea; 2. Electrical Engineering, Hanyang University, Seoul, The Republic of Korea*

FY-12. Wireless Sensor for Rotor Temperature Acquisition on Induction Motors. *J.D. Fernandes*[1], P.V. Silva[1], L.P. Santos[1], J.B. Lopes[1] and A.O. Salazar[2] *1. Federal Institute of Education Science and Technology of Rio Grande do Norte - IFRN, Parnamirim, Brazil; 2. Federal University of Rio Grande do Norte, Natal, Brazil*

FY-13. Fault-Tolerant Operation of a New Hybrid-Structure Three-Excitation Vernier Machine for Mars Rover. *C. Liu*[2,1], K. Chau[1] and F. Lin[1] *1. Department of Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong, China; 2. School of Energy and Environment, City University of Hong Kong, Hong Kong, China*

FY-14. A Novel Control Strategy for On-line Harmonic Compensation in Parametrically Unbalanced Induction Motor. *E. Ghosh*[1], A. Mollaeian[1], W. Hu[1] and N. Kar[1] *1. Department of Electrical and Computer Engineering, University of Windsor, Windsor, ON, Canada*

THURSDAY
EVENING
6:00

SAPPHIRE ABEF

Session ZA

EVENING SESSION 2: MAGNETIC DEVICES FOR THE FUTURE

Atsufumi Hirohata, Chair
University of York, York, United Kingdom

6:00

ZA-01. New Generation Magnetometer for Novel Applications on Portable Devices. ***(Invited)*** *M. Lai*[1] and F. Yuan[1] *1. iSentek Inc., Taipei, Taiwan*

6:30

ZA-02. Embedded STT-MRAM: Emerging Products and Persistent Innovations. ***(Invited)*** *S.H. Kang*[1] *1. Corporate R&D, Qualcomm Technologies Inc., San Diego, CA*

7:00

ZA-03. Creating Quantum Technologies with Spins in Semiconductors. ***(Invited)*** *D. Awschalom*[1] *1. Institute for Molecular Engineering, University of Chicago, Chicago, IL*

FRIDAY
MORNING
8:30

SAPPHIRE ABEF

Session GA

NEW FRONTIERS OF ORGANIC SPINTRONICS

Tae Hee Kim, Chair
Ewha Womans University, Seoul, The Republic of Korea

8:30

GA-01. Interface as key unit in organic spintronic devices. ***(Invited)*** *V.A. Dediu*[1], I. Bergenti[1] and F. Borgatti[1] *1. CNR-ISMN, Bologna, BO, Italy*

9:06

GA-02. Spin Transport in Molecular Films: Beyond Conventional Spin Valves. ***(Invited)*** *L.E. Hueso*[1], X. Sun[1], A. Bedoya-Pinto[1], M. Gobbi[1,2], H. Prima-García[3], S. Gomez-Miralles[3], E. Coronado[3] and F. Casanova[1] *1. CIC nanoGUNE, San Sebastian, Spain; 2. University Strasbourg, Strasbourg, France; 3. Universidad de Valencia, Valencia, Spain*

9:42

GA-03. Pure spin currents in organic semiconductors. ***(Invited)*** *H. Sirringhaus*[1] *1. University of Cambridge, Cambridge, United Kingdom*

10:18

GA-04. Spin injection and spin transport in hybrid organic/inorganic spin valves. ***(Invited)*** *T. Nguyen*[1] *1. Physics and Astronomy, The University of Georgia, Athens, GA*

10:54

GA-05. Multiferroic Organic Spintronics: An Active Control of Organic Spin Valve Using Ferroelectricity. ***(Invited)*** *X. Xu*[1] *1. Physics and Astronomy, University of Nebraska, Lincoln, NE*

FRIDAY MORNING 8:30 — SAPPHIRE IJ

Session GB
IMAGING OF NANOSTRUCTURED MATERIALS
Peter Fischer, Chair
LBNL, Berkeley, CA

8:30

GB-01. Detection of a magnetic bead by hybrid nanodevices using scanning gate microscopy. *H. Corte-León*[1,4], P. Krzysteczko[2], F. Marchi[5,6], A. Manzin[3], H.W. Schumacher[2], V. Antonov[4] and O. Kazakova[1] *1. TQEM, National Physical Laboratory, Teddington, United Kingdom; 2. Physikalisch-Technische Bundesanstalt, Braunschweig, Germany; 3. Instituto Nazionale di Ricerca Metrologica, Torino, Italy; 4. Royal Holloway University of London, Egham, United Kingdom; 5. Univ. Grenoble Alpes, Inst. Néel, Grenoble, France; 6. CNRS, Inst. Néel, Grenoble, France*

8:42

GB-02. Hybridization-induced spin polarization of triphenyl-triazine on Fe/W(110) imaged by spin-polarized STM. V. Hess[1,3], R. Friedrich[2,3], F. Matthes[1,3], *D.E. Bürgler*[1,3], V. Caciuc[2,3], N. Atodiresei[2,3], S. Blügel[2,3] and C.M. Schneider[1,3] *1. Peter Grünberg Institute (PGI-6), Forschungszentrum Jülich, Jülich, Germany; 2. Peter Grünberg Institute (PGI-1) and Institute for Advanced Simulation (IAS-1), Forschungszentrum Jülich, Jülich, Germany; 3. Fundamentals of Future Information Technology (JARA-FIT), Jülich-Aachen Research Alliance, Jülich, Germany*

8:54

GB-03. Electron Holography of MnP Nanoparticles. A. Akhtari-Zavareh[1], N. Nateghi[2], P. Yapa[1], D. Menard[2], A. Yelon[2] and *K. Kavanagh*[1] *1. Simon Fraser University, Burnaby, BC, Canada; 2. Physics, Ecole Polytechnique, Montreal, QC, Canada*

9:06

GB-04. X-ray holography applied to magnetic nanostructures and spintronic materials. ***(Invited)*** *S. Eisebitt*[1,2] *1. Institut für Optik und Atomare Physik, Technische Universität Berlin, Berlin, Germany; 2. Division of Synchrotron Radiation Research, Lund University, Lund, Sweden*

9:42

GB-05. Magnetic microstructure in stress-annealed $Fe_{73.5}Si_{15.5}B_7Nb_3Cu_1$ soft magnetic alloys observed using off-axis electron holography and Lorentz microscopy. *A. Kovacs*[1], K.G. Pradeep[2], G. Herzer[3], D. Raabe[4] and R. Dunin-Borkowski[1] *1. Ernst Ruska-Centre, Forschungszentrum Juelich, Juelich, NRW, Germany; 2. RWTH Aachen, Aachen, Germany; 3. Vacuumschmelze, Hanau, Germany; 4. Max-Planck-Institut für Eisenforschung, Duesseldorf, Germany*

9:54

GB-06. Towards quantitative MFM with controllable state of magnetic probes. *O. Kazakova*[1], B. Gribkov[1,2], S. Vdovichev[2] and V. Panchal[1] *1. National Physical Laboratory, Teddington, United Kingdom; 2. Institute for Physics of Microstructures RAS, Nizhny Novgorod, Russian Federation*

10:06

GB-07. Advanced magneto-optical microscopy: Imaging from picoseconds to centimeters - imaging spin-waves and temperature distributions. ***(Invited)*** *J. McCord*[1], B. Mozooni[1], P. Mazalski[2], N.O. Urs[1] and M. Kustov[1,3] *1. Institute for Materials Science, CAU Kiel, Kiel, Germany, Germany; 2. Faculty of Physics, University of Bialystok, Bialystok, Poland; 3. Blackett Laboratory, Imperial College London, London, United Kingdom*

10:42

GB-08. A High Field Room Temperature Scanning Magneto-Optic Kerr-Effect Set-up. *A.L. Dias*[1], J. de Paula[1,2], M. Bonfim[2], G. Shaw[1], D. Givord[1] and N. Dempsey[1] *1. Institut Néel, Grenoble, France; 2. DELT, Universidade Federal do Paraná, Curitiba, Brazil*

10:54

GB-09. All-electric measurement of the field-invariant magnetization of antiferromagnets. *T. Kosub*[1], M. Kopte[1], O.G. Schmidt[1] and D. Makarov[1] *1. IFW Dresden, Dresden, Germany*

11:06

GB-10. Direct observation of temperature-driven magnetic symmetry transitions by vectorial-resolved MOKE magnetometry. *J. Fernandez Cunnado*[1,2], F. Pedrosa[1], F. Ajejas[1], A. Bollero[1], P. Perna[1], R. Miranda[1,2] and J. Camarero[1,2] *1. Magnetism, IMDEA Nanociencia, Madrid, Madrid, Spain; 2. Magnetism, Universidad Autónoma de Madrid, Madrid, Madrid, Spain*

11:18

GB-11. Selective Control of Magnetization Precession in Magnetic Multilayers. *C. Berk*[1], Y. Yahagi[1], F. Ganss[2], M. Albrecht[3] and H. Schmidt[1] *1. UC Santa Cruz, Santa Cruz, CA; 2. Chemnitz University of Technology, Chemnitz, Germany; 3. University of Augsburg, Augsburg, Germany*

FRIDAY
MORNING
8:30

SAPPHIRE MN

Session GC
MAGNONS, PHOTONS AND SPIN DYNAMICS
Tom Thomson, Chair
University of Manchester, Manchester, United Kingdom

8:30

GC-01. Enhancement of damping in Ni/TbFe nanomagnets through coupling to elastic eigenmodes. Y. Yahagi[1], *C. Berk*[1], B. Hebler[2], M. Albrecht[2] and H. Schmidt[1] *1. School of Engineering, University of California Santa Cruz, Santa Cruz, CA; 2. Institute of Physics, University of Augsburg, Augsburg, Germany*

8:42

GC-02. Phase-sensitive imaging of ferromagnetic resonance and current using heat and light. *F. Guo*[1], J.M. Bartell[1], D.H. Ngai[1], M. Nguyen[1], R.A. Buhrman[1] and G. Fuchs[1] *1. Cornell University, Ithaca, NY*

8:54

GC-03. Localization of Fe *d*-states in Ni-Fe-Cu alloys and implications for ultrafast demagnetization. *R. Knut*[1,2], E.K. Delczeg-Czirjak[3], J. Shaw[2], H. Nembach[2], P. Grychtol[1], D. Zusin[1], C. Gentry[1], E. Turgut[1], H. Kapteyn[1], M. Murnane[1], D.A. Arena[4], O. Eriksson[3], O. Karis[3] and T. Silva[2] *1. JILA Boulder, Boulder, CO; 2. NIST, Boulder, CO; 3. Uppsala University, Uppsala, Sweden; 4. University of South Florida, Tampa, FL*

9:06

GC-04. Building the Foundation of Cavity Spintronics. ***(Invited)*** *C. Hu*[1], L. Bai[1], M. Harder[1], S. Kaur[1], B. Yao[1,2], Y. Gui[1], Y. Chen[3], X. Fan[3] and J. Xiao[3] *1. Department of Physics and Astronomy, University of Manitoba, Winnipeg, MB, Canada; 2. National Laboratory for Infrared Physics, Chinese Academy of Sciences, Shanghai, China; 3. Department of Physics and Astronomy, University of Delaware, Newark, DE*

9:42

GC-05. All-optical helicity-dependent switching in Hall cross devices. *M. El Hadri*[1], C. Lambert[1], P. Pirro[1], N. Bergeard[1], S. Petit-Watelot[1], M. Hehn[1], G. Malinowski[1], E.E. Fullerton[2] and S. Mangin[1] *1. Institut Jean Lamour, Universite de Lorraine, Vandoeuvre-lès-Nancy, France; 2. Center for Magnetic Recording Research, UC San Diego, La Jolla, CA*

9:54

GC-06. Vector Hamiltonian Formalism in the Theory of Nonlinear Magnetization Dynamics. *V. Tyberkevych*[1], I. Lisenkov[1,2], A.D. Belanovsky[1,3] and A.N. Slavin[1] *1. Department of Physics, Oakland University, Rochester, MI; 2. Kotelnikov Institute of Radio-Engineering and Electronics of RAS, Moscow, Russian Federation; 3. Moscow Institute of Physics and Technology, Dolgoprudny, Russian Federation*

10:06

GC-07. Harnessing the shallow magnetization energy barrier for efficient nonlinear high harmonics generation in perpendicularly magnetized ultrathin CoFeB films. *A. Capua*[1], C. Rettner[1] and S.S.P. Parkin[1,2] *1. IBM Almaden Research Center, San Jose, CA; 2. Max Planck Institute for Microstructure Physics, Halle, Germany*

10:18

GC-08. Formation of Bose-Einstein Magnon Condensate via Dipolar and Exchange Thermalization Channels. *D.A. Bozhko*[1,2], P. Clausen[1], A.V. Chumak[1], B. Hillebrands[1] and A.A. Serga[1] *1. Fachbereich Physik and Landesforschungszentrum OPTIMAS, TU Kaiserslautern, Kaiserslautern, Germany; 2. Graduate School Materials Science in Mainz, Kaiserslautern, Germany*

10:30

GC-09. Influence of a thermal gradient on parametrically excited magnons in YIG-Pt bilayers. *T. Langner*[1], A.A. Serga[1], A. Kirihara[1,2], B. Hillebrands[1] and V.I. Vasyuchka[1] *1. Fachbereich Physik and Landesforschungszentrum OPTIMAS, Technische Universität Kaiserslautern, Germany, Kaiserslautern, Germany; 2. Smart Energy Research Laboratories, NEC corporation, Tsukuba, Japan*

10:42

GC-10. Evidence for the interfacial origins of curvature-dependent damping for localized spin-wave modes in nanomagnets. *H. Nembach*[1,2], J. Shaw[1], M. Pufall[1] and T. Silva[1] *1. NIST, Boulder, CO; 2. JILA, University of Colorado, Boulder, CO*

10:54

GC-11. Magnonic Holographic Memory for Data Storage and Information Processing. *A. Khitun*[1,2], F. Gertz[1], A. Kozhevnikov[2], Y. Filimonov[2] and G. Dudko[2] *1. University of California Riverside, Riverside, CA; 2. Kotel'nikov Institute of Radioengineering and Electronics of Russian Academy of Sciences, Saratov Branch, Saratov, Russian Federation*

11:06

GC-12. Tunable Short-Wavelength Spin Wave Excitation From Pinned Magnetic Domain Walls. *B. Van de Wiele*[1], S.J. Hämäläinen[2], P. Balaz[3], F. Montoncello[4] and S. van Dijken[2] *1. Department of Electrical Energy, Systems and Automation, Ghent University, Ghent, Belgium; 2. Nanospin, Department of Applied Physics, Aalto University School of Science, Aalto, Finland; 3. Department of Condensed Matter Physics, Charles University, Prague, Czech Republic; 4. Dipartimento di Fisica e Scienze della Terra, University of Ferrara, Ferrara, Italy*

11:18

GC-13. Amplitude control of spin wave via the domain wall rotation in perpendicular magnetic anisotropy nanostripe. *L. Chang*[1] and S. Lee[1] *1. Institute of Physics, Academia Sinica, Taipei, Taiwan*

FRIDAY
MORNING
8:30

SAPPHIRE 400

Session GD
SPIN HALL AND RELATED EFFECTS II
Yuan Lu, Chair
Institut Jean Lamour, Vandoeuvre lès Nancy, France

8:30

GD-01. Current-induced instability of a perpendicular ferromagnet in spin Hall geometry. *T. Taniguchi*[1], S. Mitani[2] and M. Hayashi[2] *1. Spintronics Research Center, AIST, Tsukuba, Ibaraki, Japan; 2. Magnetic Materials Unit, National Institute of Materials Science, Tsukuba, Ibaraki, Japan*

8:42

GD-02. Unidirectional Spin Hall Magnetoresistance at the Interfaces Between 3-d and 5-d Metal Bilayers. *A. Kalitsov*[1,2], Y. Lv[3], S. Nikolaev[4], M. Chshiev[5,6], J. Wang[3] and O.N. Mryasov[1,2] *1. MINT Center, University of Alabama, Tuscaloosa, AL; 2. Western Digital Corporation, San Jose, CA; 3. University of Minnesota, Minneapolis, MN; 4. Ural Federal University, Ekaterinburg, Russian Federation; 5. CEA, INAC-SPINTEC, Grenoble, France; 6. Univ. Grenoble Alpes, Grenoble, France*

8:54

GD-03. Detection of current induced spin torque ferromagnetic resonance in ferromagnetic insulator/heavy metal heterostructures. *Y. Liu*[1], C. Wu[1], Y. Fanchiang[2], L. Chang[3], S. Lee[3], M. Hong[2] and J. Kwo[1] *1. Physics, National Tsing Hua University, Hsinchu, Taiwan; 2. Graduate Institute of Applied Physics and Department of Physics, National Taiwan University, Taipei, Taiwan; 3. Institute of Physics, Academia Sinica, Taipei, Taiwan*

9:06

GD-04. Pure Spin Current in Ferromagnetic Metals: Independence of Magnetization Orientation. D. Tian[1,2], *Y. Li*[1], D. Qu[1], S. Huang[3], X. Jin[2] and C. Chien[1] *1. Department of Physics and Astronomy, Johns Hopkins Univeristy, Baltimore, MD; 2. Surface Physics Laboratory, Fudan University, Shanghai, China; 3. Department of Physics, National Taiwan University, Taipei, Taiwan*

9:18

GD-05. Extrinsic spin swapping in ferromagnetic films. *C. Ortiz Pauyac*[1] and A. Manchon[1] *1. King Abdullah of Science and Technology, Thuwal, Saudi Arabia*

9:30

GD-06. Spin Current Control of Damping in YIG/Pt Nanowires. *C.J. Safranski*[1], I. Barsukov[1], H. Lee[1], T. Schneider[1,3], A.A. Jara[1], A. Smith[1], H. Chang[2], M. Wu[2] and I. Krivorotov[1] *1. Physics, University of California Irvine, Irvine, CA; 2. Colorado State University, Fort Collins, CO; 3. Helmholtz-Zentrum Dresden, Rossendorf, Germany*

9:42

GD-07. Oscillatory Gilbert damping and proximity magnetization in Pt/Cu/Py multilayers. *I. Barsukov*[1], A. Gonçalves[2], P. Soledade[2], C.A. Passos[2], M. Costa[2], N.M. Souza-Neto[3], F. Garcia[2], H. Lee[1], A. Smith[1], O. Tretiakov[4], I. Krivorotov[1] and L.C. Sampaio[2] *1. University of California, Irvine, Irvine, CA; 2. CBPF, Rio de Janeiro, Brazil; 3. LNLS, Campinas, Brazil; 4. Tohoku University, Sendai, Japan*

9:54

GD-08. Nonlocal spin transport in a Kondo alloy Cu(Fe) in lateral spin valves with Co_2FeSi electrodes. *T. Kurokawa*[1], S. Oki[1], S. Yamada[1], T. Kanashima[1], T. Taniyama[2] and K. Hamaya[1] *1. Graduate School of Engineering Science, Osaka University, Toyonaka, Osaka, Japan; 2. Materials and Structures Laboratoy, Tokyo Institute of Technology, Yokohama, Kanagawa, Japan*

10:06

GD-09. Magneto-optical probe of spin-orbit torques in magnetic insulators. *M. Montazeri*[1], P. Upadhyaya[1], M. Onbasli[2], G. Yu[1], K.L. Wong[1], M. Lang[1], Y. Fan[1], X. Li[1], P. Khalili[1], R.N. Schwartz[1], C. Ross[1] and K.L. Wang[1] *1. Electrical Engineering, University of California Los Angeles, Los Angeles, CA; 2. Material Sciences, MIT, Cambridge, MA*

10:18

GD-10. A spin-orbit torque magnetometer based on the polar and quadratic magneto-optic Kerr effect. *W. Wang*[1,3], X. Fan[1], A.R. Mellnik[2], N. Reynolds[2], T. Wang[1], H. Celik[1], V.O. Lorenz[1,3], D.C. Ralph[2] and J. Xiao[1] *1. Department of Physics and Astronomy, University of Delaware, Newark, DE; 2. Department of Physics, Cornell University, Ithaca, NY; 3. Department of Physics, University of Illinois, Urbana, IL*

10:30

GD-11. Thickness-dependent low-temperature enhancement of the spin seebeck effect. *J. Cramer*[1], E. Guo[1], A. Kehlberger[1], G. Jakob[1] and M. Kläui[1] *1. Physics, Johannes Gutenberg University Mainz, Mainz, Germany*

10:42

GD-12. Thermodynamics of the heat currents in the longitudinal spin Seebeck and spin Peltier effects. V. Basso[1], E. Ferraro[1], A. Sola[1], A. Magni[1], *M. Kuepferling*[1] and M. Pasquale[1] *1. Istituto Nazionale di Ricerca Metrologica, Torino, Italy*

10:54

GD-13. Anomalous Nernst effect in $D0_{22}$-ordered MnX (X = Ga, Ge) thin films. *M. Mizuguchi*[1], M. Inoue[1], J. Kim[1], S. Mizukami[2] and K. Takanashi[1] *1. Institute for Materials Research (IMR), Tohoku University, Sendai, Japan; 2. WPI–Advanced Institute for Materials Research, Tohoku University, Sendai, Japan*

11:06

GD-14. Withdrawn

11:18

GD-15. Characterizations of Topological Insulators Spin-Orbit Torques Using Spin Pumping and Spin-Torque FMR. *M. Jamali*[1], J.S. Lee[2], J. Jeong[3], F. Mahfouzi[4], Y. Lv[1], Z. Zhao[1], B.K. Nikolić[5], A. Mkhoyan[3], N. Samarth[2] and J. Wang[1] *1. Electrical & Computer Eng., University of Minnesota, Minneapolis, MN; 2. Department of Physics, The Pennsylvania State University, University Park, PA; 3. Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN; 4. Department of Physics, California State University, Northridge, CA; 5. Department of Physics and Astronomy, University of Delaware, Newark, DE*

Session GE

NOVEL MAGNETO-TRANSPORT PHENOMENA AND FERROMAGNETIC SEMICONDUCTORS

Tomasz Dietl, Chair
Polish Academy of Sciences, Warszawa, Poland

8:30

GE-01. Anomalous Hall effect in pseudo-single-crystal γ'-Fe_4N thin films. *K. Kabara*[1], M. Tsunoda[1] and S. Kokado[2] *1. Electronic Engineering, Tohoku University, Sendai, Japan; 2. Graduate School of Engineering, Shizuoka University, Hamamatsu, Shizuoka, Japan*

8:42

GE-02. Localization correction to anomalous Hall effect in perpendicular CoFeB thin films. J. Ding[1] and *T. Zhu*[1] *1. State Key Lab for Magnetism, Institute of Physics, Chinese Academy of Sciences, Beijing, China*

8:54

GE-03. Spin Correlations and Transport Properties of Co-Si Nanocluster Films. *T. George*[1,2], B. Balasubramanian[1,2], P. Mukherjee[1,2], J. Hua[1], B. Das[1,2] and D.J. Sellmyer[1,2] *1. Nebraska Center for Materials and Nanoscience, University of Nebraska, Lincoln, NE; 2. Department of Physics and Astronomy, University of Nebraska, Lincoln, NE*

9:06

GE-04. Direct views on the origin of anisotropic magnetoresistance in thin films and multilayered structures. P. Perna[1], D. Maccariello[1], J. Cuñado[1], A. Bollero[1], F. Ajejas[2], F. Pedrosa[1], M.A. Niño[1], M. Munoz[3,4], J.L. Prieto[4], R. Miranda[2,1] and *J. Camarero*[2,1] *1. IMDEA Nanoscience, Madrid, Spain; 2. Universidad Autonoma de Madrid and Institute Nicolás Cabrera, Madrid, Madrid, Spain; 3. IMM-CNM-CSIC, Tres Cantos, Madrid, Spain; 4. ISOM-UPM, Madrid, Madrid, Spain*

9:18

GE-05. Interfacial coupling induced symmetry-breaking of spin-orbit interaction in exchange biased systems. *P. Perna*[1], D. Maccariello[1], F. Ajejas[1,2], R. Guerrero[1], M.A. Niño[1], J. Camarero[1,2] and R. Miranda[1,2] *1. IMDEA Nanoscience, Madrid, Spain; 2. DFMC, Universidad Autonoma de Madrid, Madrid, Spain*

9:30

GE-06. Angular Dependence Of Anisotropic Magnetoresistance in Mn_2Au Thin Films. A. Kalitsov[1,2], H. Wu[3] and *O.N. Mryasov*[1,2] *1. University of Alabama, Tuscaloosa, AL; 2. Western Digital Corporation, San Jose, CA; 3. School of Physics, Beijing Institute of Technology, Beijing, China*

9:42

GE-07. Linear scaling law of anomalous Hall effect. *V.L. Grigoryan*[2], J. Xiao[1] and K. Xia[2] *1. Department of Physics and State Key Laboratory of Surface Physics, Fudan University, Shanghai, Shanghai, China; 2. Department of Physics, Beijing Normal University, Beijing, China*

9:54

GE-08. Anomalous and planar Hall effect measurements of freely suspended GaMnAs epilayers. *J. Lee*[1], M. Cho[1], S. Park[1], S. Cho[1] and Y. Park[1] *1. Department of Physics & Astronomy, Seoul National University, Seoul, The Republic of Korea*

10:06

GE-09. Giant anomalous Nernst angle in heavy elements-doped Fe films. *Y. Sakuraba*[1], Y. Kinoshita[2], T. Sasaki[1], M. Ishikiriyama[2] and K. Hono[1] *1. Magnetic Materials Unit, National Institute for Materials Science, Tsukuba, Ibaraki, Japan; 2. Toyota Motor Cooperation, Shizuoka, Japan*

10:18

GE-10. Anomalous Nernst and Hall effect of Pt/Co multilayers with lateral and perpendicular anisotropies. X. Han[1], C. Fang[1], *C. Wan*[1], Z. Yuan[1], H. Wu[1], Q. Zhang[1] and X. Zhang[1] *1. Institute of Physics, Chinese Academy of Sciences, Beijing, China*

10:30

GE-11. Interstitial and substitutional Mn in (Ga,Mn)As: Lattice sites, diffusion and segregation. *T. Lima*[1], U. Wahl[2], J. Correia[2], F. Kremer[3], V. Augustyns[1], K. Edmonds[4], B. Gallagher[4], R. Campion[4], M. Ridgway[3], J. Araújo[5], K. Temst[1], A. Vantomme[1] and L. Pereira[1] *1. KU Leuven, Instituut voor Kern- en Stralingsfysica, Leuven, Belgium; 2. Instituto Superior Tecnico, Universidade de Lisboa, Sacavem, Portugal; 3. Department of Electronic Materials Engineering, Research School of Physics and Engineering, The Australian National University, Canberra, ACT, Australia; 4. School of Physics and Astronomy, University of Notthingham, Notthingham, United Kingdom; 5. IFIMUP and Institute of Nanoscience and Nanotechnology, Universidade do Porto, Porto, Portugal*

10:42

GE-12. Magnetic interactions in the Zn-Co-O system: Tuning local structure, valence and carrier type from extremely Co doped ZnO to $ZnCo_2O_4$. *B. Henne*[1], V. Ney[1], K. Ollefs[2], F. Wilhelm[2], A. Rogalev[2] and A. Ney[1] *1. Institute for Semiconductor and Solid State Physics, Johannes Kepler University, Linz, Austria; 2. ESRF - The European Synchrotron, Grenoble, France*

10:54

GE-13. Atomic-scale magnetism of Cr-doped Bi_2Se_3 thin film topological insulators. *W. Liu*[1], D. West[2], L. He[3], Y. Xu[1,3], J. Liu[4], K. Wang[3], Y. Wang[4], G. van der Laan[5], K.L. Wang[6], R. Zhang[3] and S. Zhang[2] *1. Electronics, University of York, York, North Yorkshire, United Kingdom; 2. Rensselaer Polytechnic Institute, Troy, NY; 3. Nanjing University, Nanjing, China; 4. Zhejiang University, Zhejiang, China; 5. Diamond Light Source, Didcot, United Kingdom; 6. University of California Los Angeles, Los Angeles, CA*

11:06

GE-14. Paramagnetic dysprosium-doped zinc oxide thin films grown by pulsed-laser deposition. *F. Lo*[1], Y. Ting[1], K. Chou[1], T. Hsieh[1], C. Ye[1], Y. Hsu[1], M. Chern[2] and H. Liu[1] *1. Department of Physics, National Taiwan Normal University, Taipei City, Taiwan; 2. Department of Physics, National Taiwan University, Taipei City, Taiwan*

11:18

GE-15. Tunable synthesis, microstructural, high temperature electrical and hole carrier induced ferromagnetic properties of co-doped ZnO nanoparticles with Co and Li ions. *S.U. Awan*[2,1] *1. Magnetism Lab, Department of Physics, COMSATS Institute Of Information Technology, Islamabad, Pakistan; 2. Magnetism Lab, Department of Physics, Quaid-i-Azam University, Islamabad, Pakistan*

FRIDAY MORNING 8:30 | AQUA AB

Session GF
LOW-DIMENSIONAL AND OTHER TOPOLOGICAL MATERIALS
Alexander Gray, Chair
Temple University, Philadelphia, PA

8:30

GF-01. Ferromagnetism in graphene via proximity coupling with a magnetic insulator. ***(Invited)*** *J. Shi*[1], Z. Wang[1], C. Tang[1], R. Sachs[1] and Y. Barlas[1] *1. Department of Physics and Astronomy, Univ. of California Riverside, Riverside, CA*

9:06

GF-02. Element specific imaging of coupled superconducting-ferromagnetic vortex in high T_C superconductor. *A.K. Suszka*[1,2], N.S. Bingham[1,2], S. Gliga[1,2], J.D. Witt[1,4], P. Wohlhüter[1,2], P. Warnicke[3], J. Raabe[3], S. Wintz[3] and L. Heyderman[1,2] *1. Department of Materials ETH Zurich, Laboratory for Mesoscopic Systems, Zurich, Switzerland; 2. Paul Scherrer Institute, Laboratory for Micro- and Nanotechnology, 5232 Villigen PSI, Switzerland; 3. Swiss Light Source, Paul Scherrer Institute, 5232 Villigen PSI, Switzerland; 4. School of Physics and Astronomy, University of Leeds, LS2 9JT Leeds, United Kingdom*

9:18

GF-03. Colossal Proximity Effects in Superconducting Spin Valve containing Highly Spin Polarized $Fe_{0.8}Co_{0.2}Si$. N. Satchell[1], B.D. Steele[1], P. Sinha[1], C.H. Marrows[1] and *G. Burnell*[1] *1. Physics and Astronomy, University of Leeds, Leeds, West Yorkshire, United Kingdom*

9:30

GF-04. Superconducting-magnetic hybrid nanopillar memory elements. *B. Baek*[1], W. Rippard[1], M. Pufall[1], S.E. Russek[1], M. Schneider[1], S.P. Benz[1], H. Rogalla[1] and P.D. Dresselhaus[1] *1. National Institute of Standards and Technology, Boulder, CO*

9:42

GF-05. Unconventional superconductivity in ferromagnetic insulating superconducting tunnel junctions. *A. Pal*[1] and M. Blamire[1] *1. Department of Materials Science and Metallurgy, University of Cambridge, Cambridge, Cambridgeshire, United Kingdom*

9:54

GF-06. Comparative Study of Pair Correlations in Superconducting-Magnetic Hybrid Systems. *T.E. Baker*[1,2], A. Richie-Halford[3,2] and A. Bill[2] *1. Department of Physics & Astronomy, University of California Irvine, Irvine, CA; 2. Department of Physics & Astronomy, California State University Long Beach, Long Beach, CA; 3. Department of Physics & Astronomy, University of Washington Seattle, Seattle, WA*

10:06

GF-07. Manipulation of the ferromagnetic proximity effect using a controllable magnetic source. T. Wren[1,2], A. Agbanglog[2], B. Gribkov[1,3], *J. Wells*[1] and O. Kazakova[1] *1. Quantum Detection, National Physical Laboratory, Egham, United Kingdom; 2. Physics, Royal Holloway University London, Egham, Surrey, United Kingdom; 3. Institute for Physics of Microstructures RAS, Nizhny Novgorod, Russian Federation*

10:18

GF-08. Evidence for ferromagnetic coupling at the TI/FMI interface. *W. Liu*[1,2], L. He[2], Y. Xu[1,2], K. Murata[3], M. Onbasli[4], C. Ross[4], R. Zhang[2] and K.L. Wang[3] *1. Electronics, University of York, York, North Yorkshire, United Kingdom; 2. Nanjing University, Nanjing, China; 3. University of California Los Angeles, Los Angeles, CA; 4. Massachusetts Institute of Technology, Cambridge, MA*

10:30

GF-09. Giant Anisotropic Magnetoresistance in a Quantum Anomalous Hall Insulator. *A. Kandala*[1], A. Richardella[1], C. Liu[1] and N. Samarth[1] *1. Pennsylvania State University, State College, PA*

10:42

GF-10. Ti_3CrCu_4: A quasi 2-d ferromagnetic spin fluctuating system. *S.K. Dhar*[1], A. Provino[2], P. Manfrinetti[2], R. Kulkarni[1] and D. Paudyal[3] *1. Condensed Matter Physics & Materials Science, Tata Institute of Fundamental Research, Mumbai, Maharashtra, India; 2. Department of Chemistry, University of Genova, Genova, Italy; 3. Division of Materials Science and Engineering, The Ames Laboratory, Ames, IA*

10:54

GF-11. High room temperature optical polarization due to spin-valley coupling in monolayer WS_2. A.T. Hanbicki[1], G. Kioseoglou[2], M. Currie[1], S. Hellberg[1], K.M. McCreary[1], A.L. Friedman[1] and *B. Jonker*[1] *1. Naval Research Laboratory, Washington, DC; 2. University of Crete, Heraklion, Crete, Greece*

11:06

GF-12. Ultra-Violet Light Sensitive Transport Properties of Ar^+-Ion Irradiated $SrTiO_3$ Under Electrostatic Back Gating. *D. Kumar*[1], Z. Hossain[1] and R. Budhani[1] *1. Physics, Indian Institute of Technology Kanpur, Kanpur, Uttar Pradesh, India*

11:18

GF-13. 1-D Spin Polarized Channels in Extrinsically-Doped Monolayer TMDs. *V. Mishra*[2] and S. Salahuddin[1] *1. Electrical Engineering & Computer Sciences, University of California Berkeley, Berkeley, CA; 2. Electrical Engineering & Computer Sciences, University of California Berkeley, Berkeley, CA*

FRIDAY
MORNING
8:30

AQUA SALON CD

Session GG

SPIN TRANSFER AND SPIN ORBIT TORQUE

François Montaigne, Chair
Institut Jean Lamour, Université de Lorraine - CNRS, Vandoeuvre les Nancy, France

8:30

GG-01. Direct Observation of Localized Magnetic Solitons in Spin-Transfer Nanocontacts. ***(Invited)*** *A.D. Kent*[1], F. Macia[2,1], D. Backes[1], S. Bonetti[3], R. Kukreja[4] and H. Ohldag[3] *1. Department of Physics, New York University, New York, NY; 2. Physics, University of Barcelona, Barcelona, Spain; 3. SLAC National Accelerator Laboratory, Stanford, CA; 4. Materials Science and Engineering, Stanford University, Stanford, CA*

9:06

GG-02. Magnetic Nano-oscillators Driven by Pure Spin Currents. ***(Invited)*** *S. Urazhdin*[1], V. Demidov[2] and S. Demokritov[2] *1. Physics, Emory University, Atlanta, GA; 2. Physics, University of Muenster, Muenster, Germany*

9:42

GG-03. Electrical switching of the magnetization using spin current. *J. George*[1,2], P. Laczkowski[1,2], J. Rojas Sanchez[1,2], N. Reyren[1,2], S. Collin[1,2], K. Bouzehouane[1,2], H. Jaffrès[1,2], A. Fert[1,2], J. Sampaio[3,2], A. Mougin[3,2], S. Oyarzun[4,5], A. Marty[4,5], C. Vergnaux[4,5], S. Giambarelli[4,5], L. Vila[4,5] and M. Jamet[4,5] *1. Unité Mixte de Physique CNRS Thales, CNRS, Palaiseau, France; 2. Université Paris Sud, 91405 Orsay, France; 3. Laboratoire de Physique des Solides, F-91405 Orsay, France; 4. Institut Nanosciences et Cryogénie, CEA, Grenoble, France; 5. Université Grenoble Alpes, 38054 Grenoble, France*

9:54

GG-04. Spin-transfer torque versus spin-orbit torque in 3 terminal spin-torque-oscillators. *E. Jué*[1], W. Rippard[1], M. Pufall[1] and E.R. Evarts[1] *1. National Institute of Standards and Technology, Boulder, CO*

10:06

GG-05. Fast Switching of In-Plane Magnetized Three-Terminal Devices with the Spin-Hall Effect. *G.E. Rowlands*[1], S.V. Aradhya[1], S. Shi[1], M. Nguyen[1], D. Ralph[1,2] and R.A. Buhrman[1] *1. Cornell University, Ithaca, NY; 2. Kavli Institute at Cornell, Ithaca, NY*

10:18

GG-06. Switching of perpendicular ferromagnets by spin-orbit torques in the absence of external magnetic fields. ***(Invited)*** *G. Yu*[1], P. Upadhyaya[1], Y. Tserkovnyak[2], P. Khalili[1] and K.L. Wang[1] *1. Electrical Engineering, UCLA, Los Angeles, CA; 2. Department of Physics and Astronomy, University of California Los Angeles, Los Angeles, CA*

10:54

GG-07. Room temperature chiral magnetic skyrmion in ultrathin magnetic nanostructures. *O. Boulle*[1], S. Pizzini[2], J. Vogel[2], A. Locatelli[3], T.O. Mentes[3], A. Sala[3], L.D. Buda-Prejbeanu[1], O. Klein[1], M. Belmeguenai[4], H. Yang[1], M. Chshiev[1], S. Auffret[1], M. Miron[1] and G. Gaudin[1] *1. SPINTEC, Grenoble, France; 2. Institut Néel, Grenoble, France; 3. Elettra Sincrotrone, Trieste, Italy; 4. LSPM, Université Paris 13, Villetaneuse, France*

11:06

GG-08. Effect of the Orbital Moment Anisotropy on the interfacial Dzyaloshinskii-Moriya interaction. *S. Kim*[1], K. Ueda[1,2], K. Yamada[1], M. Suzuki[3], Y. Kotani[3], T. Nakamura[3], K. Nakamura[4], T. Koyama[5], D. Chiba[5], T. Moriyama[1], K. Kim[1] and T. Ono[1] *1. Institute for Chemical Research, Kyoto University, Uji, Japan; 2. Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA; 3. Japan Synchrotron Radiation Research Institute (JASRI/SPring-8), Sayo, Japan; 4. Department of Physics Engineering, Mie University, Tsu, Japan; 5. Department of Applied Physics, The University of Tokyo, Tokyo, Japan*

11:18

GG-09. Dzyaloshinskii-Moriya interaction based field-driven racetrack memory. *F. Ummelen*[1], R. Lavrijsen[1], H. Swagten[1] and B. Koopmans[1] *1. Department of Applied Physics, Eindhoven University of Technology, Eindhoven, Netherlands*

FRIDAY MORNING 8:30 AQUA SALON EF

Session GH
MULTILAYER FILMS AND SUPERLATTICES

Brian Kirby, Co-Chair
NIST, Gaithersburg, MD
Jane Chang, Co-Chair
UCLA, Los Angeles, CA

8:30

GH-01. Magnetic Properties of MnRh Thin Films. *A. Chaturvedi*[1] and T. Suzuki[1,2] *1. Center for Materials for Information Technology, University of Alabama, Tuscaloosa, AL; 2. Departments of Electrical and Computer Engineering, and Metallurgical and Materials Engineering, The University of Alabama, Tuscaloosa, AL*

8:42

GH-02. Continuously tunable magnetic reversal behaivior in T_C graded CoCr mirror image bilayers. *B.J. Kirby*[1], L. Fallarino[2], P. Riego[2], M. Pancaldi[2], C.W. Miller[3] and A. Berger[2] *1. NIST Center for Neutron Research, Gaithersburg, MD; 2. CIC nanoGune Consolider, San Sebastian, Spain; 3. Rochester Institute of Technology, Rochester, NY*

8:54

GH-03. Magnetic inhomogeneity at ferromagnetic rare-earth / transition-metal interfaces: XMCD studies and superconducting spintronics applications. *T. Higgs*[1], S. Bonetti[2], H. Ohldag[3], N. Banerjee[1], X. Wang[5], A. Rosenberg[4], Z. Cai[1], J. Zhao[5], K. Moler[4] and J. Robinson[1] *1. Materials Science and Metallurgy, University of Cambridge, Cambridge, United Kingdom; 2. Physics, Stanford University, Stanford, CA; 3. SLAC National Accelerator Laboratory, Menlo Park, CA; 4. Stanford Institute for Materials and Energy Science, SLAC National Accelerator Laboratory, Menlo Park, CA; 5. Institute of Semiconductors, State Key Laboratory of Superlattices and Microstructures, Beijing, China*

9:06

GH-04. Growth of high-quality inverted yttrium iron garnet/Pt bilayer structures. *M. Aldosary*[1], C. Tang[1], J. Li[1], Y. Xu[1] and J. Shi[1] *1. Department of Physics and Astronomy and SHINES Energy Frontier Research Center, University of California, Riverside, CA*

9:18

GH-05. Tuning static and dynamic magnetic properties of magnetic multilayer composites. *C.R. Rementer*[2], P. Nordeen[1], Q. Zu[3], G. Carman[1], Y. Wang[3] and J. Chang[2] *1. Mechanical and Aerospace Engineering, UCLA, Los Angeles, CA; 2. Chemical and Biomolecular Engineering, UCLA, Los Angeles, CA; 3. Electrical Engineering, UCLA, Los Angeles, CA*

9:30

GH-06. Orbital asymmetry induced anisotropy and damping in Co/Ni multilayers. *M. Arora*[1], B. Heinrich[1] and E. Girt[1] *1. Department of Physics, Simon Fraser University, Burnaby, BC, Canada*

9:42

GH-07. Py/SiO_2 thin film heterostructures as core materials for on-wafer inductors at radio and low GHz frequencies. *I. Harward*[1], N. Bledowski[1], P. Cervantes[2], S. Goldman[1] and Z. Celinski[1] *1. Physics, Univ. of Colorado, Colorado Springs, CO; 2. Physics, Colorado College, Colorado Springs, CO*

9:54

GH-08. Magnetization Reversal of V_2O_3/Ni Bilayers with In-Plane Uniaxial Anisotropy: A FORC study. *J. de la Venta*[1], D.A. Gilbert[2,3], J.G. Ramirez[4,5], T. Saerbeck[6], I.K. Schuller[4] and K. Liu[3] *1. Department of Physics, Colorado State University, Fort Collins, CO; 2. NIST Center for Neutron Research, Gaithersburg, MD; 3. Physics Department, University of California, Davis, CA; 4. Department of Physics, University of California San Diego, La Jolla, CA; 5. Department of Physics, Universidad de los Andes, Bogota, Colombia; 6. Institut Laue-Langevin, Grenoble, France*

10:06

GH-09. Atomic layer epitaxial growth of an ordered Pd,Fe phase on $SrTiO_3$(100). *R.M. Harton*[1], V. Stoica[2] and R. Clarke[1] *1. University of Michigan at Ann Arbor, Ann Arbor, MI; 2. Argonne National Laboratory, Argonne, IL*

10:18

GH-10. Manipulation of the magnetization damping of asymmetric spin-valve trilayers by rare-earth insertion layer. H. Yuan[1], Y. Wang[1], W. Zhang[1,2], *Y. Zhai*[1,3], J. Du[3] and H. Zhai[3] *1. Department of Physics, Southeast University, Nanjing, China; 2. School of Biological Sciences & Medical Engineering, Southeast University, Nanjing, China; 3. National Laboratory of Solid State Microstructure, Nanjing University, Nanjing, China*

10:30

GH-11. Preparation of $L1_1$-CoPt/MgO/$L1_1$-CoPt tri-layer film on Ru(0001) underlayer. *M. Ohtake*[2,1], D. Suzuki[2], M. Futamoto[2], F. Kirino[3] and N. Inaba[4] *1. Faculty of Engineering, Kogakuin University, Tokyo, Japan; 2. Faculty of Science and Engineering, Chuo University, Tokyo, Japan; 3. Graduate School of Fine Arts, Tokyo University of the Arts, Tokyo, Japan; 4. Faculty of Engineering, Yamagata University, Yonezawa, Japan*

10:42

GH-12. Robust perpendicularly magnetized thin films on flexible substrates. *T. Vemulkar*[1], R. Mansell[1], A. Fernandez-Pacheco[1] and R. Cowburn[1] *1. Physics, University of Cambridge, Cambridge, United Kingdom*

10:54

GH-13. Spin Valve with Non-Collinear Moment Configuration Imprinted by a Static Magnetic Field. *P.N. Lapa*[1,2], T. Khaire[1], J.E. Pearson[1], J. Ding[1], V. Novosad[1], A. Hoffmann[1] and S. Jiang[1] *1. Materials Science Division, Argonne National Laboratory, Lemont, IL; 2. Department of Physics and Astronomy, Texas A&M University, College Station, TX*

11:06

GH-14. Interfacial insight of magnetic hybrid memristive devices. *I. Bergenti*[1], F. Borgatti[1], A. Riminucci[1], M. Calbucci[1], R. Cecchini[2], D. McLaren[3], P. Graziosi[1] and V.A. Dediu[1] *1. ISMN-CNR, Bologna, Italy; 2. MDM-CNR, Milano, Italy; 3. School of Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom*

11:18

GH-15. Reversible hydrogenation induced modulation on magnetism in Pd-Co multilayer and Pd-rich alloy films. *W. Lin*[1] *1. Department of Physics, National Taiwan Normal University, Taipei, Taiwan*

FRIDAY MORNING 8:30 — AQUA 310

Session GI
BIO APPLICATIONS OF MAGNETIC PARTICLES
Masakazu Iwasaka, Chair
Hiroshima University, Higashi-Hiroshima, Japan

8:30

GI-01. Computational Study of a Magnetic Design to Improve Diagnosis of Malaria. *S. Vyas*[1], V. Genis[2] and G. Friedman[1] *1. Electrical and Computer Engineering, Drexel University, Philadelphia, PA; 2. Engineering Technology, Drexel University, Philadelphia, PA*

8:42

GI-02. Development of a Magnetic Pulley Module for a Crawling Magnetic Robot to Deliver and Deploy a Self-Expandable Stent in Narrowed Blood Vessels. *W. Lee*[1], J. Nam[1], B. Jang[1] and G. Jang[1] *1. Dept of Mechanical Convergence Engineering, Hanyang University, Seoul, The Republic of Korea*

8:54

GI-03. Mechanical stress on a suspended cortical bone sample model by low frequency magnetic field. *M. Zborowski*[1], C. Androjna[1], E.I. Waldorff[2], J.T. Ryaby[2], L.R. Moore[1] and R.J. Midura[1] *1. Biomedical Engineering, Cleveland Clinic, Cleveland, OH; 2. Orthofix, Inc., Lewisville, TX*

9:06

GI-04. Magnetic Nanowire Arrays as Tools for the Regulation of Fate of Mesenchymal Stem Cells. *J.E. Perez*[1], T. Ravasi[1] and J. Kosel[1] *1. King Abdullah University of Science and Technology, Thuwal, Jeddah, Saudi Arabia*

9:18

GI-05. Response of magneto-tactic bacteria to a rotating magnetic field. *L. Abelmann*[1,2], M. Pichel[1,2], T. Hageman[1,2] and A. Manz[1] *1. KIST Europe, Saarbrücken, Saarland, Germany; 2. MESA+ Research Institute, University of Twente, Enschede, Netherlands*

9:30

GI-06. High-throughput magnetic flow cytometer for tumour cell quantification. *A. Chícharo*[1,2], M. Martins[1], B. Espiña[1], S. Cardoso[3,2] and P. Freitas[1,2] *1. INL - International Iberian Nanotechnology Laboratory, Braga, Portugal; 2. Instituto Superior Técnico - Universidade de Lisboa, Lisbon, Portugal; 3. INESC-MN Instituto de Engenharia de Sistemas e Computadores – Microsistemas e Nanotecnologias, Lisbon, Portugal*

9:42

GI-07. Functionalized Magnetic Force to Enhance MNPs guidance: From Simulations to *In-vivo* Experiments with BBB Crossing of MNPs. T.D. Do[1], F. Ulamin[2], Y. Noh[1], M. Kim[2] and *J. Yoon*[1] *1. School of Mechanical and Aerospace Engineering, Gyeongsang National University, Jinju, Gyeongnam, The Republic of Korea; 2. Division of Applied Life Sciences, Gyeongsang National University, Jinju, Gyeongnam, The Republic of Korea*

9:54

GI-08. Doxorubicin-loaded Photosensitive Magnetic Liposomes for Multi-modal Cancer Therapy. *S.A. Shah*[1], M. Aslam Khan[2], S. Awan[3] and M. Farooq[4] *1. Physics, Forman Christian College, Lahore, Pakistan; 2. Chemistry, BZU, Multan, Pakistan; 3. Physics, COMSATS Institute of Information Technology, Islamabad, Pakistan; 4. Pharmaceutics, University of Washington, Seattle, WA*

10:06

GI-09. Perpendicularly magnetized synthetic anti-ferromagnets as cancer therapeutics and more. *T. Vemulkar*[1], R. Mansell[1], D.C. Petit[1], R. Cowburn[1], Y. Cheng[2], J. Murphy[3] and M. Lesniak[3] *1. Physics, University of Cambridge, Cambridge, United Kingdom; 2. Tongji University School of Medicine, Shanghai, China; 3. The Brain Tumor Center, University of Chicago, Chicago, IL*

10:18

GI-10. Effect of Energy Barrier Distributions on Hysteresis Loss for Magnetic Hyperthermia. D.C. Lloyd[1] and *G. Vallejo-Fernandez*[1] *1. The University of York, York, United Kingdom*

10:30

GI-11. Triggering the apoptosis of targeted human renal cancer cells by the vibration of anisotropic magnetic particles attached to the cells membrane. ***(Invited)*** *S. Leulmi*[1,2], H. Joisten[1], P. Sabon[1], Y. Hou[5], M. Carriere[4], X. Chauchet[3], T. Vemulkar[2], R. Mansell[2], D.C. Petit[2], J. Murphy[6], Y. Cheng[7], M. Lesniak[6], R. Cowburn[2] and B. Dieny[1] *1. CEA/Grenoble, INAC, SPINTEC, Grenoble, France; 2. Physics Department, Cambridge University, Cambridge, United Kingdom; 3. UFR de Médecine, CHU, Grenoble, France; 4. CEA/INAC, SCIB, Grenoble, France; 5. CEA/INAC, SPRAM, Grenoble, France; 6. The Brain Tumor Center, University of Chicago, Chicago, IL; 7. School of Medicine, Tongji University, Shanghai, China*

11:06

GI-12. Design and Validation of Magnetic Spectrometer for Characterization of Magnetic Nanoparticle Relaxation Dynamics. *N. Garraud*[1], R. Dhavalikar[2], L. Maldonado-Camargo[2], D.P. Arnold[1] and C. Rinaldi[2,3] *1. Electrical and Computer Engineering, University of Florida, Gainesville, FL; 2. Department of Chemical Engineering, University of Florida, Gainesville, FL; 3. J.Crayton Pruitt Family Department of Biomedical Engineering, University of Florida, Gainesville, FL*

11:18

GI-13. Multimodal FePt/SiO_2/Au Nanoparticles-based Cancer Theranostic System Enabling MRI, Magnetic Manipulation and Thermal Stimulation. *K. Zuzek Rozman*[1,2], N. Kostevsek[1,2], S. Sturm[1,2], M.S. Arshad[1,2], M. Spreitzer[4], S. Kobe[1,2], T. Visnjar[3] and M. Erdani Kreft[3] *1. Departement for Nanostructured Materials, Jozef Stefan Institute, Ljubljana, Slovenia; 2. Jozef Stefan International Postgraduation School, Ljublajna, Slovenia; 3. Department of Biology, University of Ljubljana, Biotechnical Faculty, Ljubljana, Slovenia; 4. Advanced Materials Deaprtment, Jozef Stefan Institute, Ljubljana, Slovenia*

FRIDAY MORNING 8:30 — AQUA 300

Session GJ
MOTOR MODELING, CONTROL AND SIMULATIONS

Yacine Amara, Chair
GREAH, Université du Havre, Le Havre, France

8:30

GJ-01. Model Predictive Direct Torque Control for Permanent Magnet Synchronous Machines. *F. Niu*[1], L. Wang[1], Y. Wang[1], K. Li[1], S. Huang[1] and E. Li[1] *1. Electrical Engineering, Hebei University of Technology, Tianjin, China*

8:42

GJ-02. A Novel Current Injection Based Online Parameter Estimation Method for PMSMs Considering Magnetic Saturation. G. Feng[1], *C. Lai*[1] and N. Kar[1] *1. Electrical & Computer Engineering, University of Windsor, Windsor, ON, Canada*

8:54

GJ-03. A Novel Dual Three-Phase Permanent Magnet Synchronous Motor With Asymmetric Stator Winding. *Y. Demir*[1] and M. Aydin[1,2] *1. MDS Motor Ltd., Kocaeli, Turkey; 2. Kocaeli University, Kocaeli, Turkey*

9:06

GJ-04. Investigation of *d*- and *q*-axis Inductances of Axial Flux Permanent Magnet Synchronous Motor with Combined Magnetic Poles. F. Chai[1], *Y. Bi*[1] and Y. Pei[1] *1. School of Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, China*

9:18

GJ-05. Linear Harmonic Modelling of nonlinear Synchronous Reluctance Machines. *M. Curti*[1], J. Paulides[1] and E.A. Lomonova[1] *1. Electrical Engineering, Eindhoven University of Technology, Eindhoven, Noord Brabant, Netherlands*

9:30

GJ-06. Capacitive-inductive energy storage for voltage source inverters driving the variable reluctance motor. *J. Bao*[1], K. Boynov[1], J. Paulides[1] and E.A. Lomonova[1] *1. Eindhoven University of Technology, Eindhoven, Netherlands*

9:42

GJ-07. Overall Efficiency Improvement of PMSM-Inverter System Based on Artificial Bee Colony Algorithm under Full Power Range. *X. Ding*[1] and G. Liu[1] *1. BeiHang University, Beijing, China*

9:54

GJ-08. Novel 6/7 Stator/Rotor Hybrid Excitation Doubly Salient Permanent Magnet Machine. W. Xu[1] and *M. He*[1] *1. School of Electrical and Electronic Engineering, Huazhong University of Science and Technology, Wuhan, Hubei, China*

10:06

GJ-09. Zero- and Low-Speed Angle Observer for Bearingless Permanent Magnet Machines. *T. Wellerdieck*[2], T. Nussbaumer[1] and J. Kolar[2] *1. Levitronix GmbH, Zurich, Zurich, Switzerland; 2. Power Electronic Systems Laboratory, Federal Institute of Technology (ETH), Zurich, Switzerland*

10:18

GJ-10. Modeling Torque Characteristics and Maximum Torque Control of a Three-Phase, DC-Excited Flux Switching Machine. *S. Yang*[1] and J. Zhang[1] *1. Electrical Engineering, National Taipei University of Technology, Taipei, Taiwan*

10:30

GJ-11. Developments of an Efficient Analytical Scheme for Optimal Composition Designs of Tubular Linear Magnetic-geared Machines. *C. Liu*[1], K. Hung[1] and C. Hwang[2] *1. Department of Electrical Engineering, National Sun Yat-Sen University, Kaohsiung, Taiwan; 2. Department of Electrical Engineering, Feng Chia University, Taichung, Taiwan*

10:42

GJ-12. Equivalent Circuit Modeling of a Hysteresis Interior Permanent Magnet (IPM) Motor for Electric Submersible Pumps (ESPs). *S.F. Rabbi*[1] and M. Rahman[1] *1. Electrical and Computer Engineering, Memorial University of Newfoundland, St. John's, NF, Canada*

10:54

GJ-13. Study of Eddy Current Losses on Rotor Surface of Submersible Motor in Mixed Eccentricity Condition. *C. Di*[1], X. Bao[1], L. Wang[1] and Y. Zhou[1] *1. School of Electrical Engineering and Automation, Hefei University of Technology, Hefei, Anhui, China*

11:06

GJ-14. Novel Hybrid Permanent Magnet Axial Field Flux-Switching Memory Machine. N. Li[1], *M. Lin*[1], L. Hao[1] and L. Xu[1] *1. Southeast University, Nanjing, Jiangsu, China*

11:18

GJ-15. New Method of Permanent Magnet Shape Optimization in Surface-Mounted Permanent-Magnet Motors to Reduce Harmonic Iron Losses. F. Chai[1], *P. Liang*[1], Y. Pei[1] and S. Cheng[1] *1. Department of Electrical Engineering, Harbin Institute of Technology, Harbin, China*

FRIDAY MORNING 9:30 — SAPPHIRE BALLROOM SOUTH

Session GP
STRONGLY CORRELATED OXIDES AND HEAVY FERMIONS (Poster Session)

Sabine Wurmehl, Co-Chair
IFW-Dresden, Dresden, Germany
Alice Taylor, Co-Chair
Oak Ridge National Laboratory, Oak Ridge, TN

GP-01. Sensitive control of magnetic and transport properties for $La_{1-x}Ca_xMnO_3$ at nearly half doping. J. Zhou[1], *A. Zhang*[1], W. Zhu[1], X. Gu[2], G. Zhou[2] and X. Wu[2] *1. College of Science, Hohai University, Nanjing, China; 2. Laboratory of Solid State Microstructures, Department of Physics, Nanjing University, Nanjing, China*

GP-02. Electric field induced charge/orbital ordering-disordering phase transition for a memoristor. *H. Yang*[2,1], B. Wang[2,1], J. Wang[3], Q. Zhan[2,1] and R. Li[2,1] *1. Zhejiang Province Key Lab of Magnetic Materials and Application Technology, Ningbo Institute of Material Technology and Engineering (NIMTE), Ningbo, Zhejiang, China; 2. Key Lab of Magnetic Materials and Devices, Ningbo Institute of Material Technology and Engineering (NIMTE), Ningbo, Zhejiang, China; 3. School of Materials Science and Engineering, Nanyang Technological University, Nanyang Ave., Singapore*

GP-03. Magnetotransport properties of $SrTiO_{3-\delta}$ thin films grown by Molecular Beam Epitaxy on *p*-Si(001) substrates. *N. Theodoropoulou*[1], D. Currie[1], R. Cottier[1] and B. Koehne[1] *1. Physics, Texas State University, San Marcos, TX*

GP-04. Magnetic and Kondo behavior in $Ce_8Pd_{24}(Al_{1-x}Sn_x)$ alloys system. *M.B. Tchoula Tchokonte*[1], A.K. Bashir[1], D. Britz[2], A.M. Strydom[2], D. Kaczorowski[3] and T.B. Doyle[4] *1. Physics, University of the Western Cape, Bellville, Western Cape, South Africa; 2. Physics, University of Johannesburg, Johannesburg, Gauteng, South Africa; 3. Magnetism, Institute of Low Temperature and Structure Research, Wroclaw, Wroclaw, Poland; 4. Materials Research Group, iThemba LABS, Somerset West, Western Cape, South Africa*

GP-05. The interplay of antiferromagnetic order and Kondo effect in $Ce_8Pd_{24}Al$. *A.K. Bashir*[1], M.B. Tchoula Tchokonte[1], D. Britz[2], A.M. Strydom[2] and D. Kaczorowski[3] *1. Physics, University of the Western Cape, Cape town, Western Cape, South Africa; 2. Physics, University of Johannesburg, Johannesburg, Gauteng, South Africa; 3. Magnetism, Institute of Low Temperature and Structure Research, Polish Academy of Sciences, Wroclaw, Wroclaw, Poland*

GP-06. Electronic Structures and Topological Properties of CeM_2Al_{10} (M=Fe, Ru, Os). *T. Nam*[1], C. Kang[1] and B. Min[1] *1. POSTECH, Pohang, The Republic of Korea*

GP-07. Magnetic instability investigated by Perturbed Angular Correlation (PAC) in the heavy fermion $CeCoIn_5$ and $CeCo(In_{0.9}Cd_{0.1})_5$. *F.H. Cavalcante*[1], O.F. Leite Neto[1], A.W. Carbonari[1], L.F. Pereira[1] and R.N. Saxena[1] *1. CRPq, IPEN-CNEN/SP, Sao Paulo, Sao Paulo, Brazil*

GP-08. Evolution of Crystal Structure and Magnetic Properties with the Variation of Cu/Au ratio in the $Eu(Cu,Au)_5In$ Solid Solution. V. Smetana[1], *Y. Mudryk*[1], A. Mudring[1,2], V. Pecharsky[1,2] and K.A. Gschneidner[1,2] *1. Ames Laboratory, U.S. Department of Energy, Iowa State University, Ames, IA; 2. Department of Materials Science and Engineering, Iowa State University, Ames, IA*

GP-09. Magnetic properties of electrospun non-woven superconducting fabrics. *M.R. Koblischka*[1], X. Zeng[1], T. Karwoth[1], T. Hauet[2], V. Presser[3] and U. Hartmann[1] *1. Experimental Physics, Saarland University, Saarbrucken, Germany; 2. Physics, University of Lorraine, Nancy, France; 3. Energy Materials, INM Saarbruecken, Saarbruecken, Germany*

GP-10. Doping effects of non-magnetic (La and Eu) and magnetic (Ce) elements on surface states in a topological Kondo insulator SmB_6. *B. Kang*[1], C. Min[2], M. Song[1] and B. Cho[1] *1. School of Materials Science and Engineering, Gwangju Institute of Science and Technology, Gwangju, The Republic of Korea; 2. Physikalisches Institut, Universitaet Wuerzburg, Wuerzburg, Germany*

GP-11. Looking for topological surface state effects within the microwave skin depth of Bi_2Se_3 and Sb_2Te_3 compounds. *J.C. Souza*[1], G.G. Lesseux[1], C.R. Jesus[1], R.R. Urbano[1], C. Rettori[1] and P. Pagliuso[1] *1. DEQ, Instituto de Física Gleb Wataghin - Unicamp, Campinas, São Paulo, Brazil*

GP-12. Effective surface state Hamiltonian for topological insulator thin films with hexagonal warping. *Z. Siu*[1], M.B. Jalil[1] and S. Tan[2] *1. Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; 2. Data Storage Institute, Singapore, Singapore*

GP-13. Carrier-mediated exchange interaction and spin waves in Dirac semimetals. *Y. Araki*[1,2] and K. Nomura[1] *1. Institute for Materials Research, Tohoku University, Sendai, Miyagi, Japan; 2. Frontier Research Institute for Interdisciplinary Sciences, Tohoku University, Sendai, Miyagi, Japan*

GP-14. Structural, transport and magnetic studies of layered oxychalcogenide $BiOCuSe_{0.5}Se_{0.5}$. *S.K. Karna*[1], R. Sankar[1] and F.C. Chou[1] *1. Center for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan*

FRIDAY
MORNING
9:30

SAPPHIRE BALLROOM SOUTH

Session GQ

AMORPHOUS AND NANO CRYSTALLINE SOFT MAGNETIC MATERIALS III (Poster Session)

Rie Umetsu, Chair
Tohoku University, Sendai, Japan

GQ-01. The effect of magnetic field annealing on soft magnetic properties for $Fe_{74.5}Cu_1Nb_2Si_{22.5-x}B_x$ alloys. L. Li[1] and *Z. Wang*[1] *1. School of Science, Tianjin University, Tianjin, Tianjin, China*

GQ-02. Development of high B_s ferromagnetic amorphous alloys with adequate amorphous-forming ability for wide ribbon production. A. Wang[1], P. Chen[1], C. Zhao[1], A. He[1], *C. Chang*[1] and X. Wang[1] *1. Ningbo Institute of Materials Technology & Engineering, Chinese Academy of Sciences, Ningbo, China*

GQ-03. Fabrication, structural and Magnetic Properties of Electrodeposited Fe_3Pt Nanowires and Nanotubes. U. Khan[1], W. Li[1], K. Javed[1], A. Nairan[2], S. Riaz[1] and *X. Han*[1] *1. Institute of Physics, Chinese Academy of Sciences, Beijing, China; 2. Center for High Energy Physics, Lahore, Pakistan*

GQ-04. Relating Microstructure of Microwires to Microwave Properties of their Polymer-based Composites. *Y. Luo*[1], F. Qin[2], F. Scarpa[1], J. Liu[3], H. Wang[2], C. Brosseau[4] and H. Peng[2] *1. University of Bristol, Bristol, United Kingdom; 2. Zhejiang University, Hangzhou, Zhejiang, China; 3. Inner Mongolia University of Technology, Hohhot, China; 4. Université de Brest, Brest Cedex, France*

GQ-05. Magnetic properties and high frequency characteristics of FeCoN thin films. *D. Kim*[1], T. Hwang[1], J. Lee[1] and K. Kim[1] *1. Yeungnam University, Gyeongsan, The Republic of Korea*

GQ-06. Magnetic Properties of Nitrogen Sensitive FeSiAl(N) Films Prepared by Reactive Sputtering. J. Du[2], Z. Zhu[2], Q. Liu[2] and *J. Wang*[2,1] *1. Key Laboratory for Special Function Materials and Structural Design of the Ministry of the Education, Lanzhou, China; 2. Key Laboratory for Magnetism and Magnetic Materials of the Ministry of Education, Lanzhou, China*

GQ-07. Enhanced high-frequency absorption of Co coated $BaTiO_3$ nanoflake. J. Liu[1], *M. Zeng*[1], H. Dong[1], Y. Yin[1], R. Yu[1], J. An[2] and J. He[2] *1. School of Materials Science and Engineering, Beihang University, Beijing, China; 2. Division of Functional Material, China Iron & Steel Research Institute Group, Beijing, China*

GQ-08. Controlled motion of domain walls in submicron amorphous wires. M. Tibu[1], M. Lostun[1], D. Allwood[2], C. Rotarescu[1], A. Atitoaie[1], N. Lupu[1], *T. Ovari*[1] and H. Chiriac[1] *1. National Institute of Research and Development for Technical Physics, Iasi, Romania; 2. Department of Materials Science and Engineering, University of Sheffield, Sheffield, United Kingdom*

GQ-09. AC losses and intergranular coupling in soft magnetic nanocomposites. *A. Leary*[1], V. Keylin[1], A. Devaraj[2], P. Ohodnicki[3] and M.E. McHenry[1] *1. Carnegie Mellon University, Pittsburgh, PA; 2. Pacific Northwest National Laboratory, Kirkland, WA; 3. National Energy Technology Lab, Pittsburgh, PA*

GQ-10. Investigation of magnetic properties of electroplated permalloy for flux-guide application. B. Das[1], M. Jhou[1], C. Lee[2], J. Jeng[3], V. Luong[3], J. Hsu[4], C. Chang[4], L. Horng[1] and *J. Wu*[1] *1. Department of Physics, NCUE, Changhua, Changhua County, Taiwan; 2. National Tsing Hua University, Hsinchu, Taiwan; 3. National Kaohsiung University of Applied Sciences, Kaohsiung, Taiwan; 4. National Taiwan University, Taipei, Taiwan*

GQ-11. Unusual high B_s for Fe-based amorphous powders produced by a gas-atomization technique. *K. Yoshida*[1], M. Bito[1], J. Kageyama[1], Y. Shimizu[1], M. Abe[1] and A. Makino[2] *1. Engineering Headquarters, Alps Electric Co., Ltd., Sendai, Miyagi, Japan; 2. Institute for Materials Research, Tohoku University, Sendai, Japan*

GQ-12. Core Losses of an Inverter-Fed Permanent Magnet Synchronous Motor with an Amorphous Stator Core under No-Load. *N. Denis*[1], Y. Kato[1], M. Ieki[1] and K. Fujisaki[1] *1. Toyota Technological Institute, Nagoya, Aichi, Japan*

GQ-13. Effects of P, Si and Cu on soft magnetic properties of Fe rich Fe-Si-B-P-Cu alloys. *P. Sharma*[1] and A. Makino[1] *1. Institute for Materials Research, Tohoku University, Sendai, Miyagi, Japan*

GQ-14. Tailoring the mechanical and electromagnetic absorbing properties of glass-coated microwires: geometry and annealing effect. H. Wang[1], *F. Qin*[1], Z. Chen[2], X. Zheng[1], H. Luo[1] and H. Peng[1] *1. Zhejiang University, Hangzhou, China; 2. Beijing Howlet Technology Co. Ltd, Beijing, China*

FRIDAY MORNING 9:30 — SAPPHIRE BALLROOM SOUTH

Session GR

SOFT MAGNETIC MATERIALS: CRYSTALLINE ALLOYS, FERRITES AND GARNETS (Poster Session)

Yasushi Endo, Chair
Tohoku University, Sendai, Japan

GR-01. The effect of Co^{2+} doping on magnetic behavior for Mn-Zn ferrite nanoparticles prepared by sol-gel auto-combustion. B. Yang[1] and *Z. Wang*[1] *1. Department of Applied Physics, Tianjin University, Tianjin, Tianjin, China*

GR-02. Nanocrystallization Process in Amorphous FeSiBPCu Soft Magnetic Alloys. *F. Kong*[1], A. Inoue[1,2] and B. Shen[3] *1. Josai International University, Togane, Chiba, Japan; 2. Tianjin University, Tianjin, China; 3. Southeast University, Nanjing, Jiangsu, China*

GR-03. Carbon effects on the structural and magnetic properties of Fe based nanocrystalline alloys. *K. Min*[1] and J. Kim[1] *1. Materials Engineering, Hanyang University, Ansan, Gyeonggi-do, The Republic of Korea*

GR-04. MFM Observation of Iron Oxide Nanosheets Synthesized from Fe-oleate complex by Hydrothermal Process. *Y. Kamei*[1], K. Wakayama[1], Y. Makinose[1], K. Katsumata[2] and N. Matsushita[1] *1. Tokyo Institute of Technology, Yokohama, Kanagawa, Japan; 2. Tokyo University of Science, Noda, Chiba, Japan*

GR-05. A Improvement of Numerical Fitting of Complex Permeability Spectra of NiCuZn Ferrites With Monodomain Grains. *S. Yan*[1], L. Deng[1] and Z. Feng[2] *1. School of Physics and Electronics, Institute of Super-Microstructure and Ultrafast Process in Advanced Materials, Central South University, Changsha, Hunan, China; 2. School of Optical and Electric Information, Huazhong University of Science and Technology, Wuhan, Hubei, China*

GR-06. Synthesis and study of Magnetic Properties of Hard-Soft $SrFe_{12-x}Al_xO_{19}/Ni_{0.5}Zn_{0.5}Fe_2O_4$ Ferrite Nanocomposites. *D. Neupane*[1], L. Wang[1] and S.R. Mishra[1] *1. Physics, University of Memphis, Memphis, TN*

GR-07. Effect of Hydrothermal Heat Treatment on magnetic properties of Copper Zinc Ferrite RF Sputtered Thin films. R. Singh[1], *J. Kaur*[1] and G. Thirupathy[1] *1. School of Physics, Univesity of Hyderabad, Hyderabad, Andhra Pradesh, India*

GR-08. High temperature magnetic properties of $CoAl_xFe_{2-x}O_4$ ($0.0 \leq x \leq 0.6$) nanoparticles prepared by combustion reaction method. *A. Franco Jr*[1] and H.V. Pessoni[1] *1. Instituto de Física, Universidade Federal de Goiás, Goiânia, GO, Brazil*

GR-09. Studies on dielectric, magnetic and transport properties of $Ni_{0.65}Zn_{0.35}Fe_2O_4$ thin films. *D.K. Pradhan*[1], V.S. Puli[2], S. Kumari[1], S. Sahoo[1], P. Misra[1] and R.S. Katiyar[1] *1. Physics, University of Puerto Rico, San Juan, PR; 2. Department of Mechanical Engineering, University of Texas El Paso, El Paso, TX*

GR-10. Magnetic hyperthermia heating of cobalt ferrite nanoparticles prepared by low temperature ferrous sulfate based method. *T. Yadavalli*[1], H. Jain[1], G. Chandrasekaran[1] and C. Ramasamy[2] *1. Nanotechnology Research Centre, SRM University, Chennai, Tamilnadu, India; 2. Pharmacy Practice, SRM University, Chennai, Tamilnadu, India*

GR-11. Low temperature magnetic behavior of $MnFe_2O_4$ nanofibers obtained by electrospinning. L. Vazquez Zubiate[1], *D.M. Carrillo Flores*[1], P. de la Presa[2], C. Ornelas Gutierrez[3], C.I. Rodriguez[4] and J.T. Elizalde Galindo[1] *1. Physics and Mathematics, Universidad Autonoma de Ciudad Juarez, Juarez, Chihuahua, Mexico; 2. Instituto de Magnetismo Aplicado, Las Rozas, Spain; 3. Laboratorio Nacional de Nanotecnologia, Centro de investigación en Materiales Avanzados, S.C., Chihuahua, Chihuahua, Mexico; 4. Universidad Tecnológica de Cd. Juarez, Juarez, Chihuahua, Mexico*

GR-12. Preparation of Bi-YIG Polycrystal Ferrite via Low Temperature Sintering and Study of Their Magnetic Properties. *N. Jia*[1], H. Zhang[1], H. Su[1], J. Li[1], Y. Liao[1], L. Jin[1] and C. Liu[1] *1. University of Electronic Science and Technology of China, Chengdu, Sichuan, China*

GR-13. CoTi doped M-type barium ferrite composite with BBSZ glass powders for microwave applications. *Y. Wang*[1], Y. Liu[1], F. Xu[1] and C. Wu[1] *1. School of Microelectronics and Solid-state Electronics, University of Electronic Science and Technology of China, Cheng Du, Si Chuan, China*

GR-14. The observation of magnetic properties of yttrium iron garnet ($Y_3Fe_5O_{12}$) prepared by the Sol-Gel method. *M. Jang*[1], S. Baek[2] and K. Lee[1] *1. School of Materials and Science Engineering, UNIST, Ulsan, The Republic of Korea; 2. Electronic Materials Research Center, KIST, Seoul, The Republic of Korea*

Session GS
STRUCTURED MATERIALS FOR SPINTRONICS (Poster Session)

Runwei Li, Co-Chair
Ningbo Institute of Industrial Technology, Ningbo, China
Wen Siang Lew, Co-Chair
Nanyang Technological University, Singapore, Singapore

GS-01. Magnetoelectric properties and magnetoelectric effects of ferroelectric/ferromagnetic multilayer thin films. *Y. Li*[1], H. Zhang[1] and J. Li[1] *1. School of Microelectronics and Solid-State Electronics, University of Electronic Science and Technology of China, Chengdu, Sichuan, China*

GS-02. Irreversible Magnetic Processes under Biaxial and Uniaxial Magnetic Anisotropies. *S. Pokharel*[1], O. Akioya[1], N. Alqhtany[1], C. Dickens[2], W. Morgan[1], M. Wuttig[3] and A. Lisfi[1] *1. Physics, Morgan State University, Baltimore, MD; 2. Electrical Engineering, Morgan State University, Baltimore, MD; 3. Materials Science and Engineering, University of Maryland, College Park, MD*

GS-03. Huge anomalous Hall-effect at paramagnetic state in MnAs/GaAs multilayers. *J. Song*[1,2], J. Lee[2], Y. Cui[2] and J.B. Ketterson[2] *1. Physics, Chungnam National University, Daejeon, The Republic of Korea; 2. Physics, Northwestern University, Evanston, IL*

GS-04. Toward roll-to-roll fabrication of flexible magnetic films with controllable magnetic anisotropy. *X. Qiao*[1,2], B. Wang[2], Z. Tang[2], Y. Shen[2], H. Yang[2], J. Wang[2,3], Q. Zhan[2], X. Xu[1] and R. Li[2] *1. Shanxi Normal University, Shanxi, China; 2. Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, Ningbo, China; 3. Nanyang Technological University, Singapore, Singapore*

GS-05. Structural and magnetic properties of $Ni_{78}Fe_{22}$ thin films sandwiched between low-melting-point glasses. *T. Misawa*[1], S. Mori[1], H. Kasa[1], K. Nakamura[2], M. Fujioka[1], H. Kaiju[1] and J. Nishii[1] *1. Research Institute for Electronic Science, Hokkaido University, Sapporo, Hokkaido, Japan; 2. Graduate School of Science, Hokkaido University, Sapporo, Hokkaido, Japan*

GS-06. Exchange coupling in epitaxially grown multilayers with *B*2-FeRh. *S. Yamada*[1], K. Tanikawa[2], J. Hirayama[1,2], T. Kanashima[1], T. Taniyama[3] and K. Hamaya[1] *1. Department of Systems Innovation, Graduate School of Engineering Science, Osaka University, Toyonaka, Osaka, Japan; 2. Department of Electronics, Faculty of Information Science and Electrical Engineering, Kyushu University, Fukuoka, Fukuoka, Japan; 3. Materials and Structures Laboratory, Tokyo Institute of Technology, Yokohama, Kanagawa, Japan*

GS-07. Investigation of Vanadium Doping Effect in Perpendicularly Magnetized Ta/CoFeB-V/MgO Systems. *D. Kim*[1] and E.E. Fullerton[1] *1. Center for Magnetic Recording Research, University of California San Diego, La Jolla, CA*

GS-08. Forward volume spin wave propagation using 22 nm thick yttrium iron garnets. *A. Banno*[1], T. Goto[1], N. Kanazawa[1], F. Kumaoka[1], H. Furuta[1], R. Morimoto[1], R. Isogai[1], M. Onbasli[2], Y. Nakamura[1], K. Sekiguchi[3], C. Ross[2] and M. Inoue[1] *1. Electrical and Electronic Information Engineering, Toyohashi University of Technology, Toyohashi, Aichi, Japan; 2. Massachusetts Institute of Technology, Cambridge, MA; 3. Keio University, Yokohama, Japan*

GS-09. Tunable anisotropy field and millimeter wave loss of highly oriented aluminum substituted barium hexaferrite thin films for millimeter wave applications. *D. Chen*[2], Y. Chen[2], Y. Li[1], Y. Liu[1] and Z. Celinski[3] *1. School of Microelectronics and Solid-State Electronics, University of Electronic Science and Technology of China, Chengdu, Sichuan, China; 2. College of Materials and Chemical Engineering, Hainan University, Haikou, Hainan, China; 3. Center for Magnetism and Magnetic Nanostructures, University of Colorado, Colorado Springs, Colorado Springs, CO*

GS-10. Long-range Magnetic Proximity Effects and Interlayer Coupling in an Amorphous Exchange-spring Magnet. *F. Magnus*[1], M. Brooks-Bartlett[2], R. Moubah[1], R. Procter[3], G. Andersson[1], T.P. Hase[3], S. Banks[2] and B. Hjörvarsson[1] *1. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden; 2. Department of Chemistry, University College London, London, United Kingdom; 3. Department of Physics, University of Warwick, Coventry, United Kingdom*

GS-11. Copper dusting effects on Perpendicular Magnetic Anisotropy in Pt/Co/Pt tri-layers. V. Parakkat[1], G.K. Rajan[1] and *P. Kumar*[1] *1. Physics, Indian Institute of Science, Bangalore, Karnataka, India*

GS-12. Control of Antiferromagnetic to Ferromagnetic transition of FeRh on MgO for HIP-ECC-a thermal switch. *T.A. Ostler*[2], L. Saharan[2], C.W. Barton[1], T. Thomson[1] and G. Hrkac[2] *1. School of Computer Science, The University of Manchester, Manchester, United Kingdom; 2. College of Engineering, Mathematics and Physical Sciences, The University of Exeter, Exeter, United Kingdom*

GS-13. Engineered magnetic anisotropy in electrodeposited Ni-Co-Fe/Cu nanolaminates. *J. Shirtcliffe*[1], W. Schwarzacher[1] and N. Fox[1] *1. Physics, University of Bristol, Bristol, United Kingdom*

GS-14. Soft Magnetic Ferrite/Metal-Alloy Nanocomposites Fabricated by Electro-Infiltration. *X. Wen*[1], S.J. Kelly[1], J.S. Andrew[1] and D.P. Arnold[1] *1. University of Florida, Gainesville, FL*

Session GT
SPIN TORQUE DOMAIN WALL MOTION (Poster Session)
Dan Allwood, Chair
University of Sheffield, Sheffield, United Kingdom

GT-01. Nanosensors using domain wall nucleation in perpendicular anisotropy CoFeB/Pt. *J. Wells*[1], A. Caprile[2], B. Gribkov[3], J. Lee[4], R. Mansell[4], R. Cowburn[4] and O. Kazakova[1] *1. National Physical Laboratory, Teddington, United Kingdom; 2. Istituto Nazionale di Ricera Metrologica, Torino, Italy; 3. Institute for Physics of Microstructures RAS, Nizhny Novgorod, Russian Federation; 4. University of Cambridge, Cambridge, United Kingdom*

GT-02. Low Domain-Wall Threshold Current Density in a Synthetic Antiferromagnet Nanowire. *H.M. Saarikoski*[1], S. Lepadatu[2], G. Tatara[1] and C.H. Marrows[3] *1. RIKEN CEMS, Wako, Saitama, Japan; 2. School of Physical Sciences and Computing, University of Central Lancashire, Preston PR1 2HE, United Kingdom; 3. School of Physics and Astronomy, University of Leeds, Leeds LS2 9JT, United Kingdom*

GT-03. Determination of interfacial Dzyaloshinskii-Moriya exchange interaction from static domain size imaging. *P. Agrawal*[1], I. Lemesh[1], S. Schlotter[2] and G. Beach[1] *1. MIT, Cambridge, MA; 2. Harvard University, Cambridge, MA*

GT-04. Current driven asymmetric domain wall propagation. *C. Garg*[1,2], A. Pushp[1], T. Phung[1], B.P. Hughes[1], C. Rettner[1], S. Yang[1] and S.S.P. Parkin[1,2] *1. IBM Almaden Research Center, San Jose, CA; 2. Cognitive and Spintronic Technologies, Max Planck Institute for Microstructure Physics, Halle, Germany*

GT-05. Magneto-transport measurements of domain wall propagation in individual multi segmented cylindrical nanowires. *H. Mohammed*[1], E. Vilanova[1], I. Ivanov[1] and J. Kosel[1] *1. Electrical Engineering Department, King Abdullah University of Science and Technology, Thuwal- Jeddah, Saudi Arabia*

GT-06. Domain Wall Fringe Field Coupled Spin Logic. *Y. Hung*[1], G.D. Chaves O'Flynn[1] and A.D. Kent[1] *1. Physics Department, New York University, New York City, NY*

GT-07. Analytic theory for the switch from Bloch to Néel domain wall in rectangular nanowires with perpendicular anisotropy. M. DeJong[1] and *K. Livesey*[1] *1. Department of Physics, University of Colorado at Colorado Springs, Colorado Springs, CO*

GT-08. Logic Circuit Prototypes utilizing Domain Wall Motion in Ferromagnetic Wires with Tunnel Junction Readout. *J. Currivan-Incorvia*[1,2], S.A. Siddiqui[3], S. Dutta[3], E.R. Evarts[4], J. Finley[3], P. Wong[2], C. Ross[5] and M.A. Baldo[3] *1. Physics, Massachusetts Institute of Technology, Cambridge, MA; 2. Electrical Engineering, Stanford University, Palo Alto, CA; 3. Electrical Engineering and Computer Science, Massachusetts Institute of Technology, Cambridge, MA; 4. Physical Measurement Laboratory, National Institute of Standards and Technology, Boulder, CO; 5. Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA*

GT-09. Asymmetric Chiral Domain Growth in Perpendicular Co/Ni Multi-layers Influenced by the Dzyaloshinskii-Moriya Interaction. *D. Lau*[2], V. Sundar[1], J. Zhu[1] and V.M. Sokalski[2] *1. Electrical & Computer Engineering, Carnegie Mellon University, Pittsburgh, PA; 2. Materials Science & Engineering, Carnegie Mellon University, Pittsburgh, PA*

GT-10. Detection of magnetization reversal and domain wall position by anomalous Nernst effect measurements of nanowires with perpendicular magnetic anisotropy. *P. Krzysteczko*[1], X. Hu[1], N. Liebing[1], S. Sievers[1], H.W. Schumacher[1], J. Wells[2], O. Kazakova[2], R. Mansell[3], J. Lee[3] and R. Cowburn[3] *1. Nanomagnetism, PTB, Braunschweig, Germany; 2. Quantum Detection, NPL, Teddington, United Kingdom; 3. Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom*

GT-11. Dirac Spin-Orbit Torques in Topological Insulator Surfaces. *P.B. Ndiaye*[1], C.A. Akosa[1] and A. Manchon[1] *1. Material Science & Engineering, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia*

GT-12. The Physics of Spin-transfer Torque Switching in Magnetic Tunneling Junctions in Sub-10-nm Size Range. *J. Hong*[1], A. Hadjikhani[2], F. Allen[1], M. Stone[2], R. Guduru[2], V. Safonov[2], J. Bokor[1] and S. Khizroev[2] *1. UC Berkeley, Berkeley, CA; 2. FIU, Miami, FL*

GT-13. Influence of dipolar fields on the field and current induced magnetization switching in perpendicular magnetic tunnel junctions. *M.P. Lavanant*[1], S. Petit-Watelot[1], J. Sun[2], A.D. Kent[3] and S. Mangin[1] *1. Institut Jean Lamour, Université de Lorraine, Nancy, Lorraine, France; 2. T. J. Watson Research Center, IBM, Yorktown Heights, NY; 3. Department of Physics, New York University, New York City, NY*

GT-14. Bi-stable spin transfer switching with various sizes of perpendicular magnetized magnetic tunnel junctions. *H. Tomita*[1], Y. Tanaka[1], H. Maehara[2], K. Nakamura[1], T. Kitada[1], S. Furukawa[1], H. Kubota[3], A. Fukushima[3], K. Yakushiji[3], S. Yuasa[3] and N. Watanabe[1] *1. Tokyo Electron Yamanashi Limited, Nirasaki, Yamanashi, Japan; 2. Tokyo Electron Limited, Akasaka, Tokyo, Japan; 3. AIST, Tsukuba, Ibaraki, Japan*

Session GU

SPIN TORQUE, DOMAIN WALLS AND SOLITONS (Poster Session)

Mansoor Jalil, Chair
National University of Singapore, Singapore, Singapore

GU-01. Merging spin torque magnetic droplet pairs into a bubble soliton by magnetic fields. D. Xiao[1,2], Y. Zhou[3,2], S. Mohseni[6,4], J. Åkerman[4,5] and *Y. Liu*[1] *1. Department of Physics, Tongji University, Shanghai, China; 2. Department of Physics, The University of Hong Kong, Hong Kong, China; 3. School of Electronics Science and Engineering, Nanjing University, Nanjing, China; 4. School of Information and Communication Technology, KTH Royal Institute of Technology, Elec-trum 229, 164 40 Kista, Sweden; 5. Department of Physics, University of Gothenburg, 412 96 Gothenburg, Sweden; 6. Department of Physics, Shahid Beheshti University, Tehran 19839, The Islamic Republic of Iran*

GU-02. Dzyaloshinskii-Moriya Interaction and Slonczewski-like Torque in Epitaxial Pt/Co/Pt_xAu_{1-x}. *K. Shahbazi*[1], A. Hrabec[1], T. Moore[1] and C.H. Marrows[1] *1. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom*

GU-03. Spin Transfer Torque-Assisted Switching in Magnetic Insulator Thin Films with Strong Perpendicular Magnetic Anisotropy. *P. Li*[1], T. Liu[1], H. Chang[1], W. Zhang[2], W. Li[3], D. Richardson[1], A. Demann[1], G. Rimal[4], H. Dey[5], S. Jiang[2], G. Csaba[5], W. Porod[5], S. Field[1], J. Tang[4], M. Marconi[3], A. Hoffmann[2] and M. Wu[1] *1. Department of Physics, Colorado State Unviersity, Fort Collins, CO; 2. Materials Science Division, Argonne National Laboratory, Lemont, IL; 3. Department of Electrical and Computer Engineering, Colorado State University, Fort Collins, CO; 4. Department of Physics and Astronomy, University of Wyoming, Laramie, WY; 5. Department of Electrical Engineering, University of Notre Dame, Notre Dame, IN*

GU-04. Stabilization and dynamics of radial vortex with interfacial Dzyaloshinskii–Moriya Interaction. *G. Siracusano*[1], R. Tomasello[2], A. Giordano[1], V. Puliafito[1], B. Azzerboni[1], M. Carpentieri[3] and G. Finocchio[1] *1. Department of Electronic Engineering, Industrial Chemistry and Engineering, University of Messina, Messina, Italy; 2. Department of Computer Science, Modelling, Electronics and System Science, University of Calabria, Rende, CS, Italy; 3. Department of Electrical and Information Engineering, Politecnico di Bari, Bari, Italy*

GU-05. Spin transfer torque in antiferromagnetic tunnel junctions: From clean to disordered phases. *H.B. Saidaoui*[1] and A. Manchon[1] *1. Physical Sciences and Engineering, King Abdullah University of Science and Technology, Jeddah, Makkah, Jeddah, Saudi Arabia*

GU-06. Terahertz Antiferromagnetic Spin Hall Nano-Oscillator. *R. Cheng*[1], D. Xiao[1] and A. Brataas[2] *1. Physics, Carnegie Mellon University, Pittsburgh, PA; 2. Physics, Norwegian University of Science and Technology, Trondheim, Norway*

GU-07. Enhancement of single bullet mode stability in nanowire spin-Hall oscillator with spatially nonuniform current bias. *R.V. Verba*[1], L. Yang[2], V. Tyberkevych[3], T. Schneider[4], A. Smith[2], Z. Duan[2], J. Lindner[4], A.N. Slavin[3] and I. Krivorotov[2] *1. Institute of Magnetism, Kyiv, Ukraine; 2. University of California, Irvine, CA; 3. Oakland University, Rochester, MI; 4. Helmholtz Zentrum Dresden Rossendorf, Dresden, Germany*

GU-08. Nanowire spin Hall oscillators: nanowire width dependence. *A. Smith*[1], T. Schneider[2,1], L. Yang[1] and I. Krivorotov[1] *1. Physics, UC Irvine, Irvine, CA; 2. Institute of Ion Beam Physics and Materials Research, Dresden, Germany*

GU-09. Effect of perpendicular magnetic anisotropy and Dzyaloshinskii-Moriya interaction on the enhancement of domain wall creep velocity in Pt/Co thin films by piezoelectric strain. *P.M. Shepley*[1], A. Hrabec[1], G. Burnell[1] and T. Moore[1] *1. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom*

GU-10. Electrically Controlled Pinning of Dzyaloshinskii-Moriya Domain Walls. *K. Sato*[1] and O. Tretiakov[1] *1. Tohoku University, Sendai, Miyagi, Japan*

GU-11. Current-induced motion of antiferromagnetic domain wall in antiferromagnet/heavy metal bilayers. T. Shiino[1], *S. Oh*[2], B. Park[1] and K. Lee[3,2] *1. Dept. of Mater. Sci. & Eng., KAIST, Daejon, The Republic of Korea; 2. Dept. of Semiconductor Systems Engineering, Korea University, Seoul, The Republic of Korea; 3. Dept. of Mater. Sci. & Eng., Korea University, Seoul, The Republic of Korea*

GU-12. Chirality-dependent domain wall pinning and oscillation at Ta Hall probe in perpendicular magnetic anisotropy nanowires. J. Kwon[1,2], H. Teoh[1], S. Goolaup[1], G. Joseph Lim[1], *W. Gan*[1], C. Chang[2], K. Roy[3] and W. Lew[1] *1. Division of Physics and Applied Physics, Nanyang Technological University, Singapore, Singapore; 2. School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore, Singapore; 3. School of Electrical and Computer Engineering, Purdue University, West Lafayette, IN*

GU-13. Scanning Kerr microscopy of current induced switching in Ta/CoFeB/MgO films with perpendicular magnetic anisotropy. *C. Durrant*[1], Q. Hao[2], G. Xiao[2] and R.J. Hicken[1] *1. University of Exeter, Exeter, Devon, United Kingdom; 2. Brown University, Providence, RI*

GU-14. Current induced deterministic switching of magnetization in Pt/Co/Pt films. *V. Parakkat*[1], G.K. Rajan[1] and P. Kumar[1] *1. Physics, Indian Institute of Science, Bangalore, Karnataka, India*

Session GV
MRAM AND SPIN LOGIC IV (Poster Session)
Takahide Kubota, Chair
Tohoku University, Sendai, Japan

GV-01. Increase of Critical Switching Current Density of 10 nm p-MTJ in 4F^2 Cell Array Due to Inter-cell Interference Phenomenon. *S. Ohuchida*[1,2], K. Ito[3], M. Muraguchi[1,2] and T. Endoh[2,3] *1. Graduate School of Engineering, Tohoku University, Sendai-shi Aoba-ku, Miyagi-ken, Japan; 2. JST-ACCEL, Sendai, Japan; 3. Center for Innovative Integrated Electronic Systems, Tohoku University, Sendai, Miyagi, Japan*

GV-02. Fabrication of STT-MRAM cells using dual-exposure lithography with two photo masks. *M. Zhu*[1], J. St Louis[1], M. Smalley[1], R. Brooks[1], H. Stamper[1] and S. Bennett[1] *1. Colleges of Nanoscale Science and Engineering, SUNY Polytechnic Institute, Albany, NY*

GV-03. Theoretical analysis of thermally-activated spin-transfer-torque switching of a conically-magnetized free layer. *R. Matsumoto*[1], H. Arai[2,1], S. Yuasa[1] and H. Imamura[1] *1. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki, Japan; 2. PRESTO, JST, Kawaguchi, Saitama, Japan*

GV-04. Precise damage observation in ion-beam-etched MTJ. *Y. Ohsawa*[1], N. Shimomura[1], T. Daibou[1], Y. Kamiguchi[1], S. Shirotori[1], T. Inokuchi[1], D. Saida[1], B. Altansargai[1], Y. Kato[1], H. Yoda[2], T. Ohkubo[3] and K. Hono[3] *1. CR&D Center, Toshiba Corp., Kawasaki, Japan; 2. Toshiba Corp., Kawasaki, Japan; 3. National Institute for Materials Science, Tsukuba, Japan*

GV-05. Effects of Pt as a diffusion blocking layer for SAF structure based on Co/Ni multilayers in p-MTJ. *T. Irisawa*[1], M. Hayashi[1], S. Shibuich[1], K. Nishimura[1], T. Seino[1] and K. Tsunekawa[1] *1. Canon Anelva Corporation, Kawasaki-shi, Kanagawa, Japan*

GV-06. A Co/Ni-based perpendicular magnetic tunnel junction (p-MTJ) stack with improved reference layer for BEOL compatibility. *Y.F. Tomczak*[1,2], T. Lin[1], J. Swerts[1], S. Couet[1], S. Mertens[1], E. Liu[1], W. Kim[1], K. Sankaran[1], G. Pourtois[1], D. Tsvetanova[1], L. Souriau[1], S. Van Elshocht[1], G.S. Kar[1] and A. Furnemont[1] *1. IMEC, Heverlee, Belgium; 2. KU Leuven, Leuven, Belgium*

GV-07. Dependence of tunneling magnetoresistance on spin torque ferromagnetic resonance in MgO based magnetic tunnel junctions. D. Tiwari[2], R. Sharma[2], N. Sisodia[2], P. Dürrenfeld[1], J. Åkerman[1,3] and *P.K. Muduli*[2,1] *1. Department of Physics, Unversity of Gothenburg, Gothenburg, Sweden; 2. Department of Physics, Indian Institute of Technology, Delhi, New Delhi, Delhi, India; 3. Materials Physics, School of ICT, KTH-Royal Institute of Technology, Kista, Stockholm, Sweden*

GV-08. A first principles study of magnetocrystalline anisotropy of Hf/Co_xFe_{1-x}/MgO and W/Co_xFe_{1-x}/MgO (x=0, 0.5, 1). *P. Taivansaikhan*[1], S. Rhim[1] and S. Hong[1] *1. Physics, University of Ulsan, Ulsan, Namgu, The Republic of Korea*

GV-09. Dependence of Magnetic Properties of CoFeB-MgO on Buffer Layer Materials. *K. Watanabe*[1], H. Sato[2,3], S. Fukami[2,3], F. Matsukura[4,2] and H. Ohno[1,2] *1. Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University, Sendai, Miyagi, Japan; 2. Center for Spintronics Integrated Systems, Tohoku University, Sendai, Miyagi, Japan; 3. Center for Innovative Integrated Electronic Systems, Tohoku University, Sendai, Miyagi, Japan; 4. WPI-Advanced Institute for Material Research, Tohoku University, Sendai, Miyagi, Japan*

GV-10. STT-MRAM Cell Design with Dual MgO-based Magnetic Tunnel Junctions and Perpendicular Magnetic Anisotropy. *Z. Duan*[1], S. Schäfer[1], V. Voznyuk[1], X. Tang[1], J. Lee[1], D. Lee[1], D. Erickson[1], D. Apalkov[1], R. Beach[1] and V. Nikitin[1] *1. New Memory Technology Lab, Samsung Electronics, San Jose, CA*

GV-11. Respective influence of in-plane and out-of-plane spin-transfer torques in magnetization switching of perpendicular magnetic tunnel junctions. *A. Timopheev*[1,2], R. Sousa[1,2], M. Chshiev[1,2], L.D. Buda-Prejbeanu[1,2] and B. Dieny[1,2] *1. INAC - SPINTEC, CEA, Grenoble, France; 2. INAC-SPINTEC, Univ. Grenoble Alpes, Grenoble, France*

GV-12. Programmable logic device by controlling domain wall trajectory in magnetic network structures. *P. Sethi*[1], C. Murapaka[1], S. Goolaup[1] and W. Lew[1] *1. Division of Physics and Applied Physics, School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore*

GV-13. Towards signal routing in 3D-integrated magnetic logic circuits. *S. Breitkreutz-v. Gamm*[1], G. Ziemys[1], I. Eichwald[1], G. Csaba[2], W. Porod[2], M. Graziano[3,4], D. Schmitt-Landsiedel[1] and M. Becherer[1] *1. Institute for Technical Electronics, Technische Universität München, Munich, Germany; 2. Center for Nano Science and Technology, University of Notre Dame, Notre Dame, IN; 3. London Centre for Nanotechnology (LCN), London, United Kingdom; 4. Politecnico di Torino, Torino, Italy*

GV-14. Large antidamping-like spin-orbit torque driven by spin-flip reflection mechanism on the surface of a topological insulator. *F. Mahfouzi*[1] *1. Physics and Astronomy, California State University Northridge, Northridge, CA*

Session GW
ELECTRIC FIELD CONTROL OF MAGNETISM II (Poster Session)
Takayuki Nozaki, Chair
AIST, Tsukuba, Japan

GW-01. Enhancement of electric field induced magnetic anisotropy change by interface engineering in CoFeB/MgO/CoFeB magnetic tunnel junctions. *J. Choi*[1,2], T. Bonaedy[1,2], C. Jang[1], B. Min[1,2] and J. Chang[3] *1. Center for Spintronics, Korea Institute of Science and Technology, Seoul, The Republic of Korea; 2. Department of Nanomaterials Science and Engineering, University of Science and Technology, Daejeon, The Republic of Korea; 3. Post Silicon Semiconductor Institute, Korea Institute of Science and Technology, Seoul, The Republic of Korea*

GW-02. Enhancement of voltage modulation of magnetic anisotropy by suppressing angular momentum dissipation. *K. Miura*[1,2], S. Yabuuchi[1], M. Ichimura[1], B. Rana[2], H. Takahashi[1], Y. Fukuma[2,3] and Y. Otani[2,4] *1. Research and Development Group, Hitachi Ltd., Kokubunji-shi, Tokyo, Japan; 2. Center for Emergent Matter Science, RIKEN, Wako, Saitama, Japan; 3. Frontier Research Academy for Young Researchers, Kyushu Institute of Technology, Iizuka, Kitakyushu, Japan; 4. Institute for Solid State Physics, University of Tokyo, Kashiwa, Chiba, Japan*

GW-03. Studies of Both Electrical-field and Spin-transfer Torque Effects in CoFeB/MgO Based Perpendicular Magnetic Tunnel Junction. *C. Yoshida*[1], H. Noshiro[1], Y. Yamazaki[1], T. Sugii[1], T. Ataka[2], A. Furuya[2] and Y. Uehara[2] *1. Fujitsu Limited, Atsugi, Kanagawa, Japan; 2. Fujitsu Limited, Kawasaki, Kanagawa, Japan*

GW-04. The role of FM-NM interface in the electric-field modulation of magnetic anisotropy in MgO/Fe/NM (NM = Ta, Pt, Au) stacks. X. Guan[1,2], *X. Cheng*[1,2], T. Huang[1,2], S. Wang[1,2] and X. Miao[1,2] *1. School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan, Hubei, China; 2. Wuhan National Laboratory for Optoelectronics, Wuhan, China*

GW-05. Electric field effect on perpendicular magnetic anisotropy for Co-rich CoFe ultrathin epitaxial films. *K.Z. Suzuki*[1], A. Sugihara[1], S. Pham[1] and S. Mizukami[1] *1. WPI-AIMR, Tohoku University, Sendai, Miyagi, Japan*

GW-06. Modulations of Kerr signal and coercivity of NiFe films through a ZnO(0001) under layer. *C. Yu*[1] and H. Ko[1] *1. Department of Applied Physics, National University of Kaohsiung, Kaohsiung, Taiwan*

GW-07. The important role of anisotropic strain in the magnetization control by electric field. *Y. Zhao*[1], H. Kuang[1], Y. Liu[1], R. Wu[1], J. Wang[1], F. Hu[1], J. Sun[1] and B. Shen[1] *1. State Key Laboratory of Magnetism, Institute of Physics, Chinese Academy of Sciences (CAS), Beijing, China*

GW-08. Electric field control of exchange-spring effect in perpendicular magnetized FePt/NiFe bilayer. *Y. Zhang*[1], Z. Guo[1], J. Ding[2,1], X. Yang[1], S. Chen[1], B. Zhu[1] and J. Ouyang[1] *1. School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan, China; 2. Department of Physics, Colorado State University, Fort Collins, CO*

GW-09. Voltage-controlled magnetic anisotropy in Fe|MgO tunnel junction investigated by x-ray absorption spectroscopy. *K. Matsuda*[1], S. Miwa[1], K. Tanaka[1], Y. Kotani[2], T. Nakamura[2], M. Goto[1], N. Mizuochi[1] and Y. Suzuki[1] *1. Graduate School of Engineering Science, Osaka University, Toyonaka, Osaka, Japan; 2. JASRI/SPring-8, Sayo, Hyogo, Japan*

GW-10. Evaluation of write error rate for voltage-driven dynamic switching. *Y. Shiota*[1], T. Nozaki[1], S. Tamaru[1], K. Yakushiji[1], H. Kubota[1], A. Fukushima[1], S. Yuasa[1] and Y. Suzuki[1,2] *1. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki, Japan; 2. Graduate School of Engineering Science, Osaka University, Toyonaka, Osaka, Japan*

GW-11. Switching field distributions in sub-100 nm perpendicular magnetic tunnel junctions using Conductive Atomic Force Microscopy. *M. Bapna*[1] and S. Majetich[1] *1. Physics, Carnegie Mellon University, Pittsburgh, PA*

GW-12. Properties of voltage excited magnetization dynamics and spin waves. *B. Rana*[1], K. Miura[2], H. Takahashi[2], S. Ogawa[2], Y. Fukuma[1,3] and Y. Otani[1,4] *1. Center for Emergent Matter Science, RIKEN, Wako, Saitama, Japan; 2. Central Research Laboratory, Research and Development Group, Hitachi Ltd., Kokubunji-shi, Tokyo, Japan; 3. Frontier Research Academy for Young Researchers, Kyushu Institute of Technology, Kawazu, Iizuka, Japan; 4. Institute for Solid State Physics, University of Tokyo, Kashiwanoha, Kashiwa, Japan*

GW-13. Parametric excitation of magnetization by electric field. *Y. Chen*[1], H. Lee[1], R.V. Verba[2], J. Katine[3], I. Barsukov[1], V. Tyberkevych[4], A.N. Slavin[4] and I. Krivorotov[1] *1. Department of Physics and Astronomy, University of California, Irvine, CA; 2. Institute of Magnetism, Kyiv, Ukraine; 3. HGST, San Jose, CA; 4. Department of Physics, Oakland University, Rochester, MI*

GW-14. Electric field controlled magnetization and transport properties of manganite ultrathin film. *H. Sharma*[1], A. Tulapurkar[2] and C.V. Tomy[1] *1. Department of Physics, Indian Institute of Technology Bombay, Mumbai, Maharashtra, India; 2. Department of Electrical Engineering, Indian Institute of Technology, Mombai, MH, India*

Session GX
MAGNETIC RECORDING SYSTEMS AND HEAD MEDIA INTERFACE (Poster Session)

Roger Wood, Co-Chair
HGST, San Jose, CA
Yoichiro Tanaka, Co-Chair
Toshiba Corporation, Kawasaki, Japan

GX-01. Nitrogen Reactive Sputtering of $(Co_{70}Fe_{30})_{1-X}N_{(X)}$ for Write Pole Shields. *R.D. Tolley*[2,1], C. Yu[2] and W. Si[2] *1. Center for Magnetic Recording Research, University of California San Diego, La Jolla, CA; 2. Western Digital Corporation, Fremont, CA*

GX-02. Measurement of Thickness Distribution of Molecularly Thin Lubricant Films on Head Sliders Using Ellipsometric Microscopy. *K. Fukuzawa*[1], C. Yamashita[1], H. Ishikawa[1], S. Itoh[1] and H. Zhang[1] *1. Nagoya University, Nagoya, Aichi, Japan*

GX-03. Effective damping factor for stacked medium with CoPt continuous/ CoPt-SiO_2 granular film. *S. Hinata*[1] and S. Saito[1] *1. Department of Electronic Engineering, Tohoku University, Sendai, Miyagi, Japan*

GX-04. High frequency magnetic recording using a dual write head. *N. Akitaya*[1], S. Greaves[1] and H. Muraoka[1] *1. RIEC, Tohoku University, Sendai, Japan*

GX-05. Long-Term Stability of Magnetic Tape for Data Storage under an Accelerated Condition. *K. Katayama*[1], Y. Chinda[2], O. Shimizu[1], T. Mikami[1], M. Suzuki[2] and H. Noguchi[1] *1. Recording Media Research Laboratories, Fujifilm Corporation, Odawara, Kanagawa, Japan; 2. Analysis Technology Center, Fujifilm Corporation, Minami Ashigara, Kanagawa, Japan*

GX-06. Influence of Parasitic Capacitance on Single and Dual TDMR Read Head Performance. E. Auerbach[2,1], *S. Gider*[1] and D. Mauri[1] *1. Western Digital, Fremont, CA; 2. Electrical & Computer Eng. Dept., Tufts University, Medford, MA*

GX-07. Increased Data Throughput and BER Performance with Rotated Head Array in the Two Dimensional Magnetic Recording. *Y. Wang*[1], B. Yuan[2], K.K. Parhi[2] and B. Kumar[1] *1. Electrical and Computer Engineering Department, Carnegie Mellon University, Pittsburgh, PA; 2. Electrical and Computer Engineering Department, University of Minnesota, Minneapolis, MN*

GX-08. Entropy based multi-resoloution head/media contact detection for HDD. *A. Daugela*[1], J.D. Trantham[1] and S.E. Ryun[1] *1. Seagate Technology, Shakopee, MN*

GX-09. Effect Of Reader Sensitivity Rotation In TDMR With Head Skew. *R. Suzutou*[1], Y. Nakamura[1], H. Osawa[1], Y. Okamoto[1], Y. Kanai[2] and H. Muraoka[3] *1. Graduate School of Science and Engineering, Ehime University, Matsuyama, Japan; 2. Department of Information and Electronics Engineering, Niigata Institute of Technology, Kashiwazaki, Japan; 3. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan*

GX-10. Diamagnetic Oil Seal for Pivot Bearing of Hard Disk Drives. *H. Tani*[1], S. Koganezawa[1] and N. Tagawa[1] *1. Mechanical Engineering Dept., Kansai University, Suita-shi, Osaka, Japan*

GX-11. Novel Method for Determining Absolute Position Information From Magnetic Patterns. C. Lin[1], H. Hsiao[1] and *J. Chang*[1] *1. Power Mechanical Engineering, National Tsing Hua University, Hsinchu, TW, Taiwan*

GX-12. Multi-stability in low-symmetry magnetic nanoparticles. *D. Altbir*[1], R.A. Escobar[1], S. Castillo[1], S. Allende[1], M. Bahiana[2] and J. d'Albuquerque e Castro[2] *1. Physics Department, CEDENNA, Universidad de Santiago de Chile, Santiago, Chile; 2. Instituto de Física, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil*

GX-13. United Atom Model of Organic Molecules in Head-Disk Interface under Heat Assisted Magnetic Recording Environment. *W. Song*[1,2], P. Chung[1,2] and M.S. Jhon[1,2] *1. Chemical Engineering, Carnegie Mellon Univ, Pittsburgh, PA; 2. Data Storage Systems Center, Pittsburgh, PA*

GX-14. Viscoelastic Properties and its Temperature Dependence of Nanoscale Confined Polymeric Lubricants. *P. Chung*[1] and M.S. Jhon[1] *1. Chemical Engineering, Carnegie Mellon Univ., Pittsburgh, PA*

FRIDAY
MORNING
9:30

SAPPHIRE BALLROOM SOUTH

Session GY

ELECTRICAL MACHINES AND ACTUATORS (Poster Session)

Myounggyu Noh, Chair
Chungnam National University, Daejeon, The Republic of Korea

GY-01. A Novel Double Side Linear Vernier Permanent-Magnet Motor for Long Stroke Applications. *W. Zhao*[1], J. Zhu[1] and J. Ji[1] *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*

GY-02. A New Flux-Reversal Permanent-Magnet Linear Machine for Regenerative Shock Absorbers. *H. Fan*[1], K. Chau[1], C. Liu[1] and F. Lin[1] *1. Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong Island, Hong Kong*

GY-03. A Double-Sided Linear Flux-Reversal Permanent Magnet Motor with Segmental Stator for Long-Stroke Application. *Y. Du*[1], C. Shen[1] and D. Zhu[1] *1. Jiangsu University, Zhenjiang, China*

GY-04. Analytical Magnetic Field Distribution of Coaxial Magnetic Gears with Flux Concentrating Rotor. *H. Shin*[1] and J. Chang[1] *1. Electrical Engineering, Dong-A University, Busan, The Republic of Korea*

GY-05. Design of Radial Magnetic Coupling as Test Bench of Electric Machines. C. Lin[2], *M. Tsai*[1], P. Hsueh[2] and M. Hsieh[3] *1. Mechanical Engineering Department, National Cheng Kung University, Tainan, Taiwan; 2. Electrical Motor Technology Research Center, National Cheng Kung University, Taiwan, Tainan, Taiwan; 3. Systems and Naval Mechatronic Engineering Department, National Cheng Kung University, Taiwan, Tainan, Taiwan*

GY-06. A New Primary Wound Field Flux-Switching Linear Motor with Toothed Secondary and Complementary Magnet Circuit. *R. Cao*[1], Y. Jin[1] and Y. Zhang[1] *1. College of Automation Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu, China*

GY-07. Influence of the Secondary Construction on the Lateral Force in the Single-sided Linear Induction Motor for Metro. *G. Lyu*[1], Z. Liu[1], Q. Li[1] and S. Sun[1] *1. Beijing Jiaotong University, Beijing, China*

GY-08. Strategic Utilization of Soft Magnetic Composite in a High-Speed Switched Reluctance Machine Depending on a Loss Pattern. *H. Hwang*[1], D. Kim[1] and C. Lee[1] *1. Electrical and Computer Engineering, Pusan National University, Pusan, The Republic of Korea*

GY-09. Characteristic Comparison of Reluctance Integrated Starter/Generator Based on Fabrication using 2D Lamination and 3D Printing. P. Huang[2], *M. Tsai*[3] and M. Hsieh[1] *1. Dept. Systems and Naval Mechatronic Engineering, National Cheng Kung University, Tainan, Taiwan; 2. Electric Motor Technology Research Center, National Cheng Kung University, Taiwan, Tainan, Taiwan; 3. Department of Mechanical Engineering, National Cheng Kung University, Tainan, Taiwan*

GY-10. General Design Principle of Complementary Magnetic-Geared Dual-Rotor Motors. *L. Sun*[1] and M. Cheng[1] *1. School of Electrical Engineering, Southeast University, Nanjing, Jiangsu, China*

GY-11. Irreversible Demagnetization Analysis of Permanent Magnet in a Novel Flux Reversal Linear-rotary Permanent Magnet Actuator. K. Guo[1], S. Fang[1], H. Lin[1], H. Yang[1], *Y. Zhang*[1] and Y. Huang[1] *1. Electrical Engineering, Southeast University, Nanjing, Jiangsu, China*

GY-12. A Tubular Dual-Stator Radially Magnetized PM Linear Machine for Free-Piston Energy Converter. *Y. Sui*[1] and P. Zheng[1] *1. School of Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, Heilongjiang, China*

GY-13. Online Thermal Monitoring of Switched Reluctance Wind Turbine Generator: A Sensorless Approach. *C. Wang*[1], X. Liu[1] and Z. Chen[1] *1. Department of Energy Technology, Aalborg University, Aalborg, Denmark*

GY-14. Novel Brushless Wound Rotor Synchronous Machine with Zero Sequence Third Harmonic Field Excitation. *G. Sirewal*[1], Q. Ali[1], T.A. Lipo[2] and B. Kwon[1] *1. Electronic Systems Engineering, Hanyang Univeristy, South Korea, Ansan, The Republic of Korea; 2. Department of Electrical and Computer Engineering, Florida State University, Tallahassee, FL*

FRIDAY AFTERNOON 1:30 — SAPPHIRE ABEF

Session HA

SPIN-ORBIT COUPLING AND EXCHANGE INTERACTIONS: PHYSICS AND ENGINEERING

Kang Wang, Chair
UCLA, Los Angeles, CA

1:30

HA-01. Spin transfer torques generated from the spin Hall effect and from topological insulators. ***(Invited)*** *D. Ralph*[1] *1. Physics, Cornell University, Ithaca, NY*

2:06

HA-02. Spin-Orbit Torques in Novel Materials. ***(Invited)*** *A. Manchon*[1] *1. King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia*

2:42

HA-03. Current-induced spin-orbit torques in magnetically doped topological insulators. ***(Invited)*** *Y. Fan*[1] *1. Electrical Engineering, UCLA, Los Angeles, CA*

3:18

HA-04. Spin-electricity conversion induced by spin injection into topological insulators. ***(Invited)*** *Y. Shiomi*[1,2] *1. Tohoku University, Sendai, Japan; 2. JST, ERATO-SQR, Sendai, Miyagi, Japan*

3:54

HA-05. Magnetoelectric antiferromagnets for ultra-low power memory and logic device applications. ***(Invited)*** *C. Binek*[1], W. Echtenkamp[1], X. He[2], M. Street[1], A. Mahmood[1], J. Wang[1], K. Belashchenko[1] and P. Dowben[1] *1. Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE; 2. Brookhaven National Laboratory, Upton, NY*

Session HB
X-RAY IMAGING AT THE NANOSCALE

Stefan Eisebitt, Chair
TU Berlin, Berlin, Germany

1:30

HB-01. Imaging Magnetization Dynamics at 10 GHz Using Time Resolved Scanning Transmission X-ray Microscopy. ***(Invited)*** *H. Ohldag*[1], S. Bonetti[2], R. Kukreja[2], Z. Chen[2], J. Frisch[1], R. Meckenstock[3], A. Ney[4], D. Spoddig[3], D. Backes[5], F. Macia[5], J. Katine[6], S. Urazdhin[7], A.D. Kent[5], H. Durr[1] and J. Stohr[1] *1. SLAC National Accelerator Laboratory, Menlo Park, CA; 2. Stanford University, Stanford, CA; 3. University Duisburg-Essen, Duisburg, Germany; 4. University Linz, Linz, Austria; 5. New York University, New York, NY; 6. Hitachi Global Storage Technologies, San Jose, CA; 7. Emory University, Atlanta, GA*

2:06

HB-02. Scanning X-Ray Microscopy of Superconductor/ Ferromagnet Heterostructures. *C. Stahl*[1], S. Ruoss[1], J. Gräfe[1], M. Weigand[1], G.A. Schuetz[1] and J. Albrecht[2] *1. Max Planck Institute for Intelligent Systems, Stuttgart, Germany; 2. Institute for Innovative Surfaces, Aalen University, Aalen, Germany*

2:18

HB-03. Investigation of nanoscale magnetic and structural correlations in $SmCo_5$ films with polarized soft X-ray ptychography. X. Shi[1,2], *P. Fischer*[3,4], V. Neu[5], J.C. Lee[1,2], D. Shapiro[1], M. Farmand[1], T. Tyliszczak[1], M. Im[6,7], S. Roy[1] and S. Kevan[1,2] *1. Advanced Light Source, Lawrence Berkeley National Lab, Berkeley, CA; 2. Department of Physics, University of Oregon, Eugene, OR; 3. Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA; 4. Physics Department, University of California, Santa Cruz, CA; 5. Institute for Metallic Materials, IFW Dresden, Dresden, Germany; 6. Center for X-ray Optics, Lawrence Berkeley National Lab, Berkeley, CA; 7. Daegu Gyeongbuk Institute of Science and Technology, Daegu, The Republic of Korea*

2:30

HB-04. Scanning X-ray Microscopy as a Tool for Investigation of Nanomagnetism. ***(Invited)*** *M. Weigand*[1], I. Bykova[1], M. Bechtel[1], B. Van Waeyenberge[2], E.J. Goering[1] and G.A. Schuetz[1] *1. Max Planck Institute for Intelligent Systems, Stuttgart, Germany; 2. Department of Solid State Sciences, Ghent University, Ghent, Belgium*

3:06

HB-05. Sub-nanosecond signal propagation in anisotropy-engineered nanomagnetic logic chains. ***(Invited)***
M. Nowakowski[1], Z. Gu[1], D. Carlton[1], R. Storz[1], M. Im[2], J. Hong[1], W. Chao[2], B. Lambson[1], P. Bennett[1], M. Alam[1], M.A. Marcus[2], A. Doran[2], A. Young[2], A. Scholl[2], P. Fischer[2] and J. Bokor[1] *1. EECS Dept., University of California, Berkeley, CA; 2. Lawrence Berkeley National Lab, Berkeley, CA*

3:42

HB-06. Local X-Ray Magnetic Circular Dichroism Study Using a Synchrotron X-ray Scanning Tunneling Microscope.
V. Rose[1], A. DiLullo[1], M. Cummings[1], H. Kersell[1], H. Chang[1], D. Rosenmann[1], D. Miller[1], J.W. Freeland[1] and S. Hla[1]
1. Argonne National Laboratory, Argonne, IL

3:54

HB-07. Spin polarized low energy electron diffraction from highly stable Ir(100)-(5×1)-H surface. *A. Pradeep*[1], P. Kumar[1] and K. Jürgen[2] *1. Physics, Indian Institute of Science, Bangalore, Karnataka, India; 2. Max-Planck-Institut für Mikrostrukturphysik, Halle/Saale, Germany*

4:06

HB-08. X-ray Imaging of 3D Magnetic Surfaces. R. Streubel[1], P. Fischer[4,5], F. Kronast[3], O.G. Schmidt[2] and *D. Makarov*[1]
1. Magnetic nanomembranes, IFW Dresden, Dresden, Germany; 2. Institute for Integrative Nanosciences, IFW Dresden, Dresden, Germany; 3. Helmholtz-Zentrum Berlin für Materialien und Energie, Berlin, Germany; 4. Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA; 5. Physics Department, University of California, Santa Cruz, CA

4:18

HB-09. Towards magnetic tomography: Element-Specific X-ray Resonant Phase Tomography at the Nanoscale.
C. Donnelly[1,2], M. Guizar-Sicairos[2], V. Scagnoli[1,2], M. Holler[2], T. Huthwelker[2], A. Menzel[1], I. Vartiainen[2], E. Müller[2], E. Kirk[1,2], S. Gliga[1,2], J. Raabe[2] and L. Heyderman[1,2]
1. Laboratory for Mesoscopic Systems, ETH Zurich, Zurich, Switzerland; 2. Paul Scherrer Institut, Villigen, Switzerland

Session HC

SPIN TORQUE OSCILLATORS AND SWITCHING

Seiji Mitani, Chair
NIMS, Tsukuba, Japan

1:30

HC-01. SPICE modeling coupled with LLG equation. *I. Volvach*[1], M.V. Lubarda[1] and V. Lomakin[1] *1. Material Science and Engineering, University of California, San Diego, San Diego, CA*

1:42

HC-02. Instability Mechanism for STT-RAM Switching. *P.B. Visscher*[1], K. Munira[1] and R.J. Rosati[1] *1. MINT Center, University of Alabama, Tuscaloosa, AL*

1:54

HC-03. Consequences of an interface-concentrated perpendicular magnetic anisotropy in ultra-thin CoFeB films used in magnetic tunnel junctions. *J. Sun*[1] *1. IBM Research, Yorktown Heights, NY*

2:06

HC-04. Dual Control of Giant Field-like Spin Torque in Spin Filter Tunnel Junctions. *Y. Tang*[1], F. Chu[1] and N. Kioussis[2] *1. Physics, National Central University, Jhongli City, Taoyuan County, Taiwan; 2. Physics, California State University, Northridge, Northridge, CA*

2:18

HC-05. Measurement of the exchange stiffness in ultrathin perpendicularly magnetized CoFeB layers. *T. Devolder*[1], J. Kim[1], L.E. Nistor[2], R. Sousa[2] and B. Dieny[2] *1. IEF, Orsay, France; 2. SPINTEC, Grenoble, France*

2:30

HC-06. Micromagnetic studies of mutually synchronized nano-constriction based spin Hall nano-oscillators. *M. Dvornik*[1], A.A. Awad[1], P. Dürrenfeld[1], R.K. Dumas[1] and J. Åkerman[1,2] *1. Department of Physics, University of Gothenburg, Gothenburg, Sweden; 2. School of ICT, KTH Royal Institute of Technology, Kista, Sweden*

2:42

HC-07. Energy efficient Boolean and non-Boolean computing with strain mediated switching of magnetization of nanomagnets. ***(Invited)*** *J. Atulasimha*[1] and S. Bandyopadhyay[1] *1. Virginia Commonwealth University, Richmond, VA*

3:18

HC-08. Super-harmonic injection locking of a nano-contact spin-torque vortex oscillator. *P.S. Keatley*[1], S. Sani[2,3], G. Hrkac[4], S. Mohseni[2,5], P. Dürrenfeld[6], J. Åkerman[2,6] and R.J. Hicken[1] *1. School of Physics, University of Exeter, Exeter, United Kingdom; 2. Materials and Nano Physics, School of ICT, KTH Royal Institute of Technology, Kista, Sweden; 3. Department of Physics, New York University, New York, NY; 4. College of Engineering, Mathematics and Physical Science, University of Exeter, Exeter, United Kingdom; 5. Department of Physics, Shahid Beheshti University, Tehran, The Islamic Republic of Iran; 6. Physics Department, University of Gothenburg, Gothenburg, Sweden*

3:30

HC-09. Self-synchronization on spin torque oscillator having perpendicular magnetized free layer. *S. Tsunegi*[1], H. Kubota[1], K. Yakushiji[1], A. Fukushima[1], R. Lebrun[2], E. Grimaldi[2], J. Grollier[2], V. Cros[2] and S. Yuasa[1] *1. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki-ken, Japan; 2. Unité Mixte de Physique, CNRS/Thales, Palaiseau, France*

3:42

HC-10. Normal form of nonlinear oscillator model relevant to spin-torque nano-oscillator theory. *C. Serpico*[2], M. d'Aquino[1], A. Quercia[2], S. Perna[2], G. Bertotti[3] and I. Mayergoyz[4] *1. Dipartimento di Ingegneria, Università degli Studi di Napoli "Parthenope", Napoli, Italy; 2. DIETI, Università di Napoli Federico II, Napoli, Italy; 3. INRIM, Torino, Italy; 4. ECE Dept. and UMIACS, University of Maryland, College Park, MD*

3:54

HC-11. Highly reliable spin-transfer torque driven precessional switching with an adiabatically decaying pulse. *D. Pinna*[1,3], C. Ryan[2], T. Ohki[2] and A.D. Kent[1] *1. Physics, New York University, New York, NY; 2. Raytheon BBN Technologies, Cambridge, MA; 3. Unité Mixte CNRS/Thales, Palaiseau, Ile-de-France, France*

4:06

HC-12. Spin-torque Driven Vortex Dynamics in a Co_2(Fe,Mn)Si Circular Disk. *T. Yamamoto*[1], T. Seki[1,2] and K. Takanashi[1] *1. IMR, Tohoku University, Sendai, Japan; 2. JST-PRESTO, Saitama, Japan*

4:18

HC-13. Thermal spin transfer torque driven by spin-dependent Seebeck effect in metallic spin-valve structures. *G. Choi*[1,2], C. Moon[1,3], B. Min[1], K. Lee[3] and D.G. Cahill[2] *1. Korea Institute of Science and Technology, Seoul, The Republic of Korea; 2. University of Illinois at Urbana-Champaign, Urbana, IL; 3. Korea University, Seoul, The Republic of Korea*

Session HD
SOFT MAGNETIC MATERIALS: CRYSTALLINE ALLOYS III

Nicoleta Lupu, Chair
National Institute of Research and Development for Technical Physics, Iasi, Romania

1:30

HD-01. Effects of Aging Time and Temperature on Magnetic Barkhausen Noise in Fe-1wt.%Cu. *M. Saleh*[1], Y. Cao[2], D. Edwards[3], P. Ramuhalli[3], B.R. Johnson[3] and J. McCloy[1,2] *1. School of Mechanical and Materials Engineering, Washington State University, Pullman, WA; 2. Materials Science & Engineering Program, Washington State University, Pullman, WA; 3. Pacific Northwest National Laboratory, Richland, WA*

1:42

HD-02. Stress dependent multiscale representation of magnetization of grain-oriented silicon steel using assembled domain structure model. *S. Ito*[1], T. Mifune[1], T. Matsuo[1] and C. Kaido[2] *1. Kyoto University, Kyoto, Kyoto, Japan; 2. Kitakyushu National College of Technology, Kitakyushu, Fukuoka, Japan*

1:54

HD-03. Effects of high-strain-rate deformation on magnetic hysteresis in high-tensile steels. *R. Morita*[1], S. Kobayashi[1], A.G. Odeshi[2], J. Szpunar[2], K. Miura[1] and Y. Kamada[1] *1. Engineering, Iwate university, Morioka, Iwate, Japan; 2. Saskatcewan university, Saskatoon, SK, Canada*

2:06

HD-04. Hexagonal ferrites for on-wafer magnetically tunable millimeter wave devices. *(Invited)* I. Harward[1], Y. Nie[1,2], J. Shaw[4], J. Zukrowski[3], M. Przybylski[3], E.L. Jakubisova[5], S. Visnovsky[5], J. Pistora[6], T. Fal[1], R.E. Camley[1] and *Z. Celinski*[1] *1. Physics, UCCS, Colorado Springs, CO; 2. School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuham, Hubei, China; 3. Academic Centre for Materials and Nanotechnology, AGH University of Science and Technology, Cracow, Małopolska, Poland; 4. Electromagnetic, NIST, Boulder, CO; 5. Physics, Charles University, Prauge, Czech Republic; 6. Nanotechnology Centre, VŠB-Technical University of Ostrava, Ostrava, Czech Republic*

2:42

HD-05. Magnetostrictive Behaviors of Fe-Al(001) Single-Crystal Films under Rotating Magnetic Fields. *T. Kawai*[1], T. Abe[1], M. Ohtake[1] and M. Futamoto[1] *1. Chuo Univ., Tokyo, Japan*

2:54

HD-06. Measurement of Magnetostriction in Mn-substituted Yttrium Iron Garnet Film using Ferromagnetic Resonance Spectroscopy. *W. Li*[1], M. Imamura[2], A. Jander[1] and P. Dhagat[1] *1. School of Electrical Engineering and Computer Science, Oregon State Univerisity, Corvallis, OR; 2. Department of Electrical Engineering, Fukuoka Institute of Technology, Higashi-ku, Fukuoka, Japan*

3:06

HD-07. Non-reciprocal magnetostatic surface wave propagation in a 20 nm thick single crystalline yttrium iron garnet film. H. Jeon[1], K. Brockdorf[1], J. Myers[1], F. Kumar Vishal[1], N.X. Sun[2], B. Howe[3] and *Y. Zhuang*[1] *1. Wright state university, Dayton, OH; 2. Department of Electrical and Computer Engineering, Northeastern University, Boston, MA; 3. Air Force Research Laboratory, Wright-Patterson AFB, Dayton, OH*

3:18

HD-08. Enhancing microwave properties of FeCoN films on non-rigid substrates by SiO_2 buffer layer. *Y. Wu*[1], Y. Yang[1], Z. Yang[1], B. Zong[1] and J. Ding[1] *1. National University of Singapore, Singapore, Singapore*

3:30

HD-09. W-type Hexaferrite ($BaCo_{1.4}Zn_{0.6}Fe_{16}O_{27}$) for GHz Device Applications. *W. Lee*[1,2], Y. Hong[1,2], J. Park[1,2], G. LaRochelle[1], J. Lee[3], I. Baek[4], N. Hur[4] and W. Seong[4] *1. Department of Electrical and Computer Engineering, The University of Alabama, Tuscaloosa, AL; 2. MINT Center, The University of Alabama, Tuscaloosa, AL; 3. Client Research and Development, Intel Corporation, Hillsboro, OR; 4. Research and Development Center, E.M.W. Co., Ltd., Seoul, The Republic of Korea*

3:42

HD-10. A new soft magnetic Fe-P-(Si) alloy with low core loss. *R. Gautam*[1,2], D. Prabhu[1], S. Chandrasekhar[1], M. Ramakrishna[1], V. Chandrasekaran[1], R. Gopalan[1] and G. Sundararajan[1,2] *1. International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), Hyderabad, Andhra Pradesh, India; 2. Department of Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India*

3:54

HD-11. Electronic Structures of MnB Soft Magnet. *J. Park*[1,2], Y. Hong[1,2], H. Kim[1], W. Lee[1,2], S. Kim[3], M. Jung[4] and C. Choi[5] *1. Department of Electrical and Computer Engineering, The University of Alabama, Tuscaloosa, AL; 2. MINT Center, The University of Alabama, Tuscaloosa, AL; 3. Department of Physics and Astronomy, Mississippi State University, Mississippi State, MS; 4. Department of Physics, Sogang University, Seoul, The Republic of Korea; 5. Korea Institute of Materials Science, Changwon, Kyungsangnam-do, The Republic of Korea*

4:06

HD-12. Magnons and Phonons Optically Driven out of Equilibrium in a Magnetic Insulator. *K. An*[1], K. Olsson[1], X. Chen[2], N. Klimovich[1], S. Sullivan[2], A. Weathers[3], L.G. Marshall[2], X. Ma[1], J. Zhou[2,3], L. Shi[2,3] and X. Li[1,2] *1. Physics, The University of Texas at Austin, Austin, TX; 2. Materials Science and Engineering Program, The University of Texas at Austin, Austin, TX; 3. Mechanical Engineering, The University of Texas at Austin, Austin, TX*

4:18

HD-13. Room temperature giant magnetoimpedance in a soft ferromagnetic manganite. *R. Mahendiran*[1], K. Rubi[1] and P. Kumar[1] *1. Physics Dept, National University of Singapore, Singapore, Singapore*

FRIDAY
AFTERNOON
1:30

SAPPHIRE 410

Session HE
MAGNETO-ELASTIC MATERIALS

Masaki Nakano, Co-Chair
Nagasaki University, Nagasaki, Japan
Norman Wereley, Co-Chair
University of Maryland, College Park, MD

1:30

HE-01. Sputter Optimization of Strongly Magnetoelastic Terfenol-D Thin Films. *M.K. Panduranga*[1], S. Prikhodko[2], K. Wetzlar[1], P. Nordeen[1] and G. Carman[1] *1. Mechanical & Aerospace Engineering, University of California, Los Angeles, Los Angeles, CA; 2. Materials Science & Engineering, University of California, Los Angeles, Los Angeles, CA*

1:42

HE-02. Highly magnetostrictive electrodeposited CoFe materials and devices. *T. Monson*[1], E. Langlois[1], C. Arrington[1], J. Pillars[1], A. Hollowell[1], C. St. John[1], C. Pearce[1] and M. Rodriguez[1] *1. Sandia National Labs, Albuquerque, NM*

1:54

HE-03. Tayloring in-plane uni-axial anisotropy in magnetostrictive nanostructured multilayers. *N. Tiercelin*[1], Y. Dusch[1], T. Mathurin[1], S. Giordano[1], A. Klimov[2], V. Preobrazhensky[1,3] and P. Pernod[1] *1. Univ. Lille, CNRS, Centrale Lille, Joint International Laboratory LICS/LEMAC, IEMN UMR 8520, 59651 Villeneuve d'Ascq, France; 2. Kotel'nikov Institute of Radio Engineering and Electronics, Russian Academy of Sciences, ul. Mokhovaya 11 korp. 7, Moscow, 125009, Russian Federation; 3. Wave Research Center of A. Prokhorov General Physics Institute RAS, 38 Vavilova Street, 119991, Moscow, Russian Federation*

2:06

HE-04. Origins of Non-Joulian Magnetostriction as Investigated by Photoemission Microscopy. *R.U. Chandrasena*[1,2], W. Yang[1,3], A. Scholl[4], J. Minár[5,6], P. Shafer[4], E. Arenholz[4], H. Ebert[5], A.X. Gray[1,2] and H.D. Chopra[3] *1. Department of Physics, Temple University, Philadelphia, PA; 2. Temple Materials Institute, Temple University, Philadelphia, PA; 3. Temple Materials Institute and Mechanical Engineering Department, Temple University, Philadelphia, PA; 4. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA; 5. Department of Chemistry, Ludwig Maximilian University, Munich, Bavaria, Germany; 6. New Technologies-Research Center, University of West Bohemia, Pilsen, Czech Republic*

2:18

HE-05. The Role of Substrate-Lattice mismatch in Ultrathin Films of FeRh. *C.W. Barton*[1], L. Saharan[2], T.A. Ostler[2], C.J. Kinane[3], G. Hrkac[2] and T. Thomson[1] *1. School of Computer Science, University of Manchester, Manchester, Greater Manchester, United Kingdom; 2. College of Engineering, Mathematics and Physical Science, University of Exeter, Exeter, Devon, United Kingdom; 3. ISIS, Rutherford Appleton Laboratory, Didcot, Oxfordshire, United Kingdom*

2:30

HE-06. Effect of magnetic field assisted compaction on the magnetostrictive properties of Cobalt Ferrite Synthesized by Combustion method. *S. Indla*[1], A. Jeyaramane[2] and D. Das[1] *1. School of Engineering Sciences and Technology, University of Hyderabad, Hyderabad, India; 2. Advanced Magnetic Group, Defence Metallurgical Research Laboratory, Hyderabad, India*

2:42

HE-07. The Evolution of Magnetic Domain Structure During Twin Boundary Motion in Single Crystal Ni-Mn-Ga Exhibiting Magnetic Shape Memory Effect. *O. Heczko*[1], V. Kopecký[1], L. Fekete[1] and O. Perevertov[1] *1. Department of Functional Materials, Institute of Physics ASCR, Prague, Prague, Czech Republic*

2:54

HE-08. Influence of magnetic field assisted compaction on the magnetoelastic properties of Zr doped cobalt-ferrites. V. Monaji[1], T.V. Jayaraman[2] and *D. Das*[1] *1. School of Engineering Sciences & Technology, University Of Hyderabad, Hyderabad, Telangana, India; 2. Department of Mechanical Engineering, University of Michigan, Dearborn, MI*

3:06

HE-09. Sharp η texture and magnetostriction under pre-compressive stress in secondarily recrystallized $Fe_{81}Ga_{19}$ sheet. *Q. Fu*[1], Y. Sha[1], Z. He[1], F. Lei[1], F. Zhang[1] and L. Zuo[1] *1. Key Laboratory for Anisotropy and Texture of Materials (Ministry of Education), Northeastern University, Shenyang, Liaoning, China*

3:18

HE-10. Enhanced Magnetostrictive Effect in Er-doped FeGa alloys. *(Invited)* *P. Taheri*[1,2], R. Barua[1,2], Y. Chen[1,2], A. Koblischka-Veneva[3], M.R. Koblischka[3], L. Jiang[4], H. Hao[4], G. Zhang[4], Y. Liang[4] and V.G. Harris[1,2] *1. Center for Microwave Magnetic Materials and Integrated Circuits, Northeastern University, Boston, MA; 2. Department of Electrical and Computer Engineering, Northeastern University, Boston, MA; 3. Institute of Experimental Physics, Saarland University, Saarbrucken, Germany; 4. Baotou Research Institute of Rare Earths, Baotou, China*

3:54

HE-11. Determining magnetostrictive constants from magnetostriction in <110> oriented Galfenol. G. Raghunath[1], J. Park[1] and *A.B. Flatau*[1] *1. Aerospace Engineering, University of Maryland, College Park, MD*

4:06

HE-12. Magnetostriction with Wannier functions: rare-earth orthoaluminates. P. Novak[1], M. Misina[1] and *H. Tsuchiura*[2] *1. Institute of Physics of ASCR, Prague, Czech Republic; 2. Department of Applied Physics, Tohoku University, Sendai, Japan*

4:18

HE-13. Temperature and magnetic field induced strain measurements in single crystal $Gd_5Si_2Ge_2$. *S.K. McCall*[1], H.B. Radousky[1], G. Carman[2], V.K. Pecharsky[3,4], D.L. Schlagel[3] and N. Nercessian[5] *1. Materials Science Division, LLNL, Livermore, CA; 2. MAE, UCLA, Los Angeles, CA; 3. Ames Laboratory, Ames, IA; 4. Materials Science and Engineering, Iowa State University, Ames, IA; 5. Maritime Applied Physics Corporation, Baltimore, MD*

FRIDAY AFTERNOON 1:30 — AQUA AB

Session HF

SPIN WAVES IN NANOSTRUCTURES

Andrei Slavin, Chair
Oakland University, Rochester Hills, MI

1:30

HF-01. Local Kinetic Model in the Theory of Bose-Einstein Condensation of Magnons. *V.S. L'vov*[2], V. Tyberkevych[1], G.A. Melkov[3] and A.N. Slavin[1] *1. Department of Physics, Oakland University, Rochester, MI; 2. Department of Chemical Physics, Weizmann Institute of Science, Rehovot, Israel; 3. Faculty of Radiophysics, Kiev National Taras Shevchenko University, Kiev, Ukraine*

1:42

HF-02. Spin wave phase interference using yttrium iron garnet waveguide. *T. Goto*[1], N. Kanazawa[1], H. Takagi[1], Y. Nakamura[1], C. Ross[2], A.B. Granovsky[3], T. Hasegawa[4], S. Okajima[4], K. Sekiguchi[5] and M. Inoue[1] *1. Department of Electrical and Electronic Information Engineering, Toyohashi University of Technology, Toyohashi, Aichi, Japan; 2. Massachusetts Institute of Technology, Cambridge, MA; 3. Moscow State University, Moscow, Russian Federation; 4. Murata MFG Co., LTD, Kyoto, Japan; 5. Keio University, Yokohama, Japan*

1:54

HF-03. Excitation of propagating spin waves in ferromagnetic nanowires by microwave voltage-controlled magnetic anisotropy. *R.V. Verba*[1], M. Carpentieri[2], G. Finocchio[3], V. Tyberkevych[4] and A.N. Slavin[4] *1. Institute of Magnetism, Kyiv, Ukraine; 2. Politecnico of Bari, Bari, Italy; 3. University of Messina, Messina, Italy; 4. Oakland University, Rochester, MI*

2:06

HF-04. Gilbert Damping in Nanoscale Arrays of Spin-Transfer Torque Magnetic Tunnel Junctions. *M. Jaris*[1], A. Shalini[1], Y. Yahagi[1] and H. Schmidt[1] *1. Electrical Engineering, University of California Santa Cruz, Santa Cruz, CA*

2:18

HF-05. Localized spin wave modes in parabolic field traps. *R.D. McMichael*[1], E. Tartakovskaya[2,3] and M. Pardavi-Horvath[4] *1. Center for Nanoscale Science and Technology, National Institute of Standards and Technology, Gaithersburg, MD; 2. Institute of Magnetism NAS of Ukraine, Kiev, Ukraine; 3. Institute of High Technologies, Taras Shevchenko National University of Kiev, Kiev, Ukraine; 4. School of Engineering and Applied Science, The George Washington University, Washington, DC*

2:30

HF-06. Direct Observation of Configurational Anisotropy in Magnetic Disks Cluster Using Micro-focused Brillouin Light Scattering (μ-BLS) Spectroscopy. *G. Shimon*[1] and A. Adeyeye[1] *1. Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore*

2:42

HF-07. Micrometer-sized highly ordered 3D nanoparticle superlattices investigated by microresonator ferromagnetic resonance. *E. Josten*[1,2], R. Narkowicz[1,3], D. Meertens[5], A. Banholzer[1], L. Bergström[4], D. Suter[3], T. Brückel[2], K. Lenz[1], J. Fassbender[1] and J. Lindner[1] *1. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden Rossendorf, Dresden, Germany; 2. JCNS-2 and PGI-4, Forschungszentrum Jülich, Jülich, Germany; 3. Department of Physics, TU Dortmund University, Dortmund, Germany; 4. Department of Materials and Environmental Chemistry, Stockholm University, Stockholm, Sweden; 5. Ernst Ruska Center for Microscopy and Spectroscopy with Electrons, Forschungszentrum Jülich GmbH, Jülich, Germany*

2:54

HF-08. Scanning microwave microscopy studies on electric field tuning of FMR in multiferroic core-shell nanowires of nickel ferrite and zirconate titanate. G. Sreenivasulu[2], S. Berweger[1], A.B. Ustinov[3], K. Stupic[1], J.C. Weber[1], T.M. Wallis[1], S. Russek[1], G. Srinivasan[2] and *P. Kabos*[1] *1. Electromagnetics, NIST, Boulder, CO; 2. Physics, Oakland University, Rochester, MI; 3. Physics, St. Petersburg Electrotechnical University, St. Petersburg, Russian Federation*

3:06

HF-09. Spin Wave Spectroscopy on Topological Defects in Kagome Artificial Spin Ice. *V.S. Bhat*[1], I. Stasinopoulos[1], F. Heimbach[1] and D. Grundler[2] *1. Physics Department, Technische Universität München, Garching, Bavaria, Germany; 2. Materials Science and Engineering Department, École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland*

3:18

HF-10. Withdrawn

3:30

HF-11. Observation of Rabi nutations in a ferromagnet. *A. Capua*[1] and S.S.P. Parkin[1,2] *1. IBM Almaden Research Center, San Jose, CA; 2. Max Planck Institute for Microstructure Physics, Halle, Germany*

3:42

HF-12. Generation of propagating spin waves from regions of increased dynamic demagnetising field near magnetic antidots. *C.S. Davies*[1], A. Sadovnikov[2,3], S. Grishin[2], Y.P. Sharaevskii[2], S. Nikitov[2,3] and V.V. Kruglyak[1] *1. School of Physics, University of Exeter, Exeter, Devon, United Kingdom; 2. Saratov State University, Saratov, Russian Federation; 3. Kotel'nikov Institute of Radioengineering and Electronics, Moscow, Russian Federation*

3:54

HF-13. Spectral black hole in a pumped magnon gas. D.A. Bozhko[1,2], P. Clausen[1], G.A. Melkov[3], B. Hillebrands[1] and *A.A. Serga*[1] *1. Fachbereich Physik and Landesforschungszentrum OPTIMAS, TU Kaiserslautern, Kaiserslautern, Germany; 2. Graduate School Materials Science in Mainz, Kaiserslautern, Germany; 3. Faculty of Radiophysics, Electronics and Computer Systems, Taras Shevchenko National University of Kiev, Kiev, Ukraine*

4:06

HF-14. Spin-Wave Confinement in CoFeB/$BaTiO_3$ Heterostructures. *S.J. Hämäläinen*[1], F. Brandl[2], K. Franke[1], D. Grundler[3] and S. van Dijken[1] *1. Aalto University, Espoo, Finland; 2. Technische Universität München, München, Germany; 3. Ecole polytechnique fédérale de Lausanne, Lausanne, Switzerland*

4:18

HF-15. Withdrawn

Session HG
SPIN CURRENTS, SPIN HALL AND RELATED EFFECTS V

Seidikkurippu Piramanayagam, Chair
Nanyang Technological University, Singapore, Singapore

1:30

HG-01. Spin pumping formalism and its applications in the presence of spin-orbit coupling. ***(Invited)*** *S. Zhang*[1] and K. Chen[1] *1. University of Arizona, Tucson, AZ*

2:06

HG-02. Linear and nonlinear spin Hall magnetoresistance in normal metal/ferromagnet bilayers. C. Avci[1], *K. Garello*[1], J. Mendil[1], A. Ghosh[1], M. Gabureac[1], N. Blasakis[1], M. Trassin[1], M. Fiebig[1] and P. Gambardella[1] *1. Department of Materials, ETH Zürich, Zürich, Switzerland*

2:18

HG-03. Dependence of the Efficiency of Spin Hall Torque on the Transparency of Pt/Ferromagnetic Layer Interfaces. *Y. Ou*[1], C. Pai[1,2], L.H. Vilela-Leão[1,3], D.C. Ralph[1] and R.A. Buhrman[1] *1. Cornell University, Ithaca, NY; 2. Massachusetts Institute of Technology, Boston, MA; 3. Universidade Federal de Pernambuco, Caruaru, Brazil*

2:30

HG-04. Microscopic dynamics of spin current probed by noise measurement. *T. Arakawa*[1], M. Maeda[1], M. Ferrier[1,2], Y. Niimi[1], K. KObayashi[1], J. Shiogai[3], M. Kohda[4,5], J. Nitta[4], M. Ciorga[6], M. Utz[6], D. Schuh[6], D. Bougeard[6] and D. Weiss[6] *1. Department of Physics, Graduate School of Science, Osaka University, Toyonaka, Japan; 2. LPS, Universite Paris-Sud, CNRS, Orsay, France; 3. Institute for Materials Research, Tohoku University, Sendai, Japan; 4. Department of Materials Science, Tohoku University, Sendai, Japan; 5. PRESTO, Japan Science and Technology Agency, Kawaguchi, Japan; 6. Institute of Experimental and Applied Physics, University of Regensburg, Regensburg, Germany*

2:42

HG-05. Spin Hall nano-oscillators in out-of-plane applied magnetic fields. *A.A. Awad*[1], P. Dürrenfeld[1], A. Houshang[1], M. Ranjbar[1], M. Dvornik[1], R.K. Dumas[1] and J. Åkerman[1,2] *1. Department of Physics, Gothenburg University, Gothenburg, Sweden; 2. Materials and Nano Physics, School of ICT, Royal Institute of Technology, 164 40 Kista, Sweden*

2:54

HG-06. Spin-Hall torque induced domain wall motion in PMA nanowire network. J. Kwon[1,2], S. Goolaup[1], G. Joseph Lim[1], *W. Gan*[1], C. Chang[2], K. Roy[3] and W. Lew[1] *1. Division of Physics and Applied Physics, Nanyang Technological University, Singapore, Singapore; 2. School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore, Singapore; 3. School of Electrical and Computer Engineering, Purdue University, West Lafayette, IN*

3:06

HG-07. Magnetoresistance and magnetic proximity effects in asymmetric metallic multilayers with perpendicular magnetic anisotropy. *D. Maccariello*[1], N. Reyren[1], C. Moreau-Luchaire[1], K. Garcia[1], P. Perna[2], J. Camarero[2], V. Cros[1] and A. Fert[1] *1. Unité Mixte de Physique CNRS/Thales and Université Paris-Sud, Palaiseau, France; 2. IMDEA-Nanociencia, Madrid, Spain*

3:18

HG-08. Transport at Spin-Orbit and Exchange-Split Interfaces: Giant Universal Asymmetry and Anomalous Tunnel Hall Effect. *H. Jaffrès*[3], T. Dang[1], H. Drouhin[1] and T. Nguyen[2] *1. Laboratoire des Solides Irradiés, Ecole Polytechnique, Palaiseau, France; 2. Vietnam Academy of Science and Technology, Hanoi, Vietnam; 3. Unité mixte de Physique CNRS-Thales, Palaiseau, France*

3:30

HG-09. Spin-orbit torque switching without external field. D. Betto[1], Y. Lau[1], K. Rode[1], *M. Coey*[1] and P.S. Stamenov[1] *1. Physics, Trinity College Dublin, Dublin, Ireland*

3:42

HG-10. Field-free spin-orbit torque switching of perpendicular magnetization using in-plane exchange bias. *A. van den Brink*[1], G. Vermijs[1], A. Solignac[2], J. Koo[1], H. Swagten[1] and B. Koopmans[1] *1. Physics, Eindhoven University of Technology, Eindhoven, Noord-Brabant, Netherlands; 2. CEA Saclay, Gif-sur-Yvette Cedex, France*

3:54

HG-11. Giant Thermoelectric Effect in MgO Magnetic Tunnel Junctions asymmetrically heated by hot electron tunneling current. *S. Amara*[1,2], R. Sousa[2], H. Bea[2], J. Kosel[1] and B. Dieny[2] *1. Sensing, Magnetism and Microsystems Lab, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia; 2. Spintec (UMR 8191), CEA/CNRS/UJF, Grenoble, France*

4:06

HG-12. Influence of the inhomogeneous broadening on spin transfer effects. *O. Klein*[1], M. Collet[2], A. Anane[2], V. Cros[2], P. Bortolotti[2], V.V. Naletov[1], G. de Loubens[3], M. Munoz[5] and J.L. Prieto[4] *1. SPINTEC, Grenoble, France; 2. Unité Mixte de Physique CNRS/Thales, Univ. Paris-Sud, Palaiseau, France; 3. SPEC, Gif-Sur-Yvette, France; 4. Instituto de Sistemas Optoelectronicos y Microtecnologia, Madrid, Spain; 5. Instituto de Microelectronica de Madrid, Madrid, Spain*

4:18

HG-13. Role of transparency of platinum-ferromagnet interface in determining intrinsic magnitude of spin hall effect.
W. Zhang[1,2], W. Han[3], X. Jiang[2,4], S. Yang[2] and S.S.P. Parkin[5,2]
1. Stanford University, Stanford, CA; 2. IBM Almaden Research Center, San Jose, CA; 3. International Center for Quantum Materials, Beijing, China; 4. Western Digital, Fremont, CA; 5. Max Planck Institute for Microstructure Physics, Halle, Germany

FRIDAY AQUA SALON EF
AFTERNOON
1:30

Session HH
NANOSTRUCTURED HARD MAGNETIC MATERIALS II

Parashu Kharel, Chair
South Dakota State University, Brookings, SD

1:30

HH-01. Electrically tunable Nanomagnets by Electrolytic Gating: Magnetoionic Effect and Interface Control. ***(Invited)***
K. Leistner[1,2], K. Duschek[1], A. Petr[1], S. Heike[1] and S. Faehler[1]
1. IFW Dresden, Dresden, Germany; 2. Faculty of Mechanical Engineering, TU Dresden, Dresden, Germany

2:06

HH-02. Effect of boron doping on nanostructure and magnetism of rapidly quenched Zr_2Co_{11}-based alloys. *Y. Jin*[1], W. Zhang[1,2], P.R. Kharel[2,3], S. Valloppilly[2], R. Skomski[1,2] and D.J. Sellmyer[1,2]
1. Physics and Astronomy, University of Nebraska Lincoln, Lincoln, NE; 2. Nebraska Center for Materials and Nanoscience, University of Nebraska Lincoln, Lincoln, NE; 3. Department of Physics, South Dakota State University, Brookings, SD

2:18

HH-03. Enhanced Energy Product in Y-Co-Fe Magnets Made From Anisotropic Ball-milled Powders. *P. Tozman*[1], M. Venkatesan[1] and M. Coey[1] *1. School of Physics and CRANN, Trinity College Dublin, Dublin, Ireland*

2:30

HH-04. Novel Co_3Si Nanoclusters with a High Magnetocrystalline Anisotropy. *B. Balasubramanian*[1,2], P. Manchanda[1,2], R. Skomski[1,2], P. Mukherjee[1,2], S. Valloppilly[1], B. Das[1,2], G.C. Hadjipanayis[3] and D.J. Sellmyer[1,2] *1. Nebraska Center for Materials and Nanoscience, University of Nebraska, Lincoln, NE; 2. Department of Physics and Astronomy, University of Nebraska, Lincoln, NE; 3. Department of Physics and Astronomy, University of Delaware, Newark, DE*

2:42

HH-05. FeO Core/Fe_3O_4 Shell Nanoparticles with Anomalous Properties. *N. Pouse*[1,2], J. Hong[3], T. Hyeon[3], D.J. Smith[4], M. Maple[1,2] and A.E. Berkowitz[1] *1. Department of Physics, University of California, San Diego, La Jolla, CA; 2. Center for Advanced Nanoscience, University of California, San Diego, La Jolla, CA; 3. Center for Oxide Nanocrystalline Materials, School of Chemical and Biological Engineering, Seoul National University, Seoul, The Republic of Korea; 4. Department of Physics, Arizona State University, Tempe, AZ*

2:54

HH-06. Exchange-Coupling Behavior in Nanostructured FePt/Fe Bilayer Films. *Y. Liu*[1] and D.J. Sellmyer[1] *1. Physics, Univ Nebraska-Lincoln, Lincoln, NE*

3:06

HH-07. Low Temperature FCC to L_{10} Transformation in Bi-Substituted CoPt(Bi) Nanoparticles. *F.M. Abel*[1], V. Tzitzios[2], D.J. Sellmyer[3] and G.C. Hadjipanayis[1] *1. Physics and Astronomy, University of Delaware, Quarryville, PA; 2. Institute of Materials science, Demokritos, Greece; 3. University of Nebraska, Nebraska Center for Materials and Nanoscience, Lincoln, NE*

3:18

HH-08. FORC Analysis of Exchange-Coupled Ferromagnetism in $Co_{0.4}Pt_{0.6}$ Nanochessboards. E. Vetter[1], P. Ghatwai[1], W.A. Soffa[1] and *J. Floro*[1] *1. Materials Science and Engineering, University of Virginia, Charlottesville, VA*

3:30

HH-09. Improving coercivity in shape anisotropy based permanent magnets. *J. Fischbacher*[1], S. Bance[2], T. Schrefl[1,2], I. Zins[3], G. Rieger[3], C. Cassignol[3] and M. Krispin[3] *1. Center for Integrated Sensor Systems, Danube University Krems, Wiener Neustadt, Austria; 2. St. Poelten University of Applied Sciences, St. Poelten, Austria; 3. Corporate Technology, Siemens AG, Munich, Germany*

3:42

HH-10. First principles study on interfacial magnetic structure in $Nd_2Fe_{14}B$/(Fe, Co) exchange spring magnets. *N. Umetsu*[1], Y. Toga[2] and A. Sakuma[1] *1. Department of Applied Physics, Tohoku University, Sendai, Japan; 2. ESICMM, National Institute for Materials Science, Tsukuba, Japan*

3:54

HH-11. Influence of Nb and Cu on Grain Boundary Infiltration in Nd-lean Nd-Fe-B Permanent Magnets. *D. Salazar*[1], A. Martín-Cid[1], R. Madugundo[2], J. Barandiaran[1,3] and G.C. Hadjipanayis[2] *1. BCMaterials, Derio, Spain; 2. Dept. Physics and Astronomy, University of Delaware, Newark, DE; 3. Dept. Electricity & Electronics, University of the Basque Country, Bilbao, Spain*

4:06

HH-12. Observation of $L1_0$ anti-phase domains in sputter deposited FeNi. *A. Frisk*[1], B. Lindgren[1], S. Pappas[1] and G. Andersson[1] *1. Physics and Astronomy, Uppsala University, Uppsala, Sweden*

4:18

HH-13. The Magnetostructural Phase Transformation in Natural $L1_0$ FeNi. N.C. Bordeaux[2], *A. Montes-Arango*[1], J. Liu[3], K. Barmak[3] and L. Lewis[1,2] *1. Mechanical and Industrial Engineering, Northeastern University, Boston, MA; 2. Chemical Engineering, Northeastern University, Boston, MA; 3. Applied Physics and Applied Mathematics, Columbia University, New York, NY*

FRIDAY AFTERNOON 1:30 — AQUA 310

Session HI
ULTRATHIN FILMS AND SURFACE EFFECTS
Igor Barsukov, Chair
University of California Irvine, Irvine, CA

1:30

HI-01. Emergence of the Stoner-Wohlfarth astroid in thin films at dynamic regime. A. Bollero[1], T. Pérez[2], J. Cuñado[1], P. Perna[1], A. Maldonado[2], F. Ajejas[2], F. Pedrosa[1], M.A. Niño[1], R. Guerrero[1], D. Cabrera[1], F.J. Teran[1], R. Miranda[2,1] and *J. Camarero*[2,1] *1. IMDEA Nanoscience, Madrid, Spain; 2. Universidad Autonoma de Madrid and Institute Nicolás Cabrera, Madrid, Spain*

1:42

HI-02. Drastically reduced FMR linewidth in NiZnAl-Ferrite through single crystal epitaxy. *B.A. Gray*[2,1], H. Jeon[3], S. Emori[4], T. Oxholm[4], T. Nan[4], D. Fullager[2,1], N. Sun[4] and B.N. Howe[2] *1. UES, Dayton, OH; 2. Materials and Manufacturing Directorate, Air Force Research Lab, Dayton, OH; 3. Electrical Engineering, Wright State University, Dayton, OH; 4. Electrical and Computer Engineering, Northeastern University, Boston, MA*

1:54

HI-03. Visualizing the Amorphous-to-Crystalline Phase Transition in Yttrium Iron Garnet Thin Films via *In Situ* Transmission Electron Microscopy Laser Annealing. *T.E. Gage*[1], D.J. Flannigan[1] and B. Stadler[2] *1. Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN; 2. Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN*

2:06

HI-04. Defect-Induced Magnetism in Two-Dimensional $NbSe_2$. *P. Manchanda*[1], D.J. Sellmyer[1] and R. Skomski[1] *1. Department of Physics and Astronomy and Nebraska Center for Materials and Nanoscience, University of Nebraska, Lincoln, Lincoln, NE*

2:18

HI-05. Influence of Nb Surface Morphology on the Magnetic Properties of Soft Magnetic Films. *M. Loving*[1], T. Ambrose[1], N. Rizzo[1], E. Gingrich[1] and J. Murduck[1] *1. Advanced Concepts & Technologies, Northrop Grumman Corporation, Linthicum, MD*

2:30

HI-06. Magnetic pinning effects at the CoO/Co interface and related blocking temperatures. *J. Tsay*[1], S. Chang[1] and Y. Yao[2] *1. Department of Physics, National Taiwan Normal University, Taipei, Taiwan; 2. Institute of Physics, Academia Sinica, Taipei, Taiwan*

2:42

HI-07. Spontaneous distortion and ferromagnetism induced by quantum-well states in Pd(100) ultrathin films. *S. Sakuragi*[1], H. Tajiri[2] and T. Sato[1] *1. Department of Applied Physics and Physico-Informatics, Keio University, Yokohama, Kanagawa, Japan; 2. Japan Synchrotron Radiation Research Institute/ SPring-8, Sayo, Japan*

2:54

HI-08. Magnetic properties of the ultrathin Co films grown on the curved Ni(111) and Pd(111) single crystals. *M. Ilyn*[1], L. Fernandez[1], A. Magaña[1], P. Ohresser[2], E. Ortega[1,3] and F. Schiller[1] *1. Materials Physics Center CSIC-UPV, Donostia, Spain; 2. Synchrotron SOLEIL, L'Orme des Merisiers, France; 3. Department of Physics of Materials 1, University of Basque Country, Donostia, Spain*

3:06

HI-09. Epitaxial growth of $IrMn_3$ thin films by sputter deposition. *A.A. Jara*[1], I. Barsukov[1], B. Youngblood[1], Y. Chen[1], J.C. Read[2], P.M. Braganca[2] and I. Krivorotov[1] *1. Physics and Astronomy, University of California Irvine, Irvine, CA; 2. HGST, San Jose, CA*

3:18

HI-10. Growth of Fe(110)/MgO(111)/GaN(0001) heterostructure by molecular beam epitaxy. *N. Khalid*[1,3], J. Kim[1,2], A. Ionescu[1], F. Oehler[4,5], I. Farrer[1,6], R. Ahmad[3], T. Hussain[3] and C. Barnes[1] *1. Physics, University of Cambridge, Cambridge, United Kingdom; 2. Physics and Electronics, University of York, York, United Kingdom; 3. Center for Advanced Studies in Physics, Government College University, Lahore, Pakistan; 4. Material Sciences and Metallurgy, University of Cambridge, Cambridge, United Kingdom; 5. LPN-CNRS, Marcoussis, France; 6. Electronic and Electrical Engineering, University of Sheffield, Sheffield, United Kingdom*

3:30

HI-11. Structural and Magnetic Properties of MBE-deposited Fe Films on MOCVD GaN(0001). *J. Kim*[1,2], A. Ionescu[1], R. Mansell[1], J. Cooper[3], N. Steinke[3], C.J. Kinane[3], S. Langridge[3], F. Oehler[4,5] and C. Barnes[1] *1. Physics, University of Cambridge, Cambridge, United Kingdom; 2. Physics and Electronics, University of York, York, United Kingdom; 3. Large Scale Structures, ISIS, Rutherford Appleton Laboratory, Didcot, Oxfordshire, United Kingdom; 4. Department of Material Sciences & Metallurgy, University of Cambridge, Cambridge, United Kingdom; 5. CNRS/LPN, Marcoussis, France*

3:42

HI-12. Overlayer-induced reconstruction of Mn orbitals in manganite thin films studied by ^{55}Mn NMR. *M. Wojcik*[1], E. Jedryka[1], D. Pesquera[2], F. Sánchez[2], G. Herranz[2] and J. Fontcuberta[2] *1. Institute of Physics, Polish Academy of Sciences, Warsaw, Poland; 2. Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Bellatera, Catalonia, Spain*

3:54

HI-13. Evolution of magnetic and electronic structure in bcc Fe_xMn_{1-x} on MgO(001). H. Bhatkar[1], E. Arenholz[2], R.J. Snow[1] and *Y.U. Idzerda*[1] *1. Department of Physics, Montana State University, Bozeman, MT; 2. Advanced Light Source, Lawrence Berkeley National Laboratories, Berkeley, CA*

4:06

HI-14. The growth and thermal evolution of Fe ultrathin film on Pt(111). *H. Hsu*[1], W. Lin[1] and T. Fu[1] *1. Physics Department, National Taiwan Normal University, Taipei, Taiwan*

4:18

HI-15. Magnetocrystalline anisotropy in rare-earth metal ultra-thin films. *K. Nawa*[1], Y. Ikeura[1], K. Nakamura[1], T. Akiyama[1], T. Ito[1], T. Oguchi[2] and M. Weinert[3] *1. Physics Engineering, Mie University, Tsu, Mie, Japan; 2. The Institute of Scientific and Industrial Research, Osaka University, Ibaraki, Osaka, Japan; 3. Physics, University of Wisconsin-Milwaukee, Milwaukee, WI*

- A -

*Best student presentation award finalist

*Best student presentation award finalist

- B -

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