GMW Electromagnets

5204 - Vector Projected Field Magnet

Projected field of any orientation above the magnet surface.

Peak Field, $B_z$ (2mm from surface) >0.3T

Peak Field, $B_x$, $B_y$ (2mm from surface) >0.1T

Field Orientation Any

Bandwidth 200Hz

Mass 2.5kg

Applications for spintronic devices, Hall effect studies, and magneto-optical studies.

3480 - Benchtop Dipole Lab Magnet

Compact lab, portable lab magnet with fields >3.6T.

Peak Field, B 5mm pole, 2mm gap >3.6T

Peak Field, B 16mm pole, 10mm gap >2.0T

Mass 32kg

Interchangeable Poles optimized for High Field or High Uniformity

Applications for FORC, EPR, FMR, and MOKE.

Visit GMW Associates at Booths 2 & 3 to see Projected Field Electromagnets, Dipole Electromagnets and HTS-110 HighTemperature Superconducting Electromagnets.
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The 61st Annual Conference on Magnetism and Magnetic Materials (2016 MMM) is sponsored jointly by AIP Publishing and the IEEE Magnetics Society, 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 and contribute to the technical sessions. The technical program will include invited and contributed papers in oral and poster sessions, invited symposia, and an evening session, with about 1700 presentations overall. This Conference provides an outstanding opportunity for worldwide participants to meet their colleagues and collaborators and discuss developments in all areas of magnetism research.

NEW ORLEANS, LOUISIANA

New Orleans is one of the world’s most fascinating cities. It is home to a unique melting pot of culture, food and music, and is one of America’s most culturally and historically rich destinations. To learn more about the city, consider taking a city tour, a plantation tour, or even a swamp tour! Go to www.magnetism.org under “Travel Guide/City Information” to book a tour and receive a 10% discount.

The Conference will be held at the New Orleans Marriott Hotel, located adjacent to the famous French Quarter. This hotel offers easy access to the best restaurants in the city and an array of live music venues and Bourbon Street nightlife. Nearby attractions include the National WWII Museum, the Audubon Aquarium of the Americas and the bustling French Market. Please support our efforts to keep registration fees low by booking your room here. Discounted rates are available until October 7, 2016 at www.magnetism.org under “Travel Guide/Hotel Information”.

SPECIAL CONFERENCE SESSIONS

Tutorial: A Primer for Topology in Magnetism (Session YA)

Monday, October 31 2:00 - 4:30 pm
Mardi Gras Ballroom A-E

Chair:  Stephane Mangin (Université de Lorraine – CNRS)

Speakers:  Ashvin Vishvanath (Harvard University)
“Topology in Magnetism: Theory”

André Thiaville (Université Paris-Sud)
“Topology in Magnetism”

Christos Panagopoulos (Nanyang Technological University)
“Interplay of Spin Orbit Coupling with Magnetism in Low-Dimensions for Room Temperature Device Applications”
Evening Session: Neuromorphic Computing
(Session ZA)

Wednesday, November 2  6:00 - 7:40 pm
Mardi Gras Ballroom A-E

Chair: Peter Fischer (Lawrence Berkeley National Laboratory)

Speakers: Ivan K. Schuller (University of California, San Diego)
“Neuromorphic Computing”

Tetsuo Endoh (Tohoku University)
“Nonvolatile Brain-Inspired VLSIs Based on CMOS/MTJ Hybrid Technology for Ultralow-Power Performance and Compact Chip”

Julie Grollier (Unité Mixte de Physique CNRS/Thales)
“Spintronic Nanodevices for Bio-Inspired Computing”

At 6:00 pm, the Best Student Presentation Award winner will be announced.

Symposia

Eight symposia are scheduled during the Conference. These sessions consist entirely of invited talks by experts in the field and will take place in the Mardi Gras Ballroom on the 3rd floor:

- AA  Spin Transport in Antiferromagnets
- BA  Topological Insulator/Ferromagnet Heterostructures for Spintronics
- CA  New Developments in Nanoscale Sensing with Nitrogen-Vacancy Center Magnetometry
- DA  Voltage-Controlled Spintronics for Nanoelectronics Beyond Moore’s Law
- EA  Terahertz Spintronics
- FA  Spintronics with Superconductivity
- GA  Ultralow Damping
- HA  All Optical Switching

SPECIAL CONFERENCE EVENTS

Welcome Reception

All aboard! Conference attendees are invited to attend a Welcome Reception on Tuesday, November 1, sponsored by the IEEE Magnetics Society, to be held aboard the Natchez and Creole Queen Riverboats. We’ll begin at 6:00 pm with a private parade just for MMM attendees, departing from the New Orleans Marriott and proceeding down to the docks (about 0.4 miles). Then we set sail from 6:30 – 8:30 pm. Take in the sites of New Orleans from the Mississippi. This will be a fantastic and memorable networking event where you can connect with colleagues and friends. It is not to be missed!

Conference attendees will receive one ticket to the reception included in their registration. Additional guest tickets may be purchased in advance or onsite ($70 for adults, $35 for children 6-12 years old). All reception attendees must have a ticket to board the boat, including children. More information can be found at www.magnetism.org under “Program/Reception”.

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Meet the Experts

Students who have registered in advance of the Conference to attend one of these events will have the exclusive opportunity to participate in small, informal discussion groups with their designated Expert. Students are encouraged to bring their own lunch as only beverages will be provided. This event will be held Tuesday through Thursday from 12:00 - 1:00 pm in Studio 6. You must register in advance.

Thank you to the IEEE Magnetics Society for sponsoring the following networking events.

Student Networking Reception

The Student Networking Reception will be held on Wednesday, November 2nd from 5:00 - 6:30 pm in the Grand Ballroom Foyer on the 3rd floor. This event is open to all current college and graduate students.

Young Professionals Networking Event

The Young Professionals Networking Event will be held on Wednesday, November 2nd from 7:45 - 9:15 pm in Balcony I/J on the 4th floor. If you have just recently entered the professional workforce, join us for professional development insights, networking and refreshments.

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 Thursday, November 3rd from 5:00 - 6:30 pm in the beautiful St. Charles Room on the 41st floor. 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.

Bierstuben

Join us a for a taste of New Orleans! A different Abita Brewing Company beer will be featured each evening at this event on the 3rd floor.

Monday .......................................................... 4:30 - 6:00 pm
Wednesday ..................................................... 5:00 - 6:30 pm
Thursday ........................................................ 5:00 - 6:30 pm

Coffee

Complimentary coffee service will be available Tuesday through Friday mornings from 8:15 - 9:45 am in the Exhibit/Poster Hall.

REGISTRATION

The Registration Desk, located in the Grand Ballroom Foyer on the 3rd floor, will be open during the following hours:

Monday .......................................................... 12:30 pm - 7:00 pm
Tuesday .......................................................... 7:00 am - 6:00 pm
Wednesday ..................................................... 8:00 am - 2:00 pm
Thursday ........................................................ 8:00 am - 2:00 pm

For registration assistance on Friday go to the Office in Studio 5.
Onsite Registration Rates:

- Full: $610 USD
- Student: $300 USD
- Unemployed/Retired: $300 USD

Attendees are required to wear name badges to enter all Conference events. A ticket is also required to attend the Welcome Reception.

CAMERA, CELL PHONE AND VIDEO RECORDING POLICIES

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 silencing all cell phones before entering the session rooms.

#MMM61

Be sociable—share! #MMM61

Follow us on Twitter @MagnetismOrg

Like our Facebook page www.facebook.com/magnetism.org/

WIRELESS INTERNET ACCESS

Wi-Fi for attendees is sponsored by the IEEE Magnetics Society. Select the “Marriott_Conf” network on your mobile device or computer under the available wireless networks. Open an internet browser and Agree to the Terms and Conditions. When prompted, enter the password “MMM2016”.

PUBLICATIONS

Conference papers will be published in a special issue of AIP Advances in early 2017 (aipadvances.aip.org) at no additional cost to the author. AIP Advances is a peer-reviewed, fully open access, multidisciplinary journal covering all areas of the physical sciences (experimental, theoretical, and applied). AIP Advances’ inclusive scope and publication standards make it an excellent outlet for scientists across the physical sciences.

To check the status of their papers, authors should refer to the PXP submission site at http://mmm.peerx-press.org. For all other publications questions, visit the Conference Office in Studio 5.

SESSION CHAIRS

Poster and Oral Session Chairs are expected to attend the Session Chair Breakfast at 7:15 am in Balcony L/M on the 4th floor on the day of their session. 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 Speaker Rehearsal Room in Regent on the 4th floor to practice their presentations with the provided audiovisual equipment (LCD projector and screen). This room will be available from Monday at 1:00 pm until Friday at 1:00 pm.
General Conference Information

ORAL SESSIONS

Oral sessions will be held Tuesday through Friday from 8:30 - 11:30 am and 1:30 - 4:30 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. Mac OS users must make sure 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

The American Physical Society Topical Group on Magnetism and its Applications (GMAG) is sponsoring the competition for the Best Student Presentations. The competition recognizes and encourages excellence in graduate studies in the field of magnetism. There will be a $1000 USD one-year fellowship for the winner and $250 USD one-year fellowship for the remaining finalists, who will be announced Wednesday evening prior to the start of the Evening Session. Conference attendees are encouraged to attend the finalist’s talks and support these young scientists.

Finalists:

**AB-09**  
*Micromagnetic Investigations of Higher Order Anisotropy in Ultra-Thin Films with Fluctuating Perpendicular Anisotropy*  
Jamileh Beik Mohammadi (University of Alabama)

**AD-04**  
*Unusual Nature of the Martensite and Ferromagnetic Transitions in Ni$_2$Mn$_{54}$Fe$_{4}$Cr$_{8}$Ga Heusler Alloys*  
Jeffrey Brock (Miami University)

**BD-02**  
*Spin-Orbit Torque Induced High Speed Domain Wall Motion in Co/Pt Dual Stack*  
Pankaj Sethi (Nanyang Technological University)

**BH-11**  
*Brain-Inspired Computing Using the Transient Dynamics of Spin-Torque Oscillators*  
Matthew Riou (CNRS/Thales)

**CF-06**  
*Coupling Electrodynamics and Micromagnetics: Modeling of Eddy Currents*  
Simon Couture (University of California, San Diego)

**CH-01**  
*The Experimental and Theoretical Study of Mn Doped Bi$_2$Te$_3$*  
Arsham Ghasemi (University of York)
Congratulations to the winners at the 2016 Joint MMM – Intermag Conference:

**IEEE Magnetics Society Best Student Presentation Award:**
Winner: Afshin Houshang, University of Gothenburg (BC-15)
Finalists: David Ellsworth, Yan Ni, Sergiu Ruta, Noriyuki Sato

**APS-GMAG Best Student Presentation Award:**
Winner: Natalia Rinaldi-Montes, University of Oviedo (AE-11)
Finalists: Jizhai Cui, Ye Du, Anil Rajapitamahaunu, Chenattukuzhiyil Safeer, Xufeng Zhang

**POSTER SESSIONS**

Poster Sessions will be held Tuesday through Thursday from 9:30 am - 12:30 pm and 2:30 - 5:30 pm. On Friday there will be a Poster Session from 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.

**BEST POSTER PRESENTATION AWARD**

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 be 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. 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 cash award, 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 the 2016 Joint MMM-Intermag Conference 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 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 for this Conference will be informed about their selection in late September. 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 for this Conference have already 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

STEERING COMMITTEE

General Chair .................................... Kai Liu
Chair Elect ...................................... Pallavi Dhagat
Past Chair ....................................... Bruce Gurney
Co-Treasurers ................................. June W. Lau and Maria Varela
Program Co-Chairs ............................ Peter Fischer, Chih-Huang Lai, and Stephane Mangin

Program Committee Members:

Publications Chair .......................... Minn-Tsong Lin
Publications Editors: ........................ Farkhad Aliev, Victorino Franco, Olle Heinonen, Ron Jansen, Shang-Fan Lee, Connie Li, Seiji Mitani, Marek Przybylski, Di Wu
Exhibits Chair ................................. Mingzhong Wu
Publicity Chair ............................... Brian Maranville
Social Media Chair ........................... Daniel Lottis
Student Awards/Travel Chair ............. Barry Zink
Editor, AIP Advances .......................... Vincent Crespi
Conference Managers ...................... Molly Barkowski and Diane Melton
Abstracts/Publications Manager ......... Regina Mohr
Exhibits Manager .............................. Jennifer Fiske
Registration Manager ....................... Ashley Cesare
ADVISORY COMMITTEE

Chair .................................................. Bruce Gurney
Chair-Elect ........................................... Kai Liu
Executive Treasurer .......................... June W. Lau
Recording Secretaries ....................... Diane Melton and Regina Mohr

Term expiring December 1, 2016: ... Paul Crowell, Pallavi Dhangat, Kai Liu, Hariharan Shrikanth, Mark Stiles, Koki Takanashi, Bruce Terris, Suzanne te Velthuis, 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

Term expiring February 1, 2019: ..... Cindi Dennis, Peter Fischer, Chih-Huang Lai, June W. Lau, Kyung-Jin Lee, Laura Lewis, Alan MacDonald, Stephane Mangin, Christopher Marrows

SPONSORING SOCIETY REPRESENTATIVES

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

ADDITIONAL INFORMATION

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

FUTURE CONFERENCES

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

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

2018 Internmag Conference
April 23-27, 2018, Singapore

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

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

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

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

2022 Joint MMM- Intermag Conference
January 10-14, 2022, New Orleans, LA
An exhibition of magnetism-related services, equipment, materials, and software will be held in the Grand Ballroom on the 3rd floor.

Exhibit hours:
Tuesday ......................................................... 9:00 am – 5:30 pm
Wednesday .................................................... 9:00 am – 7:00 pm
Thursday ....................................................... 9:00 am – 7:00 pm

AJA INTERNATIONAL, Inc.

Booth 21

Contact: Michael Hale
Email: topgun@ajaint.com
Website: www.ajaint.com

American Magnetics

Booth 24
American Magnetics, Inc. (AMI) has been a manufacturer of superconducting magnet systems and cryogenic equipment for more than 45 years. Founded in 1968, AMI supplies turn-key cryogen-free and liquid helium based superconducting magnet systems, with custom solutions ranging from completely conduction cooled multi-axis systems combined with an integrated variable temperature insert to large room temperature bore zero boiloff helium recondensing systems (Recon™). When AMI’s innovative superconducting magnets, such as the multi-axis (Maxes™) series, are coupled with cutting-edge cryostats, the customer is buying a winning combination. Topping off AMI’s premier superconducting magnet systems is the Model 430 power supply programmer, which yields extreme accuracy, high automation and easy control for customers, all via Ethernet. AMI offers a complete line of capacitance and resistance based instrumentation that can be utilized to measure any cryogenic fluid with unparalleled accuracy and reliability. AMI stands behind its products with a warranty offering full system protection for 15 months.

Contact: Seth Rector
Email: sales@americanmagnetics.com
Website: americanmagnetics.com
Booth 25

Attocube offers an extensive portfolio of cutting-edge scanning probe microscopes for operation in high magnetic fields and cryogenic temperatures. Our one-inch microscope inserts, specifically designed for the PPMS from Quantum Design, allow for highly sensitive SPM measurements such as AFM, MFM, SHPM, as well as optical experiments such as confocal & Raman microscopy. The attoDRY800, the world’s first cryo-optical table with integrated cold breadboard, 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 ample product portfolio.

Contact: Anja Schmalz
Email: info@attocube.com
Website: www.attocube.com

Booth 10

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 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’ 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 determine 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 system 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: cwimmer@hindsinstruments.com
Website: www.hindsinstruments.com

Intlvac Thin Films 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 manufacturers 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
Kaufman & Robinson is an established 40-year-old company focused on providing world class ion source products for the vacuum process community. Focused on ion/plasma sources, electron neutralizers, and power supply controllers needed in crucial deposition and etching processes such as ion assisted deposition, in-situ preclean and ion beam sputtering. Our product technology includes high current gridless plasma sources, filamentless RFICP gridded sources, and low energy electron sources.

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

A leading innovator in solutions for measuring materials under controlled magnetic field and temperature conditions, Lake Shore offers vibrating sample magnetometers (VSMs) for characterizing magnetic properties over a range of temperatures (4.2 K to 1273 K) and fields to 3.42 T; magnetic test and measurement instruments; cryogenic probe stations with integrated vertical and horizontal field magnets (to 2.5 T) for on-wafer magneto-transport, DC, RF, or microwave measurements; and an integrated system for exploring the electronic and magnetic properties of materials at THz frequencies as a function of variable temperature (5 K to 300 K) and field (to 9 T).

Contact: Sarah Kinkead
Email: general@lakeshore.com
Website: www.lakeshore.com

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. Our partner company, Sigma Surface Science, specializes in state-of-the-art UHV SPM and ESCA technology for cutting-edge surface science.

Contact: Jessica Hilton
Email: jessica.hilton@mantis-sigma.com
Website: www.mantisdeposition.com
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

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 provide 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

NanoMagnetics Instruments Ltd. (NMI) is one of the world leading companies in the field of Scanning Probe Microscopes (SPMs) and measurement systems for various field of science and technology. Founded in 1999 as the first nanotechnology spin off in Turkey, markets its products in the world under NanoMagnetics Instruments Ltd. brand, which is a fully owned subsidiary. Prestigious universities like Oxford, MIT, Kyoto, and Harvard, research labs like Los Alamos National Lab., Argonne National Lab., TATA-Institutes, government institutes like NASA and companies like Seagate, Microsoft, and Samsung are among our customers. Four universities in the top 10 list and 20 universities in the top 100 list are our customers.

Contact: Seda Bayrakci
Email: sales@nanomagnetics-inst.com
Website: www.nanomagnetics-inst.com
NanoScan is a member of the IonTof group of companies specializing in high-vacuum Scanning Probe Microscopes. Our flagship microscope, the VLS-80, offers a standalone solution for high-vacuum SPM. It runs all dynamic modes of imaging and has two phase-locked loops to enable dual modes. Magnetic imaging is a key strength of the VLS-80, with 10-nm lateral resolution guaranteed; an industry best. The large stage offers excellent positioning repeatability over the complete range of 100mm x 100mm.

Contact: Tim Ashworth
Email: tvashworth@nanoscan.ch
Website: www.nanoscan.ch

Quantum Design manufactures automated material characterization systems providing temperatures from 0.05 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. Quantum Design also manufactures advanced helium liquefiers (ATL80, ATL160) and helium recovery systems, and a magneto-optic probe for THz-Raman measurement in a cryomagnetic platform. Quantum Design International distributes direct write and 3D thermal scanning probe lithography systems, NanoMOKE, FMR spectrometers, single crystal furnaces, and scanning probe cryomagnetic systems.

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

Your partner in nanoscale research to explore with confidence and make discoveries that will keep your laboratory first in science. Choose RHK for your application needs: PanScan Freedom LT SPM, Beetle VT SPM, and QuadraProbe SPM. Award winning PanScan Freedom, the world’s first cryogen-free UHV system for stable low-temperature performance and exceptional results in a surprisingly compact package. RHK’s revolutionary R9.5, a single box AFM-STM ultra-performance Controller, is engineered for the most advanced applications yet easily operated by new users. Keeping your laboratory first in nanoscale science.

Contact: Craig Wall
Email: wall@RHK-tech.com
Website: www.rhk-tech.com
SINGULUS TECHNOLOGIES develops and builds machines for economical and resource-efficient production processes. The application areas include vacuum thin-film and plasma coating for wet-chemical processes as well as thermal process technologies. For all machines, processes and applications SINGULUS TECHNOLOGIES utilizes its know-how in the areas of automation and process technology in order to develop additional, attractive work areas with innovative products next to the existing application areas of Solar, Semiconductors and Optical Disc.

Contact: Bernhard Krause
Email: sales@singulus.de
Website: www.singulus.de

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

SuessCo Simulations, is world leading provider of micromagnetic and spin transport software. The software FEMME allows for the simulation of magnetization processes of moving arbitrary shaped magnetic structures. This makes FEMME a perfect software package for the simulation of the magnetization dynamics of the entire magnetic recording process including a moving recording head above advanced multilayer media. The software MAGNUM.FE allows the fully self-consistent solution of the spin current and spin accumulation with the LLG equation. This allows for taking into account for spin torque effect in a fully 3-D manner, such as in spin torque oscillator (STO), noise in GMR/TMR readers, and microwave assisted write heads (STO). In addition, the voltage drop at defined contact points in the magnetic/conducting multilayer structure can be directly calculated.

Contact: Dieter Suess
Email: office@suessco.com
Website: www.suessco.com/simulations
Tohoku Steel has developed and commercialized numerous electro-magnetic 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 $H_c$ 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: Kazuhiko Okita  
Email: soushi@sm.rim.or.jp  
Website: www.tohokusteel.com/en

Ube Material Industries will exhibit our MgO sputtering target which is indispensable for spintronics applications. We can provide the world’s largest class MgO sputtering target (18 inch/460 mm), which is high purity (the actual measurement value is 99.999%) and high density (the actual measurement value is 99.7%). Additionally, our MgO sputtering target has high mechanical strength, and will reduce the risk of target cracking. Furthermore, we are manufacturing the raw material “high purity MgO powder” by ourselves and thus we will be able to provide you with a sufficient quantity of high quality MgO sputtering target.

Contact: Yoshihiro Nishimura  
Email: takuya.mishima@ubematerials.co.jp  
Website: www.ubematerial.com
AIP Publishing is a wholly owned not-for-profit subsidiary of the American Institute of Physics (AIP). AIP Publishing’s mission is to support the charitable, scientific and educational purposes of AIP through scholarly publishing activities in the fields of the physical and related sciences on its own behalf, on behalf of Member Societies of AIP, and on behalf of other publishing partners to help them proactively advance their missions.

**MMM publications will now be published in AIP Advances!**

This year, the invited and contributed papers presented at the MMM Conference 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 MMM Conference.

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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The American Physical Society’s 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 support the Best Student Presentation Awards, as a way to reach the magnetism community at the MMM Conference and to benefit the students. Membership in GMAG also gives access to GMAG-sponsored student awards, outreach grants and the GMAG Newsletter. GMAG has 900+ members. Consider joining GMAG today!

Contact: Tiffany Santos  
Email: tiffany.santos@mailaps.org  
Website: [www.aps.org/units/gmag/index.cfm](http://www.aps.org/units/gmag/index.cfm)
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Contact: Julie Fergus
Email: Julie.Fergus@oup.com
Website: global.oup.com

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Contact: Alex Menendez
Email: menendez@aps.org
Website: www.journals.aps.org
Evico magnetics GmbH was founded in 2006 as spin-off of the Leibniz Institut for Solid State and Materials Research (IFW) Dresden. The main products are: (i) Magneto-optical Kerr microscope systems. By making use of the Kerr effect in optical wide-field polarization microscopes, the magnetic domains and magnetization processes of magnetic materials are visualized with digital contrast enhancement. At the same time the Kerr microscope serves as magneto-optical magnetometer for the sensitive measurement of hysteresis loops (MOKE magnetometry). (ii) High Pressure Milling Vials with a gas temperature monitoring system for the synthesis of magnetic powders and hydrogen storage materials.

Contact: Rudolf Schaefer
Email: r.schaefer@evico-magnetics.de
Website: www.evico-magnetics.de
### MONDAY, OCTOBER 31, 2016

<table>
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<tr>
<th>Time</th>
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| 2:00 pm - 4:30 pm | Tutorial: A Primer for Topology in Magnetism  
Mardi Gras A-E (L3) |

### TUESDAY, NOVEMBER 1, 2016

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| AA         | Symposium: Spin Transport in Antiferromagnets  
Mardi Gras A-E (L3) |
| AB         | Ferromagnetic Resonance  
Mardi Gras F-H (L3) |
| AC         | Magnetic Skyrmions I  
La Galerie 1-2 (L2) |
| AD         | New Magnetic Materials  
La Galerie 3 (L2) |
| AE         | Ultrafast Switching  
La Galerie 4-5 (L2) |
| AF         | MRAM and Magnetic Logic Devices I  
Studio 1-2 (L2) |
| AG         | Biochemical and Biomedical Applications I  
Studio 9-10 (L2) |
| AH         | Nanowires and Nanoparticles I  
Studio 7-8 (L2) |
| AI         | Anisotropy Effects in Thin Films I  
Studio 3-4 (L2) |
| 9:30 am - 12:30 pm | Poster Sessions                                           |
| AP         | Magnetic Recording I                                           |
| AQ         | Energy Assisted Recording I                                        |
| AR         | High Frequency and Microwave Devices I                           |
| AS         | Magnetic Sensors I                                               |
| AT         | Magneto-Elastic and Magneto-Optic Materials                       |
| AU         | Electronic Structure                                             |
| AV         | Voltage Controlled Magnetism I                                    |
| AW         | Fundamental Properties: Spin Glasses and Frustration I             |
| 1:30 pm - 4:30 pm | Oral Sessions                                           |
| BA         | Symposium: Topological Insulator/Ferromagnet Heterostructures for Spintronics  
Mardi Gras A-E (L3) |
| BB         | Spin Hall Effect I                                               
Mardi Gras F-H (L3) |
| BC         | Magnetic Skyrmions II                                             
La Galerie 1-2 (L2) |
| BD         | Domain Wall and Domain Wall Devices I                             
La Galerie 3 (L2) |
| BE         | Multi-Layer Films and Superlattices I                             
La Galerie 4-5 (L2) |
| BF         | MRAM and Magnetic Logic Devices II                                 
Studio 1-2 (L2) |
| BG         | Hyperthermia, MRI, and Other Bio-Assays I                         
Studio 9-10 (L2) |
| BH         | Magnetic Instrumentation and Characterization I                   
Studio 7-8 (L2) |
| BI         | Superconductivity and Critical Phenomena                          
Studio 3-4 (L2) |
| 2:30 pm - 5:30 pm | Poster Sessions                                           |
| BP         | Micromagnetic and Hysteresis Modeling                             |
| BQ         | Magneto-electronic Materials and Transport I                      |
| BR         | Magneto-electronic Materials and Transport II                     |
| BS         | Magneto-resistance and Critical Phenomena                         |
| BT         | Non-Rare-Earth Magnets                                           |
| BU         | Permanent Magnet Synthesis and Processing I                      |
| BV         | Permanent Magnet Synthesis and Processing II                     |
| BW         | Complex Oxides I: Films and New Magnetic Materials               |
WEDNESDAY, NOVEMBER 2, 2016

8:30 am - 11:30 am • Oral Sessions

CA Symposium: New Developments in Nanoscale Sensing with Nitrogen-Vacancy Center Magnetometry Mardi Gras A-E (L3)

CB Magnonics I Mardi Gras F-H (L3)

CC Spin-Orbit Torque and Spin-Transfer Torque La Galerie 1-2 (L2)

CD Domain Wall, Vortex and Skyrmion Dynamics I La Galerie 3 (L2)

CE Patterned Films I La Galerie 4-5 (L2)

CF Micromagnetics and MRAM Studio 1-2 (L2)

CG Non-Rare-Earth Fe Alloys and Compounds Studio 9-10 (L2)

CH Novel Magnetic Order in Thin Films I Studio 7-8 (L2)

CI Coupling Effects in Magnetoelastics and Complex Oxides Studio 3-4 (L2)

9:30 am - 12:30 pm • Poster Sessions

CP Spin Current and Related Effects I

CQ Magnetization Dynamics I: Damping and Simulations

CR Spin Hall Effect II

CS Nanowires and Nanoparticles II

CT Biochemical and Biomedical Applications II

CU Complex Oxides II: Bulk and New Magnetic Materials

CV Magneto-Caloric Materials I

CW Inductors and Transformers I

1:30 pm - 4:30 pm • Oral Sessions

DA Symposium: Voltage-Controlled Spintronics for Nanoelectronics Beyond Moore’s Law Mardi Gras A-E (L3)

DB Magnonics II Mardi Gras F-H (L3)

DC Spin Pumping and Related Effects La Galerie 1-2 (L2)

DD Domain Wall, Vortex and Skyrmion Dynamics II La Galerie 3 (L2)

DE Interfacial DMI and Spin-Orbit Torques La Galerie 4-5 (L2)

DF 2D and 3D Nanostructured Arrays I Studio 1-2 (L2)

DG Mn- and Co-Based High Anisotropy Systems Studio 9-10 (L2)

DH Complex Oxides III: Films and Heterostructures Studio 7-8 (L2)

DI Magnetic Microscopy and Imaging Studio 3-4 (L2)

2:30 pm - 5:30 pm • Poster Sessions

DP Power and Control Magnetics I

DQ Power and Control Magnetics II

DR Soft Magnetic Materials I

DS Soft Magnetic Materials II

DT Soft Magnetic Materials III

DU Magnetic Sensors II

DV Magnetic Instrumentation and Characterization II

DW Hyperthermia, MRI, and Other Bio-Assays II

6:00 pm - 7:40 pm

ZA Evening Session: Neuromorphic Computing Mardi Gras A-E (L3)
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<td><strong>EC</strong> Magnetization Dynamics II: Domains and Ultrafast Effects EC</td>
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<td><strong>ED</strong> Multiferroic Thin Films, Transport and Magnetoelastic Composites ED</td>
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<td><strong>EE</strong> Voltage Controlled Magnetism II</td>
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<td><strong>EF</strong> Magnetoresistance I: GMR and TMR</td>
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<td><strong>EG</strong> Elementally Modified Intermetallics</td>
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<td><strong>EH</strong> Magneto-Caloric Materials II</td>
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<td><strong>EI</strong> Electronic Structure and Magnetic Semiconductors</td>
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<td><strong>EP</strong> Magnetic Fluids and Nanoparticles Applications</td>
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<td><strong>EQ</strong> 2D and 3D Nanostructured Arrays II</td>
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<td><strong>ER</strong> Patterned Films II</td>
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<td><strong>ES</strong> Superconductivity and Magnetic Semiconductors</td>
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<td><strong>ET</strong> Domain Wall, Vortex and Skyrmion Dynamics III</td>
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<td><strong>EU</strong> MRAM and Magnetic Logic Devices III</td>
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<td><strong>EV</strong> Power Machines I</td>
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<td><strong>EW</strong> Power and Control Magnetics III</td>
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<td><strong>FA</strong> Symposium: Spintronics with Superconductivity</td>
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<td><strong>FD</strong> Single-Phase Multiferroic and Magnetoelastic Materials</td>
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<td><strong>FE</strong> Spin-Orbit and Voltage Controlled Effects</td>
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<td><strong>FF</strong> Magneto-resistance II: GMR and TMR</td>
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<td><strong>FG</strong> Rare-Earth-Lean and Ce-Substituted Compounds</td>
<td>Studio 9-10 (L2)</td>
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<td><strong>FH</strong> Magnetic Sensors III</td>
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<td><strong>FI</strong> Fundamental Properties: Spin Glasses and Frustration II</td>
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<td><strong>FP</strong> Ultrafast Switching and Domain Wall Motion</td>
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<td><strong>FQ</strong> Magnetization Dynamics III: Spin Pumping and Other Effects</td>
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<td><strong>FR</strong> Emergent and Novel Magnetic Order in Thin Films II</td>
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<td><strong>FS</strong> Spin Injection, Spin Transfer Torque and Spin-Orbit Interaction</td>
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<td><strong>FT</strong> Multi-Layer Films and Superlattices II</td>
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<td><strong>FU</strong> Domain Wall and Domain Wall Devices II</td>
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<td><strong>FV</strong> Microwave and Magnetocaloric Materials</td>
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<td><strong>FW</strong> Power Machines II</td>
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## Oral Sessions

### FRIDAY, NOVEMBER 4, 2016

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<td>GB Spin Seebeck and Related Effects</td>
<td>Mardi Gras F-H (L3)</td>
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<td>GC Magnetization Dynamics IV: Spin Torque and Interfacial Effects</td>
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<td>GD Low-Dimensional Systems, Ferrites and Garnets</td>
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<td>GE Spin Transport in Semiconductors and Artificial Structures</td>
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<td>GF High Frequency and Microwave Devices II</td>
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<td>GG Processing and Magnetic Hardening of Rare-Earth-Transition Metal Compounds</td>
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<td>GI Inductors and Transformers II</td>
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<td>9:30 am - 12:30 pm</td>
<td>GP Single-Phase Multiferroics and Magnetoelectrics</td>
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<td>GQ Anisotropy Effects in Thin Films II</td>
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<td>GR Exchange Bias I</td>
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<td>GS Exchange Bias II</td>
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<td>GT Magnonics IV</td>
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<td>GU DMI and Spin-Orbit Torques</td>
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<td>GV Voltage Controled Magnetism III</td>
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<td>HA Symposium: All Optical Switching</td>
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<td>HD Magnetoelectronic Materials and Transport III</td>
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<td>HF Soft Magnetic Materials IV</td>
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<td>HG Magneto-Elastic, Magneto-Optic and Microwave Materials</td>
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<td>HH Energy Assisted Recording II</td>
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<td>HI Power and Control Magnetics V</td>
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Session YA

TUTORIAL: A PRIMER FOR TOPOLOGY IN MAGNETISM
Stephane Mangin, Chair
Universite de Lorraine, Vandoeuvre-lès-Nancy, France

2:00

YA-01. Topology in Magnetism: Theory. (Invited) A. Vishvanath
1. Department of Physics, Harvard University, Cambridge, MA

2:50

YA-02. Topology in Magnetism. (Invited) A. Thiaville
Physique des Solides, Universite Paris-Sud, Orsay, France

3:40

YA-03. Interplay of Spin Orbit Coupling with Magnetism in Low-Dimensions for Room Temperature Device Applications. (Invited) C. Panagopoulos
1. Nanyang Technological University, Singapore, Singapore

TUESDAY MORNING

8:30

Session AA

SYMPOSIUM: SPIN TRANSPORT IN ANTFERROMAGNETS
Chia-Ling Chien, Chair
Johns Hopkins University, Baltimore, MD

8:30

AA-01. Antiferromagnetic spin Seebeck effect. (Invited) S.M. Wu
W. Zhang1, K.C. Amirtharajah2, P. Borisov2, J.E. Pearson1, S. Jiang1, D. Lederman2, A. Hoffmann1 and A. Bhattacharya1 1. Materials Science Division, Argonne National Laboratory, Argonne, IL; 2. Department of Physics and Astronomy, West Virginia University, Morgantown, WV

9:06

AA-02. Thermal generation of spin current in antiferromagnets and helimagnets. (Invited) S. Seki
1. Center for Emergent Matter Science (CEMS), RIKEN, Wako, Japan

9:42

AA-03. Enhanced Spin Current through an Antiferromagnetic Insulator. (Invited) W. Lin
C.L. Chien1 1. Department of Physics and Astronomy, Johns Hopkins University, Baltimore, MD; 2. Department of Physics, University of Arizona, Tucson, AZ


TUESDAY MORNING
8:30
Session AB
FERROMAGNETIC RESONANCE
Andrii Chumak, Chair
TU Kaiserslautern, Kaiserslautern, Germany


TUESDAY MARDI GRAS F-H
8:42

9:06
AB-04. Controlling magnetization dynamics in hybrid heterostructures with first-order phase transitions. (Invited) J. Ramirez1, J. de la Venta2, S. Wang3, T. Saerbeck4, A.C. Basaran5, X. Batlle3 and I.K. Schuller4 1. Department of Physics, Universidad de los Andes, Bogotá, Colombia; 2. Department of Physics, Colorado State University, Fort Collins, CO; 3. Condensed Matter Physics, U. Barcelona, Barcelona, Spain; 4. Department of Physics, UC San Diego, La Jolla, CA; 5. Materials Science Division, Lawrence Berkeley National Laboratory, Berkeley, CA; 6. Institut Max von Laue-Paul Langevin, Grenoble, France; 7. Department of Physics, Gebze Technical University, Gebze, Turkey

9:42
AB-05. Non-monotonic Probability of Thermal Reversal in Low-anisotropy Thin-Film In-plane Nanomagnets. N. Kani1, S. Rakheja2 and A. Naeemi3 1. Electrical and Computer Engineering, Georgia Institute of Technology, Easton, CT; 2. Electrical and Computer Engineering, New York University, Brooklyn, NY; 3. Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, GA

9:54
AB-06. Time resolved FMR measurement in non-linear regime on a Co/Pt multilayer dot measured by XMCD. N. Kikuchi1,3, T. Yomogita1, D. Kanahara1, S. Okamoto1,3, O. Kitakami1,3, T. Shimatsu5,6, H. Osawa2 and M. Suzuki2 1. IMRAM, Tohoku University, Sendai, Japan; 2. JASRI/SPring-8, Sayo, Hyogo, Japan; 3. CSRN, Tohoku University, Sendai, Japan; 5. FRIS, Tohoku University, Sendai, Japan; 6. RIEC, Tohoku University, Sendai, Japan

10:06
AB-07. Calculated dependence of FePt damping on external field magnitude and direction. W. Hsu1, N.A. Natekar1 and R.H. Victora1 1. Electrical and Computer Engineering, University of Minnesota-Twin Cities, Minneapolis, MN

10:18
AB-08. Study of Interfacial Damping In Perpendicular Anisotropy Materials along Multiple Crystal Orientations. T. Qu1 and R.H. Victora1 1. School of Physics & Astronomy, University of Minnesota-Twin Cities, Minneapolis, MN; 2. Electrical Engineering, University of Minnesota, Twin Cities, MN

AB-10. Epitaxial strain induced magneto-elastic anisotropy in ultrathin YIG films grown on GGG and sGGG. L. Soumah1, C. Carretero1, E. Jacquet1, J. Ben Youssef2, M. Bibes3, P. Bortolotti3, V. Cros1 and A. Anane1 1. Unite Mixte de Physique CNRS, Thales, Univ. Paris Sud, Universite Paris-Saclay, Palaiseau, France; 2. Laboratoire de Magnetisme de Bretagne CNRS, Universite de Bretagne Occidentale, Laboratoire de Magnetisme de Bretagne CNRS, Universite de Bretagne Occidentale, Brest, France.


AB-12. First principles investigation of the effects of alloy disorder and tetragonal distortion on the Gilbert damping parameter of Co2MnSi. B. Pradines1, R. Arras1 and L. Calmels1 1. CEMES-CNRS, Toulouse Cedex 4, France.

AB-13. Experimental Investigation Of Temperature-Dependent Gilbert Damping In Permalloy Thin Films. Q. Song1, Y. Zhao1, S. Yang2, W. Yuan1, T. Su1, S.S. Parkin1, J. Shi1 and W. Han1 1. International Center for Quantum Materials, Peking University, Beijing, China; 2. IBM Almaden Research Center, San Jose, CA; 3. Max Planck Institute for Microstructure Physics, Halle (Saale), Germany; 4. Department of Physics and Astronomy, University of California Riverside, Riverside, CA.
Session AC
MAGNETIC SKYRMIONS I
Sujoy Roy, Chair
Lawrence Berkeley National Laboratory, Berkeley, CA

8:30

AC-01. Room temperature chiral magnetic skyrmions in ultrathin magnetic nanostructures. (Invited) O. Boulle1, J. Vogel2, H. Yang1, S. Pizzini2, D. Chaves2, A. Locatelli2, T. Mentes3, A. Sala1, L.D. Buda-Prejbeanu1, O. Klein1, M. Belmeguenai1, Y. Roussigné5, A. Stashkevich5, S.M. Chérit5, L. Aballe4, M. Foerstera, M. Chshiev1, S. Auffret1, I. Miron1 and G. Gaudin1
1. SPINTEC, Univ. Grenoble Alpes CEA CNRS, Grenoble, France; 2. Institut Néel, CNRS, Grenoble, France; 3. Elettra Sincrotrone, Trieste, Italy; 4. ALBA synchrotron, Barcelona, Spain; 5. LSPM, Univ. Paris 13, Villetaneuse, France

9:06

AC-02. Room-temperature creation and spin-orbit torque-induced manipulation of skyrmions in thin film. G. Yu1, P. Upadhyaya2, X. Li1, S. Kim2, Y. Fan1, Y. Tserkovnyak2, P. Khalili1 and K.L. Wang1,3
1. Electrical Engineering, University of California, Los Angeles, Los Angeles, CA; 2. Physics and Astronomy, University of California, Los Angeles, CA; 3. Materials Science and Engineering, University of California, Los Angeles, Los Angeles, CA

9:18

1. Institute of Physics, Johannes Gutenberg University, Mainz, Germany; 2. Max Planck Institute for Intelligent Systems, Stuttgart, Germany; 3. Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA

9:30

AC-04. Magnetotransport detection of tunable skyrmions in Ir/Fe/Co/Pt multilayers. M. Raju1, A.K. Tan1, A. Petrovic1, P. Ho2, L. Huang2, A. Oyarce2, A. Yagil3, A. Almoelem3, O. Auslaender1, A. Soumyanarayanan1,2 and C. Panagopoulos1
1. Division of Physics and Applied Physics, School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore; 2. Data Storage Institute, Singapore, Singapore; 3. Department of Physics, Technion - Israel Institute of Technology, Technion City - Haifa, Israel
1. Department of Physics, Bryn Mawr College, Bryn Mawr, PA; 2. Materials Science Division, Argonne National Laboratory, Argonne, IL; 3. Colorado State University, Fort Collins, CO

AC-06. Investigating skyrmion structure using Lorentz microscopy. S. McVitie1, D. McGrouther1, R.J. Lamb1, M. Krajnak1, S. McFadzean1, R. Stamps1, A. Leonov3,4, A. Bogdanov3,4 and Y. Togawa2,1
1. School of Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom; 2. Osaka Prefecture University, Sakai, Japan; 3. IFW, Dresden, Germany; 4. Centre for Chiral Science, Hiroshima University, Hiroshima, Japan

AC-07. An Energetic Treatment of Chiral Magnetic Bubble Domains Influenced by the Dzyaloshinskii-Moriya Interaction. V.M. Sokalski1, D. Lau1, V. Sundar2 and J. Zhu2,3

AC-08. Magnetic and transport characterization of nanostructured skyrmion based multilayers. D. Maccariello1, N. Reyren1, K. García-Hernandez1, W. Legrand1, C. Moreau-Luchaire1, K. Bouzehouane1, V. Cros1 and A. Fert1
1. Unité Mixte de Physique CNRS, Thales, Univ. Paris-Sud, Université Paris-Saclay, Palaiseau, France

AC-09. Lorentz-TEM imaging of Néel skyrmions in exchange coupled multilayers. S. Pollard1, J.A. Garlow2,3, J. Yu1, Y. Zhu2 and H. Yang1
1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; 2. Condensed Matter Physics and Materials Science Department, Brookhaven National Laboratory, Upton, NY; 3. Material Science and Engineering Department, Stony Brook University, Stony Brook, NY

AC-10. Possible Dzyaloshinskii-Moriya Interaction in BCC FeCoMn Films. R.J. Snow1, H. Bhatkar1, A.T. N'Diaye2, E. Arenholz2 and Y.U. Idzerda1
1. Physics, Montana State University, Bozeman, MT; 2. Advanced Light Source, Lawrence Berkeley National Lab, Berkeley, CA

AC-11. Mapping the Skyrmion Phase Diagram in MBE-grown FeGe Thin Films. A. Ahmed1, S. Dunsinger1, A. Thieken1, M. Randeria1 and R. Kawakami1
1. Physics, The Ohio State University, Columbus, OH
11:06


TUESDAY MORNING 8:30

La Galerie 3

Session AD

NEW MAGNETIC MATERIALS
Steven Disseler, Chair
NIST Center for Neutron Research, Gaithersburg, MD

8:30


8:42


8:54


9:06

AD-04. Unusual Nature of the Martensite and Ferromagnetic Transitions in Ni2Mn4−xFe3xCr0.6Ga Heusler Alloys. J.A. Brock* and M.U. Khan. 1. Department of Physics, Miami University, Oxford, OH

9:18

AD-05. High-temperature Shell-ferromagnetic Precipitates in Off-stoichiometric Martensitic Ni-Mn-based Heuslers Produced by Temper-annaling under Magnetic Field. A. Cakir and M. Acet. 1. Physics, Duisburg-Essen University, Duisburg, Germany; 2. Department of Metallurgical and Materials Engineering, Mugla University, Mugla, Turkey
AD-06. Shell-ferromagnetism in a Ni-Mn-based Off-stoichiometric Heusler Studied by Ferromagnetic Resonance. F. Scheibel1, D. Spoddi1, R. Meckenstock1, A. Cakir2, M. Farle1,3 and M. Acet1. 1. Faculty of Physics, University Duisburg-Essen, Duisburg, Germany; 2. Metallurgical and Materials Engineering, Muğla University, Muğla, Turkey; 3. Center for Functionalized Magnetic Materials, Immanuel Kant Baltic Federal University, Kaliningrad, Russian Federation

AD-07. Magneto-photothermal effects of pegylated Magnetite nanoparticles for bimodal Cancer therapy. S.A. Shah1, M. Khan2, M. Hashmi3, S. Awan4, M. Naem5 and M. Arshad6. 1. Physics, Forman Christian College (University), Lahore, Pakistan; 2. Polymer Engineering, University of the Punjab, Lahore, Pakistan; 3. Department of Applied Sciences, Superior University, Lahore, Pakistan; 4. Physics, COMSATS, Islamabad, Pakistan; 5. Physics, Islamic International University, Islamabad, Pakistan; 6. Nanoscience division, National Center for Physics, Islamabad, Pakistan

AD-08. Crystal structure and magnetic behavior of new ternary Ho5Ni2X3 intermetallics (X = Si, Ge). A. Provino1,2, P. Manfrinetti1,2, C. Ritter3 and M. Pani1,2. 1. Department of Chemistry, University of Genova, Genova, Italy; 2. Institute SPIN-CNR, Genova, Italy; 3. Institut Laue-Langevin, Grenoble, France


AD-10. A New Class Of Inherently Nanolaminated Magnetic Materials: Magnetic MAX Phases. (Invited) R. Salikhov1, Q. Tao2, D. Weller1, J. Rosén2, U. Wiedwald1 and M. Farle1,3. 1. Faculty of Physics and Center for Nanointegration (CENIDE), University of Duisburg-Essen, 47057 Duisburg, Germany; 2. Thin Film Physics, Department of Physics, Chemistry and Biology (IFM), Linköping University, Linköping, Sweden; 3. Center for Functionalized Magnetic Materials, Immanuel Kant Baltic Federal University, 236041 Kaliningrad, Russian Federation

AD-11. Magnetic properties of monolayer and multilayer MoS2 films influenced by thickness and doping. D. Wang1, W. Shi1, J. Hao1, F. Chen1, L. Zhang1, Y. Zhu1, R. Peng1 and M. Wang1. 1. Nanjing University, Nanjing, China
AD-12. Sulfur-doping Induced Magnetism In Graphene: Insights From Experiment And Electronic-structure Calculations. J. Tucek1, P.S. Blonski1, Z. Sofer2, P. Simek2, M. Petr1, M. Pumera3, M. Otyepka1 and R. Zboril1. 1. Department of Physical Chemistry, Regional Centre of Advanced Technologies and Materials, Palacky University Olomouc, Olomouc, Czech Republic; 2. Department of Inorganic Chemistry, University of Chemistry and Technology Prague, Prague, Czech Republic; 3. Division of Chemistry and Biological Chemistry, School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore

AD-13. Non Magnetic Chemical Tune the Magnetic Properties of Graphene Derivatives. D. Lee1, I. Nekrashevich1, K. Martirosyan2, H. Lee1, T. Lee3, D. Litvinov1 and C. Dannangoda2. 1. Materials Engineering, University of Houston, Houston, TX; 2. Physics & Astronomy, University of Texas, Brownsville, TX; 3. Chemistry, University of Houston, Houston, TX

TUESDAY MORNING 8:30

Session AE
ULTRAFAST SWITCHING
Christine Boeglin, Chair
IPCMS, Strasbourg, France

8:30 AE-01. Electric Current Induced Ultrafast Demagnetization. R. Wilson1,2, Y. Yang1, J. Gorchon3, C.A. Lambert1, S. Salahuddin1 and J. Bokor1. 1. EECS Department, University of California, Berkeley, CA; 2. Mechanical Engineering and Materials Science Program, University of California, Riverside, CA; 3. Lawrence Berkeley National Laboratory, Berkeley, CA

8:42 AE-02. Ultrafast Magnetic Switching of GdFeCo via Electronic Heat Currents. R. Wilson1,2, J. Gorchon3, C.A. Lambert2, Y. Yang2, S. Salahuddin2 and J. Bokor2,3. 1. Mechanical Engineering and Materials Science Program, University of California, Riverside, CA; 2. EECS Department, University of California, Berkeley, CA; 3. Lawrence Berkeley National Laboratory, Berkeley, CA

8:54 AE-03. Insights into ultrafast all-optical spin switching through a ferromagnetically coupled two-spin system. G. Zhang1, Y. Bai1 and T.F. George2. 1. Indiana State University, Terre Haute, IN; 2. University of Missouri-St Louis, St Louis, MO

AE-05. Model for multi-shot all-thermal all-optical switching in ferromagnets. J. Gorchon, Y. Yang and J. Bokor. Lawrence Berkeley National Laboratory, Berkeley, CA; University of California, Berkeley, CA

AE-06. On the Possibility of the Ultra Fast Magnetisation Switching in TbCo Under Heating Mechanism. O. Chubykalo-Fesenko, R. Moreno and T.A. Ostler. Instituto de Ciencia de Materiales de Madrid, Madrid, Spain; Physique des Matériaux et Nanostructures, Université de Liège, Liège, Belgium

AE-07. Modeling All Optical Switching in Granular FePt Media. M. Menarini, L.J. Sham and V. Lomakin. Electrical and Computer Engineering, University of California San Diego, La Jolla, CA; Physics, University of California San Diego, La Jolla, CA; Department of Electrical and Computer Engineering, University of California, San Diego, La Jolla, CA

AE-08. All-optical switching of FePt nanoparticle recording medium with inverse Faraday effect. R. John, M. Berritta, D. Hinze, C. Mueller, T. Santos, P. Nieves, H. Ulrichs, J. Walowski, O. Chubykalo-Fesenko, J. McCord, P. Oppeneer, U. Nowak and M. Münzenberg. Institute of Physics, Ernst-Moritz-Arndt University, Greifswald, Germany; Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden; Physics Department, University of Konstanz, Konstanz, Germany; Institute for Materials Science, CAU Kiel, Kiel, Germany; Western Digital Corporation, San Jose, CA; Instituto de Ciencia de Materiales de Madrid, Madrid, Spain; Institute Georg-August-University, Goettingen, Germany

AE-09. Ultrafast Magnetization Dynamics In Ferrimagnetic DyCo5. A. Donges, S. Khmelevskyi, A. Deak, R. Abrudan, F. Radu, I. Radu, L. Szunyogh and U. Nowak. Physics Department, University of Konstanz, Konstanz, Germany; Vienna University of Technology, Vienna, Austria; Budapest University of Technology and Economics, Budapest, Hungary; Helmholtz-Zentrum Berlin für Materialien und Energie, Berlin, Germany; Ruhr-Universität Bochum, Bochum, Germany; Technical University Berlin, Berlin, Germany
AE-10. Ultrafast electron, spin, and lattice dynamics in half-metallic FeO thin films. X. Lu1, B. Liu2, G. Li3, Y. Wang3, H. Ling3, I. Sizeland4, T. Ostler5, J. Wu1, X. Ruan2, V. Lazarov1, R. Chantrell1 and Y. Xu1 1. Department of Physics, University of York, York, United Kingdom; 2. Jiangsu Provincial Key Laboratory of Advanced Photonic and Electronic Materials, Collaborative Innovation Center of Advanced Microstructures, School of Electronic Science and Engineering, Nanjing University, Nanjing, China; 3. Department of Electronics, University of York, York, United Kingdom

AE-11. Single-shot All-Optical Switching of ferromagnetic films. Y. Yang1, J. Gorchon2, C.A. Lambert2, R. Wilson1,3, S. Salahuddin1,2 and J. Bokor1,2 1. University of California, Berkeley, CA; 2. Lawrence Berkeley National Laboratory, Berkeley, CA; 3. Mechanical Engineering, University of California, Riverside, CA

AE-12. All-optical control of magnetization in He+-irradiated ferromagnetic Co/Pt multilayers. M. El Hadri1, M. Hehn1, G. Malinowski2, C.A. Lambert3, C. Beigne3, D. Ravelosona2 and S. Mangin1 1. Institut Jean Lamour, Vandoeuvre-lès-Nancy, France; 2. Institut d’Electronique Fondamentale, Orsay, France; 3. Univ. Grenoble Alpes – CEA Grenoble, Grenoble, France

AE-13. Ultrafast Magneto-Acoustic in Magnetostrictive Materials. A. Hillion1, T. Parpiiev3, V. Vlasov3, V. Temnov3, V. Polewezyk1, S. Andrieu1, A. Anane2, V. Gusev3, K. Dumesnil1, N. Bergeard1, G. Malinowski1 and T. Pezeril1 1. Institut Jean Lamour, Universite de Lorraine, Vandoeuvre, France; 2. CNRS Thales, Palaiseau, France; 3. IMMM, Le Mans, France

AE-14. Off-Resonant Excitation of Cobalt Thin Film Magnetization by Intense Single-Cycle THz Pulses: Computer Simulations and Experiments. A. Donges1, M. Shalaby2, C. Vicario2, K. Carva1, P. Oppeneer4, C. Hauri2 and U. Nowak1 1. Physics Department, University of Konstanz, Konstanz, Germany; 2. SwissFEL, Paul Scherrer Institute, Villigen PSI, Switzerland; 3. Dept. Condensed Matter Physics, Charles University, Prague, Czech Republic; 4. Uppsala University, Uppsala, Sweden

AE-15. Domain size criterion for the observation of all-optical helicity-dependent switching in magnetic thin films. M. El Hadri2, M. Hehn1, P. Pirro1, C.A. Lambert2, J. Rojas-Sanchez1, G. Malinowski3, E.E. Fullerton2 and S. Mangin1 1. Institut Jean Lamour, Vandoeuvre-lès-Nancy, France; 2. UC San Diego 0401, La Jolla, CA
Session AF
MRAM AND MAGNETIC LOGIC DEVICES I
Alexey Khvalkovskiy, Chair
Crocus Nanoelectronics, LLC, Dolgoprudny, Russian Federation

8:30
AF-01. Perpendicularly-Magnetized Double Magnetic Tunnel Junctions for Spin-Torque MRAM. (Invited) G. Hu1,2, J. Lee3, J.J. Nowak1,2, J. Sun1,2, J. Harms1, A.J. Annuziata1,2, S. Brown1,2, W. Chen1, Y. Kim2, G. Lauer1,2, N. Marchack1,2, S. Murthy1, E. O’Sullivan1,2, J. Park3, M. Reuter1,2, R. Robertazzi1,2, P.L. Trouilloud1,2, Y. Zhu1,2 and D. Worledge1,2
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

AF-02. Dual-Referenced Composite Free Layer Design for Improving Switching Efficiency of Spin-Transfer RAM. R.C. Bell1, J. Hu1 and R.H. Victora1
1. Electrical and Computer Engineering, University of Minnesota at Twin-Cities, Minneapolis, MN

AF-03. Thermally robust perpendicular magnetized magnetic tunnel junction with a large exchange coupling using Ir spacer. K. Nakamura1, H. Machara2, H. Tomita1, Y. Tanaka1, T. Kitada1, S. Furukawa1 and N. Watanabe1
1. Tokyo Electron Yamanashi Limited, Nirasaki City, Yamanashi, Japan; 2. Tokyo Electron Limited, Tokyo, Japan

AF-04. Second order anisotropy contribution in perpendicular magnetic tunnel junctions. A. Timopheev1, R.C. Sousa1, M. Chshiev1, T.H. Nguyen2 and B. Diény3
1. CEA-INAC / CNRS, SPINTEC, Univ. Grenoble Alpes, Grenoble, France

AF-05. Giant Interfacial Perpendicular Magnetic Anisotropy in MgO/CoFe/Capping Layer Structure. S. Peng1,2, W. Zhao1,2, J. Qiao1,2, L. Su1,2, J. Zhou1,2, H. Yang1,2, Q. Zhang1,2, Y. Zhang1,2, C. Grezes4, P.K. Amiri5,6 and K.L. Wang5
1. Fert Beijing Institute, Beihang University, Beijing, China; 2. School of Electronic and Information Engineering, Beihang University, Beijing, China; 3. Unité Mixte de Physique, CNRS, Thales, Univ. Paris-Sud, Université Paris-Saclay, Palaiseau, France; 4. Univ. Grenoble Alpes, INAC-SPINTEC, CNRS, SPINTEC, CEA, INAC-SPINTEC, F-38000 Grenoble, France; 5. School of Materials Science and Engineering, Beihang University, Beijing, China; 6. Department of Electrical Engineering, University of California, Los Angeles, Los Angeles, CA; 7. Inston Inc., Los Angeles, CA
Broadband ferromagnetic resonance study of perpendicular magnetic tunnel junctions. D.B. Gopman1, C. Dennis1, B. McMichael2, X. Hao3, Z. Wang3, H. Gan1, X. Wang1, Y. Zhou1 and Y. Huai1 1. Materials Science & Engineering Division, National Institute of Standards and Technology, Gaithersburg, MD; 2. Center for Nanoscale Science and Technology, National Institute of Standards and Technology, Gaithersburg, MD; 3. Avalanche Technology, Fremont, CA

Ferromagnetic resonance study of composite Co/Ni - FeCoB free layers with perpendicular anisotropy. T. Devolder1, E. Liu2, J. Swerts2, S. Coutet2, S. Mertens2, T. Lin2, S. Van Elshocht2, G.S. Kar2, A. Furnemont2 and J. De Boeck2 1. IEF, Orsay, France; 2. Imec, Leuven, Belgium

Spin-transfer-torque Switching in a Free Layer with Higher-order Perpendicular Magnetic Anisotropy. R. Matsumoto1, H. Arai2, S. Yuasa1 and H. Imamura1 1. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan; 2. PRESTO, Japan Science and Technology Agency (JST), Kawaguchi, Japan

Instability Mechanism for STT-RAM Switching: Normal Mode Analysis. P.B. Visscher1, K. Munira1 and R.J. Rosati1,2 1. Physics and MINT Center, University of Alabama, Tuscaloosa, AL; 2. Physics, University of Texas, Austin, TX

Origin of variation of shift field via annealing at 400°C in a perpendicular-anisotropy magnetic tunnel junction with [Co/Pt]-multilayers based synthetic ferrimagnetic reference layer. H. Honjo1,5, S. Sato1,3, S. Ikeda1,3, H. Sato5,1, T. Watanabe1,5, S. Miura1,3, T. Nasuno1,3, Y. Noguchi1,3, M. Yashuira1,3, T. Tamigawa1,3, H. Koike1,3, M. Muruguchi1,2, M. Niwa1,2, K. Itô1, H. Ohno2,4 and T. Endoh1,2 1. Center for Innovative Integrated Electronic Systems, Tohoku University, Sendai, Japan; 2. Graduate School of Engineering, Tohoku University, Sendai, Japan; 3. Center for Spintronics Integrated Systems, Sendai, Japan; 4. Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 5. JST ACCEL, Sendai, Japan

Electrical magnetization switching in CoFeB/MgO magnetic tunnel junctions in nanosecond regime. N. Ohshima1, J. Llandro1, H. Sato2,3, S. Kanai1,2, S. Fukami1,2, F. Matsukura2,4 and H. Ohno1,2 1. Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 2. Center for Spintronics Integrated Systems, Tohoku University, Sendai, Japan; 3. Center for Spintronics Research Network, Tohoku University, Sendai, Japan; 4. WPI Advanced Institute for Materials Research (WPI-AIMR), Tohoku University, Sendai, Japan

11:18

AF-13. Characterization of Thermal Conductance in MgO-based Magnetic Tunnel Junction by Picosecond Time-domain Thermoreflectance. N. Sato1, R. Cheaito2, R.M. White3, M. Asheghi2, K.E. Goodson4 and S.X. Wang2,3. 1. Department of Electrical Engineering, Stanford University, Stanford, CA; 2. Department of Mechanical Engineering, Stanford University, Stanford, CA; 3. Department of Materials Science & Engineering, Stanford University, Stanford, CA

Tuesday Morning

8:30

Session AG
BIOCHEMICAL AND BIOMEDICAL APPLICATIONS I
Stephen Russek, Chair
NIST, Boulder, CO

AG-01. The removal of uranium from contaminated water by specific chelator grafted onto magnetic nanoparticles. E. Mazario1, A.S. Helal1, A. Mayoral4, P. Decorse1, A. Chevillot1, S. Novak1, C. Perruchot1, C. Lion1, R. Losno5, S. Ammar1, J. El Hage Chahine1 and M. Hemadi5. 1. ITODYS, Université Paris Diderot, PRES Sorbonne Paris Cité, CNRS UMR-7086, Paris, France; 2. Université Paris Diderot, Paris, France; 3. Nuclear Materials Authority, Cairo, Egypt; 4. Instituto de Nanociencia de Aragón (INA) - Universidad de Zaragoza, Madrid, Spain; 5. Institut de Physique du Globe de Paris, Paris, France

8:42

AG-02. Magnetic characteristic measurements of ethanol-water mixtures using a hybrid-type HTS-SQUID magnetometer. K. Tsukada1, Y. Matsunaga1, R. Isshiki1, Y. Nakamura1, K. Sakai2 and T. Kiwa1. 1. Okayama University, Okayama, Japan; 2. Graduate School of Natural Science and Technology, Okayama University, Okayama, Japan

8:54


AG-05. A Room Temperature Ultrasensitive Magnetoelectric Susceptometer for the Quantitative Tissue Iron Detection. H. Xi1, X. Qian1, M. Lu1, L. Mei1, S. Rupprecht2, Q. Yang2,3 and Q. Zhang1,4. 1. Electrical Engineering, The Pennsylvania State University, University Park, PA; 2. Radiology, Penn State College of Medicine, Hershey, PA; 3. Neurosurgery, Penn State College of Medicine, Hershey, PA; 4. Materials Research Institute, The Pennsylvania State University, University Park, PA

AG-06. MRI Based Susceptibility Mapping for In-Vivo Iron and Blood Oximetry Measurements. H. Erdevig1,2, S.E. Russek1, S. Carnicka1, K. Stupic3 and K.E. Keenan1. 1. National Institute of Standards and Technology, Boulder, CO; 2. Department of Physics, University of Colorado Boulder, Boulder, CO

AG-07. Ultrasensitive detection of single iron oxide nanoparticles by nucleation of domain walls in CoFeB nanostructures. J. Wells1, A. Fernandez-Scarioni3, H.W. Schumacher1, R. Mansell2, R. Cowburn2 and O. Kazakova1. 1. National Physical Laboratory, Teddington, United Kingdom; 2. University of Cambridge, Cambridge, United Kingdom; 3. Physikalisch-Technische Bundesanstalt, Braunschweig, Germany


(Invited) H. Huang\textsuperscript{1}, C. Huang\textsuperscript{1} and Z. Wei\textsuperscript{1}. National Tsing Hua University, Hsinchu, Taiwan

AG-11. A Magnetic Probe Equipped with Small-Tip Permanent Magnet for Sentinel Lymph Node Biopsy. M. Kaneko\textsuperscript{1}, K. Ohashi\textsuperscript{1}, S. Chikaki\textsuperscript{1}, A. Kuwahata\textsuperscript{1}, M. Shiozawa\textsuperscript{2}, M. Kusakabe\textsuperscript{1} and M. Sekino\textsuperscript{1}. 1. University of Tokyo, Bunkyo-ku, Japan; 2. Ibaraki Prefectural Central Hospital, Ibaraki, Japan

AG-12. Simulation of Transcranial Magnetic Stimulation in the Presence of Deep Brain Stimulation Probes for Treatment of Parkinson’s Disease. F. Syeda\textsuperscript{1}, K. Holloway\textsuperscript{2} and R.L. Hadimani\textsuperscript{1,3} 1. Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA; 2. Department of Neurosurgery, Virginia Commonwealth University, Richmond, VA; 3. Department of Electrical and Computer Engineering, Iowa State University, Ames, IA

AG-13. Helical microrobot with navigating, drug-delivery and drilling capabilities in human blood vessels by external rotating magnetic field. J. Nam\textsuperscript{1}, W. Lee\textsuperscript{1}, B. Jang\textsuperscript{1} and G. Jang\textsuperscript{1}. Dept of Mechanical Convergence Engineering, Hanyang University, Seoul, The Republic of Korea

Session AH  
NANOWIRES AND NANOPEARLLES I  
Ping Liu, Chair  
University of Texas-Arlington, Arlington, TX

AH-01. Magnetization Reversal of Multisegmented FeCo/Cu Cylindrical Nanowires. C. Bran\textsuperscript{1}, J. Meier\textsuperscript{1}, E.M. Palmero\textsuperscript{1}, R. Perez\textsuperscript{1}, E. Berganza\textsuperscript{1}, A. Asenjo\textsuperscript{1}, L.A. Rodriguez\textsuperscript{2}, C. GateF\textsuperscript{1}, D.F. Reyes\textsuperscript{2}, E. Snoek\textsuperscript{1}, J.A. Fernandez-Roldan\textsuperscript{1}, O. Chubykalo-Fesenko\textsuperscript{1} and M. Vázquez\textsuperscript{1}. 1. Instituto de Ciencia de Materiales de Madrid, Madrid, Spain; 2. CEMES-CNRS, Toulouse, France

AH-02. Magnetic structure of 3D Domain Wall in modulated cylindrical nanowires. I. Ivanov\textsuperscript{1}, S. Lopatin\textsuperscript{1}, A. Chuvilin\textsuperscript{1} and J. Kosel\textsuperscript{1}. 1. Sensing, Magnetism, and Microsystems Research Group, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia; 2. King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia; 3. EM Lab, CIC nanoGUNE, San Sebastian, Spain
AH-03. Visualization of magnetization in CoFe nanofibers by Lorentz TEM. S. Zhang1, Z. Zhou2, G. Grocke2, A. Petford-Long1, Y. Liu3, X. Chen2 and C. Phatak1
1. Materials Science Division, Argonne National Laboratory, Argonne, IL; 2. Energy Sciences Division, Argonne National Laboratory, Lemont, IL; 3. Center for Nanoscale Materials, Argonne National Laboratory, Lemont, IL

AH-04. Nanoscale study of the geometry-induced spin configuration in diameter-modulated cylindrical FeCo-based nanowires. L.A. Rodríguez González1, C. Bran2, D.F. Reyes Vasquez2, C. Gatel1, E. Berganza2, M. Vázquez2, A. Asenjo2 and E. Snoeck1 1. CEMES-CNRS 29 rue Jeanne Marvig, B.P. 94347 F-31055, Toulouse, France; 2. ICMM-CSIC, Madrid, Spain

AH-05. Magnetization Distribution in Cylindrical Co-based Nanowires with Tailored Anisotropy. C. Bran1, E.M. Palmero1, R. Perez del Real1, A. Asenjo1, A. Fraile Rodriguez2 and M. Vázquez1 1. Institute of Materials Science of Madrid (ICMM-CSIC), Madrid, Spain; 2. Departament de Física de la Matèria Condensada and Institut de Nanociència i Nanotecnologia (IN2UB), Universitat de Barcelona, Barcelona, Spain


AH-08. Structure and Magnetism of CoN Nanoparticles. B. Balasubramanian1,2, Y. Jin1,2, X. Xu1,2, S. Valloppilly2 and D.J. Sellmyer1,2 1. Physics and Astronomy, University of Nebraska, Lincoln, NE; 2. Nebraska Center for Materials and Nanoscience, University of Nebraska, Lincoln, NE

AH-09. Magnetic Field Assisted Cobalt Nanoparticle Synthesis. A. Mosey1, B. Gaire1, R. Cheng1, J. Kim1 and J. Ryu1 1. Physics, Indiana University Purdue University Indianapolis, Indianapolis, IN; 2. Mechanical Engineering, Indiana University Purdue University Indianapolis, Indianapolis, IN

AH-11. Magnetic properties of CoTb nanoparticles prepared by mass-selected low energy cluster beam deposition. A. Robert1, A. Tamion1, C. Albin1, D. Le Roy1 and V. Dupuis1. Institut Lumiere Matiere, Villeurbanne, France


AH-15. Enhanced Ferromagnetic Properties in Fe5Si3 Nanoclusters. B. Das1, B. Balasubramanian1, R. Skomski2, P. Manchanda1, G. Hadjipanayis2 and D.J. Sellmyer1. 1. Nebraska Center for Materials and Nanoscience and Department of Physics and Astronomy, University of Nebraska, Lincoln, NE; 2. Department of Physics and Astronomy, University of Delaware, Newark, DE
TUESDAY MORNING
8:30

Session AI
ANISOTROPY EFFECTS IN THIN FILMS I
Seiji Mitani, Chair
NIMS, Tsukuba, Japan

8:30
AI-01. Tailoring Perpendicular Magnetic Coupling by XMCD.
Y.U. Idzerda1, R.J. Snow1, H. Bhatkar1, A.T. N'Diaye2 and 
E. Arenholz2 1. Physics, Montana State University, Bozeman, 
MT; 2. LBNL, Berkeley, CA

8:42
AI-02. Observation of magnetic domain structure initiated by 
competition among the magnetoelastic anisotropy and shape 
anisotropy using XMCD-PEEM. A. Yamaguchi1, T. Ohkochi2, 
A. Yasui2, T. Kinoshita2 and K. Yamada3 1. Laboratory of 
Advanced Science and Technology for Industry, University of 
Hyogo, Ako-gun, Japan; 2. JASRI/SPring-8, Sayo, Japan; 
3. Gifu University, Gifu, Japan

8:54
AI-03. Interfacial Exchange Coupling in FeCo/MnGa Studied by 
X-ray Magnetic Circular Dichroism. J. Okabayashi1, 
K.Z. Suzuki2 and S. Mizukami2 1. Research Center for 
Spectrochemistry, The University of Tokyo, Tokyo, Japan; 
2. WPI-AIMR, Tohoku University, Sendai, Japan

9:06
AI-04. Microstructure and Magnetism of Epitaxial Grown 
L1_0-MnGa(001) on η⊥-Mn3N2. J.P. Corbett1, A.O. Mandru1, 
A.L. Richard2, J. Gallagher3, F. Yang2, D.C. Ingram3 and 
A.R. Smith1 1. Physics and Astronomy, Ohio University, Athens, 
OH; 2. Physics, The Ohio State University, Columbus, OH; 
3. Physics and Astronomy, The Ohio State University, 
Columbus, OH

9:18
AI-05. Interfacial magnetic anisotropy in rare-earth metal 
ultra-thin films. K. Nawa1, T. Akiyama1, T. Ito1, T. Oguchi2, 
M. Weinert3 and K. Nakamura1 1. Physics Engineering, Mie 
University, Tsu, Japan; 2. The Institute of Scientific and 
Industrial Research, Osaka University, Ibaraki, Japan; 
3. Physics, University of Wisconsin-Milwaukee, Milwaukee, WI

9:30
AI-06. Effect of anisotropy on magnetic and Ferromagnetic 
Resonance Studies on Tb-Fe thin films. P. Rajasekhar1 and 
G. Markandeyulu1 1. Physics, Indian Institute of Technology, 
Chennai, India
AI-07. Interfacial perpendicular magnetization and atomic interdiffusion at Co$_2$FeAl/MgAl$_2$O$_4$ spinel interface. H. Sukegawa$^1$, J.P. Hadorn$^1$, T. Ohkubo$^1$, S. Mitani$^1$ and K. Hono$^3$ 1. Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science, Tsukuba, Japan

AI-08. Enhanced annealing stability and anisotropy in perpendicular magnetic tunnel junctions using W layer. J. Chatterjee$^1$, N. Perrissin$^1$, S. Auffret$^1$, R.C. Sousa$^1$ and B. Diény$^1$ 1. SPINTEC, Univ. Grenoble Alpes / CEA / CNRS, Grenoble, France

10:06

AI-09. Enhancement of $L_1_0$ ordering with the c-axis perpendicular to the substrate in FePt alloy film by using an epitaxial cap-layer. M. Ohtake$^{1,3}$, M. Nakamura$^1$, M. Futamoto$^1$, F. Kirino$^4$ and N. Inaba$^2$ 1. Faculty of Science and Engineering, Chuo University, Tokyo, Japan; 2. Faculty of Engineering, Yamagata University, Yamagata, Japan; 3. Faculty of Engineering, Kogakuen University, Tokyo, Japan; 4. Graduate School of Fine Arts, Tokyo University of the Arts, Tokyo, Japan

10:18

AI-10. Thickness-induced spin-reorientation originated from competing magnetic shape anisotropies. J. Tang$^1$, W. He$^1$, X. Zhang$^1$ and Z. Cheng$^1$ 1. Institute of Physics, Chinese Academy of Sciences, Beijing, China

10:30

AI-11. Strain-induced In-plane Spin Reorientation Of BCC-like Iron Films Grown On Cu(001). E. Corredor Vega$^1$, J.I. Arnaudas$^{2,3}$, M. Ciria$^{4,2}$, F. Lofink$^1$, S. Rössler$^1$, R. Frömter$^1$ and H.P. Oepen$^1$ 1. Institut für Nanostruktur- und Festkörperphysik, Universität Hamburg, Hamburg, Germany; 2. Departamento de Fisica de la Materia Condensada, Universidad de Zaragoza, Zaragoza, Spain; 3. Instituto de Nanociencia de Aragón, Universidad de Zaragoza, Zaragoza, Spain; 4. ICMA-Universidad de Zaragoza, Zaragoza, Spain

10:42

AI-12. Controlling phase transformation and magnetic properties in Fe$_{90}$Pd$_x$ thin films by current annealing. M. Coisson$^1$, G. Barrera$^1$, F. Celegato$^1$, M. Cialone$^2$, P. Rizzi$^2$ and P. Tiberto$^1$ 1. INRIM, Torino, Italy; 2. Chemistry, Università di Torino, Torino, Italy
AI-13. Magnetisation reversal in ultra-thin FeRh films grown on MgO (001) substrates. C.W. Barton1, T.A. Ostler2, C. Kinane3, G. Hrkac4 and T. Thomson1. 1. Nano Engineering and Storage Technologies, School of Computer Science, University of Manchester, Manchester, United Kingdom; 2. Physique des solides, interfaces et nanostructures, University of Liege, Liege, Belgium; 3. Rutherford Appleton Laboratory, Harwell Science and Innovation Campus, Didcot, United Kingdom; 4. Engineering, Mathematics and Physical Sciences, University of Exeter, Exeter, United Kingdom

11:06

AI-14. Cobalt thickness independent inverse magnetostriction effect in Pt/Co/Pt structure formed on a flexible substrate. S. Ota1, R. Asai2, T. Kozeki2, H. Akamine2, T. Fujii3, T. Namazu4, T. Takenobu5, T. Koyama6 and D. Chiba7. 1. Applied Physics, The University of Tokyo, Bunkyo-ku, Japan; 2. University of Hyogo, Himeji, Japan; 3. Akita Prefectural University, Akita-shi, Japan; 4. Aichi Institute of Technology, Nagoya-shi, Japan; 5. Nagoya University, Nagoya-shi, Japan; 6. The University of Tokyo, Tokyo, Japan; 7. Department of Applied Physics, The University of Tokyo, Tokyo, Japan

AI-15. Vanadium-induced modification of magnetic anisotropy in Cr/ultrathin Fe/MgO. A. Koziol-Rachwal1,2, T. Nozaki1, V. Zayets1, H. Kubota1, A. Fukushima1, S. Yuasa1 and Y. Suzuki1,3. 1. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan; 2. Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, Kraków, Poland; 3. Graduate School of Engineering Science, Osaka University, Toyonaka, Japan

TUESDAY MORNING 9:30

Session AP

GRAND BALLROOM

MAGNETIC RECORDING I

(Poster Session)

Boris Livshitz, Chair
Western Digital, San Jose, CA

AP-01. FORC-study of magnetization reversal of L10-FePt based exchange coupled composite films. G. Situ1, J. Wang2 and B. Ma3. 1. Fudan University, Shanghai, China; 2. Electrical and computer Engineering, University of Minnesota, Minneapolis, MN
AP-02. A Reduced BER by Using Layered Decoding of LDPC Codes over HAMR System. W. Wongtrairat1, T. Sopon1, S. Wongsuthavas2, W. Phakphisut1 and P. Supnithi3 1. Faculty of Engineering and Architecture, Rajamangala University of Technology Isan, Nakhonratchasima, Thailand; 2. Faculty of Science and Liberal Arts, Rajamangala University of Technology Isan, Nakhonratchasima, Thailand; 3. Faculty of Engineering, King Mongkut’s Institute of Technology Ladkrabang, Bangkok, Thailand

AP-03. Bit Aspect Ratio Conversion in Two-Track Simultaneous Reading Scheme. H. Muraoka1 and S. Greaves1 1. RIEC, Tohoku University, Sendai, Japan

AP-04. Suppression of ITI by array head reading and 2D-Equalization. Y. Nakamura1, R. Suzuto1, H. Osawa1, Y. Okamoto1, Y. Kana1 and H. Muraoka1 1. Department of Electrical and Electronic Engineering and Computer Science, Ehime University, Matsuyama, Japan; 2. IEE, Niigata Institute of Technology, Kashiiwazaki, Japan; 3. RIEC, Tohoku Univ, Sendai, Japan

AP-05. Iterative Intertrack Interference (ITI) Mitigation with 2D Varying Equalizers for Bit Patterned Media Recording. Y. Wang1 and V. Bhagavatula1 1. Electrical and Computer Engineering Department, Carnegie Mellon University, Pittsburgh, PA

AP-06. High $K_u$ and low intergranular exchange coupling CoPt-based alloy granular media with B2O3 grain boundary material. R. Kishibiki1, K. Tsumi1, S. Hinata2 and S. Saito2 1. Tanaka Kikinzoku Kogyo K.K, Tsukuba, Japan; 2. Department of Electronic Engineering, Tohoku University, Sendai, Japan

AP-07. Effective damping factor for CoPt-based alloy film with stacking faults and compositional modulated atomic layered structure. S. Hinata1 and S. Saito1 1. Department of Electronic Engineering, Tohoku University, Sendai, Japan

AP-08. LDPC Product Coding Scheme with Extrinsic Information for Bit Patterned Media Recording. S. Jeong1 and J. Lee1 1. School of Electronic Engineering, Soongsil University, Seoul, The Republic of Korea

AP-09. First order reversal curve diagrams of bit patterned MnGa fabricated by local ion irradiation. D. Oshima1, T. Kato2 and S. Iwata3 1. Institute of Materials and Systems for Sustainability, Nagoya University, Nagoya, Japan; 2. Department of Electrical Engineering and Computer Science, Nagoya University, Nagoya, Japan; 3. Institute of Materials and Systems for Sustainability, Nagoya University, Nagoya, Japan

AP-10. Layer Stacked Co/Pt Films with High Perpendicular Anisotropy Sputter Deposited at Room Temperature. N. Honda1, S. Hinata2 and S. Saito2 1. Electronics and Intelligent Systems, Tohoku Institute of Technology, Sendai, Japan; 2. Electronic Engineering, Tohoku University, Sendai, Japan; 3. Department of Electronic Engineering, Tohoku University, Sendai, Japan
AQ-01. Exchange coupled composite FePt/TbCo/[Co/Ni]$_x$ films with an TbCo interlayer. B. Ma$^{1,2}$, H. Chu$^2$, G. Situ$^2$ and J. Wang$^1$
1. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN; 2. Fudan University, Shanghai, China


AQ-03. First versus second order phase transition materials for heat-assisted magnetic recording. C. Vogler$^1$, C. Abert$^2$, F. Bruckner$^1$ and D. Suess$^1$ 1. Institute of Solid State Physics, Vienna University of Technology, Vienna, Austria; 2. Institute of Solid State Physics, Christian Doppler Laboratory for Advanced Magnetic Sensing and Materials, Vienna University of Technology, Vienna, Austria

AQ-04. The Effect of a Novel Energetic Carbon Overcoat Deposition on the Magnetic and Structural Properties of FePt Recording Medium. S. Bhatti$^1$, O. Bo$^2$, R.S. Rawat$^3$ and S.N. Piramanayagam$^4$ 1. School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore; 2. Natural Sciences and Science Education, National Institute of Education, Singapore, Singapore


AQ-07. Resonance frequency distribution of ECC grains in microwave assisted magnetic recording. S. Greaves$^1$, Y. Kamai$^2$ and H. Muraoka$^1$ 1. RIEC, Tohoku University, Sendai, Japan; 2. IEE, Niigata Institute of Technology, Kashiwazaki, Japan
AQ-08. Micromagnetic Model Analysis of Double- and Tri-Layered Spin Torque Oscillators with Write Head for Microwave-Assisted Magnetic Recording. Y. Kanai1, R. Itagaki1, S. Greaves2, K. Yoshida3 and H. Muraoka3 1. IEE, Niigata Institute of Technology, Kashiwazaki, Japan; 2. RIEC, Tohoku University, Sendai, Japan; 3. Kogakuin University, Tokyo, Japan

AQ-09. Damping Constant Dependence of SNR at Track Edge for Shingled Microwave-Assisted Magnetic Recording. T. Tanaka1, D. Sakamoto1, Y. Kanai2 and K. Matsuyama2 1. Faculty of Information Science and Electrical Engineering, Kyushu University, Fukuoka, Japan; 2. IEE, Niigata Institute of Technology, Kashiwazaki, Japan; 3. Department of Electronics, Kyushu University, Fukuoka, Japan

AQ-10. Selective Excitation of Ferromagnetic Resonance Using Circularly Polarized Magnetic Fields Generated by Coplanar Cross Waveguides. I. Kan1 and Y. Nozaki1 1. Dept. of Physics, Keio University, Yokohama, Japan

AQ-11. Switching Probability Under Spin Wave Excitation in an In-plane Magnetized L10-FePt / Ni81Fe19 Exchange-coupled Bilayer. W. Zhou1, T. Seki1,2, T. Yamaji3, H. Imamura4 and K. Takanashi1,4 1. Institute for Materials Research, Tohoku University, Sendai, Japan; 2. JST PRESTO, Saitama, Japan; 3. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan; 4. Center for Spintronics Research Network, Tohoku University, Sendai, Japan

AQ-12. Computational analysis of microwave assisted magnetization reversal in unstable switching process. T. Tanaka1, Y. Nozaki2 and K. Matsuyama2 1. Faculty of Information Science and Electrical Engineering, Kyushu University, Fukuoka, Japan; 2. Keio University, Yokohama, Japan; 3. Department of Electronics, Kyushu University, Fukuoka, Japan

AQ-13. Current-induced spin oscillation in ferromagnetic cross structure. J. Wang1, X. Zhang2, X. Lu3, Y. Yan1, Y. Zhou2 and Y. Xu1 1. Department of Electronics, University of York, York, United Kingdom; 2. School of Science and Engineering, The Chinese University of Hong Kong, Shenzhen, Hong Kong; 3. Department of Physics, University of York, York, United Kingdom

AQ-14. Influence of Exchange on Signal-To-Noise Ratio In [CoX/Pt]4 Media. Z. Zhao1, J. Li1, L. Wang1 and D. Wei1 1. School of Materials Science and Engineering, Tsinghua University, Beijing, China

AQ-15. Influence of the second order perpendicular anisotropy on the spin-torque diode effect in MTJ and implications on energy harvesting. R. Tomasello1, M. Ricci1, G. Siracusano2, P. Burrascano1, Z. Zeng3, M. Carpentieri4 and G. Finocchio2 1. Department of Engineering, Polo Scientifico Didattico di Termini, University of Perugia, Perugia, Italy; 2. Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina, Messina, Italy; 3. Suzhou Institute of Nano-tech and Nano-bionics, CAS, Suzhou, China; 4. Ingegneria Elettrica e dell’Informazione, Politecnico di Bari, Bari, Italy
Session AR
HIGH FREQUENCY AND MICROWAVE DEVICES I
(Poster Session)
Nian Sun, Co-Chair
Northeastern University, Boston, MA
Xin Fan, Co-Chair
University of Denver, Denver, CO

AR-01. Spin-torque oscillator with a conically magnetized free layer. H. Arai1,2, R. Matsumoto2, S. Yuasa2 and H. Imamura2 1. JST-PRESTO, Kawaguchi, Japan; 2. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan

AR-02. Scaling Effect of Spin Torque Oscillators for Magnetic Read Sensor. X. Chao1, M. Jamali1 and J. Wang1 1. Electrical & Computer Eng., University of Minnesota, Minneapolis, MN

AR-03. Three-terminal spin-torque oscillator devices using MgO-based magnetic tunnel junctions. E.R. Evarts1, M. Pufall1 and W. Rippard1 1. Spin Electronics Group, National Institute of Standards and Technology, Boulder, CO

AR-04. Soft Magnetic Property and Magnetization Reversal Mechanism of Oblique Sputtered FeCoDy Thin Film for High-Frequency Application. Z. Xu1, Z. Zhang1, F. Hu1, E. Liu1 and F. Xu1 1. School of Materials Science and Engineering, Nanjing University of Science and Technology, Nanjing, China

AR-05. Impact of Polycrystalline Co Layer of High Frequency Impedance and Surface Magnetism of Amorphous FeNi-based Ribbons. T.M. Eggers1, D.S. Lam1,2, O. Thiaibhog1, J. Marcin1, P. Svec1, I. Skorvanek1, H. Srikanth1 and M. Phan1 1. Department of Physics, University of South Florida, Tampa, FL; 2. Faculty of Physics, Hanoi University of Science, Hanoi, Vietnam; 3. Institute of Experimental Physics, Slovak Academy of Sciences, Kosice, Slovakia; 4. Institute of Physics, Slovak Academy of Sciences, Bratislava, Slovakia

AR-06. Powerful And Tunable THz Emitters Based On The Fe/Pt Magnetic Heterostructure. D. Yang1, J. Liang2, C. Zhou1, L. Sun1, R. Zheng1, S. Luo2, Y. Wu1 and J. Qi1 1. The Peac Institute of Multiscale Sciences, Chengdu, China; 2. Department of Physics, State Key Laboratory of Surface Physics and Collaborative Innovation Center of Advanced Microstructure, Fudan University, Shanghai, China; 3. Department of Physics, Ocean University of China, Qingdao, China

AR-07. Perpendicularly Magnetized YIG-film Resonators and Waveguides with High Operating Power. M. Balinski1, B. Mongolov1, D. Gutierrez1, H. Chiang1, A.N. Slavin1 and A. Khitun1 1. University of California Riverside, Riverside, CA; 2. National Technical University of Ukraine, Kiev, Ukraine; 3. Physics, Oakland University, Rochester Hills, MI
AR-08. Wiedemann Effect Enabled Mechanical Mode Coupling to Ferromagnetic Resonance. S. Cho1, M. Cho1 and Y. Park1
1. Department of Physics & Astronomy, Seoul National University, Seoul, The Republic of Korea

AR-09. Circularly Polarized Antennas Realization by NiZn Ferrite Full Film Loading Substrates. W. Bao1, H. Lin1 and N.X. Sun2
1. ECE, Northeastern University, Boston, MA; 2. Northeastern University, Boston, MA

AR-10. Excitation of Spin Wave by Direct Injection of RF Current in NiFe Film. H. Chiang1, M. Balinskiy1, D. Gutierrez2 and A. Khitun1 1. Electrical and Computer Engineering, University of California, Riverside, Riverside, CA


AR-12. An Integrated Tunable Nonlinear Wideband Bandstop Filter. Y. Gao2,1, H. Chen1, X. Yang1, Y. He1, X. Wang1, Y. Wei1 and N.X. Sun1 1. ECE, Northeastern University, Boston, MA; 2. Winchester Technologies, LLC., Burlington, MA; 3. School of Information and Electronics, Beijing Institute of Technology, Beijing, China

AR-13. Radiated EMI Simulation for High-Power Ultra-Precision PMSM System Driven by PWM Converter. Y. Huangfu1 and S. Wang1 1. State Key Laboratory of Electrical Insulation and Power Equipment, School of Electrical Engineering, Xi’an Jiaotong University, Xi’an, China


TUESDAY GRAND BALLROOM
MORNING 9:30

Session AS
MAGNETIC SENSORS I
(Poster Session)
Daniel Gopman, Chair
National Institute of Standards and Technology, Gaithersburg, MD

AS-01. A New Sensor Structure for Rotational Core Loss Measurement of Nanocrystalline alloy. L. Chen1, Y. Wang1 and H. Zhao1 1. Hebei University of Technology, Tianjin, China

AS-03. Temperature and frequency-dependent dynamic magnetoresistance in silicon $p$–$n$ junction devices. W. Tao1, Y. Cao1, D. Yang1, Q. Liu2 and X.D. Sheng1. 1. Lanzhou University, Lanzhou, China; 2. Key Laboratory for Magnetism and Magnetic Materials of the Ministry of Education, Lanzhou University, Lanzhou, China.


AS-05. Effect of bias voltage on sensitivity-bandwidth product of single and series connected tunneling magnetoresistance sensors. M. Daheki1,2, P. Wisniowski1, T. Stobiec1, J. Wrona1, S. Cardoso4 and P.P. Freitas5. 1. Electronics, AGH University of Science and Technology, Krakow, Poland; 2. Silicon Creations, Krakow, Poland; 3. Singalus Technologies AG, Kahl am Main, Germany; 4. INESC-MN and IN – Institute of Nanoscience and Nanotechnology, Lisbon, Portugal; 5. INL-International Iberian Nanotechnology Laboratory, Braga, Portugal.


AS-08. New Method to Improve Linearity and Measurement Range of Tunneling Magnetoresistance Sensors. X. Wang1, J. Ouyang2, L. Chen1 and X. Yang3. 1. School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan, China; 2. Huazhong University of Science and Technology, Wuhan, China.

AS-10. A high-sensitivity zero-biased magnetoelectric sensor using five-phase laminate composites based on FeCoV nanocrystalline soft magnetic alloy. J. Qiu1, Y. Wen1, P. Li1 and X. Xu1 1. College of Optoelectronic Engineering, Chongqing University, Chongqing, China

AS-11. Temperature induced ringing in low-field magnetic sensors. N. Prabhu Gaunkar1, C.I. Nlebedim1, I. Bulu2, M. Mina1, Y. Song2 and D.C. Jiles1 1. Iowa State University, Ames, IA; 2. NMR Fluids Research Division, Schlumberger-Doll Research, Cambridge, MA

AS-12. A Miniaturized Magnetoelectric Device Based on Single-Phase Hexaferrite in Sensor/Tuning Applications. S. Zare1 and C. Vittoria2 1. Northeastern University, Boston, MA; 2. ECE, Northeastern University, Boston, MA

AS-13. Detectivity of Highly Sensitive MTJ arrays for bio-magnetic field sensor. S. Cakir1, D. Kato1, K. Fujiwara1, J. Jono2, M. Oogane1 and Y. Ando1 1. Applied Physics, Tohoku University, Sendai, Japan; 2. Konica Minolta Inc., Tokyo, Japan

AS-14. Investigation of a Dual-Stator Magnetic Gravity Compensator for Vibration Isolation System. B. Kou1, Y. Zhou1, F. Xing1, X. Yang1 and H. Zhang1 1. School of Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, China; 2. Electrical Engineering, Harbin Institute of Technology, Harbin, China

Session AT
MAGNETO-ELASTIC AND MAGNETO-OPTIC MATERIALS
(Poster Session)
Nicholas Jones, Co-Chair
Naval Surface Warfare Center, Carderock Division, Bethesda, MD
Bethanie Stadler, Co-Chair
University of Minnesota, Minneapolis, MN

AT-01. Magneto-optical spectra of Ni-Mn-In-Si based Heusler alloys thin films in martensitic and austenitic states.
1. University of Nebraska-Lincoln, Lincoln, NE; 2. Department of Physics, Moscow State University, Moscow, Russian Federation; 3. Physics, Southern Illinois University Carbondale, Carbondale, IL; 4. Department of Physics and Astronomy, Louisiana State University, Baton Rouge, LA; 5. Phys. Mater., UPV/EHU, San Sebastián, Spain; 6. Lappeenranta University of Technology, Lappeenranta, Finland; 7. Lincoln Southwest High School, Lincoln, NE; 8. Hasemie University, Zarqa, Jordan; 9. University of Nebraska - Omaha, Omaha, NE

Y. Li, B. Wang, W. Huang, R. Zhao and X. Cui.
1. Key Laboratory of Electro-Magnetic Field and Electrical Apparatus Reliability of Hebei Province, Hebei University of Technology, Tianjin, China; 2. School of Mechanical and Electrical Engineering, Nanchang Institute of Technology, Nanchang, China

AT-03. Thickness dependence of solid-state single crystal conversion in magnetostrictive Fe-Ga alloy from thin foil to thick sheet.
S. Na and A.B. Flatau.
1. Aerospace Engineering, University of Maryland, College Park, MD

AT-04. Compressive pre-stress effects on magnetostrictive behaviors of highly textured Galfenol and Alfenol thin sheets.
J. Downing, S. Na and A.B. Flatau.
1. Materials Science and Engineering, University of Maryland, College Park, MD; 2. Aerospace Engineering, University of Maryland, College Park, MD

B. Yan.
1. Zhejiang University, Zhejiang Province, China

AT-06. Large Room-Temperature Magnetostrain in Magnetic Field-Aligned MnGaGeCo Compound.
1. Physics, Nanjing University, Nanjing, China; 2. Department of Mathematics and Science, Luoyang Institute of Science and Teleology, Luoyang, China; 3. Changshu Institute of Technology, Soochow, China
Enhancement of directional sensitivity of magnetostrictive phased array sensor using a circular comb-shaped nickel patch. B. Yoo¹ and D.J. Pines¹. 1. Aerospace Engineering, University of Maryland, College Park, MD

Structural Design and Output Characteristic Analysis of Magnetostrictive Actuator. B. Wang¹, X. Cui², Y. Li¹, Z. Zou¹ and W. Huang¹. 1. Key Laboratory of Electro-magnetic Field and Electrical Apparatus Reliability of Hebei Province, Hebei University of Technology, Tianjin, China

Large electric field tunability of microwave ferromagnetic properties of Fe₈₇₆Co₂₄₄B₃₄₃/PZN-PZN multiferroic heterostructure. S. Li¹,², R. Yang¹, N.X. Sun² and H. Lin³. 1. Qingdao University, Qingdao, China; 2. National Laboratory of Solid State Microstructures, Nanjing University, Nanjing, China; 3. Northeastern University, Boston, MA

Field-Anneal-Induced Magnetic Anisotropy in Highly Textured Fe-Al Magnetostrictive Strips. J. Park¹, S. Na¹ and A.B. Flatau¹. 1. Aerospace Engineering, University of Maryland, College Park, MD

Effect of magnetic fields on the green color formation in frog skin. H. Kashiwagi¹, A. Kashiwagi² and M. Iwasaka¹. 1. AdSM, Hiroshima University, Higashi-Hiroshima, Japan; 2. Graduate School of Science, Institute for Amphibian Biology, Hiroshima University, Hiroshima-Hiroshima, Japan; 3. Research Institute for Nanodevice and Bio Systems, Hiroshima University, Higashi-Hiroshima, Japan

Magneto-Optical Spectroscopy Of Ce₀.₉₅₋ₓHₓFe₀.₅O₂₋ₓ Thin Films. M. Zahradnik¹, L. Beran¹, R. Antoš¹, M. Kucera¹, M. Veis¹, M. Li², J. Qin², Y. Zhang² and L. Bi². 1. Charles University, Prague, Czech Republic; 2. National Engineering Research Center of Electromagnetic Radiation Control Materials, University of Electronic Science and Technology of China, Chengdu, China

Magneto-optical Properties of BiLuIG Single Crystal Film with in-plane easy magnetization axis. Q. Yang¹. 1. University of Electronic Science and Technology of China, Chengdu, China

Magneto-optical Properties Of Ultrathin Ce:YIG Films On (100), (110) And (111) GGG Substrates. L. Beran¹, M. Onbasli², M. Zahradnik¹, L. Ohnoutek¹, R. Antoš¹, M. Kucera¹, C.A. Ross² and M. Veis¹. 1. Charles University, Prague, Czech Republic; 2. MIT, Cambridge, MA

Optical And Magneto-Optical Properties Of Gd₁₈.₃Fe₈₁.₇ And Gd₂₄.₇Fe₇₅.₃ Thin Films In The Photon Energy Range From 1.5 To 5.5 eV. E. Jesenska¹,², J. Dušek¹, L. Beran¹, R. Antoš¹, M. Pavelka¹, T. Ishibashi², K. Kuga¹, K. Aoshima¹, K. Machida¹, H. Kinjo³ and M. Veis¹. 1. Institute of Physics, Charles University in Prague, Prague, Czech Republic; 2. Department of Materials Science & Technology, Niigata City, Japan; 3. Science and Technology Research Laboratories, NHK Japan Broadcasting Corporation, Tokyo, Japan
Session AU

ELECTRONIC STRUCTURE
(Poster Session)

Oscar Cespedes, Chair
University of Leeds, Leeds, United Kingdom

AU-01. Tailoring of detrimental effect of surface states on spin polarization of Co2MnSi. J. Herran1, I. Tutic2, P. Grey3, E. Kiryanov4, P. Lukashev2 and A. Sokolov1. 1. Chemistry, University of Northern Iowa, Cedar Falls, IA; 2. Physics, University of Northern Iowa, Cedar Falls, IA; 3. Computer Science, University of Northern Iowa, Cedar Falls, IA; 4. Lincoln South West High School, Lincoln, NE; 5. Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE

AU-02. A Warping Effect of Dirac Cone by the Perturbation up to 5th Order under the Symmetry of C3v. K. Kondo1 and H. Teramoto2. 1. Laboratory of Nanostructure Physics, Research Institute for Electronic Science, Hokkaido University, Sapporo, Japan; 2. Molecule & Life Nonlinear Sciences Laboratory, Research Institute for Electronic Science, Hokkaido University, Sapporo, Japan


AU-04. Effects of Rattling Vibrations in the ESR of Er3+ Doped Kondo Insulator SmB6. G.G. Lesseux1, P.F. Rosa2, P. Pagliuso1, R.R. Urbano1, Z. Fisk3, P. Schlottmann4 and C. Rettori1,5. 1. IFGW - University of Campinas, Campinas, Brazil; 2. Los Alamos National Laboratory, Los Alamos, NM; 3. Department of Physics and Astronomy, University of California Irvine, Irvine, CA; 4. Department of Physics, Florida State University, Tallahassee, FL; 5. CCNH - Universidade Federal do ABC, Santo André, Brazil

AU-05. Strain effects on spin state of Li1FePt as measured by x-ray emission spectroscopy. P. Quarterman1, J. Deng2, C. Sun3, J. Chen2 and J. Wang4. 1. Electrical Engineering, University of Minnesota, Minneapolis, MN; 2. Materials Science and Engineering, National University of Singapore, Singapore, Singapore; 3. Advanced Photon Source, Argonne National Laboratory, Argonne, IL; 4. Electrical and Computer Engineering, School of Physics & Astronomy, Minneapolis, MN

AU-06. Pressure-induced structural, magnetic and transport transitions in Sr2FeO4 from the first-principles. T. Jia1, Z. Zeng2,3 and H. Lin4. 1. Key Laboratory of Materials Physics, Institute of Solid State Physics, Chinese Academy of Sciences, Hefei, China; 2. University of Science and Technology of China, Hefei, China; 3. Beijing Computational Science Research Center, Beijing, China
AU-07. Relating Symmetry to Magnetic Anisotropy in a Trigonal MnIII Complex Using EPR. J.J. Marbey1, P. Gan2, E. Yang2 and S. Hill1. 1. Florida State University and NHMFL, Tallahassee, FL; 2. Chemistry Department, Fu Jen Catholic University, Taipei, Taiwan


AU-09. Electronic Structure and Magnetism of the Heusler Alloys Co2VIn and CoVIn. Z.W. Muthui1,2, R. Pathak3, J.M. Mwabora1, R.J. Musembi1, R. Skomski4 and A. Kashyap5. 1. Physics, University of Nairobi, Nairobi, Kenya; 2. School of Basic Sciences, Indian Institute of Technology, Mandi, Mandi, India; 3. Physics and Astronomy, University of Nebraska - Lincoln, Lincoln, NE

AU-10. Thickness-dependent magnetism of a CrPt3(001) thin film. T. Jeong1, S. Jekal1, S. Rhim1 and S. Hong1. 1. Physics, University of Ulsan, Ulsan, The Republic of Korea

AU-11. The Role of Crystal Field Effects on the Topological States in Rare Earth Doped Half-Heuslers. J.C. Souza1, G.G. Lesseux2, C.R. Jesus3, R.R. Urbano1, C. Rettori1 and P. Fagliuso1. 1. DEQ, Instituto de Física Gleb Wataghin - Unicamp, Campinas, Brazil; 2. IFGW-Unicamp, Campinas, Brazil; 3. Eletrônica Quântica, Universidade Estadual de Campinas, Campinas, Brazil

AU-12. Spin-polarization Trade-off of the Co2FeAl Heusler Compound Probed by X-ray Magnetic Spectroscopy. J. Liang1, S. Chang1, Y. Lin1 and Y. Tseng1. 1. Materials Science & Engineering, National Chiao-Tung University, Hsin-Chu, Taiwan

AU-13. First-principles insights into magnetic insulators proximity induced effect in graphene. A. Hallali1, F. Ibrahim1, H. Yang1, S. Roche1 and M. Chshiev1. 1. UMR 8191 CEA/CNRS/ULF, SPINTEC, Grenoble, France; 3. Catalan Institute of Nanoscience and Nanotechnology (ICN2), Barcelona, Spain


AU-15. First principles investigation of the Co(0001)/MoS2 and Ni(111)/WSe2 interfaces for spin injection in a transition metal dichalcogenide monolayer. T. Garandel1,2, R. Arras1, X. Marie2, P. Renucci2 and L. Calmels1. 1. CEMES-CNRS, Toulouse Cedex 4, France; 2. INSA, LPCNO, Toulouse, France
AV-01. Anisotropic magnetoelectric coupling effect in magnetization-graded multiferroic composites. L. Chen¹² and Y. Wang² 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

AV-02. Strain-induced 180° magnetization switching in Fe/BaTiO₃(110) heterostructured multiferroics. G. Venkataiah¹, M. Itoh² and T. Taniyama² 1. School of Physics, University of Hyderabad, Hyderabad, India; 2. Laboratory for Materials and Structures, Tokyo Institute of Technology, Yokohama, Japan

AV-03. Surface-effect Enhanced Magneto-electric Coupling In FePt/PMN-PT Multiferroic Heterostructures. Y. Yang¹², J. Li¹², X. Peng¹², X. Wang¹², B. Hong¹² and H. Ge¹² 1. College of Materials Science and Engineering, China Jiliang University, Hangzhou 310018, China; 2. Zhejiang Province Key Laboratory of Magnetism, China Jiliang University, Hangzhou 310018, China

AV-04. Electric-field control of magnetization in the flexible P(VDF-TrFE)/CoFeB multiferroic heterostructure. Z. Tang¹, J. Gao¹, L. Wang¹, H. Ni¹ and Y. Qi¹ 1. Department of Physics, The University of Hong Kong, Hong Kong, Hong Kong

AV-05. Giant non-volatile modulation of magnetic moments at the interface of La₀.₇Sr₀.₃MnO₃/PbZr₀.₂Ti₀.₈O₃ at room temperature. Q. Liu¹, J. Miao¹, K. Meng¹, Y. Wu¹, X. Xu¹ and Y. Jiang¹ 1. University of Science and Technology Beijing, Beijing, China

AV-06. Interchanged core/shell assembly of diluted magnetic semiconductor CeO₂ and ferromagnetic ferrite Fe₃O₄ for electromagnetic wave absorption. J. Wang¹², P. Zhu¹, J. Wang¹ and S. Or² 1. Department of Mechanical Engineering, Hefei University of Technology, Hefei, China; 2. Department of Electrical Engineering, The Hong Kong Polytechnic University, Kowloon, Hong Kong
AV-07. Ionic-liquid Gating of Perpendicularly Magnetized CoFeB/MgO Thin Films. Y. Liu1, G. Agnus1, S. Ono1, L. Ranno2, A. Bernard-Mantel1, R. Soucaille1, J. Adam1, J. Langer1, B. Ocker1, D. Ravelosona1 and L.H. Diez1. 1. Centre de Nanosciences et de Nanotechnologies, CNRS, Univ. Paris-Sud, Université Paris-Saclay, Orsay, France; 2. Institut Néel, CNRS and Université Joseph Fourier, Grenoble, France.

AV-08. A non-volatile memory based on nonlinear magnetoelectric effects. J. Shen1, J. Cong1, Y. Chai1, D. Shang1, S. Shen1, K. Zhai1, Y. Tian1 and Y. Sun1. 1. Institute of Physics, Chinese Academy of Sciences, Beijing, China.

AV-09. Effect of Residual Strain on the Electronic Transport and Magnetoresistance Properties of Multiferroic in thin film of La_{0.7}Ca_{0.3}MnO_{3}/0.7Pb(Mg_{1/3}Nb_{2/3})O_{3}-0.3PbTiO_{3}. Y. Qi1, J. Gao1 and L. Wang2. 1. Physics, The University of Hong Kong, Hong Kong, Hong Kong; 2. School of Materials Science and Engineering, Shanghai University, Shanghai, China.

AV-10. Coexistence of large tunneling electroresistance and tunneling magnetoresistance in multiferroic tunnel junctions. L. Jiang1, L. Tao2, B. Yang1, J. Wang2 and X. Han1. 1. Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences, Beijing, China; 2. Department of Physics and the Center of Theoretical and Computational Physics, The University of Hong Kong, Hong Kong, China.

AV-11. Co-existence of Tetragonal and Pseudo-cubic Phases in BiFeO_{3} Film Deposited on TiN Under Layer. Y. Wang1, J. Wang2, T. Harumoto1, Y. Nakamura1, K. Nakada4, S. Nakagawa1 and J. Shi1. 1. School of Materials and Chemical Engineering, Tokyo Institute of Technology, Tokyo, Japan; 2. Magnetic Materials Unit, Magnetic Materials Gr., National Institute for Materials Science (NIMS), Tsukuba, Japan; 3. Technical Center, TDK Corporation, Tokyo, Japan; 4. Engineering School, Tokyo Institute of Technology, Tokyo, Japan.
Session AW
FUNDAMENTAL PROPERTIES: SPIN GLASSES AND FRUSTRATION I
(Poster Session)
Naëmi Leo, Chair
Paul Scherrer Institute, Villigen PSI, Switzerland

AW-01. Low temperature magnetic properties of Fe2MnAl thin films. V. Novosad1, P.N. Lap1, J.E. Pearson1, A. Bogach2, M. Gorshenkov3 and V. Khovaylo3. 1. Materials Science Division, Argonne National Laboratory, Argonne, IL; 2. Prokhorov General Physics Institute, Moscow, Russian Federation; 3. National University of Science and Technology "MISIS", Moscow, Russian Federation

AW-02. Withdrawn

AW-03. Evidence For Reentrant Spin Glass Behavior in Co52.5M1Ga41.5 (M = Cr, Fe, Co). S. Yasin1, M. Vagadia2, S. Kasiviswanathan1, V. Srinivas1 and A.K. Nigam2. 1. Materials Science Division, Argonne National Laboratory, Argonne, IL; 2. Department of Condensed Matter Physics and Materials Science, Tata Institute of Fundamental Research, Mumbai, India

AW-04. Magnetic Dynamics of Interacting Cu0.25Co0.25Zn0.5Fe2O4 Nanoparticles. H. Bhargava1, L. Nambakkat2 and K. Venugopalan3. 1. Dept. of Physics, T John Institute of Technology, Bangalore, India; 2. Department of Physics, Mohan Lal Sukhadia University, Udaipur, India

AW-05. Low-energy singlet sector in spin-1/2 J1-J2 Heisenberg model on square lattice. A. Aktersky1. 1. Petersburg Nuclear Physics Institute, St Petersburg, Russian Federation

AW-06. Magnetic susceptibility and specific heat of Cs2CuCl4-xBrx (x = 0-4) single crystals. H. Xu1, J. Song1, J. Wu1, X. Liu1, J. Zhao1, X. Zhao2 and X. Sun1. 1. Hefei National Laboratory for Physical Sciences at Microscale, University of Science and Technology, Hefei, China; 2. School of Physical Sciences, University of Science and Technology of China, Hefei, China

AW-07. Local Structure And d-electron Occupancy In The Disordered S = 3/2 Spin System BaTi1/2Mn1/2O3. R.L. Sorzano1, F.A. Garcia2, R.P. Amaral1, E. Granado3, U.F. Kaneko3, J.G. Duque3, P. Pagliuso4 and J. Sichelschmidt5. 1. Institute of Physics, Federal University of Uberlândia, Uberlândia, Brazil; 2. IFUSP, Univ. de São Paulo, 05508-090, São Paulo, Brazil; 3. Inst Fis Gley Wataghin, Univ. Estadual de Campinas, 13083-970, Campinas, Brazil; 4. DEQ, Instituto de Física Gley Wataghin - Unicamp, Campinas, Brazil; 5. Max Planck Institute for Chemical Physics of Solids, D-01187, Dresden, Germany
AW-08. **Synthesis and magnetic characterization of DMF-protected Gold nanoclusters**. M. Inada1, T. Koshida1, Y. Yoshihara1, A. Matsuo2, Y. Yamamoto3 and T. Saitoh1 1. Pure and Applied Physics, Kansai University, Osaka, Japan; 2. ISSP, Univ. of Tokyo, Kashiwa, Japan; 3. Engineering Science, Akita University, Akita, Japan

AW-09. **Structural and Antiferromagnetic Properties of Sm-doped Chrysene**. X. Wang1,2, G. Zhong1,3, J. Han1,4, X. Chen1 and H. Lin1 1. Beijing Computational Science Research Center, Beijing, China; 2. Department of Physics, University of Science and Technology of China, Hefei, China; 3. Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China; 4. Peking University, Beijing, China; 5. Center for High Pressure Science and Technology Advanced Research, Shanghai, China

AW-10. **Quantum effects in nanomagnets by means phase-space Weyl symbols**. R. Vai1,2 1. Institute for Complex Systems, National Research Council, Sesto Fiorentino (FI), Italy; 2. Sezione di Firenze, Istituto Nazionale di Fisica Nucleare, Sesto Fiorentino (FI), Italy

AW-11. **Structural and magnetic properties of spin-1/2 layered ferrimagnet Bi2Cu5B4O14**. U. Arjun1, R. Nath1 and V. Ramakrishnan1 1. Physics, Indian Institute of Science Education and Research, Trivandrum, India

AW-12. **Magnetic-glassy behavior associated with discontinuous Morin type spin reorientation transition in SmCrO3**. M. Tripathi1, R.J. Choudhary1 and D.M. Phase1 1. Magnetization Lab, UGC DAE Consortium for Scientific Research, Indore, India

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TUESDAY MARDI GRAS A-E AFTERNOON 1:30

Session BA

**SYMPOSIUM: TOPOLOGICAL INSULATOR/ FERROMAGNET HETEROSTRUCTURES FOR SPINTRONICS**

Shufeng Zhang, Chair
University of Arizona, Tucson, AZ

1:30

**BA-01. Enhanced spin Seebeck effect in topological insulator/magnetic insulator heterostructures. (Invited)** J. Shi1, Z. Jiang1, C. Chang2, M. Ramezani Masri2, C. Tang1, Y. Xu1, J. Moodera2 and A.H. MacDonald2 1. Department of Physics and Astronomy, University of California Riverside, Riverside, CA; 2. Francis Bitter Magnet Lab, MIT, Cambridge, MA; 3. Department of Physics, University of Texas at Austin, Austin, TX
BA-02. Room temperature spin pumping and giant spin Hall effect in topological insulator and ferromagnet heterostructures. (Invited) J. Wang, M. Jamali, J. Lee, J. Jeong, F. Mahfouzi, B. Nikolic, N. Samarth, K.A. Mkhoyan, D. Mahendra, Y. Lv and Z. Zhao. 1. Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN; 2. Physics, Penn State University, University Park, PA; 3. Physics, University of Delaware, Newark, DE; 4. Materials Science, University of Minnesota, Minneapolis, MN; 5. Department of Physics, University of Minnesota, Minneapolis, MN


Session BB

SPIN HALL EFFECT I

Olivier Boulle, Chair
Spintec, Grenoble cedex 9, France

1:30

BB-01. Spin Hall Effect In Epitaxial Cu(111) Films With δ-doped Bi Measured By H-Pattern. (Invited) C. Chen1 and X. Jin1
1. Fudan University, Shanghai, China

2:06

BB-02. Tuning the Spin Hall Effect of Pt from the Moderately Dirty to the Superclean Regime. E. Sagasta1, Y. Omori2, M. Isasa1, M. Gradhand1, L.E. Hueso1,4, Y. Niimi2,5, Y. Otani2,6 and F. Casanova1,4 1. CIC nanoGUNE, Donostia-San Sebastian, Spain; 2. ISSP, University of Tokyo, Kashiwa, Japan; 3. University of Bristol, Bristol, United Kingdom; 4. IKERBASQUE, Bilbao, Spain; 5. Department of Physics, Osaka University, Toyonaka, Japan; 6. RIKEN-CEMS, Wako, Japan

2:18

BB-03. Significantly Enhanced Spin Hall Angle of Pd by B Doping. P. Chen1, Y. Du1, C. Lai1 and M. Pakala2 1. National Tsing Hua University, HsinChu, Taiwan; 2. Applied Materials, Inc., Santa Clara, CA

2:30


2:42

BB-05. Spin Hall Effects from Mesoscopic NiFe Films in Lateral Structures. C. Qin1, S. Chen1, Y. Cai1 and Y. Ji1 1. Department of Physics and Astronomy, University of Delaware, Newark, DE

2:54

BB-06. Is MOKE a viable method for probing spin Hall effect in metals? Y. Su1, H. Wang1, C. Tian1, X. Jin1 and Y. Shen1,2 1. Fudan University, Shanghai, China; 2. University of California, Berkeley, Berkeley, CA

3:06

BB-07. Ferromagnetic/nonmagnetic nanostructures for the electrical measurement of the Spin Hall effect. V. Pham1, L. Vila1, G. Zahnd1, A. Marty1, P. Noël1, W. Savero-Torres1 and J. Attane1 1. SPINTEC, INAC, CEA-Grenoble, Grenoble, France

BB-09. Ultra-low-current spin Hall nano-oscillators based on NiFe/W bilayers. H. Mazraati1,2, S. Chung2,3, A. Houshang3, F. Qejvanaj1,2, S. Jiang2, T.Q. Le2 and J. Åkerman1,3 1. NanOsc AB, Stockholm, Sweden; 2. Materials and Nano Physics, School of ICT, KTH Royal Institute of Technology, Stockholm, Sweden; 3. Physics, University of Gothenburg, Gothenburg, Sweden

BB-10. Enhancement of Spin Hall Oscillator Power via Giant Magneto-Resistance Effect. J. Chen1, A. Smith1 and I. Krivorotov1 1. Physics and Astronomy, University of California, Irvine, Irvine, CA

BB-11. Spin Hall and spin swapping torques in ferromagnets. C. Ortiz Pauyac1,2, S. Nikolaev2, M. Chshiev2 and A. Manchon3 1. King Abdullah University of Science and Technology, Thuwal, Saudi Arabia; 2. UMR 8191 CEA/CNRS/UJF, SPINTEC, Grenoble, France; 3. King Abdullah University of Science and Technology, Thuwal, Saudi Arabia


BB-13. Compositional dependence of interfacial spin-orbit phenomena in CoFe1-x/Pt bilayers. E. Edwards1, J. Shaw1, M. Weiler2,3 and H. Nembach1 1. Quantum Electromagnetics Division, National Institute of Standards and Technology, Boulder, CO; 2. Walther-Meißner-Institut, Bayerische Akademie der Wissenschaften, Garching, Germany; 3. Physik-Department, Technische Universität München, Garching, Germany
Session BC
MAGNETIC SKYRMIONS II
Vincent Cros, Chair
Unité Mixte de Physique CNRS/Thales, Palaiseau, France

1:30
BC-01. Skyrmion Generation by Domain Wall and Magnetic Skyrmion Motion in the Antiferromagnetically Exchange-coupled Bilayer System. (Invited) Y. Zhou1. Physics, The University of Hong Kong, Hong Kong, Hong Kong

2:06

2:18
BC-03. Magnetic Skyrmion Racetrack Memory with Voltage Manipulation. W. Kang1, Y. Huang1, X. Zhang2, Y. Zhou2 and W. Zhao1. Beihang University, Beijing, China; 2. University of Hong Kong, Hong Kong, China

2:30
BC-04. Topological Torques in Magnetic Skyrmions and Vortices. C.A. Akosa1, P.B. Ndiaye1 and A. Manchon1. I. Material Science & Engineering, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia

2:42

3:18
BC-06. Voltage controlled reversal of fixed magnetic skyrmions. D. Bhattacharya1, M. Al-Rashid2 and J. Atulasimha1. Virginia Commonwealth University, Richmond, VA; 2. Electrical and Computer Engineering, Virginia Commonwealth University, Richmond, VA
D.A. Gilbert1, T. Stückerl2, K. Lenz3, I. Gilbert4, J. Unguris4,  
B.B. Maranville1, J. Fassbender3, H. Yu2, K. Liu3 and  
J. Borchers1 1. NIST Center for Neutron Research, National  
Institute of Standards and Technology, Gaithersburg, MD;  
2. Fert Beijing Research Institute, School of Electronic and  
Information Engineering, Beihang University, Beijing, China;  
3. Helmholtz-Zentrum Dresden-Rossendorf, Institute of Ion  
Beam Physics and Materials Research, Dresden, Germany;  
4. Center for Nanoscale Science and Technology, National  
Institute of Standards and Technology, Gaithersburg, MD;  
5. Physics Department, University of California. Davis, CA

BC-08. Ultrafast dynamics of skyrmions in multiferroic compound  
Cu2OSeO3. S. Roy1, M. Langner2, S. Huang3, Y. Chuang1,  
J.C. Lee1, G. Dakovski3, J. Turner3, J. Robinson3, S. Seki4,  
Y. Tokura4 and R. Schoenlein3 1. Advanced Light Source,  
Lawrence Berkeley National Laboratory, Berkeley, CA;  
2. Materials Sciences Division, Lawrence Berkeley National  
Laboratory, Berkeley, CA; 3. LCLS, SLAC National Accelerator  
Laboratory, Menlo Park, CA; 4. RIKEN, Center for Emergent  
Matter Science, Wako 351-0198, Japan

BC-09. Skyrmion Gas Manipulation for Unconventional  
Computing. D. Pinna1, J. Kim3, V. Cros1, D. Querlioz2,  
P. Bessière2, J. Droulez2 and J. Grollier1 1. Unité Mixte de  
Physique CNRS/Thales, Palaiseau, France; 2. Institut des  
Systèmes Intelligents et de Robotique - UPMC, Paris, France;  
3. C2N Centre for Nanoscience and Nanotechnology - CNRS,  
Univ. Paris-Sud, Orsay, France

BC-10. Skyrmionic Synaptic Device With Weight Plastisity.  
Y. Huang1,2, W. Kang1,2 and W. Zhao1,2 1. Fert Beijing Research  
Institute, Beihang University, Beijing, China; 2. Beijing  
Advanced Innovation Center for Big Data and Brain Computing  
(BDBC), Beihang University, Beijing, China

BC-11. Investigation of the Dzyaloshinskii-Moriya Interaction in  
W/CoFeB/MgO with room temperature skyrmions.  
S. Jaiswal1,2, K. Litzius1,3, J. Langer2, G. Jakob3, B. Ocker2 and  
M. Kläui1 1. Institute of Physics, Johannes Gutenberg  
Universität Mainz, Mainz, Germany; 2. Singulus Technologies  
AG, Kahl am Main, Germany; 3. Max Planck Institute for  
Intelligent Systems, Stuttgart, Germany
Session BD

DOMAIN WALL AND DOMAIN WALL DEVICES I
Vincent Sokalski, Chair
Carnegie Mellon, Pittsburgh, PA

1:30

BD-01. Adiabatic spin transfer torque induced domain wall creep in a magnetic metal. (Invited) S. Duttagupta1, S. Fukami1,2, M. Yamanouchi1,2, C. Zhang1, H. Sato1,2, F. Matsukura1,2 and H. Ohno1,2. 1. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 2. Centre for Spintronics Integrated Systems, Tohoku University, Miyagi, Japan; 3. Centre for Innovative Integrated Electronic Systems, Tohoku University, Sendai, Japan

2:06

BD-02. Spin-orbit torque induced high speed domain wall motion in Co/Pt dual stack. P. Sethi1,2, S. Krishna1, W. Gan1, F.N. Kholid1, Y. Chen2, S.H. Leong2 and W. Lew1. 1. Division of Physics and Applied Physics, School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore; 2. Data Storage Institute, (A*STAR) Agency for Science, Technology and Research, Singapore, Singapore

2:18

BD-03. Efficient Magnetic Domain Wall Propagation by Spin Transfer Torque in Ferrimagnetic Alloys. J. Sampaio1, R. Weil1, E. Haltz1 and A. Mougin1. 1. CNRS, Univ. Paris-Sud, Universite Paris-Saclay, Laboratoire de Physique des Solides, Orsay, France

2:30

BD-04. Synthetic ferrimagnet nanowires with very low critical current density for coupled domain wall motion. S. Lepadatu1,2, H.M. Saarikoski3, R. Beacham4, M. Benitez4, T. Moore1, G. Burnell1, S. Sugimoto5, D. Yesudas1, M.C. Wheeler1, J. Miguel1, S. Dhesi1, D. McGrouther2, S. McVitie4, G. Tatara1 and C.H. Marrows1. 1. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 2. School of Physical Sciences and Computing, University of Central Lancashire, Preston, United Kingdom; 3. RIKEN CEMS, Wako, Saitama, Japan, Wako, Japan; 4. Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom; 5. Diamond Light Source, Didcot, United Kingdom

2:42

BD-05. Precession Torque Driven Domain Wall Motion in Out Of Plane Materials. M. Peeters1, F. Ummelen1, M.L. Lalieu1, J. Kim1, H. Swagten1 and B. Koopmans1. 1. Applied Physics, Eindhoven University of Technology, Eindhoven, Netherlands
BD-06. Ring-shaped Racetrack memory based on spin orbit torque driven chiral domain wall motion. Y. Zhang1, X. Zhang1,2, J. Hu3, J. Nan4, Z. Zheng1, Z. Zhang1, Y. Zhang1, N. Vernier2, D. Ravelosona2 and W. Zhao1 1. Fert Beijing Institute, Beihang University, Beijing, China; 2. IEF, Univ. Paris-Sud/CNRS, Orsay, France; 3. School of Electrical and Computer Engineering, Oklahoma State University, Stillwater, OK

3:06

BD-07. Withdrawn

3:18

BD-08. Local studies of domain wall dynamics using anomalous Nernst effect. J. Wells1, P. Krzysteczko2, H.W. Schumacher3, R. Mansell1, R. Cowburn1 and O. Kazakova1 1. National Physical Laboratory, Teddington, United Kingdom; 2. Nanomagnetism, PTB, Braunschweig, Germany; 3. University of Cambridge, Cambridge, United Kingdom

3:30

BD-09. Influence of Interfacial Dzyaloshinskii-Moriya Interaction and Damping on Domain Wall Behaviour in Structurally Modulated Nanowires. J. Brandao1,2 and D. Atkinson1,2 1. Durham University, Durham, United Kingdom; 2. Centre for Materials Physics, Durham University, Durham, United Kingdom

3:42

BD-10. Electric-current-induced dynamics of bubble domains in ferrimagnetic Tb/Co multilayer wires below and above the magnetic compensation point. M. Tanaka1, S. Sumitomo1, N. Adachi1, S. Honda2, A. Hiroyuki1 and K. Mibu1 1. Nagoya Institute of Technology, Nagoya, Japan; 2. Kansai University, Suita, Japan; 3. Toyota Technological Institute, Nagoya, Japan

3:54


4:06

BD-12. In Situ TEM Investigation of Domain Walls in Nanostructured FeRh-Based Thin Films. T.P. Almeida1, R.C. Temple2, J. Massey2, K. Fallon1, D. McGrouther1, C.H. Marrows2 and S. McVitie1 1. School of Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom; 2. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom

Tuesday 43
BE-04. Engineering of positive and negative perpendicular magnetic anisotropy in W/Fe/W trilayer. Y. Matsumoto\textsuperscript{1}, S. Okamoto\textsuperscript{1,2}, N. Kikuchi\textsuperscript{1,2}, O. Kitakami\textsuperscript{1,2} and Y. Miura\textsuperscript{3}
1. IMRAM, Tohoku University, Sendai, Japan; 2. CSRN, Tohoku University, Sendai, Japan; 3. Electrical Engineering and Electronics, Kyoto Institute of Technology, Kyoto, Japan

BE-05. Reconfigurable magnetic states in multi-layered synthetic antiferromagnets. A. Fernandez-Pacheco\textsuperscript{1}, N. Steinke\textsuperscript{2}, A. Welbourne\textsuperscript{1}, S. Chin\textsuperscript{1}, D. Mahendru\textsuperscript{1}, R. Mansell\textsuperscript{1}, D.C. Petit\textsuperscript{1}, J. Lee\textsuperscript{1}, R. Dalgliesh\textsuperscript{2}, S. Langridge\textsuperscript{1} and R. Cowburn\textsuperscript{1}
1. University of Cambridge, Cambridge, United Kingdom; 2. Rutherford Appleton Laboratory, ISIS Neutron Source, Oxon, United Kingdom; 3. Rutherford Appleton Laboratory, Chilton, United Kingdom

BE-06. Exchange Spring Effect in Py/Gd Bilayer and Multilayer Films. P.N. Lapa\textsuperscript{1,2}, J. Ding\textsuperscript{1}, J.E. Pearson\textsuperscript{1}, V. Novosad\textsuperscript{1}, S. Jiang\textsuperscript{1} and A. Hoffmann\textsuperscript{1}
1. Materials Science Division, Argonne National Laboratory, Argonne, IL; 2. Department of Physics and Astronomy, Texas A&M University, College Station, TX

BE-07. $T_C$ Localization Limit in Compositionally Graded Co$_{1-x}$Ru$_x$ alloy films. B.J. Kirby\textsuperscript{1}, L. Fallarino\textsuperscript{2}, M. Pancaldi\textsuperscript{2}, P. Riego\textsuperscript{2} and A. Berger\textsuperscript{2}
1. NIST Center for Neutron Research, NIST, Gaithersburg, MD; 2. CIC nanoGUNE, San Sebastian - Donostia, Spain

BE-08. Probing the depth dependent magnetization of FeGa/NiFe multilayers using polarized neutron reflectometry. C.R. Rementer\textsuperscript{1}, M.E. Jamer\textsuperscript{2}, J. Borchers\textsuperscript{2}, A. Grutter\textsuperscript{2}, B.J. Kirby\textsuperscript{2}, Q. Xu\textsuperscript{3}, P. Nordeen\textsuperscript{3}, G. Carman\textsuperscript{3}, Y. Wang\textsuperscript{3} and J.P. Chang\textsuperscript{1}
1. Chemical and Biomolecular Engineering, UCLA, Los Angeles, CA; 2. Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD; 3. Mechanical & Aerospace Engineering, UCLA, Los Angeles, CA

BE-09. Magnetic Proximity Asymmetries Illuminated by Combined PNR and XRMS Profiling of Pt/CoFeB/Ta/Pt Trilayers. C. Kinane\textsuperscript{1}, O. Inyang\textsuperscript{3}, L. Bouchenoire\textsuperscript{3}, M. Tokac\textsuperscript{5}, T. Charlton\textsuperscript{1,4}, T.P. Hase\textsuperscript{3}, D. Atkinson\textsuperscript{5} and A. Hindmarch\textsuperscript{5}
1. Rutherford Appleton Laboratory, STFC, Didcot, Oxford, United Kingdom; 2. Physics, University of Warwick, Coventry, United Kingdom; 3. XMaS, ESRF, Grenoble, France; 4. SNS, Oak Ridge National Lab, Oak Ridge, TN; 5. Durham University, Durham, United Kingdom
3:18

BE-10. Giant scaling of spin-orbit torques in ferrimagnetic Co/Tb multilayers. J. Yu1, B. Do2, X. Qiu1, R. Mishra1, A. Hiroyuki2 and H. Yang1. 1. National University of Singapore, Singapore, Singapore; 2. Toyota Technological Institute, Nagoya, Japan; 3. Shanghai Key Laboratory of Special Artificial Macrostructure Materials and Technology, Tongji University, Shanghai, China

3:30


3:42

BE-12. Switching Study of Exchange-Coupled Nanomagnets by Vector Coil Vibrating Sample Magnetometry. H.S. Dey1, G. Csaba1, G.H. Bernstein1, A. Orlov1 and W. Porod1. 1. Electrical Engineering, University of Notre Dame, South Bend, IN

3:54

BE-13. Origin of antiferromagnetism at the Fe/Fe3O4 interface. A. Pratt1, X. Sun2, J. Zhang1, M. Kurahashi3 and Y. Yamauchi3. 1. Physics, University of York, York, United Kingdom; 2. University of Science and Technology of China, Hefei, China; 3. National Institute for Materials Science, Tsukuba, Japan

4:06

BE-14. Growth, structure, and magnetic properties of epitaxial NiFe2O4 films grown on Si(111) substrates. R. Nakane1,2 and M. Tanaka1,3. 1. Dept of Electronic Engineering, Univ Tokyo, Tokyo, Japan; 2. Institute for Innovation in International Engineering Education, Univ. of Tokyo, Tokyo, Japan; 3. Center for Spintronics Research Network (CSRN), Univ. of Tokyo, Tokyo, Japan

4:18

BE-15. Effect of Spatial Confinement on the Strain-modulated Phase Separation and Percolative Transport in Pr0.7(Ca0.6Sr0.4)0.3MnO3/PMN-PT Heterostructure. H. Kuang1, J. Wang1, Y. Zhao1, Y. Liu1, F. Hu1, J. Sun1 and B. Shen1. 1. State Key Laboratory of Magnetism, Institute of Physics, University of Chinese Academy of Sciences, Chinese Academy of Sciences, Beijing, China
Session BF
MRAM AND MAGNETIC LOGIC DEVICES II
Changman Park, Chair
Tokyo Electron Ltd, San Jose, CA

1:30
BF-01. Non-Volatile Magnetic Logic-Memory Device. (Invited)
X. Zhang1. School of Materials Science and Engineering, Tsinghua University, Beijing, China

2:06
BF-02. Multilevel thermally assisted magnetoresistive random access memory based on exchange–biased vortex configurations. C. Levartoski de Araujo1,2, L.D. Buda-Prejbeanu2 and B. Diény2. 1. Universidade Federal de Viçosa, Viçosa, Brazil; 2. CEA, INAC-SPINTEC, Grenoble, France

2:18

2:30
BF-04. Towards Chirality-Encoded Domain Wall Logic Devices. K.A. Omari1, T.J. Broomhall2, R.W. Dawidek2, R. Bradley2, M. Hodges3, M. Rosamond3, E. Linfield3, P. Fischer4,5, M. Im6,7 and T.J. Hayward2. 1. Material Engineering, University of Sheffield, Sheffield, United Kingdom; 2. Department of Materials Science and Engineering, University of Sheffield, Sheffield, United Kingdom; 3. School of Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom; 4. Lawrence Berkeley National Laboratory, Berkeley, CA; 5. Department of Physics, University of California, Santa Cruz, Santa Cruz, CA; 6. CXRO, Lawrence Berkeley National Laboratory, Berkeley, CA; 7. Daegu Gyeongbuk Institute of Science and Technology, Daegu, The Republic of Korea

2:42
BF-05. Reconfigurable Magnetic Nanostructures for Logic and Magnonic Applications. (Invited) A. Adeyeye1, A. Haldar1 and X. Zhou1. 1. Electrical & Computer Engineering, National University of Singapore, Singapore, Singapore

3:18
BF-06. Cryogenic Cooling Post MgO Promoting The Free Layer Coercivity And TMR In Perpendicular Bottom Pinned Co/Ni STT-MRAM Devices. J. Swerts1, S. Mertens1, S. Couet1, T. Lin1, E. Liu1, Y.F. Tomczak1, S. Rao1, W. Kim1, S. Van Elshocht1, A. Furnemont1, G.S. Kar1, K. Nishimura2, H. Okuyama2, T. Seino2 and K. Tsunekawa2. 1. imec, Leuven, Belgium; 2. Canon ANELVA, Kawasaki, Japan

BF-08. Exchange coupling in Co2FeSi/Mn3Ge bilayers with high spin polarization and perpendicular magnetic anisotropy. S. Nakagawa1, N. Matsushita1, Y. Naganuma1, T. Yabushita1, Y. Takamura1 and Y. Sonobe2. 1. School of Engineering, Tokyo Institute of Technology, Tokyo, Japan; 2. Samsung R&D Institute Japan, Yokohama, Japan

BF-09. Asymmetric magnetization switching probability in STT driven perpendicular magnetic tunnel junction. M.P. Lavanant1, S. Petit-Watelot1, G.D. Chaves-O’Flynn1, V. Lomakin1, J. Sun2, A.D. Kent3 and S. Mangin2. 1. Spintronics & Nanomagnetism, Université de Lorraine, Toulouse, France; 2. Institut Jean Lamour, Universite de Lorraine, Vandoeuvre-les-Nancy, France; 3. Mathematical Sciences, New Jersey Institute of Technology, Newark, NJ; 4. Department of Electrical and Computer Engineering, University of California, San Diego, La Jolla, CA; 5. IBM Research, Yorktown Heights, NY; 6. Department of Physics, New York University, New York, NY


Session BG
HYPERTHERMIA, MRI, AND OTHER BIO-ASSAYS I
Hariharan Srikanth, Chair
University of South Florida, Tampa, FL

1:30
BG-01. Mixed Ferrites Core/Shell Nanoparticles based Ferrofluids for Hyperthermia and Magnetic Cooling Applications.
V. Pilati1, G.S. Gomide2, P. Coppola3, R. Cabretra Gomes2, F. Gomes da Silva4, F. Luis de Oliveira Paula5, G. Goya6, R. Perzynski5, J. Depeyrot2 and R. Aquino6 1. Departamento de Física, Universidade de Brasilia, Brasilia, Brazil; 2. Institute of Physics, Universidade de Brasilia, Brasilia, Brazil; 3. Institute of Chemistry, Universidade de Brasilia, Brasilia, Brazil; 4. Aragon Institute of Nanoscience, Universidad de Zaragoza, Zaragoza, Spain; 5. Laboratoire PHENIX, Université Pierre et Marie Curie, Paris, France; 6. Material Science Program, Universidade de Brasilia, Brasilia, Brazil

1:42
BG-02. Magnetic hysteresis in Ni$_{80}$Fe$_{20}$ nanodisks for hyperthermia.
P. Tiberto2, G. Barrera2, F. Celegato2, M. Coisson2, R. Ferrero1,2 and A. Manzin2 1. Dipartimento di Elettronica e Telecomunicazioni, Politecnico di Torino, Torino, Italy; 2. INRIM, Torino, Italy

1:54
BG-03. Anisotropic Magnetic Nanostructures For Enhanced Hyperthermia.
Z. Nemati1, J. Alonso Masa2, R. Das1, E. Garaios, J. Rodrigo, J. Garcia2, M. Phan2 and H. Srikanth1 1. Physics, University of South Florida, Tampa, FL; 2. BCMaterials, Derio, Spain; 3. Electricity and Electronics, University of Basque Country, Leioa, Spain; 4. Applied Physics II, University of Basque Country, Leioa, Spain; 5. Department of Physics, University of South Florida, Tampa, FL

2:06
BG-04. Multi-Segmented Magnetic Nanowires as Advanced Nanorobotic Platforms for Biomedical Applications. (Invited)
J. Sort1, J. Zhang1, S. Agramunt-Puig1, N. del Valle1, C. Navau1, S. Estradé2, F. Peiró2, S. Pané3, A. Sánchez4, J. Nogués4 and E. Pellicer5 1. Physics, Universitat Autonoma de Barcelona, Bellatera, Spain; 2. Universitat de Barcelona, Barcelona, Spain; 3. ETHZ, Zurich, Switzerland; 4. Catalan Institute of Nanoscience and Nanotechnology, Bellatera, Spain

2:42
BG-05. Superparamagnetic response from nanoparticles in splenic macrophages.
U. Wiedwald6, M. Spasova1, A. Elsukova1, Z. Ma1 and M. Farle1,2 1. Faculty of Physics and Center for Nanointegration, University of Duisburg-Essen, Duisburg, Germany; 2. Center for Functionalized Magnetic Materials, Immanuel Kant Baltic Federal University, 236041 Kaliningrad, Russian Federation
BG-06. Magnetic field controlled oscillations of Fe-Cr-Nb-B magnetic particles for destruction of osteosarcoma cells. H. Chiriac¹, E. Radu¹, D. Herea¹, G. Stoian¹, T.A. Ovari¹ and N. Lupu¹ ¹. National Institute of R&D for Technical Physics, Iasi, Romania


BG-08. Electrodeposited Fe and Fe-Au Nanowires as MRI Contrast Agents. D. Shore¹, S. Pailloux², J. Zhang³, M. Garwood³, V.C. Pierre³ and B. Stadler⁴ ¹. Chemical Engineering, University of Minnesota, Minneapolis, MN; 2. Chemistry, University of Minnesota, Minneapolis, MN; 3. Radiology, University of Minnesota, Minneapolis, MN; 4. Electrical Engineering, University of Minnesota, Minneapolis, MN

BG-09. A New Actuator Design for Focusing Magnetic Micro/nano-carrier in Targeted Drug Delivery. X. Zhang¹ ², L. Tuan-Anh¹ and J. Yoon¹ ¹. Gyeongsang National University, Jinju-si, The Republic of Korea; 2. School of Naval Architecture and Ocean Engineering, Harbin Institute of Technology at Weihai, Shandong, China

BG-10. Soft anisotropic magnetic polymer composites for efficient magnetophoretic trapping applications in microfluidic devices. K. Bhattacharya¹ ², S. Mekkaoui², P. Deb¹, V. Dupuis², A. Tamion², J. Desgouttes³, A. Deman³ and D. Le Roy² ¹. Physics, Tezpur University, Tezpur, India; 2. Institut Lumière Matière, Villeurbanne, France; 3. Institut des Nanotechnologies de Lyon, Villeurbanne, France

BG-11. Microfluidic Platform For Cell Membrane Deformation Utilizing Magnetic Particles. G. Kokkinis¹ and I. Giouroudi¹ ² ¹. Vienna University of Technology, Vienna, Austria; 2. DWI - Leibniz Institute for Interactive Materials, Aachen, Germany
BG-12. Magnetic Control of Active Substrates for Mechanical Excitation of Single Cells. T. Devillers1,2, C. Bidan3,4, M. Fratzl2,1, P. Moreau3,4, G. Shaw2,1, A. Dupont3,4 and N. Dempsey2,1 1. Institut NEEL, Université Grenoble Alpes, Grenoble, France; 2. Institut NEEL - CNRS, Grenoble, France; 3. LIPhy, CNRS, Grenoble, France; 4. LIPhy, Université Grenoble Alpes, Grenoble, France

BG-13. Dissecting cellular dynamics with magnetically actuated micropost arrays. Y. Shi1, J.C. Crocker2 and D. Reich1 1. Physics and Astronomy, Johns Hopkins University, Baltimore, MD; 2. Chemical and Biomolecular Engineering, University of Pennsylvania, Philadelphia, PA

TUESDAY STUDIO 7-8

1:30

Session BH
MAGNETIC INSTRUMENTATION AND CHARACTERIZATION I
Dario Arena, Chair
University of South Florida, Tampa, FL

BH-01. In-situ imaging techniques for the study of magnetocaloric materials. (Invited) A. Waske1,2, A. Funk1,2, A. Rack3 and R. Schaefer1,2 1. IFW Dresden, Dresden, Germany; 2. TU Dresden, Dresden, Germany; 3. ESRF, Grenoble, France

BH-02. Soft magnetic sensors for the visualization of supercurrents. C. Stahl1, S. Ruoss1, P. Zahn1,2, J. Bayer1,2, J. Grüße1, G.A. Schuetz1 and J. Albrecht2 1. Max Planck Institute for Intelligent Systems, Stuttgart, Germany, Stuttgart, Germany; 2. Research Institute for Innovative Surfaces FINO, Aalen University, Aalen, Germany

BH-03. CORELLI for Magnetism and Magnetic Materials: The Elastic Diffuse Neutron Scattering Spectrometer at SNS. Y. Liu1, F. Ye1, W. Ross1, J. Carruth1 and G. Rennich1 1. Instrument and Source Division, Oak Ridge National Laboratory, Oak Ridge, TN

BH-04. Pure nuclear resonant surface diffraction at magnetic nanostructures. K. Schlage1, L. Dzemiansova1,2, L. Bocklage1,2, H. Wille1, G. Meier2,3 and R. Röhlsberger1,2 1. Photon Science, DESY, Hamburg, Germany; 2. The Hamburg Centre for Ultrafast Imaging, Hamburg, Germany; 3. Max Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany
BH-05. Spin chirality induced X-ray magnetic circular dichroism and new type of chiral spin textures in in-plane magnet. *(Invited)* G. Chen1. National Center for Electron Microscopy, Lawrence Berkeley National Laboratory, Berkeley, CA

BH-06. Direct observation of temperature-driven magnetic symmetry transitions by vectorial-resolved MOKE magnetometry. J. Fernandez Cuinado1,2, F. Pedrosa1, F. Ajejas1, A. Bollero1, P. Perna1, R. Miranda1,2 and J. Camarero2,1. IMDEA NANOSCIENCE, Madrid, Spain; 2. Universidad Autónoma de Madrid, Madrid, Spain

BH-07. Understanding the kinetics of ink drying through *in operando* Magneto-optical Kerr Effect. P. Silwal1, S. Engmann1, L. Richter1, C. Snyder1, C. Dennis1 and J.W. Lau1. I. Material Measurement Laboratory, National Institute of Standards and Technology, Gaithersburg, MD

BH-08. Direct Measurement and Microscale Mapping of nanoNewton to milliNewton Magnetic Forces. C. Velez1, R. Carroll1 and D.P. Arnold1. I. Electrical and Computer Engineering, University of Florida, Gainesville, FL

BH-09. Vibrating Sample Magnetometer (VSM) 2D and 3D Magnetization Hysteresis Effects Associated with Different Initial Magnetization Conditions. R.E. Lukins1. R&D, Measurement Analysis Corporation, Torrance, CA

BH-10. High performance THz emitters based on heavy metal/ferromagnet heterostructures. Y. Wu1, M. Elyasi1, X. Qiu2, L. Ke1 and H. Yang1. 1. National University of Singapore, Singapore, Singapore; 2. Tongji University, Shanghai, China; 3. Institute of Materials Research and Engineering (IMRE), Singapore, Singapore

BH-11. Brain-inspired Computing Using the Transient Dynamics of Spin-torque Oscillators. M. Riou1, J. Torrejon1, F. Abreu Araujo1, M. Stiles2, G. Khalsa2, S. Tsunegi1, A. Fukushima1, H. Kubota1, S. Yuasa3, D. Querlioz4, V. Cros4 and J. Grollier1. 1. Unité Mixte CNRS/Thales, Palaiseau, France; 2. National Institute of Standards and Technology - Gaithersburg, Gaithersburg, MD; 3. Spintronics Research Center, National Institute of Advanced Industrial Science And Technology (AIST), Tsukuba, Japan; 4. IEF, Orsay, France
Session BI
SUPERCONDUCTIVITY AND CRITICAL PHENOMENA
Nathan Satchell, Chair
ISIS Neutron and Muon Facility, Didcot, United Kingdom

1:30

1:42
BI-02. Magnetoresistive response of single-crystalline Ni nanowires with superconducting contacts. S. Manna¹, H. Ren² and E.E. Fullerton³ ¹. Nanoengineering, University of California San Diego, La Jolla, CA; ². Center for Memory and Recording Research, University of California San Diego, La Jolla, CA; ³. University of California San Diego, La Jolla, CA

1:54
BI-03. Magnetic and Superconducting Proximity Effects at Oxide Insulating Antiferromagnet / Superconductor Interfaces. W. Liu¹,², S. Cheng³, R. Fan⁴, D.M. Burn⁴, A. Di Bernardo¹, J. Lin³, P. Steadman³, Y. Xu² and J. Robinson¹ ¹. Department of Materials Science and Metallurgy, University of Cambridge, Cambridge, United Kingdom; ². Electronics Department, University of York, York, United Kingdom; ³. Center for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan; ⁴. Diamond Light Source, Didcot, United Kingdom

2:06
BI-04. 4D Magnetic mapping of Majorana Fermions in proximate honeycomb Kitaev material alpha-RuCl₃. (Invited) A. Banerjee¹, J. Knolle², Y. Jiaqiang³, M. Stone¹, M. Lumsden¹, T.A. David¹, R. Moessner⁴ and S.E. Nagler¹ ¹. Quantum Condensed Matter Division, Oak Ridge National Laboratory, Oak Ridge, TN; ². Department of Physics, Cambridge University, Cambridge, United Kingdom; ³. Material Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN; ⁴. Institute for Complex Systems, Max Planck Institute, Dresden, Germany

2:42
BI-05. Controlled Generation of Odd-frequency Triplet Superconductivity by Spin-orbit Coupling. N. Banerjee¹, J. Ouassou², Y. Zhu³, J. Linder² and M. Blamire³ ¹. Physics, Loughborough University, Loughborough, United Kingdom; ². Physics, Norwegian University of Science and Technology (Trondheim), Trondheim, Norway; ³. Materials Science and Metallurgy, University of Cambridge, Cambridge, United Kingdom
2:54

BI-06. Identification of the low-energy excitations that cause dynamic scaling in a doped quantum critical system. T. Heitmann1, J. Lamsal1,2, S. Watson3, E. Ross3, W. Chen3, Y. Zhao3,4 and W. Montfrooij1,2 1. The Missouri Research Reactor, University of Missouri, Columbia, MO; 2. Department of Physics and Astronomy, University of Missouri, Columbia, MO; 3. National Institute of Standards and Technology, Gaithersburg, MD; 4. Department of Materials Science and Engineering, University of Maryland, College Park, MD

3:06

BI-07. Theory of BEC and Superfluidity of Magnons in Yttrium Iron Garnet Films. V. Pokrovsky1,2 1. Physics and Astronomy, Texas A&M University, College Station, TX; 2. Landau Institute for Theoretical Physics, Chernogolovka, Russian Federation

3:18

BI-08. Macroscopic Phase Diagram of The Chiral Helimagnet Cr13NbS2. E. Clements1, R. Das1, L. Li2, P. Lampen-Kelley2, M. Phan1, V. Keppens2, D. Mandrus1 and H. Srikanth1 1. Department of Physics, University of South Florida, Tampa, FL; 2. Department of Materials Science and Engineering, The University of Tennessee, Knoxville, TN

3:30

BI-09. Sc-induced Ferromagnetism in Magnetoresponsive Gd0.6Sc0.4Ge2. Y. Mudryk1, J. Liu1,2, D. Paudyal1, K.A. Gschneidner1,2 and V.K. Pecharsky1,2 1. Ames Laboratory, U.S. Department of Energy, Iowa State University, Ames, IA; 2. Materials Science and Engineering, Iowa State University, Ames, IA

3:42

BI-10. Behavior of U4Ru7Ge6 in the vicinity of thermal and quantum transitions. M. Vališka1, J. Valenta1, P. Doležal1, V. Tkáč1, J. Prokleska1, M. Divíš1 and V. Sechovsky1 1. Department of Condensed Matter Physics, Charles University in Prague, Prague, Czech Republic

3:54

BI-11. Ultrasharp magnetization steps in LaFe3B4, an amplitude-modulated antiferromagnetic itinerant-electron system. O. Isnard1 and L. Diop1 1. MCMF, Institut Néel, Université Grenoble Alpes, Grenoble, France

4:06


TUESDAY GRAND BALLROOM
AFTERNOON
2:30

Session BP
MICROMAGNETIC AND HYSTERESIS MODELING
(Poster Session)
Dmytro Apalkov, Co-Chair
Samsung Semiconductor, Milpitas, CA
Sue Wang, Co-Chair
Samsung Semiconductor, San Jose, CA

BP-01. Non-volatile spin-wave majority gate at the nanoscale. O. Zografos$^{1,2}$, S. Dutta$^3$, M. Manfrini$^1$, B. Sorée$^{1,2}$, A. Naeemi$^1$, P. Raghavan$^1$, R. Lauwereins$^{1,3}$ and I.P. Radu$^1$. Logic Technologies, Imec, Leuven, Belgium; 2. ESAT, KU Leuven, Leuven, Belgium; 3. Department of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, GA

BP-02. A compact physical model for the simulation of pNML-based architectures. G. Turvani$^1$, F. Riente$^1$, E. Plozner$^2$, D. Schmitt-Landsiedel$^1$ and S. Breitkreutz-v. Gamml$^1$. Institute for Technical Electronics, Technische Universität München, Munich, Germany; 2. Department of electronics and telecommunications, Politecnico di Torino, Turin, Italy


BP-04. Comparison of Limiting Loop Method and Elemental Operator Model for Magnetic Hysteresis of Silicon Steel Sheet. W. Xu$^1$, 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

BP-05. Numerical Implementation of the Elemental Operator Method for Magnetic Hysteresis Model. W. Xu$^1$, 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
BP-06. Refinement of the magnetic composite model of type 304 stainless steel by considering misoriented ferromagnetic martensite particles. K. Kinoshita1. Department of Energy Conversion Science, Kyoto University, Kyoto-shi, Japan

BP-07. Investigation of effects of long-term thermal aging on magnetization process in low-alloy pressure vessel steels using first-order-reversal-curves. S. Kobayashi1, F. Gillemot2, A. Horvath2, M. Horvath2 and A. Laszlo2. 1. Iwate University, Morioka, Japan; 2. KFKI Atomic Energy Research Institute, Budapest, Hungary

BP-08. High Frequency Characterization of Galfenol Minor Flux Density Loops. L. Weng1, X. Hu1, Y. Sun1, W. Huang1 and B. Wang1. 1. Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability of Hebei Province, Hebei University of Technology, Tianjin, China

BP-09. Magnetic Field Distribution Analysis for HTS Cable Considering Magnetic Hysteresis. N. Duan1, W. Xu1, S. Wang1 and J. Zhu2. 1. Xi'an Jiaotong University, Xi'an, China; 2. University of Technology, Sydney, Sydney, NSW, Australia

BP-10. Improved Transient Magnetic Core Loss in Rotational Magnetization. C. Zhang1, Y. Li1, Q. Yang1 and J. Zhu2. 1. Hebei University of Technology, TIANJIN, China; 2. University of Technology, Sydney, Sydney, NSW, Australia

BP-11. Vector Magnetization of a Distribution of Particles with Cubic Anisotropy. A. Jamali1, H. ElBidweihy2, E. Della Torre1 and E. Cardelli1. 1. Department of Electrical and Computer Engineering, The George Washington University, Ashburn, VA; 2. Department of Electrical and Computer Engineering, United States Naval Academy, Annapolis, MD; 3. Dipartimento Ingegneria, Universita di Perugia, Perugia, Italy

BP-12. Double Langevin Function for Description of Anhysteretic Magnetization Curves. S. Steentjes1, M. Petrun2, G. Glehn1, D. Dolinar2 and K. Hameyer1. 1. Institute of Electrical Machines, RWTH Aachen University, Aachen, Germany; 2. FERI, University of Maribor, Maribor, Slovenia

BP-13. Effect of radial anisotropy distribution on the magnetic behavior of rapidly solidified amorphous nanowires. C. Rotarescu1, O. Chubykalo-Fesenko2, M. Vázquez2, H. Chiriac1, N. Lupu1 and T.A. Ovari1. 1. National Institute of Research and Development for Technical Physics, Iasi, Romania; 2. Instituto de Ciencia de Materiales de Madrid (CSIC), Madrid, Spain

BP-14. FORC based study of interactions in 2D magnetic nanostructures. Experiment and simulation. B. Negulescu1, L. Stoleriu2 and A. Stancu2. 1. GREMAN, University Francois Rabelais, Tours, France; 2. Department of Physics, Alexandru Ioan Cuza University of Iasi, Iasi, Romania

BP-15. Nambu mechanics for stochastic magnetization dynamics. P. Thibaudeau1, T. Nussle2 and S. Nicolis2. 1. DAM, Commissariat à l’Energie Atomique, Monts, France; 2. Laboratoire de Mathématiques et Physique Théorique, Université François Rabelais, Tours, France
BQ-01. Generation of Perpendicular Magnetic Anisotropy in Co$_2$FeAl Full-Heusler Alloy Thin Film. T. Huang$^1$, X. Cheng$^1$, X. Guan$^1$, S. Wang$^1$ and X. Miao$^1$. 1. School of Optical and Electronic Information, Huazhong University of Science & Technology, Wuhan, China

BQ-02. Magnetic anisotropy of epitaxial Co$_2$Fe-Ge Heusler alloy films on MgO (100) substrates. A. Pogorily$^1$, A. Kravets$^{1,2}$, V. Nevdacha$^1$, D. Podyalovskiy$^1$, S. Ryabchenko$^2$, V. Kalita$^3$, M. Kulik$^1$, A. Lozenko$^1$, A. Vovk$^4$, M. Godinho$^2$, L. Maurel$^5$, J.A. Pardo$^5$, C. Magén$^5$ and V. Korenivski$^5$. 1. Institute of Magnetism, National Academy of Sciences of Ukraine, Kyiv, Ukraine; 2. Nanostructure Physics, Royal Institute of Technology, Stockholm, Sweden; 3. Institute of Physics, National Academy of Sciences of Ukraine, Kyiv, Ukraine; 4. BioISI– Biosystems & Integrative Sciences Institute, Faculdade de Ciências, Universidade de Lisboa, Lisbon, Portugal; 5. Instituto de Nanociencia de Aragón, Universidad de Zaragoza, Zaragoza, Spain

BQ-03. Magnetic properties of stoichiometric Mn$_2$VAl Heusler alloy thin films. T. Tsuchiya$^1$, R. Kobayashi$^1$, T. Kubota$^{1,2}$ and K. Takanashi$^{1,2}$. 1. Institute for Materials Research, Tohoku University, Sendai, Japan; 2. Center for Spintronics Research Network, Tohoku University, Sendai, Japan

BQ-04. Crystallographic and magnetic properties of TiN buffered Co$_2$FeAl thin films. J. Ludwig$^1$, A. Niesen$^1$, D. Meier$^1$, J. Schmalhorst$^1$ and G. Reiss$^1$. 1. Department of Physics, Bielefeld University, Bielefeld, Germany

BQ-05. Design of highly-dispersive spin gapless semiconductors by containing rare-earth element in quaternary Heusler compounds. G. Xu$^1$, E. Liu$^1$, Y. Gong$^1$, Z. Xu$^1$, F. Xu$^1$ and W. Wang$^1$. 1. School of Materials Science and Engineering, Nanjing University of Science and Technology, Nanjing, China; 2. Institute of Physics, Chinese Academy of Sciences, Beijing, China

BQ-06. Significant Enhanced Anomalous Hall Resistivity by Structural Disorder in Heterogeneous Heusler Alloys FeCr$_{1-x}$Co$_x$Si. B. Ding$^1$, Y. Du$^1$, Y. Wang$^1$, Z. Hou$^1$, E. Liu$^1$, W. Wang$^1$ and G. Wu$^1$. 1. Institute of Physics, Chinese Academy of Science, Beijing, China
BQ-07. Electrical Determination of Néel Transitions in Heusler Alloy Thin Films. J. Sinclair1, T. Huminiec1, T. Tsuchiya2, T. Sugiyama2, T. Kubota3, K. Takanashi3, K. O’Grady4 and A. Hirohata1. 1. Department of Physics & Electronics, University of York, York, United Kingdom; 2. Institute for Materials Research, Tohoku University, Sendai, Japan

BQ-08. Effect of Fe Substitution for Ti on the Structural, Magnetic and Electronic Band Properties of Half-metallic Co2TiSi. Y. Jin1, P.R. Khare2, P. Lukashhev3, J. Waybright1, I. Tatic1, J. Herran3, S. Vallopilly4 and D.J. Sellmyer4. 1. Physics and Astronomy, University of Nebraska Lincoln, Lincoln, NE; 2. Physics, South Dakota State University, Brookings, SD; 3. Department of Physics, University of Northern Iowa, Cedar Falls, IA; 4. Nebraska Center for Materials and Nanoscience, University of Nebraska, Lincoln, NE

BQ-09. Substitution Effect and Magnetic Performance in Off-stoichiometric Fe2CrGa System. H. Zhang1, J. Chen1, Y. Ming1, E. Liu2, Q. Lu1, D. Zhang1, W. Liu1 and Q. Wu1. 1. College of Materials Science and Engineering, Beijing University of Technology, Beijing, China; 2. Institute of Physics, Beijing, China

BQ-10. Understanding Interfacial Behavior with Out-of-Plane Magnetoresistance Measurements of Ferromagnetic/Non-Magnetic Bi-layer Thin Films. S.A. Azzawi1. 1. Physics, Durham University, Durham, United Kingdom

BQ-11. Robust spin-current injection in lateral spin valves with two-terminal Co2FeSi spin injectors. S. Oki1, T. Kurokawa1, S. Honda2, S. Yamada1, T. Kanashima1, H. Itoh2 and K. Hamaya1. 1. Graduate School of Engineering Science, Osaka University, Toyonaka, Japan; 2. Pure and Applied Physics, Kansai University, Suita, Japan

BQ-12. Tunneling magnetoresistance in nanogranular La0.8Sr0.2MnO3 (x=0.47). J. Hejmanek1, Z. Jirak1, O. Kaman1 and S. Vratislav1. 1. Institute of Physics of the ASCR, Prague, Czech Republic; 2. Faculty of Nuclear Sciences and Physical Engineering, CTU, Prague, Czech Republic

BQ-13. Spin Splitting of Monolayer WTe2 on Top of Fe3O4(111). Y. Song1, Q. Zhang1 and W. Mi1. 1. Department of Applied Physics, Tianjin University, Tianjin, China

BQ-14. Magnetic properties of Ni films deposited on crystalline Bi2Se3 surface. T. Yoo1, A. Nasiri2, S. Bac2, S. Choi2, S. Lee2, H. Lee2, S. Lee2, X. Liu1 and J. Furdyna1. 1. Physics Department, University of Notre Dame, Notre Dame, IN; 2. Physics department, Korea University, Seoul, The Republic of Korea

BQ-15. Magneto-Conductivity in OLEDs Blended with Magnetic Nanoparticles. R. Gong1, K. Stojak Repa2, M. Phan1 and T. Nguyen1. 1. Physics and Astronomy, The University of Georgia, Athens, GA; 2. Department of Physics, University of South Florida, Tampa, FL
BR-01. Hall effect and magnetoresistive study of Co/Ni multilayers. 
E.H. Krenkel1, J.M. Rizkoi, B.C. Chengi, P.D. Sparksi, 
1. Physics, Harvey Mudd College, Claremont, CA; 2. CMRR, UCSD, La Jolla, CA

BR-02. Different Angular Dependent Magnetoresistance in Single 
Crystalline Pt/Fe And Pt/Co Bilayers. X. Xiaoli, J. Lii, 
M. Jial, L. Suni, C. Zhou1 and Y. Wui. 
1. Department of Physics, 
State Key Laboratory of Surface Physics and Advanced 
Materials Laboratory, Center for Spintronic Devices and 
Applications, Fudan University, Shanghai, China

BR-03. Unusual magnetoresistance in Heusler compounds 
Antiferromagnet/Ferromagnet bilayers. M. Matushita1, 
T. Hajiri1, K. Ueda1 and H. Asano1. 
1. Crystalline Materials 
Science, Nagoya University, Nagoya, Japan

BR-04. Investigation of Structural Magnetic, Electrical and 
Thermal Transport Properties of Sm Substituted 
Polycrystalline La0.7-xCaxMnO3 (0 ≤ X ≤ 0.2) 
Manganites. N. Gaur1 and A. Modi1. 
1. Physics, Barkatullah 
University, Bhopal, Madhya Pradesh, India

BR-05. Static and Dynamic Signatures of Anisotropic Electronic 
Phase Separation in La0.75CaxMnO3 Thin films under 
Anisotropic Strain. L. Hu1, L. Yu1, P. Xiongi, L. Wang1, 
W. Wui, X. Wang2 and J. Zhao2. 
1. Florida State University, 
Tallahassee, FL; 2. Institute of Semiconductors, Chinese 
Academy of Sciences, Beijing, China; 3. Hefei National 
Laboratory for Physical Science at Microscale, University of 
Science and Technology of China, Hefei, China

BR-06. Polarization-mediated perpendicular magnetic anisotropy in 
a BiFeO3/Al2O3/Pt/Co/Pt multiferroic hybrid structure. 
P.F. Liu1, J. Miao1, K. Meng1, Y. Wui, X. Xu1 and Y. Jiang1. 
1. School of Materials Science and Engineering, University of 
Science & Technology Beijing, Beijing, China

BR-07. Electrical and Magnetic Properties of DLC-Co Nano-
composite Films by Hybrid Deposition Method. Y. Zhang1, 
H. Kosukegawa1, H. Miki1, N. Kobayashi2, S. Ohnuma1,2, 
T. Takagi1 and H. Masumoto1. 
1. Tohoku University, Sendai, Japan; 2. Research Institute for Electromagnetic Materials, 
Sendai, Japan
BR-08. Large Room Temperature MR in Electrically-Modulated Magnetic Nano-structure. W. Xue1, G. Liu1 and R. Li1
1. Magnetic Materials and Advanced Devices, Ningbo Institute of Industrial Technology, Chinese Academy of Sciences, Ningbo, China


BR-10. Tuning the linear anomalous Hall effect by the current induced spin-orbit torque. T. Zhu1 1. State Key Lab for Magnetism, Institute of Physics, Chinese Academy of Sciences, Beijing, China

BR-11. Anisotropic Electronic States In The Fractional Quantum Hall Regime. O. Ciftja1 1. Department of Physics, Prairie View A&M University, Prairie View, TX

BR-12. Topological Hall Effect of Skyrmions in Epitaxial Grown FeGe Thin Films. K. Meng1,2, J. Gallagher2, J. Fuhrman2, J. Brangham2, H. Wang3, B. Esser3, D. McComb1 and F. Yang1 1. The Ohio State University, Columbus, OH; 2. Physics, The Ohio State University, Columbus, OH; 3. The University of Alabama, Tuscaloosa, AL; 4. The Pennsylvania State University, University Park, PA

BR-13. Klein Tunneling Transport in Type-II Weyl Fermion under The Influence of Magnetic Field. C. Yesilyurt1, Z. Shu1, S. Tan1,2, G. Liang1 and M.B. Jalil1 1. Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; 2. Data Storage Institute, Agency of Science, Technology and Research (A* Star), Singapore, Singapore

BR-14. Proximity-induced magnetoresistance in two-dimensional massless Dirac electrons on ferromagnetic insulators. T. Chiba1, S. Takahashii and G.E. Bauer1,2 1. Institute for Materials Research (IMR), Tohoku University, Sendai, Japan; 2. Kavli Institute of NanoScience, Delft University of Technology, Delft, Netherlands

BR-15. Weak localization effect in Bi2Te3 nanoplates. S.W. Chen1, Z.L. Yang1, W. Tao1, D. Yang1 and X.D. Sheng1 1. Lanzhou University, Lanzhou, China
Session BS
MAGNETORESISTANCE AND CRITICAL PHENOMENA
(Poster Session)
Thomas Ambrose, Chair
Northrup Grumman Corporation, Linthicum, MD

BS-01. Magnetoresistance and All-electrical Control Magnetization Coupling In a Molecular Junction. L. Tao1 and J. Wang1
1. Department of Physics, The University of Hong Kong, Hong Kong, Hong Kong

BS-02. Ferromagnetic GaMnP: magneto-transport properties and co-doping effect. S. Zhou1, C. Xu1, Y. Yuan2, M. Wang1, H. Hentschel1, R. Boettger1 and M. Helm1
1. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany

BS-03. Comparison of Laser Induced and Intrinsic Tunnel Magneto-Seebeck Effects. T. Huebner1, A. Boehnke1, U. Martens2, A. Thomas3, J. Schmalhorst4, G. Reiss4, M. Münzenberg1 and T. Kuschel4
1. Physics Department, Bielefeld University, Bielefeld, Germany; 2. Institute of Physics, Ernst-Moritz-Arndt University, Greifswald, Germany; 3. Institute for Metallic Materials, Leibniz Institute for Solid State and Materials Research Dresden (IFW Dresden), Dresden, Germany; 4. Zernike Institute for Advanced Materials, University of Groningen, Groningen, Netherlands

BS-04. Temperature Dependence of Tunneling Magnetoresistance in GdOx Based Magnetic Tunnel Junctions. T. Newhouse-Illige1, Y. Xu1, C. Bi1, M. Xu2 and W. Wang1
1. Department of Physics, University of Arizona, Tucson, AZ

BS-05. High temperature stable bottom pinned perpendicular magnetic tunnel junctions. J. Wrona1, M. Zhu1, J. Langer1, S. Tibus1, M. Smalley2, S. Bennett3 and B. Ocker3
1. Singulus Technologies AG, Kahl am Main, Germany; 2. Colleges of Nanoscale Science and Engineering, SUNY Polytechnic Institute, Albany, NY

BS-06. A compositional study of CoPd alloy pinned p-pMTJs for STT-RAM. B.D. Clark1, A. Natarajarathinam1, Z.R. Tadisina1, J. Beik Mohammadi1, T. Mewes1, A.P. Chen2, R. Shull2 and S. Gupta1
1. Center for Materials for Information Technology, University of Alabama, Tuscaloosa, AL; 2. National Institute of Standards and Technology, Gaithersburg, MD

BS-07. Tailoring the interfacial exchange coupling of perpendicularly magnetized Co/L12-Mn2/3Ga bilayers. J. Xiao1, J. Lu1, W. Liu2, H. Wang1, L. Zhu1, H. Deng1, D. Wei1, Y. Xu2 and J. Zhao1
1. State Key Laboratory For Superlattices And Microstructures, Institute of Semiconductors, Chinese Academy of Sciences, Beijing, China; 2. The University of York, York, United Kingdom
Effect of Fermi arcs and inter-valley coupling on tunneling in a Dirac semimetal. Z. Siu¹, C. Yesilyurt¹ and M.B. Jalil¹
1. Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore

Crystal structure and magnetic properties of Li₁₋ₓNaₓFePO₄ Investigated with Mössbauer Spectroscopy. B. Ko², H. Choi¹, T. Kouh¹ and C. Kim¹
1. Department of Physics, Kookmin University, Seoul, The Republic of Korea

Pressure Induced Quantum Phase Transition in the Itinerant Ferromagnet UCoGa. M. Míšek¹, P. Opletal², J. Kaštél¹, J. Kamarád¹ and V. Sechovsky²
1. Department of Magnetics and Superconductors, Institute of Physics, Academy of Sciences of the Czech Republic, Prague, Czech Republic; 2. Department of Condensed Matter Physics, Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic

Co-site substitution effects on the simultaneous metal-insulator and spin-state transition in (Pr₁₋ₓGdₓ)₁₋ₓCaₓCoO₃. T. Naito¹, H. Fujishiro¹ and K. Nitta²
1. Iwate University, Morioka, Japan; 2. Japan Synchrotron Radiation Research Institute, Sayo, Japan

Electron Spin Resonance of Gd³⁺ ions in GdₓY₁₋ₓNi₃Ga₉ (0.05 ≤ x ≤ 1.00). J.G. Duque¹,², E.C. Mendonça², L.S. Silva², C.B. Jesus¹, P. Pagliuso³ and R. Lora-Serrano³
1. DEQ, Instituto de Física Gleb Wataghin - Unicamp, Campinas, Brazil; 2. Physics, Programa de Pós-Graduação em Física, Campus Prof. José Aluísio de Campos, UFS, 49100-000 São Cristóvão, SE, Brazil, São Cristóvão, Brazil; 3. Physics, Universidade Federal de Uberlândia, 38408-100, Uberlândia, MG, Brazil, Uberlândia, Brazil

Photo-excited enhancement of Cr charge-density-wave ordering by dynamic electron-phonon interaction. S.K. Patel¹,², A. Singer³, R. Kukreja¹,², V. Uhlig³, J.C. Wingert², S. Festsersen³, D. Zhu³, J.M. Glownia⁴, H. Lemke⁴, S. Nelson⁴, K. Rossnagel⁴, M. Bauer⁴, B.M. Murphy⁵,³, O.M. Magnussen⁵,³, E.E. Fullerton¹ and O.G. Shpyrko¹
1. Center for Memory and Recording Research, University of California, San Diego, La Jolla, CA; 2. Physics Department, University of California, San Diego, La Jolla, CA; 3. Institute for Experimental and Applied Physics, University of Kiel, Kiel, Germany; 4. LCLS, SLAC National Accelerator Laboratory, Menlo Park, CA; 5. Ruprecht Haensel Laboratory, University of Kiel, Kiel, Germany

Finite-size scaling behavior of Néel temperature in magnetoelectric corundum Cr₂O₃ thinfilm. S. Pati¹, M. Al-Mahdawi¹, S. Ye¹, Y. Shiokawa¹, T. Nozaki¹ and M. Sahashi¹,²
1. Department of Electronic Engineering, Tohoku University, Sendai, Japan; 2. ImPACT Program, Japan Science and Technology Agency, Tokyo, Japan
Evolution from 4f-electron antiferromagnetic to ferromagnetic order in the CeCu(Ge1−xSnx) alloy series (0 ≤ x ≤ 1). B.M. Sondezi1, A. Altayeb3,1, M.B. Tchoula Tchokonte2, A. Strydom1 and D. Kaczorowski2 1. Physics, University of Johannesburg, Johannesburg, South Africa; 2. Physics, University of the Western Cape, Bellville, South Africa; 3. Physics, University of the Western Cape, Bellville, South Africa; 4. Magnetic, Institute of Low Temperature and Structure Research, Polish Academy of Sciences, Wroclaw, Poland

Magnetic Ground State At The Dysprosium Site in DyNiAl4. W.D. Hutchison1, G.A. Stewart1, S. Cadogan1 and D. Ryan2 1. School of Physical, Environmental and Mathematical Sciences, University of New South Wales, Canberra, ACT, Australia; 2. Centre for the Physics of Materials and Physics Department, McGill University, Montreal, QC, Canada

Tuesday GRAND BALLROOM
AFTERNOON
2:30

Session BT
NON-RARE-EARTH MAGNETS (Poster Session)
Wenyong Zhang, Chair
University of Nebraska, Lincoln, NE

BT-01. Magnetic properties of Nd(Fe1-xCox)10.5M1.5 (M=Mo and V, x=0-1) and their nitrides. J. Fu1, W. Yang1, Y. Xia1 and J. Yang1 1. School of Physics, Peking University, Beijing, China

BT-02. Large Magnetocrystalline Anisotropy in AlFe2B2 Single Crystals. B. Lejeune1, G. Hadjipanayis2 and L. Lewis1 1. Chemical Engineering, Northeastern University, Boston, MA; 2. Physics and Astronomy, University of Delaware, Newark, DE

BT-03. Characterization of Mo-substituted Co-ferrite Thin Films Prepared by Metal-organic Decomposition Method. T. Ishibashi1, T. Ikari1, A. Meguro1, H. Yanagihara2 and E. Kita2 1. Department of Materials Science & Technology, Nagaoka University of Technology, Niigata, Japan; 2. Institute of Applied Physics, University of Tsukuba, Tsukuba, Japan

BT-04. Irreversible Magnetization Process and Switching Mechanism in L10 FePt thin films. A. Lisfi1, S. Pokharel1, O. Akioya1, N. Alahtany1 and M. Wattig2 1. Physics, Morgan State University, Baltimore, MD; 2. Materials Science and Engineering, University of Maryland at College Park, College Park, MD
BT-05. Study of exchange coupling in MnAlC/α-Fe nanocomposite magnets prepared by cryogenic milling. J.S. Trujillo Hernandez1,2, L. Marshall3,4, I. McDonald1,3, L. Lewis1,4 and G.A. Pérez Alcázar1 1. Department of Physics, Universidad del Valle, Cali, Colombia; 2. Faculty of Natural Sciences and Mathematics, Universidad de Ibagué, Ibagué, Colombia; 3. Department of Chemical Engineering, Northeastern University, Boston, MA; 4. Department of Mechanical and Industrial Engineering, Northeastern University, Boston, MA


BT-07. Structure and Magnetic Properties of Mn51-xFexBi49(x=0, 3, 6, 9) Compounds. D. Zhang1, P. Wang1, M. Yue1, J. Li1, Q. Lu1 and W. Liu1 1. College of Materials Science and Engineering, Beijing University of Technology, Beijing, China

BT-08. α"-Fe3N2 powders prepared by high energy ball milling method. J. Liu1, B. Ma1, Y. Jiang1 and J. Wang1 1. Electrical and Computer Engineering, University of Minnesota, Twin Cities, Minneapolis, MN

BT-09. Search for Rare-Earth Free Permanent Magnets in Cobalt Nitrides by Adaptive Genetic Algorithm. X. Zhao1, C. Wang1, L. Ke2 and K. Ho1 1. Ames Laboratory and Department of Physics, Iowa State University, Ames, IA; 2. Ames Laboratory, Ames, IA

BT-10. Effect of Mo on microstructure and thermal stability for Alnico 8 alloys. J. Zhao1 and Y. Sun1 1. Magnetic Department, Ningbo Institute of Material Technology and Engineering, Ningbo, China

BT-11. Magnetic Anisotropy in spherical Fe3N2 core-shell nanoparticles determined by torque measurements. E. Kita1,2, Y. Sasaki3, M. Kishimoto1 and H. Yanagihara1 1. Institute of Applied Physics, University of Tsukuba, Tsukuba, Japan; 2. NIT, Ibaraki College, Hitachinaka, Japan; 3. Hitachi Maxell, Oyamazaki, Japan

BT-12. Morphology control of hexagonal strontium ferrite micro/nano-particles. D. Chen1,2, Y. Meng1, D. Zeng1, H. Yu1 and P. Liu1 1. South China University of Technology, Guangzhou, China; 2. South China Normal University, Guangzhou, China; 3. University of Texas at Arlington, Arlington, TX

BT-13. Large Magnetic Anisotropy in HfMnP. T. Lamichhane1,2, V. Taufour3, M. Masters3, S. Thimmaiah1, S. Bud’ko3,1, D. Parker2 and P.C. Canfield1,3 1. Physics, Iowa State University, Ames, IA; 2. ORNL, Oak Ridge, TN; 3. Ames Lab, Ames, IA

BT-14. Single nanometer-size hard magnetic ferrite based on ε-Fe2O3. S. Ohkoshi1 1. The University of Tokyo, Tokyo, Japan
BT-15. Role of nanostructural non-uniformity on alnico magnetic properties. L. Ke¹, R. Skomski², C. Wang³, T. Hoffmann⁴, L. Zhou⁵, I.E. Anderson¹ and M.J. Kramer¹ ¹. Ames Laboratory, Ames, IA; ². Physics and Astronomy, University of Nebraska - Lincoln, Lincoln, NE; ³. 1137 W Emerald Ave. Mesa, AZ

BT-16. Magnetocrystalline Anisotropy of Mn₂Ga: A first-principles Study. X. Liu¹, D. Ryan², M. Wang³, Q. Lu³, H. Zhang³, Y. Ming⁴ and Z. Altounian² ¹. Physics Department, McGill University, Montreal, QC, Canada; ². McGill University, Montreal, QC, Canada; ³. College of Materials Science and Engineering, Beijing University of Technology, Beijing, China; 4. Beijing University of Technology, Beijing, China

TUESDAY GRAND BALLROOM 2:30

Session BU

PERMANENT MAGNET SYNTHESIS AND PROCESSING I (Poster Session)

Ming Yue, Chair
Beijing University of Technology, Beijing, China

BU-01. Directly obtained τ-MnAl phase with high magnetization using melt rapid-hardening method. Z. Shao¹, Z. Hui¹, W. Yang¹, J. Zeng¹, S. Guo², H. Du¹, C. Wang¹, Y. Yang¹ and J. Yang¹ ¹. School of Physics, Peking University, Beijing, China; ². Rare Earth Magnetic Materials Laboratory, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, Ningbo, China

BU-02. Microstructure evolution and coercivity enhancement in Nd-Fe-B thin films diffusion-processed by R-Al alloys (R=Nd, Pr). C. Weibin¹,², H. Zhong¹,², Y. Fu¹,², Q. Wang¹, K. Lokendra¹ and Y. Qiang¹ ¹. Key Laboratory of Electromagnetic Processing of Materials (Ministry of Education), Northeastern University, Shenyang, China; ². Department of Physics and Chemistry of Materials, Northeastern University, Shenyang, China; ³. Physics Department, University of Idaho, Moscow, ID

BU-03. Micromagnetic Simulation of the Influence of Grain Boundary Phase on Ce Substituted Nd-Fe-B Magnets. D. Liu¹, T. Zhao¹, J. Lu¹, J. Sun¹, M. Zhang¹, R. Shang¹, R. Li¹, J. Xiong¹, X. Zhao¹, J. Zhang¹ and B. Shen¹ ¹. State Key Laboratory of Magnetism, Institute of Physics, Chinese Academy of Sciences, Beijing, China

BU-04. Enhanced Performances of Electroplated Hard Magnet Layers Via a Texture Inducing Underlayer. C. Tseng¹, C. Hsiao¹, L. Tsaï², J. Chang², C. Sung² and T. Chin¹ ¹. Material Science and Engineering, Feng Chia University, Taichung City, Taiwan; ². Power Mechanical Engineering, National Tsing Hua University, Hsinchu, Taiwan
Magnetic Domain Observation on Demagnetization of Nd–Fe–B Sintered Magnets under Compressive Stress and Elevated Temperatures. M. Takezawa1, K. Fukushima1, Y. Morimoto1 and Y. Nakano2 1. Kyoto Institute of Technology, Kitakyushu, Japan; 2. Mitsubishi Electric Corporation, Amagasaki, Japan

Magnetization reversal process in (Sm, Dy, Gd) (Co, Fe, Cu, Zr), magnets with different cellular structure. L. Liu1, Z. Liu1, M. Li1, C. Wang1, F. Yanping1, X. Zhang1, D. Lee1 and A. Yan1 1. Ningbo Institute of Material Technology and Engineering, CAS, Ningbo, China

The magnetic properties of textured MMCo5 (MM=Mischmetal)nanoflakes prepared by multistep (three steps) surfactant-assisted ball milling. X. Zhao1, W. Zuo1, D. Liu1, J. Xiong1, R. Shang1, T. Zhao1, J. Zhang1, J. Sun1 and B. Shen1 1. State Key Laboratory of Magnetism, Institute of Physics, Chinese Academy of Sciences, Beijing, China

Characterizations of magnetic phase transitions in PrMn2Ge2 compounds investigated by magnetization and magnetic hyperfine field measurements. B. Bosch-Santos1, A.W. Carbonari1, G. Cabrera-Pasca1 and R.S. Freitas2 1. Instituto de Pesquisas Energéticas e Nucleares (IPEN/USP), São Paulo, Brazil; 2. Instituto de Física, Universidade de São Paulo (IFUSP), São Paulo, Brazil

Effects of doping on the magnetic properties of La–Ce misch-metal based (La, Ce)2Fe14B melt spun ribbons: 2:14:B phases for cost effective permanent magnets. S. Fabbrici1,2, A. Gabay3, R. Cabassi2, F. Albertini2, E. Agostinelli1 and G. Hadjipanayis3 1. ISM-CNR, Rome, Italy; 2. IMEM-CNR, Parma, Italy; 3. Physics and Astronomy, University of Delaware, Newark, DE

Controlling the microstructure and associated magnetic properties of Ni2Mn2Ge5 melt spun ribbons by annealing. M.U. Khan1, O.F. Alshammari1, B. Balasubramanian2, B. Das2, D.J. Sellmyer2, A. Us Saleheen2 and S. Stadler2 1. Physics, Miami University, Oxford, OH; 2. Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE; 3. Physics & Astronomy, Louisiana State University, Baton Rouge, LA

Magnetic properties of Sm–Fe–N bulk magnets prepared from Cu-plated Sm–Fe–N powder. T. Saito1, T. Deguchi2 and H. Yamamoto2 1. Chiba Institute of Technology, Chiba, Japan; 2. KRI, Kyoto, Japan

Texture And Magnetism In Nanocrystalline (SmCo5)0.6(PrCo5)0.4 Permanent Magnets. X. Xu1, H. Zhang1, M. Yue1, Q. Lu1, D. Zhang1, W. Liu1 and Q. Wu1 1. College of Materials Science and Engineering, Beijing University of Technology, Beijing, China

Microstructure and Magnetic Properties of Hot Deformed Pr2(Fe,Co)14B/PrCo5 Hybrid Magnet Doped by PrCu Alloy. D. Zhou1, D. Zhang1, Y. Ming1, Q. Lu1, W. Liu1 and J. Zhang1 1. College of Materials Science and Engineering, Beijing University of Technology, Beijing, China
BU-14. Revealing on Metallurgical Behavior of Iron-rich Sm(Co0.65Fe0.26Cu0.07Zr0.02)7.8 Sintered Magnets. K. Song¹,
W. Sun¹, H. Chen¹, N. Yu¹, Y. Fang¹, M. Zhu¹ and W. Li¹
¹. Division of Functional Materials, Central Iron and Steel Research Institute, China, Beijing, China

BU-15. Cold Plasma Cleaning of Magnetic Nanoparticle Surface with Optimized Pulse Processing. N. Poudyal¹, G. Han¹,
Z. Qiu¹, K. Elkins¹, J. Mohapatra², K.H. Gandha¹, R. Timmons² and P. Liu¹
¹. Department of Physics, University of Texas at Arlington, Arlington, TX; ². Department of Chemistry and Biochemistry, University of Texas at Arlington, Arlington, TX

BU-16. Double shifted hysteresis loops in ferrimagnetic heterostructures. B. Hebler¹, O. Hellwig² and M. Albrecht¹
¹. Experimentalphysik IV, University Augsburg, Augsburg, Germany; ². Western Digital Company, San Jose, CA

Tuesday 67
R. Shang1, J. Xiong1, R. Li1, W. Zuo1, J. Zhang1, T. Zhao1, R. Chen2, B. Shen3 and J. Sun3. 1. State Key Laboratory for Magnetism, Institute of Physics, Chinese Academy of Sciences, Beijing, China; 2. Key Laboratory of Magnetic Materials and Devices, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, Ningbo, China

BV-06. Magnetic Properties Of (Misch-metal, Nd)-Fe-B Melt Spun Magnets. 
R. Li1, R. Shang1, J. Xiong1, D. Liu1, H. Kuang3, W. Zuo1, T. Zhao1, J. Sun3 and B. Shen3. 1. State Key Laboratory for Magnetism, Institute of Physics, Chinese Academy of Sciences, Beijing, China

A. Sugawara1, R. Kurosu1, H. Iwama1, M. Doi1 and T. Shima1. 1. Faculty of Engineering, Tohoku Gakuin University, Tagajo, Japan

BV-08. Enhancement in $(BH)_{max}$ of PLD-made isotropic Nd-Fe-B thick film magnets deposited on Si substrates. 
Y. Chikuba1, D. Shimizu1, A. Yamashita1, T. Yanai1, M. Nakano1 and H. Fukunaga1. 1. Nagasaki University, Nagasaki, Japan

A. Sugawara1, R. Kurosu1, H. Iwama1, M. Doi1 and T. Shima1. 1. Faculty of Engineering, Tohoku Gakuin University, Tagajo, Japan

BV-10. Hot-pressed graphene/Nd2Fe14B composite magnets with improved thermal and mechanical properties. 
L. Zheng1,2, Y. Sun1, M. Zhu1 and W. Li1. 1. Central Iron & Steel Research Institute, Beijing, China; 2. Hebei University of Engineering, Handan, China

BV-11. Grain Boundary Diffusion of Different Rare Earth Elements in Nd-Fe-B Sintered Magnets by Experiment and FEM Simulation. 
K. Loewe1, D. Benke1, M. Duerrschmied1, L. Molina-Luna1, K.P. Skokov1 and O. Gutfleisch1. 1. Department of Material- and Geosciences, TU Darmstadt, Darmstadt, Germany

BV-12. Microstructural analysis of anisotropic α-Fe/Nd-Fe-B exchange-spring magnets produced by high pressure crystallization. 
Z. Turgut1, R. Wheeler1,2, Y. Shen1,3, J. Horwath1 and L. Semiatin1. 1. Air Force Research Laboratory, Wright-Patterson AFB, OH; 2. UES Inc., Dayton, OH; 3. University of Dayton, Dayton, OH

BV-13. Characterization of bulk anisotropic nanocrystalline RCo5 (R=Sm, Pr) permanent magnets. 
Y. Ming1, D. Zhang2 and W. Liu3. 1. Beijing University of Technology, Beijing, China
BV-14. Nitrogenation process of Sm$_2$Fe$_{17}$N$_x$ in mixed-gas of NH$_3$ and H$_2$. N. Imaoka$^{1,2}$, K. Ozaki$^3$ and T. Iriyama$^3$. 1. Advanced Industrial Science and Technology (AIST), Nagoya, Japan; 2. Asahi Kasei Corporation, Fuji, Japan; 3. Daido Steel Co., Ltd., Nagoya, Japan

BV-15. Strain Effect on FeN Bulk Magnet Introduced by 9 T High Field Annealing. Y. Jiang$^1$, M. Brady$^3$, O. Rios$^3$ and J. Wang$^2$. 1. MINT center, Minneapolis, MN; 2. Electrical and Computer Engineering, School of Physics & Astronomy, Minneapolis, MN; 3. Oak Ridge National Laboratory, Oak Ridge, TN


TUESDAY GRAND BALLROOM

AFTERNOON 2:30

Session BW
COMPLEX OXIDES I: FILMS AND NEW MAGNETIC MATERIALS
(Poster Session)
Liang-Jian Zou, Chair
Institute of Solid State Physics, Chinese Academy of Sciences, Hefei, China

BW-01. A novel structural expansion in SrTiO$_3$ substrate tuned by electric field and visible-light. Y. Li$^1$, S. Peng$^1$, T. Mao$^1$, D. Wang$^1$, K. Wu$^1$ and J. Sun$^2$. 1. Faculty of Science, Wuhan University of Science and Technology, Wuhan, China; 2. State key laboratory for Magnetism, Chinese Academy of Sciences, Institute of Physics, Beijing, China


BW-03. Point Defects in MgO Single Crystal Induced by 60Co γ-ray and Neutron Irradiation. M. Cao$^1$, Y. Ma$^1$, X. Wang$^1$, C. Ma$^1$, W. Zhou$^1$, X. Wang$^1$, W. Tan$^1$ and J. Du$^1$. 1. Nanjing University of Science and Technology, Nanjing, China; 2. Physics, Nanjing University, Nanjing, China
BW-04. Ag3PO4 nanoparticle-decorated Ni/C nanocapsules with tunable electromagnetic properties. C. Cui1,2, P. Zhou1,2, X. Liu1,2 and S. Or2 1. School of Materials Science and Engineering, Anhui University of Technology, Maanshan, China; 2. Department of Electrical Engineering, The Hong Kong Polytechnic University, Kowloon, Hong Kong

BW-05. Unsaturated Magnetoconductance of Epitaxial La0.8Sr0.2MnO3 Thin Films in Pulsed Magnetic Fields up to 60 T. W. Niu1, X. Wang1, Y. Xu1 and R. Zhang1 1. Nanjing University, Nanjing, China

BW-06. Rectifying characteristics, photoelectric properties and magnetoresistance in heterojunctions composed of La0.8Hf0.1MnO3/0.05%Nb-doped SrTiO3. Y. Qi1, J. Gao1 and L. Wang2 1. Physics, The University of Hong Kong, Hong Kong, Hong Kong; 2. School of Materials Science and Engineering, Shanghai University, Shanghai, China

BW-07. Study of the Metastable State of La0.8Hf0.2MnO3 using Scanning Tunneling Microscopy. J. Zeng1 and J. Gao1 1. Physics, The University of Hong Kong, Hong Kong, Hong Kong

BW-08. Abnormal Enhancement of Ferromagnetism for thin LaMnO3+δ films with decreasing oxygen pressure. A. Zhang1, W. Zhang1, J. Lin3 and X. Wu2 1. College of Science, Hohai University, Nanjing, China; 2. Nanjing University, Nanjing, China; 3. Taiwan University, Taipei, Taiwan

BW-09. Electric Field Control of the Small-polaron Hopping Conduction in Pr0.7(Ca0.6Sr0.4)0.3MnO3 /PMN-PT Heterostructure. H. Kuang1, J. Wang1, Y. Zhao1, Y. Liu1, F. Hu1, J. Sun1 and B. Shen1 1. State Key Laboratory of Magnetism, Institute of Physics, University of Chinese Academy of Sciences, Chinese Academy of Sciences, Beijing, China

BW-10. Novel temperature dependent photoelectronic behaviors of ultrathin films manganite-based junctions. L.H. Huang1,2 1. Magnetism, Institute of Physics, Chinese Academy of Sciences, Beijing, China; 2. College of Science, Wuhan University of Science and Technology, Wuhan, China

BW-11. Thermodynamic Stability and Control of Oxygen Reactivity at Functional Oxide Interfaces: EuO on ITO. T. Gerber1, P. Lömker1, B. Zijlstra1, C. Bessort1,2, D.N. Mueller1, W. Zander4, J. Schubert4, M. Gorgoi5 and M. Müller1 1. Peter Grünberg Institute, PGI-6, Research Center Jülich, Jülich, Germany; 2. Institute of Inorganic Chemistry, RWTH Aachen University, Aachen, Germany; 3. Department of Chemistry, George Washington University, Washington, DC; 4. Peter Grünberg Institute, PGI-9, Research Center Jülich, Jülich, Germany; 5. Helmholtz Center Berlin, Berlin, Germany

BW-12. Strain Effect on Electronic Structure in La2/3Sr1/3MnO3/ BiFeO3 Bilayers. L. Jin1 and W. Mi1 1. Department of Applied Physics, Tianjin University, Tianjin, China

BW-14. Magnetoelastic properties and ferromagnetic resonance linewidth of Pb(Zr0.5Ti0.5)O3/BaFe12O19 multiferroic heterostructures. D. Chen1, Y. Li2, H. Zhang3 and G. Wang1 1. College of Materials and Chemical Engineering, Hainan University, Haikou, China; 2. School of Microelectronics and Solid-State Electronics, University of Electronic Science and Technology of China, Chengdu, China; 3. State Key Lab of Electronic Thin Films and Integrated Devices, University of Electronic Science and Technology of China, Chengdu, China. 4. University of Electronic Science and Technology of China, Chengdu, China


MARDI GRAS A-E
8:30

Session CA

SYMPOSIUM: NEW DEVELOPMENTS IN NANOSCALE SENSING WITH NITROGEN-VACANCY CENTER MAGNETOMETRY

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

8:30

CA-01. Imaging magnetism at the nanoscale with a single spin microscope. (Invited) V. Jacques1 1. Laboratoire Charles Coulomb, CNRS and Université de Montpellier, Montpellier, France

9:06

CA-02. Magneto-optical imaging of thin magnetic films using spins in diamond. (Invited) D.A. Simpson1,3, J. Tetienne1, J. McCoey1, K. Ganesan1, L. Hall1, S. Petrov1, R. Scholten1 and L. Hollenberg1,3 1. Physics, University of Melbourne, Parkville, VIC, Australia; 3. Centre for Neural Engineering, University of Melbourne, Parkville, VIC, Australia; 4. Florey Neuroscience Institute, University of Melbourne, Parkville, VIC, Australia
CA-03. Detecting magnetic fields from nuclear spins using nitrogen-vacancy centers in diamond. (Invited) D. Rugar¹, J. Mamin¹ and M. Sherwood¹ ¹. IBM Almaden Research Center, San Jose, CA

10:18

CA-04. Nanoscale Magnetic Imaging With A Single-Spin Based Quantum Sensor. (Invited) P. Maletinsky¹ ¹. Physics, University of Basel, Basel, Switzerland

10:54

CA-05. Nanoscale measurement of magnetic field with high dynamic range. (Invited) J. Wrachtrup¹ ¹. Physics, University of Stuttgart, Stuttgart, Germany

8:30

Session CB
MAGNONICS I
Yan Zhou, Chair
University of Hong Kong, Hong Kong

CB-01. Propagating spin waves with sub-100 nm wavelength in nanostructured magnetic thin film. (Invited) H. Yu¹,², O. D’Allivy Kelly², V. Cros², R. Bernard², P. Bortolotti², A. Anane³, F. Brandl³, F. Heimbach³ and D. Grundler⁴ ¹. Fert Beijing Research Institute, School of Electronic and Information Engineering, Beihang University, Beijing, China; ². Unite Mixte de Physique, CNRS, Thales, Univ Paris-Sud, Universite, Paris-Saclay, Palaiseau, France; ³. Physics Department, Technische Universitaet Muenchen, Garching b. Muenchen, Germany; ⁴. Laboratory of Nanoscale Magnetic Materials and Magnonics, Institute of Materials, School of Engineering, Ecole Polytechnique Federale de Lausanne (EPFL), Lausanne, Switzerland

9:06

CB-02. Characterization of spin wave propagation in YIG micro-fabricated waveguides. M. Collet¹, O. Gladii², M. Evelt², P. Bortolotti¹, V. Cros¹, S. Demokritov², Y. Henry¹, M. Bailleul¹, V.E. Demidov² and A. Anane¹ ¹. Unité Mixte de Physique CNRS/Thales and Université Paris Sud, Palaiseau, France; ². Institute for Applied Physics, University of Muenster, Muenster, Germany; ³. Institut de Physique et Chimie des Matériaux de Strasbourg, Strasbourg, France
CB-03. Propagation Of Confined Spin-Wave Modes In Sub-Micron Sized CoFeB Waveguides. F. Ciubotaru1,2, C. Adelmann1, T. Fischer1,4, A. Chumak1, M. Manfrini1, P. Pirro1, T. Devolder2, B. Hillebrands3 and I.P. Rud1. 1. imec, Leuven, Belgium; 2. Departement Electrotechniek (ESAT), KU Leuven, Leuven, Belgium; 3. Department of Physics and Landesforschungszentrums OPTIMAS, University of Kaiserslautern, Kaiserslautern, Germany; 4. MAINZ Graduate School of Excellence, Mainz, Germany; 5. University Paris-Sud, Orsay, France

CB-04. Magnetic domain walls as reconfigurable spin-wave nanochannels. (Invited) K. Wagner1,2, A. Kakay1, K. Schultheiss1, A. Henschke1, T. Sebastian1 and H. Schultheiss1,2 1. Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. TU Dresden, Dresden, Germany

CB-05. Spin wave energy distribution and the formation of bandgaps in a magnonic crystal. C.L. Ordóñez-Romero1, Z. Lazcano-Ortiz1, C. Rodriguez-Reyes1, M. Aguilar-Huerta1, J. Donlucas-Perez1, M.O. Viguera-Zuniga1, N. Qureshi2, O. Kolokoltsev1 and G. Monsivais1 1. Solid State, Physics Institute, UNAM., Mexico City, Mexico; 2. Facultad de Ingeniería, Universidad de Veracruz, Boca del Río, Mexico; 3. CCADET, UNAM, Ciudad de Mexico, Mexico

CB-06. Spin Wave Dynamics in Periodically Modulated One Dimensional Magnonic Crystals. S. Khanal1 and L. Spinu1 1. AMRI, University of New Orleans, New Orleans, LA

CB-07. Dynamically Switchable Signal Splitting In 2D Magnonic Microchips By Locally Controlled Spin-wave Caustics. F. Heussner1, P. Pirro1, A.A. Serga1 and B. Hillebrands1 1. Fachbereich Physik and Landesforschungszentrums OPTIMAS, Technische Universität Kaiserslautern, 67663 Kaiserslautern, Germany

CB-08. Spin-texture-based control of spin waves in patterned magnetic microstrips. K. Buchanan1, G.A. Riley1 and M.A. Asmat-Uceda1 1. Physics, Colorado State University, Fort Collins, CO

CB-09. Spin Wave Quantization in Ferromagnetic Nanostripes with Width Down to 50 nm. S. Saha1,4, S. Barman2, Y. Otani3,6 and A. Barman2 1. Laboratory for Mesoscopic Systems, Department of Materials, ETH Zurich, Zurich, Switzerland; 2. Department of Condensed Matter Physics and Material Sciences, S. N. Bose National Centre for Basic Sciences, Kolkata, India; 3. ISSP, University of Tokyo, Kashiwa, Japan; 4. Laboratory for Micro- and Nanotechnology, Paul Scherrer Institute, Villigen, Switzerland; 6. RIKEN-CEMS, Wako, Japan
CB-10. Thickness Dependence of the Normal Modes in Artificial Square Spin Ice. Y. Li1, G. Gubbiotti2, S. Morley3, F. Goncalves1, M. Rosamond4, E. Linfield4, C.H. Marrows3, S. McVitie1 and R. Stamps1 1. Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom; 2. Dipartimento di Fisica e Geologia, Istituto Officina dei Materiali del Consiglio Nazionale delle Ricerche, Perugia, Italy; 3. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 4. School of Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom


WEDNESDAY
MORNING
La Galerie 1-2
8:30

Session CC
SPIN-ORBIT TORQUE AND SPIN-TRANSFER TORQUE
Alice Mizrahi, Chair
Unité Mixte CNRS/Thales, Bourg la Reine, France

8:30

9:06
CC-02. Microscopic theory of spin-orbit torques in ferromagnet/heavy metal bilayers. I. Ado1, O. Tretiakov2,3 and M. Titov4 1. Radboud University, Nijmegen, Netherlands; 2. Tohoku University, Sendai, Japan; 3. Far Eastern Federal University, Vladivostok, Russian Federation
CC-03. Spin Orbit Torque in Co/Pt Bilayer Depending on Pt Crystal Structure. J. Ryu1,2, C. Avei3, M. Mann3, M. Kohda1, I. Nitta1 and G. Beach1. 1. Materials Science, Tohoku University, Sendai, Japan; 2. Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA

CC-04. Swapping Torque in Magnetic Bilayers. A. Manchon1 and H.B. Saidoussi1. 1. King Abdullah University of Science and Technology, Thuwal, Saudi Arabia

CC-05. Quantifying angular dependence of spin-orbit torques in Ta/CoFeB/MgO trilayers with perpendicular magnetic anisotropy. Y. Chen1, H. Celik2, T. Wang1, H. Kannan3 and J. Xiao1. 1. Physics and Astronomy, University of Delaware, Newark, DE

CC-06. Ultrafast spin-orbit torque switching with large field like torque. J. Lee1, J. Kwon1, J. Yoon1, W. Legrand1, X. Qiu1, J. Son1, R. Ramaswamy1, R. Mishra1 and H. Yang1. 1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore

CC-07. Sign of Spin-Orbit Torques in ferrimagnetic GdFeCo. N. Roschewsky1, T. Matsumura2, S. Cheema3, T. Kato3, S. Iwata4 and S. Salahuddin5. 1. Department of Physics, University of California, Berkeley, Berkeley, CA; 2. Department of Electrical Engineering and Computer Science, Nagoya University, Nagoya, Japan; 3. Department of Materials Science and Engineering, University of California, Berkeley, Berkeley, CA; 4. Institute of Materials and Systems for Sustainability, Nagoya University, Nagoya, Japan; 5. Department of Electrical Engineering and Computer Sciences, University of California, Berkeley, Berkeley, CA

CC-08. Spinterface Properties and Magnetic Anisotropy of the Perpendicular Magnetized Ferrimagnetic Insulator Tm2Fe5O12. A. Quindeau1, C. Avci1, W. Liu2, C. Sun2, M. Mann1, A. Tang1, M. Onbasli1, D. Bono1, P. Voyles3, Y. Xu2, J. Robinson4, G. Beach1 and C.A. Ross1. 1. MIT, Cambridge, MA; 2. The University of York, York, United Kingdom; 3. Materials Science and Engineering, University of Wisconsin Madison, Madison, WI; 5. Electronics, University of York, York, United Kingdom; 6. University of Cambridge, Cambridge, United Kingdom

CC-09. Inverse Spin Hall Effect in Au-Ta Alloys. D. Qu1, S. Huang2 and C. Chien1. 1. Department of Physics and Astronomy, Johns Hopkins University, Baltimore, MD; 2. Department of Physics, National Taiwan University, Taipei, Taiwan
CC-10. Spin-transfer-torque switching in magnetic tunnel junctions with perpendicular magnetized CoFeB-based free layer. H. Tomita¹, Y. Tanaka¹, H. Maehara², K. Nakamura¹, T. Kitada¹, S. Furukawa¹, H. Kubota¹, A. Fukushima³, K. Yashiki¹, S. Yasuda¹ and N. Watanabe¹ 1. Tokyo Electron Yamanashi Limited, Nirasaki, Japan; 2. Tokyo Electron Limited, Tokyo, Japan; 3. National Institute of Advance Industrial Science and Technology (AIST), Tsukuba, Japan

CC-11. Tuning Spin Transfer Torque In Double Barrier Magnetic Tunnel Junctions. P. Coelho¹, P. Clément¹, C. Ducruet², L. Vila¹, R.C. Sousa¹, A. Timopheev¹, M. Chshiev¹ and C. Baraduc¹ 1. SPINTEC, Univ. Grenoble-Alpes / CEA / CNRS, F-38000 Grenoble, France; 2. University of Minnesota, Minneapolis, MN

CC-12. Micromagnetic Modeling and Optimization of Co/Cu Multilayered Nanowire STT-MRAM. M. Al-Rashid¹, M. Maqableh², B. Studler² and J. Atulasimha¹ 1. Virginia Commonwealth University, Richmond, VA; 2. University of Minnesota, Minneapolis, MN

CC-13. Thermally Driven Spin Transfer Torque in Magnetic Tunnel Junctions. A. Bose¹, A. Shukla¹, K. Konishi³, S. Jain¹, N. Asam¹, H.B. Sing¹, S. Bhuktaře¹, D.D. Lam², Y. Fujii², S. Miwa², Y. Suzuki² and A. Tulapurkar¹ 1. Electrical Engineering, Indian Institute of Technology, Bombay, Mumbai, India; 2. Graduate School of Engineering Science, Osaka University, Osaka, Japan; 3. Osaka University, Osaka, Japan

WEDNESDAY La Galerie 3
MORNING 8:30

Session CD
DOMAIN WALL, VORTEX AND SKYRMION DYNAMICS I
Jan Vogel, Chair
Institut Néel, CNRS, Grenoble, France

CD-01. Generation of skyrmions by chopping magnetic chiral stripe domains with an electric current. S. Lin¹ 1. Theoretical Division, Los Alamos National Laboratory, Los Alamos, NM

CD-02. Collapse of a skyrmion in an ultrathin magnetic film. S. Rohart¹, J. Militat² and A. Thiaville² 1. Université Paris-Sud, Orsay, France; 2. Lab. Physique des Solides, Universite Paris-Sud, Orsay, France
CD-03. Room-Temperature Stability and Motion Under Current of sub-100nm Skyrmions in Magnetic Nanotrack. W. Legrand1, D. Maccariello1, N. Reyren1, K. Garcia-Hernandez1, C. Moreau-Lucaire1, K. Bouzehouane1, V. Cros1 and A. Fert1
1. Unité Mixte de Physique CNRS/Thales and Université Paris-Sud, Palaiseau, France

CD-04. Magnetic Skyrmion In Multigrain Systems. M. Yoo1,2, J. Adam1, K. Garcia-Hernandez2, C. Moreau-Lucaire2, N. Reyren2, V. Cros2 and J. Kim1
1. Centre for Nanoscience and Nanotechnology (C2N), CNRS, Univ. Paris-Sud, Université Paris-Saclay, Orsay, France; 2. Unité Mixte de Physique, CNRS, Thales, Univ. Paris-Sud, Université Paris-Saclay, Palaiseau, France

CD-05. Magneto-transport Properties of Skyrmions in Amorphous Fe/Gd Multilayers. S.A. Montoya1,2, M.V. Lubarda4, S. Couture1,2, J.J. Chess3, B.J. McMorrin3, V. Lomakin1,2 and E.E. Fullerton1,2
1. Center for Memory 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. Department of Physics, University of Oregon, Eugene, OR; 4. Faculty of Polytechnics, University of Donja Gorica, Podgorica, Montenegro

CD-06. Chiral magnetic excitations in FeGe films. E. Turgut1, A. Park1, A. Moehle1 and G.D. Fuchs1
1. Applied and Engineering Physics, Cornell University, Ithaca, NY

1. Materials Science Division, Argonne National Laboratory, Argonne, IL; 2. Department of Physics, Bryn Mawr College, Bryn Mawr, PA; 3. Department of Physics, The University of Hong Kong, Hong Kong, Hong Kong; 4. Electrical Engineering, UCLA, Los Angeles, CA

CD-08. Coupled vortex gyration in the diamond state studied by time-resolved scanning electron microscopy with polarization analysis. F. Kloood1, R. Frönter1, S. Kuhrau1, P. Staack1 and H. Oepen1
1. Institut für Nanostruktur- und Festkörperphysik, Universität Hamburg, Hamburg, Germany

CD-09. Collective modes in threedimensional maghnonic vortex crystals. G. Meier1, M. Hänze2, C.F. Adloff1, B. Schulte2, J. Möller2 and M. Weigand3
CD-10. Synchronizing Spin Torque Vortex Oscillators For Pattern Recognition. P. Talatchian1, M. Romera1, R. Lebrun1, F. Abreu Araujo1, P. Bortolotti1, V. Cros1, J. Grollier1, K.I. Merazzou2,3, L. Vila2,4, R. Ferreira6, M. Cyrlle2,3, U. Ebels2, D. Vodenicarevic4, N. Locatelli2 and D. Querlioz5 1. Unité Mixte de Physique, CNRS/Thales, Univ. Paris-Sud, Université Paris-Saclay, Palaiseau, France; 2. Univ. Grenoble Alpes, CEA, CNRS, SPINTEC, Grenoble, France; 3. Univ. Grenoble Alpes, CEA, LETI MINATEC, Grenoble, France; 4. Univ. Grenoble Alpes, CEA, INAC, NM, Grenoble, France; 5. Institut d’Électronique Fondamentale, CNRS UMR 8622, Univ. Paris-Sud, Université Paris-Saclay, Orsay, France; 6. International Iberian Nanotechnology Laboratory (INL), Braga, Portugal


CD-12. Resonant Excitation of the First Order Gyromode in Magnetic Vortex Structures: Time-Resolved Imaging and Vortex Core Reversal. G. Dieterle1, A. Gangwar1,2, J. Förster1, M. Noske1, H. Stoll1, I. Bykova1, M. Weigand1, G. Woltersdorf3, C. Back2 and G.A. Schuetz1 1. Modern Magnetic Systems, Max-Planck-Institut for Intelligent Systems, Stuttgart, Germany; 2. Universität Regensburg, Regensburg, Germany; 3. Department of Physics, University of Halle, Halle, Germany

CD-13. Spin-wave excitation modes in thick vortex-state circular ferromagnetic nanodots. R.V. Verba1,2, A. Hierro-Rodriguez1, D. Navas1, J. Ding1, X. Liu1, A. Adeyeye1, K. Guslienko1,2 and G.N. Kakazei1,3 1. IFIMUP-IN/Department of Physics and Astronomy, University of Porto, Porto, Portugal; 2. Institute of Magnetism, Kyiv, Ukraine; 3. Department of Electrical & Computer Engineering, National University of Singapore, Singapore, Singapore; 4. Departamento de Física de Materiales, Universidad del Pais Vasco, San Sebastian, Spain; 5. IKERBASQUE, the Basque Foundation for Science, Bilbao, Spain
Session CE
PATTERNED FILMS I
Axel Hoffmann, Chair
Argonne National Laboratory, Argonne, IL

8:30
CE-01. Light localization and magneto-optic enhancement in magneto-plasmonic meta-structures. (Invited) M. Rollinger\textsuperscript{1}, P. Thielen\textsuperscript{1}, E. Melander\textsuperscript{2}, E. Östman\textsuperscript{2}, V. Kapaklis\textsuperscript{2}, M. Cinchetti\textsuperscript{1}, A. García-Martín\textsuperscript{2}, M. Aeschlimann\textsuperscript{1} and E. Papaioannou\textsuperscript{1}. 1. Physics, TU Kaiserslautern, Kaiserslautern, Germany; 2. Physics & Astronomy, Uppsala University, Uppsala, Sweden; 3. IMM-Instituto de Microelectronica de Madrid, Madrid, Spain

9:06
CE-02. Efficient Excitation of Perpendicular Standing Spin-Waves in CoFeB and YIG Films. A. Navabi\textsuperscript{1}, M. Yazdani\textsuperscript{1}, P. Khalili\textsuperscript{1} and K.L. Wang\textsuperscript{1}. 1. UCLA, Los Angeles, CA

9:18
CE-03. Single-Step Nanopatterning of Multicomponent Magnetic Metamaterials. M. Urbanek\textsuperscript{1,2}, V. Krizakova\textsuperscript{2}, J. Gloss\textsuperscript{3}, M. Horky\textsuperscript{2}, L. Flajsman\textsuperscript{1}, M. Schmid\textsuperscript{1}, T. Sikola\textsuperscript{1,2} and P. Varga\textsuperscript{1,1}. 1. CEITEC BUT, Brno University of Technology, Brno, Czech Republic; 2. Institute of Physical Engineering, Brno University of Technology, Brno, Czech Republic; 3. Institute of Applied Physics, Vienna University of Technology, Vienna, Austria

9:30
CE-04. Formation of Induced Anisotropy in Alternating Co/Pt and Co/Pd Stripe Patterns. S. Kim\textsuperscript{1}, Y. Nam\textsuperscript{2}, Y. Kim\textsuperscript{1}, J. Choi\textsuperscript{1}, H. Lee\textsuperscript{1} and S. Lim\textsuperscript{1}. 1. Materials Science and Engineering, Korea University, Seoul, The Republic of Korea; 2. Research and Development Division, SK Hynix Semiconductor Inc., Icheon, The Republic of Korea; 3. Center for Spintronics Research, Korea Institute of Science and Technology, Seoul, The Republic of Korea

9:42
CE-05. Splitting of the Vortex Gyrotropic Mode in Ferromagnetic Disks with a Nonmagnetic Void. J. Ding\textsuperscript{1}, S. Lendinez\textsuperscript{1}, P.N. Lapa\textsuperscript{1,2}, T. Khaire\textsuperscript{1}, J.E. Pearson\textsuperscript{1}, A. Hoffmann\textsuperscript{1} and V. Novosad\textsuperscript{1}. 1. Materials Science Division, Argonne National Laboratory, Argonne, IL; 2. Texas A&M University, College Station, TX
CE-06. Ordered Arrays of Hard/Soft Bilayer Magnetic Antidots Prepared By Focused Ion Beam Nanopatterning. A. Kaidatzis¹, R. Perez del Real¹, R. Alvaro³, D. Niarchos¹ and J. Garcia-Martín³ 1. NCSR Demokritos, Aghia Paraskevi, Greece; 2. ICMM, Madrid, Spain; 3. IMM-Instituto de Microelectronica de Madrid, CSIC, Tres Cantos, Spain

10:06


10:18

CE-08. Artificial Spin Ice: New Developments in Vertex Frustrated Lattices and in Magnetotransport. (Invited) P. Schiffer¹, I. Gilbert¹, B.L. Le¹, J. Sklenar¹, J. Park¹, Y. Lao¹, C. Nisoli², G. Chern³, D. Rench⁴, N. Samarth⁴, A. Scholl⁵, M. Manno⁶, J.D. Watts⁶ and C. Leighton⁶ 1. University of Illinois at Urbana-Champaign, Champaign, IL; 2. Los Alamos National Laboratory, Los Alamos, NM; 3. University of Virginia, Charlottesville, VA; 4. Penn State University, University Park, PA; 5. ALS - LBNL, Berkeley, CA; 6. University of Minnesota, Minneapolis, MN

10:54

CE-09. Thermally-achieved low energy states in manganite-based artificial spin ice arrays. R.V. Chodpekar¹, M.S. Lee¹, A.M. Kane¹, S.T. Retterer³, A. Scholl³ and Y. Takamura¹ 1. Materials Science and Engineering, University of California - Davis, Davis, CA; 2. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA; 3. Center for Nanophase Materials Science, Oak Ridge National Laboratory, Oak Ridge, TN

11:06

CE-10. Thermally induced magnetic relaxation in square artificial spin ice. M.S. Andersson¹, S.D. Pappas², H. Stopfel², E. Östman³, A. Stein³, P. Nordblad³, R. Mathieu⁴, B. Hjörvarsson² and V. Kapaklis² 1. Engineering Sciences, Uppsala University, Uppsala, Sweden; 2. Materials Physics, Uppsala University, Uppsala, Sweden; 3. Center for Functional Nanomaterials, Brookhaven National Laboratory, Upton, NY

11:18

CE-11. Order and thermal excitations in square artificial spin ice modeled with Monte Carlo simulations. E. Östman¹, J.C. Andresen², H. Stopfel¹, U. Arnalds², A. Stein⁴, B. Hjörvarsson¹, P. Helenius³ and V. Kapaklis² 1. Physics and Astronomy, Uppsala University, Uppsala, Sweden; 2. University of Iceland, Reykjavik, Iceland; 3. Royal Institute of Technology, Stockholm, Sweden; 4. Brookhaven National Laboratory, Brookhaven, NY
Session CF
MICROMAGNETICS AND MRAM
Chun-Yeol You, Chair
DGIST EMS, Daegu, The Republic of Korea

8:30 CF-01. Fast computation of nucleation field maps in permanent magnets. J. Kuehnel¹, J. Fischbacher², L. Exl³,⁴, E. Mehofer¹ and T. Schrefl² ¹. Faculty of Computer Science, University of Vienna, Vienna, Austria; ². Danube University Krems, Wiener Neustadt, Austria; ³. Faculty of Mathematics, University of Vienna, Vienna, Austria; ⁴. Solid State Physics, TU Vienna, Vienna, Austria

8:42 CF-02. Solving the Inverse Magnetostatic Problem using the Adjoint Method. F. Bruckner¹, G. Wautischer¹, C. Abert¹, C. Huber¹, C. Vogler² and D. Suess¹ ¹. Institute of Solid State Physics, Christian Doppler Laboratory for Advanced Magnetic Sensing and Materials, Vienna University of Technology, Vienna, Austria; ². Institute of Solid State Physics, Vienna University of Technology, Vienna, Austria

8:54 CF-03. Python interface for OOMMF. M. Beg¹, R. Pepper¹ and H. Fangohr¹ ¹. Computational Modelling Group, University of Southampton, Southampton, United Kingdom

9:06 CF-04. Virtual Micromagnetics: A Platform for Accessible and Reproducible Micromagnetic Simulation. M. Vousden¹, M. Bisotti¹, M. Albert¹ and H. Fangohr¹ ¹. Computational Modelling Group, University of Southampton, Southampton, United Kingdom

9:18 CF-05. Concurrent Processing Approach to Micromagnetic Simulations. S. Fu¹,², M. Kuteifan¹,², S. Couture¹,², M. Menarini¹,², I. Volvach¹,² and V. Lomakin¹,² ¹. Center for Magnetic Recording Research, University of California, San Diego, La Jolla, CA; ². Material Science and Engineering, University of California, San Diego, San Diego, CA; ³. Department of Electrical and Computer Engineering, University of California, San Diego, La Jolla, CA
CF-06. Coupling Electrodynamics and Micromagnetics: Modeling of Eddy Currents. S. Couture1*, R. Chang2, I. Volvach3, S. Fu4 and V. Lomakin5 1. Electrical Engineering, University of California, San Diego, La Jolla, CA; 2. Oracle Corporation, San Diego, CA; 3. Material Science and Engineering, University of California, San Diego, La Jolla, CA; 4. Center for Magnetic Recording Research, University of California, San Diego, La Jolla, CA; 5. Department of Electrical and Computer Engineering, University of California, San Diego, La Jolla, CA

CF-07. Monitoring Bloch Points Using Winding Number In Micromagnetic Simulations. A. Wartelle1, S. Jamet2, C. Thirion3, O. Fruchart4 and J. Toussaint5 1. QUEST, Institut Néel, Grenoble, France; 2. Nano, Institut Néel, Grenoble, France; 3. Institut Néel, CNRS, Grenoble, France; 4. SPINTEC, CNRS, Grenoble, France


CF-09. Probing colored magnetization dynamics by formulae of differentiation. P. Thibaudeau1, J. Tranchida1,2 and S. Nicolis2 1. DAM, Commissariat à l’Energie Atomique, Monts, France; 2. Laboratoire de Mathématiques et Physique Théorique, Université François Rabelais, Tours, France

CF-10. All-optical helicity dependent magnetization manipulation in Co/Pt and Co/Pd multilayers. G. Kichin1, Y. Tsema1, O. Hellwig2, V.V. Mehta2, A. Kimel1, A. Kirilyuk1 and T. Rasing1 1. Institute for Molecules and Materials, Radboud University, Nijmegen, Netherlands; 2. Research, HGST, A Western Digital Company, San Jose, CA

CF-12. Current induced configurations in composite spring magnets. *C.H. Lambert*¹, M. Kuteifan², M.V. Lubarda², E.E. Fullerton³, V. Lomakin³ and S. Mangin³. 1. Department of Electrical Engineering and Computer Science, UC Berkeley, Berkeley, CA; 2. Faculty of Polytechnics, University of Donja Gorica, San Diego, CA; 3. Institut Jean Lamour, Université de Lorraine, Vandoeuvre-les-Nancy, France; 4. Department of Electrical and Computer Engineering, University of California, San Diego, La Jolla, CA; 5. UMR CNRS 7198 – Université de Lorraine, Institut Jean Lamour, Nancy, France

CF-13. Write error rates of perpendicular spin-transfer-torque random access memory including micromagnetic effects. *T. Pramanik*¹, U. Roy², L.F. Register¹ and S.K. Banerjee¹. 1. Microelectronics Research Center, Department of Electrical and Computer Engineering, The University of Texas at Austin, Austin, TX; 2. TDK-Headway Technologies Inc., Milpitas, CA

CF-14. Influence of incomplete Boron removal on magnetic properties of CoFeB/MgO PMA systems for STT-MRAM. *S. Wang*¹, D. Apalkov¹, R.F. Evans², A. Meo² and R. Chantrell². 1. Semiconductor R&D Center, Samsung Electronics, San Jose, CA; 2. Department of Physics, University of York, York, United Kingdom

CF-15. Significant reduction in switching current by transient pulse current for p-MTJ. *S. Pathak*¹, J. Cha¹, S. Lee¹ and J. Hong¹. 1. Materials Science and Engineering, Yonsei University, Seoul, The Republic of Korea

WEDNESDAY MORNING 8:30

Session CG

NON-RARE-EARTH FE ALLOYS AND COMPOUNDS

Balamurugan Balasubramanian, Chair
University of Nebraska, Lincoln, NE


CG-02. Withdrawn
CG-03. Fabrication and characterization of $L_1_0$-FeNi films with coercivity in excess of 1 kOe using a combinatorial sputtering approach. A. Kaidatzis1, G. Giannopoulos1, V. Psycharis1 and D. Niarchos1. Institute of Nanoscience and Nanotechnology, NCSR Demokritos, Athens, Greece, Athens, Greece

CG-04. Synthesis of $L_1_0$ FeNi thin films via rapid thermal annealing. J.C. De Rojas1, D.A. Gilbert2, J.W. Lau2 and K. Liu1. Physics Department, University of California, Davis, Davis, CA; 2. NIST, Gaithersburg, MD

CG-05. Direct Liquid Phase Synthesis of ordered $L_1_0$ FePt Nanoparticles with Bi Doping. V. Tzitzios1, F.M. Abel1, N. Tzitzios2, V. Alexandrakis2 and G. Hadjipanayis1. Physics and Astronomy, University of Delaware, Newark, DE; 2. NCSR Demokritos, Institute of Nanoscience and Nanotechnology, Athens, Greece

CG-06. Engineering Tetragonality and Microstructure in Fe$_2$SiB$_2$-based Intermetallic Compounds. R. Barua1,4, B. Lejeune2, R. McDonald, V. Harris1,4, L. Lewis2 and G. Hadjipanayis1. Center for Microwave Magnetic Materials and Integrated Circuits, Northeastern University, Boston, MA; 2. Chemical Engineering, Northeastern University, Boston, MA; 3. Physics and Astronomy, University of Delaware, Newark, DE; 4. Electrical and Computer Engineering, Northeastern University, Boston, MA


CG-08. Study on the Structure and Magnetism of Fe$_3$Co$_3$Nb$_2$ Using Neutron Powder Diffractions. X. Xu1,2, B. Balasubramanian2,3, B. Das1,2, Y. Liu3, A. Huq3 and D.J. Sellmyer2,4,1. Physics and Astronomy, University of Nebraska, Lincoln, NE; 2. Nebraska Center for Materials and Nanoscience, University of Nebraska-Lincoln, Lincoln, NE; 3. Oak Ridge National Laboratory, Oak Ridge, TN; 4. University of Nebraska - Lincoln, Lincoln, NE

CG-09. Core-shell $\alpha''$-Fe$_3$N$_2$/Fe composite particles. B. Ma1, J. Liu1 and J. Wang1. Electrical and computer Engineering, University of Minnesota, Minneapolis, MN


WEDNESDAY MORNING 8:30

Session CH
NOVEL MAGNETIC ORDER IN THIN FILMS I
Christy Kinane, Chair
Rutherford Appleton Laboratory, STFC, Didcot, United Kingdom

CH-01. The Experimental and Theoretical Study of Mn Doped Bi2Te3. A. Ghasemi1*, D. Kepaptsoglou2, A.I. Figueroa3, G. Naydenov1, P.J. Hasnip1, M. Probert1, Q.M. Ramasse4, G. van der Laan3, T. Hesjedal5 and V. Lazarov1. 1. University of York, York, United Kingdom; 2. SuperSTEM Laboratory, Daresbury, United Kingdom; 3. Diamond Light Source, Didcot, United Kingdom; 4. SuperSTEM Laboratory, Daresbury, United Kingdom; 5. University of Oxford, Oxford, United Kingdom

CH-02. Hidden Interfaces and Interface-driven ferromagnetic states in topological insulator heterostructures. V. Lauter1, F. Katmis2-3, D. Heiman4 and J. Moodera2,3. 1. QCMD, Neutron Sciences Directorate, Oak Ridge National Laboratory, Oak Ridge, TN; 2. Department of Physics, Massachusetts Institute of Technology, Cambridge, MA; 3. Francis Bitter Magnet Laboratory, Massachusetts Institute of Technology, Cambridge, MA; 4. Department of Physics, Northeastern University, Boston, MA

CH-03. Large Enhancement of Spin Orbit Torque Originated from Topological Surface States in Bi2Se3. Y. Wang2, D. Zhu1, S. Shi1, R. Mishra1 and H. Yang1. 1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore
CH-04. Physicochemical Analysis Of Bi$_2$Te$_3$ – (Fe, Eu) – Bi$_2$Te$_3$
Junctions Grown By Molecular Beam Epitaxy Method.
K.A. Balin$^{1,2}$, R. Rapacz$^{1,2}$, M. Weis$^{1,2}$, P. Ruello$^3$, M. Lejman$^3$, G. Vaudel$^3$, B. Wilk$^{1,2}$ and J. Szade$^{1,2}$
1. A. Chelkowski Institute of Physics, University of Silesia in Katowice, Katowice, Poland;
2. Silesian Center for Education and Interdisciplinary Research, University of Silesia in Katowice, Chorzów, Poland; 3. Institut des Molécules et Matériaux du Mans, UMR CNRS 6283, Université du Maine, Le Mans, France

CH-05. Emerging Magnetic Order In Metallic Copper Induced By Proximity To Cobalt: A Detailed X-Ray Spectromicroscopy Study.
Z. Chen$^1$, H. Ohldag$^2$, S. Redjai Sani$^3$, A.D. Kent$^4$, R. Kukreja$^4$, E.E. Fullerton$^4$, H. Durr$^4$ and J. Stohr$^5$
1. Physics, Stanford University, Stanford, CA;
2. SLAC National Accelerator Laboratory, Menlo Park, CA;
3. Department of Physics, New York University, New York, NY;
4. UC San Diego, La Jolla, CA;
5. Department of Physics, Stockholm University, Stockholm, Sweden; 6. Applied Physics, Stanford University, Stanford, CA

CH-06. Interface magnetism in Pt/ferromagnet heterostructures probed by XMCD and XRM.
C. Klewe$^1$, P. Shafer$^1$, P. Bougiatioti$^2$, J. Schmalhorst$^2$, D. Meier$^3$, O. Kuschel$^3$, J. Wollschläger$^3$, L. Bouchenoire$^4,5$, S. Brown$^4,5$, G. Reiss$^2$, T. Kuschel$^6$ and E. Arenholz$^1$
1. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA;
2. Center for Spinelectronic Materials and Devices, Bielefeld University, Bielefeld, Germany;
3. Center of Physics and Chemistry of New Materials, Osnabrück University, Osnabrück, Germany;
4. XMaS, European Synchrotron Radiation Facility, Grenoble, France;
5. Department of Physics, University of Liverpool, Liverpool, United Kingdom;
6. Physics of Nanodevices, Zernike Institute for Advanced Materials, University of Groningen, Groningen, Netherlands

CH-07. Modifications of ultrathin Pt/Co/Pt films induced by visual and extreme ultraviolet light pulses.
A. Maziewski$^1$, I. Sveklo$^1$, J. Kisielewski$^1$, Z. Kurant$^1$, A. Bartnik$^2$, M. Jakubowski$^3$, E. Dynowska$^3$, D. Klinger$^3$, R. Sobierajski$^3$ and A. Wawro$^3$
1. Faculty of Physics, University of Bialystok, Bialystok, Poland;
2. Institute of Optoelectronics, Military University of Technology, Warsaw, Poland;
3. Institute of Physics, Polish Academy of Sciences, Warsaw, Poland

CH-08. Novel magnetic states in gadolinium induced by interfacial hybridization with C$_{60}$.
T. Moorsom$^1$, C. Kinane$^2$, S. Langridge$^2$, P. Gargiani$^3$, M. Valvidares$^3$, J.D. Witt$^4$, B. Hickey$^5$, G. Burnell$^1$ and O. Cespedes$^1$
1. School of Physics & Astronomy, University of Leeds, Leeds, United Kingdom;
2. Rutherford Appleton Laboratory, Chilton, United Kingdom;
3. BOREAS beamline, ALBA Synchrotron Light Facility, Barcelona, Spain
CH-09. Observation of hybrid interfaces states at C$_{60}$/ferromagnetic heterojunctions. J. Zhang, C. Woffinden and A. Pratt.
1. Internation Center for Young Scientists, National Institute for Materials Science, Tsukuba, United Kingdom; 2. Physics, University of York, York, United Kingdom

1. Cavendish Laboratory, Physics Department, University of Cambridge, Cambridge, United Kingdom; 2. ISIS, Rutherford Appleton Laboratory, Chilton, United Kingdom; 3. Paul Scherrer Institute, Zurich, Switzerland; 4. Department of Engineering, University of Cambridge, Cambridge, United Kingdom

1. Peter Grünberg Institute (PGI-6), Forschungszentrum Jülich, Jülich, Germany; 2. Forschungszentrum Jülich, Jülich, Germany; 3. Peter Grünberg Institute (PGI-1), Forschungszentrum Jülich, Jülich, Germany

1. ISMN-CNR, Bologna, Italy; 2. Physics, University of York, York, United Kingdom; 3. CNR-ISMN, Bologna, Italy; 4. Uppsala University, Uppsala, Sweden; 5. National Institute for Materials Science, Tsukuba, Japan

1. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 2. Institut für Physik, Mainz, Germany; 3. Texas A&M University, College Station, TX; 4. Peter Grünberg Institut and Institute for Advanced Simulation, Forschungszentrum Jülich, Jülich, Germany

1. Rutherford Appleton Laboratory, Chilton, United Kingdom; 2. Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 3. Physics, University of Bath, Bath, United Kingdom
CH-15. Depth Profile Investigation of LaAlO₃(001)/EuO(001) using Polarised Neutron Reflectivity and Low Energy Muon Spin Rotation. R. Aboljadayel, P. Baker, N. Steinke, T. Saerbeck, A. Ionescu, Z. Salman, C. Barnes, T. Prokscha and S. Langridge. 1. Cavendish Laboratory, Physics Department, University of Cambridge, Cambridge, United Kingdom; 2. ISIS, Rutherford Appleton Laboratory, Harwell, United Kingdom; 3. Institut Laue-Langevin, Grenoble, France; 4. Laboratory for Muon-Spin Spectroscopy, Paul Scherrer Institut, Zurich, Switzerland

WEDNESDAY STUDIO 3-4
MORNING
8:30

Session CI
COUPLING EFFECTS IN MAGNETOELECTRICS AND COMPLEX OXIDES
Dustin Gilbert, Chair
NIST, Gaithersburg, MD

8:30
CI-01. Strain-Modulated Magnetic Reversal In Amorphous TbFe Film. T. Lee, M.K. Panduranga and G. Carman. 1. Materials Science and Engineering, University of California, Los Angeles, Los Angeles, CA; 2. Mechanical & Aerospace Engineering, University of California, Los Angeles, Los Angeles, CA

8:42

8:54
CI-03. An Impedance Spectroscopy Study Of Magnetodielectric Coupling In BaTiO₃-CoFe₂O₄ Nanostructured Multiferroics. U. Acevedo, R. Lopez-Noda, R. Breitwieser, F. Calderón, S. Ammar and R. Valenzuela. 1. Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, Ciudad de México, Mexico; 2. ITODYS, CNRS UMR-7086, Université Paris Diderot, Sorbonne Paris Cité, Paris, France; 3. Departamento de Física Aplicada, Instituto de Cibernética, Matemáticas y Física, La Habana, Cuba; 4. Instituto de Ciencia y Tecnologia de Materiales, Universidad de la Habana, La Habana, Cuba
CI-04. Polarization Fatigue Of BiFeO3 Films With Ferromagnetic Metallic Electrodes. C. Chen1, J. Wang2,3, C. Li1,4, Z. Wen2,4, I. Du2,3 and Q. Xu1,2 1. Department of Physics, Southeast University, Nanjing, China; 2. National Laboratory of Solid State Microstructures, Nanjing University, Nanjing, China; 3. Department of Physics, Nanjing University, Nanjing, China; 4. Department of Materials Science and Engineering, Nanjing University, Nanjing, China; 5. College of Physics, Qingdao University, Qingdao, China


CI-06. Monte Carlo Investigation Of The Coupling Between Ferroelectric Polarization And Magnetic Order In Delafossite CuCrO2. A. Al Baalbaky1, D. Leduc1, R. Patte1 and R. Fresard1 1. Normandie Univ., INSA Rouen, UNIROUEN, CNRS, GPM, 76800 Rouen, France; 2. Normandie Univ, ENSICAEN, UNICAEN, CNRS, CRISMAT, 14050 Caen, France

CI-07. Self cooled, piezoelectric controlled non volatile memory effect in charge-strain co-mediated magnetoelectric coupling based energy efficient multiferroic heterostructures. K. Singh1 and D. Kaur1 1. Physics Department, IIT Roorkee, Roorkee, India

CI-08. Coverage Dependent Magnetization Switching in an Ultrathin Fe Film on Ferroelectric Surfaces. D. Odkhuu1 and T. Tumurbaatar2 1. Department of Physics, Incheon National University, Incheon, The Republic of Korea; 2. Department of Physics, University of Ulsan, Ulsan, The Republic of Korea

CI-09. Bound states and charge transport on magnetic domain walls in Weyl semimetals. Y. Araki1,2, A. Yoshida1 and K. Nomura1 1. Institute for Materials Research, Tohoku University, Sendai, Japan; 2. Frontier Research Institute for Interdisciplinary Sciences, Tohoku University, Sendai, Japan

CI-10. Ferromagnetic Ground State Properties of Nb-doped EuTiO3 Single Crystal. S. Roy1, N. Khan1 and P. Mandal1 1. Experimental Condensed Matter Physics, Saha Institute of Nuclear Physics, Calcutta, India
CI-11. The Temperature Dependent Structural Studies on the Spin Correlated System $A_2FeCoO_6$ ($A=$ Sm, Eu, Dy and Ho) using Synchrotron Radiation. G. Haripriya¹, R. Pradheesh¹, M. Singh², A. Sinha³, K. Sethupathi¹ and V. Sankaranarayanan¹  
1. Department of Physics, IIT Madras, Chennai, India; 2. Indus Synchrotron Utilization Division, RRCAT, Indore, India

CI-12. Sign reversal of magnetization and exchange bias in NdFe$_{0.5}$Cr$_{0.5}$O$_3$. M. Sharanni¹, S. De¹, R. Singh², A. Das², R. Nirmala¹ and P. Santhosh³  
1. Department of Physics, Indian Institute of Technology Madras, Chennai, India; 2. Solid State Physics Division, Bhabha Atomic Research Centre, Mumbai, India

CI-13. Magnetostructural Transition and Cobalt Spin Behavior in Metallic Pr$_{0.50}$Sr$_{0.50}$CoO$_3$ Perovskite. J. Padilla-Pantoja¹, J. Herrero-Martín², B. Bozzo³, E. Pellegrin³, J. Rodríguez-Velamazán¹, J. Blasco³ and J. García-Muñoz³  
1. Institut de Ciencia de Materials de Barcelona -CSIC, E-08193 Bellaterra, Spain; 2. ALBA Synchrotron Light Facility, 08290 Cerdanyola del Vallès, Spain; 3. Institute Laue Langevin, 38042 Grenoble Cedex 9, France; 4. Instituto de Ciencia de Materiales de Aragón, CSIC-Univ. de Zaragoza, 50009 Zaragoza, Spain

CI-14. Anomalous spin disordered magnetic properties of strongly correlated honeycomb compound In$_3$Cu$_2$VO$_9$. S. Jia¹, X. Yu¹, Q. Wang¹ and L. Zou¹  
1. Research Laboratory of Computational Materials Sciences, Institute of Solid State Physics, the Chinese Academy of Sciences, Hefei, China

CI-15. Magnetization Reversal Induced By Adsorption Of Chiral Molecules On Ferromagnet. O. Ben Dor¹, S. Yochelis¹, L.T. Baczewski², R. Naaman³ and Y. Paltiel¹  
1. Applied Physics Department, The Hebrew University of Jerusalem, Jerusalem, Israel; 2. Institute of Physics Polish Academy of Sciences, Warszawa, Poland; 3. The Weizmann Institute of Science, Rehovot, Israel
Session CP

SPIN CURRENT AND RELATED EFFECTS I
(Poster Session)

Ssu-Yen Huang, Chair
National Taiwan University, Taipei, Taiwan

CP-01. Berry phase of valley and spin quantum Hall conductance of silicene coupled to a ferroelectric layer. M.B. Jalil1, Z. Siu1, S. Tan2 and Y. Li3. 1. Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; 2. Data Storage Institute, Agency for Science Technology and Research (A*STAR), Singapore, Singapore; 3. Department of Physics, Hangzhou Dianzi University, Hangzhou, China

CP-02. Interface selective magnon coupling in compensated ferrimagnets. J. Cramer1,2, E. Guo1, S. Geprägs3, A. Kehlberger1, G. Jakob1, S.T. Goennenwein4 and M. Kläui1,2. 1. Institute of Physics, Johannes Gutenberg-Universität Mainz, Mainz, Germany; 2. Graduate School of Excellence Materials Science in Mainz, Mainz, Germany; 3. Quantum Condensed Materials Division, Oak Ridge National Laboratory, Oak Ridge, TN; 4. Walther-Meißner-Institut, Bayerische Akademie der Wissenschaften, Garching, Germany

CP-03. Effect of surface hybridization on interlayer exchange coupling in ferromagnet/topological insulator/ferromagnet trilayer. C. Ho1 and M.B. Jalil2. 1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; 2. Information Storage Materials Laboratory, Electrical and Computer Engineering Department, National University of Singapore, Singapore, Singapore

CP-04. Thermoelectric Power based on Spin Seebeck effect in YIG/[Ta/W]n system. H. Yuasa1,2, N. Onizuka1 and K. Tamae1. 1. Graduate School and Faculty of Information Science and Electrical Engineering, Kyushu University, Fukuoka, Japan; 2. PRESTO, Japan Science and Technology Agency, Kawaguchiko, Japan

CP-05. Current-induced magnetization switching in heavy metal/ferromagnet multilayers without magnetic field. A. Zelalem1, K. Meng1, B. Zhao1, Y. Wu1, J. Miao1, X. Xu1 and Y. Jiang1. 1. School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing, China

CP-06. Spin transport property in thermally evaporated pentacene films by using a dynamical spin injection method. Y. Tani1, Y. Teki2 and E. Shikoh1. 1. Engineering, Osaka City University, Osaka, Japan; 2. Science, Osaka City University, Osaka, Japan

CP-07. Spin mediated enhanced negative magnetoresistance in Ni80Fe20 and p-silicon bilayer. S. Kumar1 and P. Lou1. 1. UC, Riverside, Riverside, CA
CP-08. Spin Seebeck effect and magnon-mediated magnetoresistance in nonlocal YIG/Pt nanostructures.
Y. Cai1, Y. Wu1, K. Meng1, X. Xu1, J. Miao1 and Y. Jiang1
1. School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing, China

CP-09. Magnetoresistance Induced by Magnetic Scattering and Spin Orbital Coupling in PtTa/YIG.
B. Miao1, L. Sun1,2, D. Wu1,2, C. Chien3 and H. Ding1,2 1. National Laboratory of Solid State Microstructures and Department of Physics, Nanjing University, Nanjing, China; 2. Collaborative Innovation Center of Advanced Microstructures, Nanjing University, Nanjing, China; 3. Department of Physics of Astronomy, Johns Hopkins University, Baltimore, MD

CP-10. Magnetoresistance Induced by Magnetic Scattering and Spin Orbital Coupling in PtTa/YIG.
B. Miao1, L. Sun1,2, D. Wu1,2, C. Chien3 and H. Ding1,2 1. National Laboratory of Solid State Microstructures and Department of Physics, Nanjing University, Nanjing, China; 2. Collaborative Innovation Center of Advanced Microstructures, Nanjing University, Nanjing, China; 3. Department of Physics of Astronomy, Johns Hopkins University, Baltimore, MD

CP-11. Spin polarization induced by zero average magnetic fields in nanowires.
H. Lin1, Y. Su2 and S. Chen1 1. Department of Applied Physics and Chemistry, University of Taipei, Taipei, Taiwan; 2. Physics, National Taiwan University, Taipei, Taiwan

CP-12. XMCD detection of induced paramagnetic moment in Pt on Y3Fe5O12.
T. Kikkawa1, M. Suzuki2, J. Okabayashi3, K. Uchida4, D. Kikuchi5, Z. Qiu6 and E. Saitoh7 1. Institute for Materials Research and WPI AIMR, Tohoku University, Sendai, Japan; 2. JASRI/SPring-8, Sayo, Hyogo, Japan; 3. Research Center for Spectrochemistry, University of Tokyo, Tokyo, Japan; 4. Institute for Materials Research, Tohoku University, Sendai, Japan; 5. PRESTO, Japan Science and Technology Agency, Saitama, Japan; 6. WPI-AIMR, Tohoku University, Sendai, Japan; 7. Spin Quantum Rectification Project, ERATO, Japan Science and Technology Agency, Sendai, Japan

T. Matsumura1, D. Oshima2, T. Kato2, N. Roschewsky1, S. Salahuddin4 and S. Iwata3 1. Department of Physics, University of California, Berkeley, Berkeley, CA; 2. Department of Electrical Engineering and Computer Science, Nagoya University, Nagoya, Japan; 3. Institute of Materials and Systems for Sustainability, Nagoya University, Nagoya, Japan; 4. Department of Electrical Engineering and Computer Sciences, University of California, Berkeley, Berkeley, CA

CP-14. Improvement of spin thermoelectric voltage with three different structures of ferromagnet/non-magnetic stacks.
C. Jeon1, D. Kim1, K. Lee1, S. Srivathsava2, J. Jeong2 and B. Park1 1. Department of Material Science and Engineering, Korea Advanced Institute of Science and Technology, Daejeon, The Republic of Korea; 2. Department of Materials Science & Engineering, Chungnam National University, Daejeon, The Republic of Korea

CP-15. Nonuniformity of microwave power induced dc voltage in YIG/NM system.
H. Zhou1, X. Fan3, L. Ma2, S. Zhou2 and X.D. Sheng1 1. Lanzhou University, Lanzhou, China; 2. Physics, Tongji University, Shanghai, China
Session CQ
MAGNETIZATION DYNAMICS I: DAMPING AND SIMULATIONS
(Poster Session)
Ki-Suk Lee, Co-Chair
Ulsan National Institute of Science Technology, Ulsan, The Republic of Korea
Jung-II Hong, Co-Chair
Daegu Gyeongbuk Institute of Science and Technology, Daegu, The Republic of Korea

CQ-01. Enhancement of magnetization dynamic damping and two-magnon scattering effect in Fe thin films with Gd dopants.
S. Jiang1, L. Sun2, Y. Fu1, Q. Chen1, X. Zhou1, J. Yue1, H. Yuan1, Y. Yin1, Z. Huang1, Y. Zhai1,2,3 and H. Zhai1
1. Department of Physics, Southeast University, Nanjing, China; 2. College of Physics and Electronic Engineering, Hainan Normal University, Haikou, China; 3. National Laboratory of Solid State Microstructures, Nanjing University, Nanjing, China

CQ-02. The dynamic damping and magnetization in Tb/Cr/Py with different Cr layer thickness.
L. Sun1, J. Yue1, S. Jiang2, H. Yuan1, Q. Chen1, X. Zhou1, Z. Huang1, E. Liu1,2, Z. Yao1, Y. Zhai1 and H. Zhai1
1. College of Physics and Electronic Engineering, Hainan Normal University, Haikou, China; 2. Department of Physics, Southeast University, Nanjing, China; 3. National Laboratory of Solid Microstructures, Nanjing University, Nanjing, China; 5. School of Materials Science and Engineering, Nanjing University of Science and Technology, Nanjing, China

CQ-03. Theoretical Investigation of Damping in Exchange Bias Systems.
A.E. Farrar1, J. Beik Mohammadi2, T. Mewes2 and C.K. Mewes2
1. Mathematics / MINT, University of Alabama, Tuscaloosa, AL; 2. Physics and Astronomy / MINT, University of Alabama, Tuscaloosa, AL

CQ-04. Influence of Thickness Dependent Crystal Ordering on Magnetization Damping in Half-Metallic Co2Fe0.4Mn0.6Si Thin Films.
S. Pan1, S. Saha1, J. Sinha1, T. Seki3, K. Takanashi1,2 and A. Barman1
1. Condensed Matter Physics and Material Sciences, S N Bose National Centre For Basic Sciences, Kolkata, India; 2. Institute for Materials Research, Tohoku University, Sendai, Japan; 3. JST PRESTO, Saitama, Japan; 4. Center for Spintronics Research Network, Tohoku University, Sendai, Japan

CQ-05. Magnetic damping of sputter deposited, exchange coupled bilayers: Py|Fe.
P. Omelchenko1, E.A. Montoya2, C. Coutts1, B. Heinrich1 and E. Girt1
1. Physics, Simon Fraser University, Burnaby, BC, Canada; 2. Physics & Astronomy, University of California, Irvine, Irvine, CA
CQ-06. Towards Suppression of Stochastic Pinning Though Modification of Gilbert Damping. T.J. Broomhall1, A. Rushforth2 and T.J. Hayward1 1. Department of Engineering Materials, University of Sheffield, Sheffield, United Kingdom; 2. School of Physics & Astronomy, University of Nottingham, Nottingham, United Kingdom

CQ-07. Thickness dependent of perpendicular magnetic anisotropy and Gilbert damping on amorphous FeTaC films. B. Samantaray1,2, A.K. Singh1, A. Perumal3 and P. Mandal1 1. Condensed Matter Physics, Saha Institute of Nuclear Physics, Kolkata, India; 2. Institute of Physics, Bhubaneswar, India; 3. Physics, Indian Institute of Technology Guwahati, Guwahati, India

CQ-08. Magnetization dynamics and magnetic anisotropy of ion irradiated L1_0-MnGa films. T. Kato1, H. Kano1, D. Oshima3, S. Takahashi2, Y. Sonobe2 and S. Iwata1 1. Department of Electrical Engineering and Computer Science, Nagoya University, Nagoya, Japan; 2. Samsung R&D Institute Japan, Yokohama, Japan; 3. Institute of Materials and Systems for Sustainability, Nagoya University, Nagoya, Japan

CQ-09. Multi-scale Modelling of Interfacial Stress in Magnetic Systems. A.P. Wynn1, J.S. Dean1 and C.L. Freeman1 1. Department of Materials Science and Engineering, The University of Sheffield, Sheffield, United Kingdom

CQ-10. Dynamic Response of Strain-Mediated Perpendicular Magnetic Tunnel Junctions. Q. Wang1, C. Liang1, X. Li1 and G. Carman2 1. Department of Mechanical and Aerospace Engineering, UCLA, Los Angeles, CA; 2. UCLA, Los Angeles, CA

CQ-11. Large Curvature Effects on Thin Ferromagnetic Films Leading to Controllable Anisotropy. O. Tretiakov1, M. Morini2, V. Slastikov3 and S. Vasylkevych3 1. Tohoku University, Sendai, Japan; 2. Universita di Parma, Parma, Italy; 3. University of Bristol, Bristol, United Kingdom

CQ-12. Modeling the effects of magnetic nanoparticle shapes on the reversible transverse susceptibility for amplification of nuclear magnetic resonance signals. H. ElBidweihy1 and M. Barbic2 1. Department of Electrical and Computer Engineering, United States Naval Academy, Annapolis, MD; 2. Applied Physics and Instrumentation Group, Howard Hughes Medical Institute, Janelia Research Campus, Ashburn, VA

CQ-13. Approach to three-dimensional magnetic domain structure reorganization in SANS measurement. M. Tokii1, E. Kitahara2, C. Mitsumata3, K. Ono4, H. Yanagihara5 and M. Matsumoto6 1. Univ. of Tsukuba, Tsukuba, Japan; 2. Institute of Applied Physics, University of Tsukuba, Tsukuba, Japan; 3. National Institute of Technology, Ibaraki College, Hitachinaka, Japan; 4. NIMS, Tsukuba, Japan; 5. KEK, Tsukuba, Japan

CQ-14. Local Shape Anisotropy Control in Ferromagnetic Antidot Networks. L. Stoleriu1, A. Stancu1 and J. Gräfe2 1. Department of Physics, Al. I. Cuza University of Iasi, Iasi, Romania; 2. Max Planck Institute for Intelligent Systems, Stuttgart, Germany
CQ-15. Investigation Of Magnetization Dynamics Of Fe$_{20}$Pd$_{80}$ Circular Island Arrays Employing Ferromagnetic Resonance Measurements And Micromagnetic Simulations.  
A. Ciuciulkaite$^1$, R. Brucas$^2$, E. Östman$^1$, A. Kumar$^2$, P. Svedlindh$^2$, B. Hjörvarsson$^1$ and V. Kapaklis$^1$  
1. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden; 2. Department of Engineering Sciences, Uppsala University, Uppsala, Sweden

WEDNESDAY GRAND BALLROOM  
MORNING  
9:30  
Session CR  
SPIN HALL EFFECT II  
(Poster Session)  
Wei Zhang, Chair  
Oakland University, Rochester, MI

CR-01. Enhancement of Extrinsic Spin-Orbital Coupling Induced by Ta Impurities in Copper.  
Y. Wang$^{1,2}$, J. Wu$^1$, X. Zhou$^1$, Q. Chen$^1$, X. Fan$^2$, Y. Zhai$^1$ and J. Xiao$^2$  
1. Department of Physics, Southeast University, Nanjing, China; 2. Physics and Astronomy, University of Denver, Denver, CO

CR-02. Giant Spin Hall Angle From Bismuth Selenide And Heavy Metal Multilayers.  
D. Mahendra$^1$, J. Chen$^3$, D. Zhang$^3$, P. Quarterman$^3$, Z. Zhao$^1$, H. Li$^2$ and J. Wang$^{1,3}$  
1. Physics and Astronomy, University of Minnesota, Minneapolis, MN; 2. Chemical Engineering and Material Science, University of Minnesota, Minneapolis, MN; 3. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN

CR-03. Inverse spin-Hall effect voltage generation by nonlinear spin-wave excitation.  
L. Feiler$^1$, K. Sentker$^1$, M. Brinker$^1$, N. Kuhlmann$^1$, F. Stein$^1$ and G. Meier$^2$  
1. Institute for Applied Physics, University of Hamburg, Hamburg, Germany; 2. Max Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany

CR-04. Large Spin Hall Angles in Permalloy/Gold Heterostructures Resulting from Magnetic Impurities.  
R. Bennett$^1$, A. Hojem$^2$, W. Li$^1$, D. Wenzberg$^2$, X. Fan$^1$ and B. Zink$^1$  
1. University of Denver, Denver, CO; 2. Physics and Astronomy, University of Denver, Denver, CO

T. Tainosho$^2$, T. Niizeki$^1$, J. Inoue$^2$, S. Sharrmn$^2$, E. Kita$^2$ and H. Yanagihara$^2$  
1. WPI-AIMR, Tohoku University, Sendai, Japan; 2. Institute of Applied Physics, University of Tsukuba, Tsukuba, Japan

CR-06. Temperature Dependence of the Inverse Spin Hall Effect in Ni$_{80}$Fe$_{20}$/Pt Bilayers.  
J. Gomez$^1$, L. Avilés-Félix$^1$, J. Vargas$^1$ and A. Butera$^1$  
1. Magnetic Resonance Laboratory, CONICET / Centro Atomico Bariloche, Bariloche, Argentina
CR-07. Temperature and Underlayer Thickness Dependence of Spin Hall Effect in Ta/CoFeB/MgO. M. Cecot\textsuperscript{1}, W. Skowronski\textsuperscript{1}, J. Wrona\textsuperscript{1}, J. Kanak\textsuperscript{1}, A. Zywczak\textsuperscript{1}, L. Karwacki\textsuperscript{2}, A. Dyrdal\textsuperscript{3}, J. Barnas\textsuperscript{3} and T. Stobiecki\textsuperscript{1} \textsuperscript{1}. Department of Electronics, AGH University of Science and Technology, Krakow, Poland; \textsuperscript{2} Singular Technologies AG, Kahl am Main, Germany; \textsuperscript{3} Academic Center of Materials and Nanotechnology, AGH University of Science and Technology, Kraków, Poland; \textsuperscript{4} Faculty of Physics, Adam Mickiewicz University, Poznan, Poland

CR-08. Role of atomic-layer alignments to intrinsic spin Hall conductivity in Pt-based superlattices film. T. Ito\textsuperscript{1}, K. Nawa\textsuperscript{1}, A. Pradipto\textsuperscript{1,2}, T. Akiyama\textsuperscript{1}, T. Ito\textsuperscript{1}, T. Ono\textsuperscript{1} and K. Nakamura\textsuperscript{1} \textsuperscript{1}. Physics Engineering, Mie University, Tsu, Japan; \textsuperscript{2} Institute for Chemical Research, Kyoto University, Uji, Japan

CR-09. Spin Hall magnetoresistance in non-magnet/ferromagnet/non-magnet tri-layer structures. J. Choi\textsuperscript{1}, J. Lee\textsuperscript{1}, S.C. Baek\textsuperscript{1} and B. Park\textsuperscript{1} \textsuperscript{1}. Korea Advanced Institute of Science and Technology (KAIST), Daejeon, The Republic of Korea

CR-10. Spin-to-charge interconversion: a study on spin memory loss at metallic interfaces. V. Pham\textsuperscript{1,2}, L. Vila\textsuperscript{1,2}, G. Zahnd\textsuperscript{1,2}, A. Marty\textsuperscript{2}, P. Noël\textsuperscript{1,2}, P. Laczowsk\textsuperscript{1}, V. Nguyen\textsuperscript{1}, M. Jamet\textsuperscript{1}, W. Safero-Torres\textsuperscript{1} and J. Attane\textsuperscript{1,2} \textsuperscript{1}. SPINTEC, INAC, CEA-Grenoble, Grenoble, France; \textsuperscript{2} Université Grenoble Alpes, Grenoble, France

CR-11. Interplay of spin dependent effects in Pt/TmIG bilayer with perpendicular magnetic anisotropy. C. Ave\textsuperscript{2}, A. Quindeau\textsuperscript{1}, M. Mann\textsuperscript{2}, C. Pai\textsuperscript{2}, C.A. Ross\textsuperscript{2} and G. Beach\textsuperscript{2} \textsuperscript{1}. Massachusetts Institute of Technology, Cambridge, MA; \textsuperscript{2} Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA

CR-12. Unidirectional spin Hall magnetoresistance in Pt/CoFe/Ta multilayers. D. Meier\textsuperscript{1}, A. Pfeiffer\textsuperscript{1}, R. Klett\textsuperscript{1}, N. Shepheard\textsuperscript{1}, J. Schmalhorst\textsuperscript{1} and G. Reiss\textsuperscript{1} \textsuperscript{1}. Department of Physics, Bielefeld University, Bielefeld, Germany

CR-13. Unidirectional spin Hall magnetoresistance in Ta/Fe and Pt/Fe bilayers. Y. Lv\textsuperscript{1}, D. Zhang\textsuperscript{1} and J. Wang\textsuperscript{1} \textsuperscript{1}. Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN

CR-14. Driving Currents by Magnetization Dynamics in systems with Inversion Asymmetry: From the DC-Limit to Optical Frequencies. F. Freimuth\textsuperscript{1} \textsuperscript{1}. IAS-1, Forschungszentrum Julich, Julich, Germany

CR-15. Magnon excitation in YIG by spin Hall effect and spin Seebeck effect. H. Wu\textsuperscript{1}, C. Wan\textsuperscript{1}, X. Han\textsuperscript{1} and Z. Yuan\textsuperscript{1}, Q. Zhang\textsuperscript{1}, J. Qin\textsuperscript{1}, X. Han\textsuperscript{1} and S. Zhang\textsuperscript{2} \textsuperscript{1}. Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences, Beijing, China; \textsuperscript{2} University of Arizona, Tucson, AZ
CS-01. Local probing of exchange-bias using X-ray magnetic circular dichroism and 57Fe Mössbauer Spectrometry on polyol-made NiFe2O4-CoO nano- aggregates. T. Gaudisson1, S.K. Sharma1, S. Ammar1, N. Yaacoub2, J. Grenèche2, N. Mengu1, M. Arrio1, P. Sainctavit3 and E. Otero4. 1. ITODYS, CNRS UMR-7086, Université Paris Diderot, Sorbonne Paris Cité, Paris, France; 2. IMMM, CNRS UMR-6283, Université du Maine, Le Mans, France; 3. IMPMC, CNRS UMR-7590, Université Pierre & Marie Curie, Sorbonne Universités, Paris, France; 4. Synchrotron SOLEIL, Orme les Merisiers, France.

CS-02. Fully Integrated Continuous and Scalable Production of High Quality Nanofibers/Nanotubes as Functional Nano Building Blocks for Devices. X. Chen1, G. Grocke1, Z. Zhou1 and P. Ignacio-de Leon1. 1. Energy Systems Division, Argonne National Laboratory, Lemont, IL.

CS-03. Chiral Magnetization Switching In Magnetic Nanoparticles. N. Grisewood1, G. Duff1, R.V. Hügli1 and H. Braun1. 1. School of Physics, University College Dublin, Dublin, Ireland.

CS-04. Creep induced anisotropy in CoFeSiB cold drawn amorphous microwires. H. Chiriac1, A. Damian1, S. Corodeanu1, V. Dobra1, T.A. Ovari1 and N. Lupu1. 1. National Institute of Research and Development for Technical Physics, Iasi, Romania; 2. Faculty of Physics, Alexandru Ioan Cuza University, Iasi, Romania.

CS-05. Magnetic field tunability of heat transfer properties in a ferromagnetic nanowire. C. Li1, H. Huang1, Z. Wei1, W. Tang1 and C. Wu1. 1. Institute of Nanoengineering and Microsystems, National Tsing Hua University, Hsinchu, Taiwan.

CS-06. Magnetic Properties of Variable Diameter Multi-Walled Carbon Nanotubes Filled with Magnetite Nanoparticles. K. Stojak Repa1, E.M. Palermo1, J. Alonso Masa1, M. Phan1, M. Vázquez2 and H. Srikanth1. 1. Department of Physics, University of South Florida, Tampa, FL; 2. Instituto de Ciencia de Materiales de Madrid (CSIC), Madrid, Spain; 3. Basque Center for Materials/University of Basque Country, Derio, Spain.

CS-07. Stable tetragonal phase and magnetic properties of Fe-doped HfO2 nanoparticles. T.S. Sales1, F.H. Cavalcante1, B. Bosch-Santos1, L.F. Pereira1, G. Cabrera-Pasca1, A.W. Carbonari1, R.S. Freitas1 and R.N. Saxena1. 1. CRPq, IPEN/USP, São Paulo, Brazil; 2. Department of Electrical and Computer Engineering, Colorado State University, Fort Collins, CO; 3. Instituto de Física, Universidade de São Paulo, São Paulo, Brazil.
CS-08. Magnetic and structural properties of CoFe$_2$O$_4$ nanoparticles investigated by hyperfine interactions.
I.T. Matos$^1$, N.M. Nascimento$^1$, G. Cabrera-Pasca$^1$, F.B. Effenberger$^1$, R.S. Freitas$^1$ and A.W. Carbonari$^1$. CRPq, IPEN-CNEN/SP, Sao Paulo, Brazil; 2. Departamento de Física dos Materiais e Mecânica, Instituto de Física, Universidade de São Paulo, São Paulo, Brazil; 3. Centro Universitário FEI, São Paulo, Brazil

CS-09. Temperature dependence of magnetic hysteresis scaling for cubic Fe$_3$O$_4$ nanoparticles.
T. Sato$^1$, K. Nagaoka$^1$, S. Kobayashi$^2$, J. Manjanna$^3$ and T. Murakami$^2$. 1. Engineering, Iwate University, Morioka, Japan; 2. Iwate University, Morioka, Japan; 3. Rani Channamma University, Belagavi, India

K. Wu$^1$ and J. Wang$^2$. 1. Electrical Engineering, University of Minnesota, Minneapolis, MN; 2. Electrical and Computer Engineering, School of Physics & Astronomy, Minneapolis, MN

CS-11. Tracking the magnetization evolution in γ-Fe$_2$O$_3$ / metallic Fe core-shell nanoparticle variants.
C. Kons$^1$, Z. Nemati$^1$, H. Srikanth$^1$, M. Phan$^1$ and D.A. Arena$^1$. 1. Department of Physics, University of South Florida, Tampa, FL

CS-12. Magnetic Shielding Of 3-Phase Current By A Composite Material At Low Frequencies.
K. Livesey$^1$, R.E. Camley$^1$, Z. Celinski$^1$ and S. Maat$^2$. 1. Physics, University of Colorado, Colorado Springs, Colorado Springs, CO; 2. YTC - America, Camarillo, CA

M. Salavati-Niasari$^1$ and F. Ansari$^1$. 1. Institute of Nano Science and Nano Technology, University of Kashan, Kashan, The Islamic Republic of Iran

O. Tosun$^1$, M. Salehi-Fashami$^1$, B. Balasubramanian$^2$, R. Skomski$^3$, D.J. Sellmyer$^2$ and G. Hadjipanayis$^1$. 1. Physics&Astronomy, University of Delaware, Newark, DE; 2. Physics&Astronomy, University of Nebraska Lincoln, Lincoln, NE

CS-15. Magnetic field annealing effect and superparamagnetic contributions in one-dimensional CoPt nanostructures.
S.S. Alii$^1$, L. Wenjing$^1$, K. Javed$^1$, M. Irfan$^1$, F. Aleem$^2$, G. Zhai$^3$ and X. Han$^1$. 1. Institute of Physics, Chinese Academy of Sciences, Beijing, China; 2. Department of Physics, The University of Lahore, Lahore, Pakistan; 3. National Space Science Center, Chinese Academy of Sciences, Beijing, China
Session CT

BIOCHEMICAL AND BIOMEDICAL APPLICATIONS II
(Poster Session)

Olga Kazakova, Co-Chair
NPL, Teddington, United Kingdom
Nikoleta Theodoropoulou, Co-Chair
Texas State University, San Marcos, TX

CT-01. Magneto-visco-elastic properties of biohybrids based on superparamagnetic iron oxide nanoparticles coupled to alginate polymer chains: A comparative study on the nature of the particle/polymer link. T.T. Nguyen¹, G. Franceschini¹, F. Mammeri¹, S. Ammar¹, S. Gantz², C. Galindo-Gonzales² and A. ponton². 1. ITODYS, CNRS UMR-7086, Université Paris Diderot, Sorbonne Paris Cité, Paris, France; 2. MSC, CNRS UMR-7057, Université Paris Diderot, Sorbonne Paris Cité, Paris, France

CT-02. Precise control of a helical microrobot in pulsatile flow by controlling the rotating frequency of the external magnetic field. J. Kim¹, J. Nam¹, W. Lee¹, B. Jang¹ and G. Jang¹. 1. Dept of Mechanical Convergence Engineering, Hanyang University, Seoul, The Republic of Korea

CT-03. A Modular Helical Magnetic Millirobot for the Effective Helical Navigating and Stable Unclogging Motions in Curved Human Blood Vessels. S. Jeon¹, D. Lee¹, W. Kim¹ and H. Cho¹. 1. Div. Mechanical and Automotive Engineering, Kongju National University, Cheonan, The Republic of Korea

CT-04. Design and Analysis of a Field Modulated Magnetic Screw for Artificial Heart. Z. Ling¹, W. Zhao¹ and J. Ji¹. 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China

CT-05. Three-dimensional sensitivity mapping of a handheld magnetic probe for sentinel lymph node biopsy. A. Kuwahata¹, S. Chikaki¹, A. Ergin¹, M. Kaneko¹, M. Kusakabe² and M. Sekino². 1. The University of Tokyo, Tokyo, Japan

CT-06. Remote sensing micro-fluidic tracer by utilizing light scattering micro-crystals under magnetic fields. Y. Takanezawa¹, T. Chikashige¹ and M. Iwasa³. 1. AdSM, Hiroshima University, Higashi-Hiroshima, Japan; 2. RNBS, Hiroshima University, Higashi-Hiroshima, Japan

CT-07. Self-organized soft micro-magnets in polymer matrix for microfluidic devices. S. Mekkaoui¹, K. Bhattacharyya¹, A. Tamion¹, V. Dupuis¹, J. Chateaux², J. Desgouttes², D. Le Roy³ and A. Deman³. 1. Institute of Light and Matter, Villeurbanne, France; 2. Institut des Nanotechnologies de Lyon, Villeurbanne, France

Wednesday
CT-08. Superparamagnetic Nanoparticle Detection System by Using a Fundamental Mode Orthogonal Fluxgate (FM-OFG) Gradiometer. H. Karo1 and I. Sasada1. 1. Department of Applied Science for Electronics and Materials, Kyushu University, Kasuga, Japan

CT-09. Blood Clot Detection Using Magnetic Nanoparticles. H. Khurshid1,2, B. Friedman3,4, B. Berwin3 and J. Weaver3,1 1. Thayer School of Engineering, Dartmouth College, Lebanon, NH; 2. Radiology, Dartmouth-Hitchcock Medical Center, Lebanon, NH; 3. Geisel School of Medicine, Dartmouth-Hitchcock Medical Center, Lebanon, NH; 4. Section of Cardiology, Dartmouth-Hitchcock Medical Center, Lebanon, NH; 5. Microbiology and Immunology Department, Dartmouth-Hitchcock Medical Center, Lebanon, NH


CT-11. Modulation of light localization in the iridophores of the deep-sea highlight hatchetfish Sternoptyx pseudobscura under magnetic field. M. Iwasaka1 and S. Ohtsuka2 1. Research Institute for Nanodevice and Bio Systems, Hiroshima University, Higashi-Hiroshima, Japan; 2. Graduate School of Biosphere Science, Hiroshima University, Higashi-Hiroshima, Japan

CT-12. Magnetically tunable control of light reflection in an unusual optic protein of squid. M. Iwasaka1, K. Tagawa2 and Y. Kikuchi3,1 1. Research Institute for Nanodevice and Bio Systems, Hiroshima University, Higashi-Hiroshima, Japan; 2. Marine Biological Laboratory, Graduate School of Science, Hiroshima University, Onomichi, Japan; 3. Department of Biological Science, Graduate School of Science, Hiroshima University, Higashi-Hiroshima, Japan

CT-13. Magneto-biomimetic analysis of fish iris efficiency for assisting eyes in human. Y. Mizukawa1,2, M. Iwasaka1,3 and S. Ohtsuka4 1. Graduate School of Advanced Sciences of Matter, Hiroshima University, Higashihiroshima, Japan; 2. Japan Society for the Promotion of Science, Tokyo, Japan; 3. Research Institute for Nanodevice and Bio Systems, Hiroshima University, Higashihiroshima, Japan; 4. Graduate School of Biosphere Science, Hiroshima University, Higashihiroshima, Japan

CT-14. Deep-sea fish skin as a model for developing magnetic treatments of gout. Y. Mizukawa1,2, M. Iwasaka1,3 and S. Ohtsuka4 1. Graduate School of Advanced Sciences of Matter, Hiroshima University, Higashihiroshima, Japan; 2. Japan Society for the Promotion of Science, Tokyo, Japan; 3. Research Institute for Nanodevice and Bio Systems, Hiroshima University, Higashihiroshima, Japan; 4. Graduate School of Biosphere Science, Hiroshima University, Higashihiroshima, Japan

CT-15. Unconscious Awareness of the Flicker in Supraliminal Stimulus with Pseudo-Blindsight. H. Nakagawa1 and S. Ueno2 1. Department of Electrical and Electronic Engineering, Tokyo Denki University, Adachi-ku, Japan; 2. Department of Applied Quantum Physics, Kyushu University, Fukuoka, Japan
CU-01. Carrier induced ferromagnetism and magnetoresistance in $\text{Eu}_{1-x}\text{La}_x\text{TiO}_3$. K. Rubi$^1$ and R. Mahendiran$^2$. 1. Physics, National University of Singapore, Singapore, Singapore; 2. Physics Dept, National University of Singapore, Singapore, Singapore.

CU-02. Doping dependent magnetism and exchange bias in $\text{CaMn}_{1-x}\text{Re}_x\text{O}_3$. V. Markovich$^1$, I. Fita$^2$, A. Wisniewski$^2$, R. Puzniak$^2$, C. Martin$^1$, D. Mogilansky$^1$, G. Jung$^1$ and G. Gorodetsky$^1$. 1. Department of Physics and The Ilse Katz Institute for Nanoscience Science and Technology, 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.


CU-04. Thermal conductivity of ferrimagnet $\text{GdBaMn}_2\text{O}_5.0$ single crystals. J. Wu$^1$, J. Zhao$^1$, H. Xu$^1$, X. Liu$^1$, A. Taskin$^2$, Y. Ando$^2$, X. Zhao$^2$ and X. Sun$^1$. 1. Hefei National Laboratory for Physical Sciences at Microscope, University of Science and Technology of China, Hefei, China; 2. II. Physikalisches Institut, Universität zu Köln, Köln, Germany; 3. School of Physical Sciences, University of Science and Technology of China, Hefei, China.


CU-07. Synthesis and Study of Magnetic properties of Hard-soft SrFe_{12-x}Al_{x}O_{19-x} Wt.% Ni_{0.5}Zn_{0.5}Fe_{2}O_{4} nanocomposite Ferrite. H. Adhikari¹, M. Ghimire¹, D. Neupane¹ and S.R. Mishra¹ 1. Physics and Materials Science, The University of Memphis, Memphis, TN

CU-08. Magnetic spatial profile across a molecular / metal interface. J. Shoup¹, F. Al Ma’Mari², M.D. Rogers², O. Cespedes², C. Kinane³, S. Langridge⁴, J. Borchers⁴, B.J. Kirby⁴ and D.A. Arena¹ 1. Dept. of Physics, University of South Florida, Tampa, FL; 2. School of Physics & Astronomy, University of Leeds, Leeds, United Kingdom; 3. Rutherford Appleton Laboratory, Chilton, United Kingdom; 4. NIST Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD

CU-09. Magnetic and Electrical Properties of MBE-Grown Mn₇CoAl Films. K. Yamasaki¹, K. Arima¹, Y. Togami¹, M. Tsukahara¹, S. Yamada¹, T. Kanashima¹ and K. Hamaya¹ 1. Graduate of Engineering Science, Osaka University, Toyonaka, Japan

CU-10. Depth-Directional Magnetic Modification To Produce Magnetic Layered Structure By High Energetic Ion-Irradiation And Annealing For Bulk FeRh. R. Soma¹, A. Iwase¹, Y. Saitoh³, R. Ishigami¹ and T. Matsui² 1. Department of Materials Science, Osaka Prefecture University, Sakai, Japan; 2. Research Organization for the 21st Century, Osaka Prefecture University, Sakai, Japan; 3. Takasaki Advanced Radiation Research Institute, National Institutes for Quantum and Radiological Science and Technology, Takasaki, Japan; 4. Wakoasawen Energy Research Center, Tsuruga, Japan


CU-12. Effect of Disorder on the Magnetic and Electronic Band Properties of a Prospective Spin-gapless Semiconductor MnCrVAl. P.R. Kharel¹, P. Lukashev⁴, Y. Jin², J. Waybright¹, S. Gilbert¹, P. Grey⁶, B. Staten⁴, S. Valloppilly⁴, Y. Huh¹ and D.J. Sellmyer³ 1. Physics, South Dakota State University, Brookings, SD; 2. University of Nebraska - Lincoln, Lincoln, NE; 3. Physics and Astronomy, University of Nebraska Lincoln, Lincoln, NE; 4. Department of Physics, University of Northern Iowa, Cedar Falls, IA; 5. Department of Computer Science, University of Northern Iowa, Cedar Falls, IA; 6. Nebraska Center for Materials and Nanoscience, University of Nebraska, Lincoln, NE

CU-13. Kinetics of First Order Magnetostructural Transition in Single Crystalline FeRh Thin Film. Y. Song¹, T. Wang¹, Z. Xiang², S. Ma¹ and W. Lu¹ 1. School of Materials Science and Engineering, Tongji University, Shanghai, China
CU-14. Effects of Energetic Electron Irradiation on Magnetic Properties of Cu-1%Fe Alloy. A. Iwase1, Y. Fujimura1, S. Semboshi1, Y. Saitoh1 and T. Matsui2. 1. Department of Materials Science, Osaka Prefecture University, Sakai, Japan; 2. Research Organization for the 21st Century, Osaka Prefecture University, Sakai, Japan; 3. Institute for Materials Research, Tohoku University, Sakai, Japan; 4. National Institutes for Quantum and Radiological Science and Technology, Takasaki, Japan

CU-15. Study on the Magnetic Hardening and Anisotropy of L10-Ordered Mn1.15Ga Alloy. C. Li1, Q. Lu1, M. Wang1, H. Zhang1, D. Zhang1, D. Liu2 and M. Yue1. 1. College of Materials Science and Engineering, Beijing University of Technology, Beijing, China; 2. Institute of Microstructure and Property of Advanced Materials, Beijing University of Technology, Beijing, China

WEDNESDAY GRAND BALLROOM
MORNING 9:30

Session CV
MAGNETO-CALORIC MATERIALS I
(Poster Session)
Maximilian Fries, Co-Chair
TU Darmstadt, Darmstadt, Germany
Zaven Altounian, Co-Chair
McGill University, Montreal, Canada

CV-01. Enhanced mechanical properties and age stability of room temperature magnetocaloric plates La0.8Ce0.2Fe12.5Mn0.2Si1.3Hδ with extra Fe. Y. Li1, F. Shen1, F. Liang1, M. Zhang1, J. Wang1, H. Kuang1, F. Hu1, R. Ji1 and B. Shen1. 1. State Key Laboratory of Magnetism, Institute of Physics, University of Chinese Academy of Sciences, Chinese Academy of Sciences, Beijing, China


CV-03. How to enable bulk-like martensitic transformation in epitaxial films? M. Wodniok1, N. Teichert1, L. Helmich1 and A. Huetten1. 1. Physics Department, Center for Spin electronic Materials and Devices, Bielefeld University, Bielefeld, Germany

CV-04. Effect of Hydrostatic Pressure on Saturation Magnetization And Magnetocaloric Effect in Ni-Mn-In Heusler Alloy. F. Liang1, F. Hu1, J. Wang1, H. Kuang1, J. Sun1 and B. Shen1. 1. State Key Laboratory of Magnetism, Institute of Physics, Chinese Academy of Sciences, Beijing, China
CV-05. Magnetostructural Transformation And Magnetocaloric Effect In Ni_{42}Mn_{47.5}Sn_{10.5} And Ni_{41.5}Mn_{47.5}Sn_{10.5}Zn_{0.5} Ferromagnetic Shape Memory Alloys. N. ul Hassan1, I. Shah1, J. Liu1, Y. Gong1, G. Xu1 and F. Xu1 1. School of Materials Science and Engineering, Nanjing University of Science and Technology, Nanjing, China

CV-06. Effects Of Partial Substitution Of Ni By Cr On The Transport, Magnetic Entropy, And Adiabatic Temperature Changes Of Ni_{50}Mn_{37}In_{13}. S. Pandey1, A. Quetz1, A. Aryal1, A. Vu1, S. Pandey1, T. Samanta1, M. Blinov2, I. Rodionov2, I. Dubenko1, D. Mazumdar1, A. Granovsky2, V. Pradnikov2, S. Stadler1 and N. Ali1 1. Physics, Southern Illinois University, Carbondale, IL; 2. Physics, Lomonosov Moscow State University, Moscow, Russian Federation; 3. Physics, Louisiana State University, Baton Rouge, LA

CV-07. Magnetostructural Phase Transitions and Magnetocaloric Effects in Mn_{1-x}Al_{x}Co_{x}Ge Compounds. P. Hill1, A. Aryal2, A. Quetz1, S. Pandey1, T. Samanta1, I. Dubenko1, D. Mazumdar1, S. Stadler1 and N. Ali1 1. Physics & Engineering Physics, Southeast Missouri State University, Cape Girardeau, MO; 2. Physics, Southern Illinois University, Carbondale, USA, Carbondale, IL; 3. Physics & Astronomy, Louisiana State University, Baton Rouge, LA

CV-08. Magnetostructural Coupling and Magnetocaloric Effect in Co and Ge Doped MnNiSi System. J. Chen1, H. Zhang1, M. Yue1, E. Liu2, Q. Lu1, D. Zhang1, W. Liu1 and Q. Wu1 1. College of Materials Science and Engineering, Beijing University of Technology, Beijing, China; 2. State Key Laboratory of Magnetism, Institute of Physics, Beijing, China

CV-09. Thermodynamics and Magnetism at the First-order Magnetostructural Transition in Mn,GaC Powder and Single Crystal Samples. F. Scheibel1, T. Gottschall2, M. Ghorbani Zavareh3,4, Y. Skourski1, O. Cakir5,6, R. Meckenstock1, F. Cugini7,8, R. Beckenstock1, F. Cugini7,8, O. Gutfleisch2, J. Wosnitza3,4, M. Solzi7,8, M. Farle1,8 and M. Acet1 1. Faculty of Physics, University Duisburg-Essen, Duisburg, Germany; 2. Fb11, FG FM, TU Darmstadt, Darmstadt, Germany; 3. Dresden High Magnetic Field Laboratory (HLD-EMFL), Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 4. Institut für Festkörperphysik, TU Dresden, Dresden, Germany; 5. Physics Department, Yildiz Technical University, Istanbul, Turkey; 6. Physics Engineering Department, Ankara University, Ankara, Turkey; 7. Physics Department and CNISM, University of Parma, Parma, Italy; 8. Center for Functionalized Magnetic Materials, Immanuel Kant Baltic Federal University, Kaliningrad, Russian Federation

CV-10. Magnetism and magnetocaloric effect in (Gd_{x}Sc_{1-x})Si_{1.8}Ge_{2.2}. K. Rudolph1, A. Pathak1, Y. Mudryk1 and V.K. Pecharsky1,2 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

CV-11. The Impact Of Doping On Electronic Structure And Magnetic Properties Of Fe,P Class Magnetocalorics. J. Goraus1 1. Institute of Physics, University of Silesia, Katowice, Poland
CV-12. Magnetocaloric properties of GdZn₂. K. Matsumoto¹ and K. Hiraoka¹ 1. Ehime University, Matsuyama, Japan

CV-13. Magnetocaloric Effect In ErNi₂ Melt-Spun Ribbons. J.L. Sanchez Llamazares¹, P. Ibarra-Gaytán¹, C. Sanchez-Valdes²,³ and P. Alvarez-Alonso¹ 1. División de Materiales Avanzados, Instituto Potosino de Investigación Científica y Tecnológica A.C., San Luis Potosí, Mexico; 2. División Multidisciplinaria, Ciudad Universitaria, Universidad Autónoma de Ciudad Juárez, Ciudad Juárez, Mexico; 3. Electricidad y Electrónica, Universidad del País Vasco, Lejona, Spain; 4. Departamento de Materiales Avanzados, Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, Ensenada, Mexico

CV-14. Observation of large magnetocaloric effect in equiatomic binary compound ErZn. L. Li¹, C. Xu², Y. Yuan², Y. Qi¹ and S. Zhou² 1. Northeastern University, Shenyang, China; 2. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany

CV-15. The Effect of Particle Size on the Magnetic Properties of Nanostructured Y₂Fe₁₇. A. Aslani¹, M. Ghahremani¹, L.H. Bennett¹ and E. Della Torre¹ 1. Electrical and Computer Engineering, The George Washington University, Washington, DC; 2. CME, Shepherd University, Shepherdstown, WV

Wednesday 105
CW-03. The Design and Fabrication of DC-DC Converter Substrates Based On LTCC Technology. Y. Li1,2, L. Han1, D. Chen3, H. Su1, H. Zhang4 and Y. Xie2 1. State Key Laboratory of Electronic Thin Films and Integrated Devices, University of Electronic Science and Technology of China, Chengdu, China; 2. Department of Physics and Astronomy, University of Delaware, Newark, DE; 3. Hainan University, Haikou, China; 4. University of Electronic Science and Technology of China, Chengdu, China

CW-04. Dynamical Stability Analysis of Magnetically Controlled Saturable Reactor. B. Tong1, Q. Yang1,2, R. Yan1 and L. Zhu2 1. Hebei University of Technology, Tianjin, China; 2. Municipal Key Laboratory of Advanced Technology of Electrical Engineering and Energy, Tianjin, China

CW-05. PWM Inverter-Excited Iron Loss Characteristics of Reactor Core. A. Yao1, K. Tsukada1, K. Fujisaki1, Y. Shindo2, N. Yoshikawa2 and T. Yosihatake2 1. Toyota Technological Institute, Nagoya-city, Japan; 2. Kawasaki Heavy Industries Ltd., Akashi, Japan

CW-06. DC Magnetic Field-controlled Voltage Amplification Effect in Magnetostrictive-piezoelectric Transformer Laminates. S. Zhang1, M. Zhang1, S.W. Or1 and S.L. Ho1 1. Department of Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong

CW-07. Measurement Research on Magnetic Properties of Electrical Sheet Steel under Different Temperature, Frequency and DC Bias. D. Chen1 and B. Bai1 1. School of Electrical Engineering, Shenyang University of Technology, Shenyang, China


CW-09. Orthogonal Decomposition Of Core Loss In The Rolling And Transverse Directions Of The Non-Grain Oriented Silicon Steels. Y. Li1, X. Wan1, J. Li1, Q. Yang1,2 and J. Zhu3 1. Province-Ministry Joint Key Laboratory of EFPEAR, Hebei University of Technology, Tianjin, China; 2. Tianjin Key Laboratory of AEEET, Tianjin Polytechnic University, Tianjin, China; 3. School of EMMS, University of Technology, Sydney, Sydney, NSW, Australia


CW-11. Modeling and Simulation of Power Transformer for the Design of Residual Flux Detection. W. Ge1 and Y. Wang2 1. School of Control and Mechanical Engineering, Tianjin Chengjian University, Tianjin, China; 2. Hebei University of Technology, Province-Ministry Joint Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability, Tianjin, China

CW-13. Reactor Vibration Reduction Based on Giant Magnetostriective Materials. R. Yan¹, W. Liu¹, Y. Wu¹, M. Duan¹, X. Zhang¹ and L. Zhu¹ 1. Hebei University of Technology, Tianjin, China; 2. Tianjin Polytechnic University, Tianjin, China

CW-14. Push-Button Rotational Electromagnetic Energy Harvesting System. D. Dinulovic¹, M. Shousha¹, M. Brooks¹, M. Haug¹ and T. Petrovic² 1. R&D, Würth Elektronik eiSos, Garhing, Germany; 2. Faculty of Mechanical Engineering, University of Niš, Niš, Serbia

CW-15. Three-Phase Transformer Core Magnetism dependent on Stress Dissipation by using Angle-Shaped Forming Method: A Case Study. C. Hsu¹,², Y. Huang² and M. Hsieh³ 1. Research and Development Center, Fortune Electric Company, Chung-Li, Taiwan; 2. Department of Mechanical Engineering, National Central University, Chung-Li, Taiwan; 3. National Cheng Kung University, Tainan, Taiwan

WEDNESDAY MARDI GRAS A-E
AFTERNOON 1:30

Session DA

SYMPOSIUM: VOLTAGE-CONTROLLED SPINTRONICS FOR NANOELECTRONICS BEYOND MOORE’S LAW
Brian Kirby, Chair
NIST, Gaithersburg, MD

1:30

DA-01. Voltage-Driven Magnetization Control in Topological Insulator/Magnetic Insulator Heterostructures. (Invited) M.E. Flatte¹ 1. Physics, University of Iowa, Iowa City, IA

2:06

DA-02. Mechanisms of Electric Field Control of Spin-Orbit Phenomena at Ferromagnet/Nonmagnet Interfaces: Perpendicular Magnetic Anisotropy and Dzyaloshinskii-Moriya Interaction. (Invited) H. Yang¹,², F. Ibrahim¹, A. Hallal¹, B. Diény¹, O. Boulle¹, V. Cros², A. Fert² and M. Chshiev³ 1. SPINTEC, UMR 8191 Univ. Grenoble Alpes, CNRS, CEA-INAC, Grenoble, France; 2. Unité Mixte de Physique CNRS, Thales, Univ. Paris-Sud, Univ. Paris-Saclay, Palaiseau, France
DA-03. Beyond the Interface: Structural and Magnetic Depth Profiles of Magneto-Ionic Heterostructures. (Invited) D.A. Gilbert1, A. Grutter1, E. Arenholz2, B.J. Kirby1, I. Borchers1 and B.B. Maranville1 1. NIST Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD; 2. LBNL, Berkeley, CA


DA-05. Voltage controlled interlayer coupling in perpendicular magnetic tunnel junctions. (Invited) W. Wang1 1. Department of Physics, University of Arizona, Tucson, AZ

WEDNESDAY MARDI GRAS F-H
1:30

Session DB
MAGNONICS II
Helmut Schultheiss, Chair
Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany

1:30

DB-01. Electrically Driven Magnetization Dynamics In Yttrium Iron Garnet. (Invited) M. Jungfleisch1, W. Zhang1, J. Sklenar1,3, W. Jiang1, I. Ding1, H. Chang2, F.Y. Fradin1, S.M. Wu1, J.E. Pearson1, A. Bhattacharya1, J.B. Ketterson1, V. Novosad1, M. Wu1 and A. Hoffmann1 1. Materials Science Division, Argonne National Laboratory, Argonne, IL; 2. Department of Physics, Colorado State University, Fort Collins, CO; 3. Physics and Astronomy, Northwestern University, Evanston, IL
DB-02. Reconfigurable nano-scale spin-wave directional coupler. 
A. Chumak1, Q. Wang1, P. Pirro1, B. Hillebrands1, R.V. Verba2 and A.N. Slavin3 1. Fachbereich Physik and Landesforschungszentrum OPTIMAS, Technische Universität Kaiserslautern, Kaiserslautern, Germany; 2. Institute of Magnetism, Kyiv, Ukraine; 3. Department of Physics, Oakland University, Rochester Hills, MI

DB-03. A three-input spin wave interferometer using yttrium iron garnet. N. Kanazawa1, T. Goto1,2, K. Sekiguchi3,2, A.B. Granovsky4, C.A. Ross5, H. Takagi1, Y. Nakamura1, H. Uchida5 and M. Inoue1 1. Department of Electrical and Electronic Information Engineering, Toyohashi University of Technology, Toyohashi, Japan; 2. PRESTO, JST, Kawaguchi, Japan; 3. Department of Physics, Keio University, Yokohama 223-8522, Japan; 4. Faculty of Physics, Moscow State University, Leninskie Gory, Russian Federation; 5. Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA


DB-05. Stabilization of a Bose-Einstein condensate of magnons through interaction of two condensates with opposite wave vectors. O. Dzyapko1, P. Nowik-Boltyk1, V.E. Demidov1, S. Demokritov1,2, B. Koene1, A. Kirilkyk3, J. Jersch1, T. Rasing2, I. Lisenkov4,5, V. Tyberkevych6 and A.N. Slavin4 1. Institute for Applied Physics and Center for Nanotechnology, University of Muenster, Muenster, Germany; 2. Institute of Metal Physics, Ural Division of RAS, Yekaterinburg, Russian Federation; 3. Institute for Molecules and Materials, Radboud University Nijmegen, Nijmegen, Netherlands; 4. Department of Physics, Oakland University, Rochester, MI; 5. Kotelnikov Institute for Radioengineering and Electronics, Moscow, Russian Federation

DB-06. Stabilization of spin wave amplitude by parametric pumping in ferromagnetic nanowires. R.V. Verba1, V. Tyberkevych2 and A.N. Slavin3 1. Institute of Magnetism, Kyiv, Ukraine; 2. Department of Physics, Oakland University, Rochester, MI

Wednesday 109
DB-07. Magnetic droplet nucleation boundary in orthogonal nano-contact spin-torque oscillator. S. Chung1,2, A. Eklund3, E. Iacocca4,5, S.M. Mohseni6, S. Redjai Sani7, L. Bookman7, M. Hoefer4, R.K. Dumas8 and I. Akerman1,8 1. Department of Physics, University of Gothenburg, 412 96 Gothenburg, Sweden; 2. Department of Physics and Astronomy, Uppsala University, 751 20 Uppsala, Sweden; 3. Integrated Devices and Circuits, School of ICT, KTH-Royal Institute of Technology, Stockholm, Sweden; 4. Department of Applied Mathematics, University of Colorado, Boulder, CO; 5. Department of Physics, Division for theoretical physics, Chalmers University of Technology, 412 96, Gothenburg, Sweden; 6. Department of Physics, Shahid Beheshti University, Tehran 19839, The Islamic Republic of Iran; 7. Department of Mathematics, Yale University, New Haven, CT; 8. Department of Materials and Nano Physics, School of ICT, KTH-Royal Institute of Technology, Stockholm, Sweden

DB-08. Anderson localization of spin waves in chiral magnets in momentum space: coherent back- and forward scattering. M. Evers1, C. Müller1 and U. Nowak1 1. Physics Department, University of Konstanz, Konstanz, Germany

DB-09. Withdrawn


DB-11. Resonant Optical Excitation of Ultrafast Magnetization Dynamics in Iron Garnets by a Sequence of Optical Pulses. M. Jäckl1, V.I. Belotelov2,3, I. Akimov1,4, I. Savochkin5, D. Yakovlev1,4, A. Zvezdin6 and M. Bayer1,4 1. Technical University Dortmund, Dortmund, Germany; 2. Lomonosov Moscow State University, Moscow, Russian Federation; 3. Russian Quantum Center, Skolkovo, Russian Federation; 4. Ioffe Institute, Russian Academy of Sciences, St. Petersburg, Russian Federation

DB-12. Propagating spin-wave generated by a focused pulse laser in NiFe films. S. Iihama1, Y. Sasaki2,1, A. Sugihara2, A. Kamimaki3,1, Y. Ando1 and S. Mizukami2 1. Dept. Appl. Phys., Tohoku University, Sendai, Japan; 2. WPI-AIMR, Tohoku University, Sendai, Japan
DB-13. Spin-Wave Mode Conversion via Optically Induced Landscapes of the Saturation Magnetization. M. Vogel1, R. Aßmann1, A. Chumak1, B. Hillebrands1 and G. von Freymann1,2 1. Physics Department and State Research Center OPTIMAS, TU Kaiserslautern, Kaiserslautern, Germany; 2. Institute for Physical Measurement Techniques IPM, Fraunhofer-Institute, Kaiserslautern, Germany

Wednesday
Afternoon
1:30

Session DC

SPIN PUMPING AND RELATED EFFECTS
William Bailey, Chair
Columbia University, New York, NY

1:30

DC-01. Unidirectional spin Hall magnetoresistance in ferromagnet/normal metal bilayers. (Invited) C. Avci1, K. Garello1, A. Ghosh1, M. Gabureac1, S.F. Alvarado1 and P. Gambardella1 1. Department of Materials, ETH Zürich, Zürich, Switzerland

2:06

DC-02. Spin pumping-inverse spin Hall effect: Essential role of magnetization precession cone angle. S. Gupta1, R. Medwal1, D. Kodama1, K. Kondou1, Y. Otani2, Y. Fukuma1,2 1. Frontier Research Academy for Young Researchers, Kyushu Institute of Technology, Fukuoka, Japan; 2. RIKEN-CEMS, Wako, Japan; 3. ISSP, University of Tokyo, Kashiwa, Japan

2:18

DC-03. Interface effects at Pt/ferromagnetic insulator bilayers probed by spin Hall magnetoresistance and magnon excitations. S. Velez1, M. Isasa1, E. Sagasta1, J.M. Gomez-Perez1, A. Bedoya-Pinto1, W. Yan1, N. Dix1, F. Sanchez1, J. Fontcuberta1, F. Rivadulla1, C. Bui1, L.E. Hueso1,3 and F. Casanova1,3 1. CIC nanoGUNE, Donostia-San Sebastian, Spain; 3. IKERBASQUE, Bilbao, Spain; 4. Instituto de Ciencia de Materiales de Barcelona (ICMAB-CSIC), Bellaterra, Spain; 5. Centro de Investigación en Química Biológica y Materiales Moleculares (CIQUS), Universidad de Santiago de Compostela, Santiago de Compostela, Spain

2:30

DC-04. Interfacial Fe in the Transport of YIG/Metal Bilayers. A.L. Westerman1, M. Ali1, L. Banniard1,3 and B. Hickey1 1. School of Physics & Astronomy, University of Leeds, Castleford, United Kingdom; 2. Phelma Grenoble INP, Grenoble, France
DC-05. Spin Mixing Conductance Enhancement by NiFe Insertion at YIG/Pt Interface. H. Yuasa¹, K. Tamae¹ and N. Onizuka¹
1. Graduate School and Faculty of Information Science and Electrical Engineering, Kyushu University, Fukuoka, Japan; 2. PRESTO, Japan Science and Technology Agency, Kawaguchiko, Japan

DC-06. Spin mixing conductance in epitaxial and polycrystalline FM/Pt,Ta bilayers (FM= Fe, CoFeB). A. Conca¹,², S. Keller¹,², T. Kehagias³, G. Dimitrakopulos³, B. Hillebrands¹ and E. Papaioannou¹,² ¹. Physics, TU Kaiserslautern, Kaiserslautern, Germany; 2. Landesforschungszentrum OPTIMAS, Kaiserslautern, Germany; 3. Physics Department, Aristotle University of Thessaloniki, Thessaloniki, Greece

DC-07. The role of magnetic anisotropy on spin pumping revealed in epitaxial Fe/NM (Pt, Pd, Au) systems. S. Keller¹, M.R. Schweizer¹, J. Greser¹, D. Karfaridis³, L. Mihalceanu¹, G. Vourlias², A. Conca¹, B. Hillebrands¹ and E. Papaioannou¹ ¹. Fachbereich Physik and Landesforschungszentrum OPTIMAS, Technische Universität Kaiserslautern, Kaiserslautern, Germany; 2. Physics Department, Aristotle University of Thessaloniki, Thessaloniki, Greece

DC-08. Spatial symmetry of spin pumping and inverse spin Hall effect in Pt/Y₃Fe₅O₁₂ system. X. Fan¹, H. Zhou¹, L. Ma², S. Zhou² and X.D. Sheng¹ ¹. Lanzhou University, Lanzhou, China; 2. Physics, Tongji University, Shanghai, China

DC-09. Temperature Dependent Spin Hall Magnetoresistance in Pt/Fe₃O₄/MgO/Ta Multilayered Structures. T. Pham¹, N. Lee¹, Y. Bae², K. Kang², E. Park³, A. Michel³ and T. Kim³ ¹. Department of Physics, Ewha Womans University, Seoul, The Republic of Korea; 2. Department of Materials Science and Engineering, Hanyang University, Seoul, The Republic of Korea; 3. Physique et Mécanique des Matériaux, CNRS-Université de Poitiers-ENSMA, Futuroscope-Chasseneuil, France; 4. KU-KIST Graduate School of Converging Science and Technology, Korea University, Seoul, The Republic of Korea

DC-10. Intrinsic Spin Hall conductivity of Pt probed by its Spin-Hall magnetoresistance in Pt/[NiCo] multilayers. H. Jaffrès¹, P. Laczkowski¹, S. Collin¹, N. Reyren¹, L. Vila² and J. George¹ ¹. Unité Mixte de Physique CNRS Thales, CNRS, Palaiseau, France; 2. SPINTEC, CEA, Grenoble, France

DC-11. Spin Pumping in La₉₀Sr₁₀MnO₃/SrRuO₃ Bilayers Probed by Broadband Ferromagnetic Resonance Spectroscopy. S. Emori¹ and Y. Suzuki² ¹. Geballe Laboratory for Advanced Materials, Stanford University, Stanford, CA; 2. Applied Physics, Stanford University, Stanford, CA
DC-12. Low Damping Spinel Ferrites for Spin Pumping.

M.T. Gray1,2, S. Emori3, B.A. Gray3, H. Jecom3,4, B.M. Howe3 and Y. Suzuki1,2,5

1. Materials Science and Engineering, Stanford University, Stanford, CA; 2. Geballe Laboratory for Advanced Materials, Stanford University, Stanford, CA; 3. Materials and Manufacturing Directorate, Air Force Research Laboratory, Dayton, OH; 4. Electrical Engineering, Wright State University, Dayton, OH; 5. Applied Physics, Stanford University, Stanford, CA


C. Avei1, A. Quindeau1, C. Pai1, M. Mann1, L.M. Caretta1, A. Tang1, M. Onbasli1, C.A. Ross1 and G. Beach1

1. Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA

WEDNESDAY
AFTERNOON
1:30

Session DD

DOMAIN WALL, VORTEX AND SKYRMION DYNAMICS II

Suzanne G.E. te Velthuis, Chair
Argonne National Laboratory, Argonne, IL

DD-01. Field-Driven Domain Wall Dynamics In Soft Cylindrical Nanowires. A. Wartelle1, C. Thirion1, B. Trapp1, S. Bochmann1, J. Bachmann1, M. Foerster4, L. Aballe4, A. Sala4, T. Mentes4, A. Locatelli4, J. Toussaint1 and O. Fruchart2

1. Institut Néel, CNRS, Grenoble, France; 2. SPINTEC, CNRS, Grenoble, France; 3. Friedrich-Alexander Universität, Erlangen, Germany; 4. Alba Synchrotron Light Facility, CELLS, Barcelona, Spain; 5. Elettra – Sincrotrone Trieste S.C.p.A, Trieste, Italy

DD-02. Very large domain wall velocities in Pt/Co/Gd and Pt/Co/GdOx trilayers with strong Dzyaloshinskii-Moriya interaction. S. Pizzini1, J. Vogel1, J. Sampaio2, J. Rojas-Sanchez1, M. Bonfim2, D. Chaves1, T. Pham1 and A. Thiaville2

1. Institut Néel, CNRS, Grenoble, France; 2. Lab. Physique des Solides, Universite Paris-Sud, Orsay, France; 3. Universidade Federal do Paraná, Departamento de Engenharia Elétrica, Curitiba, Brazil

DD-03. Current induced domain wall propagation in Co-rich amorphous microwires. V. Zhukova1,3, J. Blanco1, A. Chizhik1,3, M. Ipatov1,2 and A.P. Zhukov1,2

DD-04. Formation and stability of individual skyrmions in confined geometries. (Invited) H. Du1,2. High Magnetic Field Lab Hefei Institutes of Physical Sciences, CAS, HeFei, China

2:06

DD-05. Domain wall dynamics by non-local thermal gradients. S. Moretti1,2, V. Raposo1 and E. Martinez1. Departamento de Fisica Aplicada, Universidad de Salamanca, Salamanca, Spain

2:42

DD-06. Spatially Localized Excitations in Antiferromagnets Driven by Spin Current. B. Ivanov1,2, E. Galkina3, R. Khymyn4, V. Tyberkevych5 and A.N. Slavin1. Institute of Magnetism, National Academy of Science of Ukraine, Kyiv, Ukraine; 2. Taras Shevchenko National University, Kyiv, Ukraine; 3. Institute of Physics, National Academy of Science of Ukraine, Kyiv, Ukraine; 4. Department of Physics, Oakland University, Rochester, MI

2:54

DD-07. Coupling of high frequency strain and azimuthal spin wave modes in MagnetostRICTive Nanostructures. T.A. Ostler1 and S.A. Cavill2. 1. L’Université de Liège, Liege, Belgium; 2. Physics, University of York, York, United Kingdom

3:06

DD-08. Magnetoelectric domain wall dynamics and its implications for magnetoelectric memory. K. Belashchenko1, O. Tchernyshyov2, A. Kovalev2 and O. Tretiakov3,4. 1. Department of Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE; 2. Department of Physics and Astronomy, Johns Hopkins University, Baltimore, MD; 3. Tohoku University, Sendai, Japan; 4. School of Natural Sciences, Far Eastern Federal University, Vladivostok, Russian Federation

3:18

DD-09. Mechanism of all-optical control of ferromagnetic multilayers with circularly polarized light. R. Medapalli1, D. Afanasiev1, D. Kim1, Y. Quessab1,2, S. Manna1, S.A. Montoya1, A. Kirilyuk2, T. Rasing3, A. Kimel3 and E.E. Fullerton1. 1. Center for Recording Research, University of California San Diego, La Jolla, CA; 2. Université de Lorraine, Institut Jean Lamour, Nancy, France; 3. Radboud University Nijmegen, Institute for Molecules and Materials, Heyendaalseweg 135, 6525 AJ Nijmegen, Nijmegen, Netherlands

3:30


3:42

114 Wednesday
DD-11. Spin-Hall Effect Driven Magnetic Domain Wall Motion under the Application of In-plane Fields in PMA Nanowires.
S. Nasseri\textsuperscript{1,5}, E. Martinez\textsuperscript{4}, C. Serpico\textsuperscript{2} and G. Durin\textsuperscript{3,1}.
\textsuperscript{1} ISI Foundation, Torino, Italy; \textsuperscript{2} University of Naples, Napoli, Italy; \textsuperscript{3} Nanoscience and Material, Istituto Nazionale di Ricerca Metrologica, Torino, Italy; \textsuperscript{4} Fisica Aplicada, Universidad de Salamanca, Salamanca, Spain; \textsuperscript{5} Politecnico di Torino, Torino, Italy.

A. Kovalev\textsuperscript{1} and U. Gungordu\textsuperscript{1}.
\textsuperscript{1} Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE.

S. Tsunegi\textsuperscript{1}, K. Yakushiji\textsuperscript{1}, A. Fukushima\textsuperscript{1}, S. Yuasa\textsuperscript{1} and H. Kubota\textsuperscript{1}.
\textsuperscript{1} Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Palaiseau, France.

Wednesday 115
DE-04. Large Spin Orbit Torques Originated From Bi$_2$Se$_3$/Ag Interface. S. Shi$^1$, Y. Wang$^1$ and H. Yang$^1$. 1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore

DE-05. Band structure and spin texture of Bi$_2$Se$_3$/3d ferromagnetic metal interface. J. Zhang$^2$, J. Velev$^{2,1}$, X. Dang$^1$ and E.Y. Tsymbal$^1$. 1. Department of Physics and Astronomy, University of Nebraska, Lincoln, NE; 2. Department of Physics and Astronomy, University of Puerto Rico, San Juan, PR

DE-06. Influence of oxygen coverage on the Dzyaloshinskii-Moriya interaction in CoFe/Pt bilayers. H. Nembach$^{1,2}$, E.R. Evarts$^1$, E. Jué$^1$ and J. Shaw$^1$. 1. National Institute of Standards and Technology, Boulder, CO; 2. JILA, University of Colorado, Boulder, CO

DE-07. Enhancement of voltage induced interfacial Dzyaloshinskii-Moriya interaction at Fe/MgO by one monolayer insertion of Pt. K. Nawaoka$^1$, S. Miwa$^1$, T. Nozaki$^2$, M. Goto$^1$, E. Tamura$^1$, S. Yuasa$^2$ and Y. Suzuki$^1$. 1. Graduate School of Engineering Science, Osaka University, Osaka, Japan; 2. Spintronics Research Center, AIST, Tsukuba, Japan

DE-08. Coupling Of Coexisting Non-Collinear Spin States In The Fe Monolayer On Re(0001). A. Palacio Morales$^1$, A. Kubetzka$^1$, K. von Bergmann$^1$ and R. Wiesendanger$^1$. 1. Institute of Applied Physics and Interdisciplinary Nanoscience Center Hamburg, Hamburg University, Hamburg, Germany

DE-09. Spin-orbit torques at ferromagnet/oxide interface. A. Mouillon$^1$, M. Drouard$^1$, L. Cuchet$^1$, B. Rodmacq$^1$, S. Auffret$^1$, I. Miron$^1$, O. Boulle$^1$ and G. Gaudin$^1$. SPINTEC, Univ. Grenoble Alpes/CNRS/CEA-INAC, Grenoble, France

DE-11. Dzyaloshinskii-Moriya interaction and the magnetic chirality in 3d/5d interfaces. A. Belabbes1, G. Bihlmayer2, F. Bechstedt3, S. Blügel2 and A. Manchon1. 1. Physical Science and Engineering Division, King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia; 2. Peter Grünberg Institut and Institute for Advanced Simulation, Forschungszentrum Jülich, Jülich, NRW, Germany, Jülich, Germany; 3. Institut für Festkörpertheorie und -optik, Friedrich-Schiller-Universität Jena, Jena, Germany

DE-12. Spin-Orbit Torque Studies In Hf/CoFeB/MgO as a Function of Hf Thickness. R. Ramaswamy1, X. Qiu1, T. Dutta2, S. Pollard3 and H. Yang1. 1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore


DE-14. Thickness dependence of Dzyaloshinskii-Moriya interaction and spin-orbit torques in AlOx. R. Lo Conte1, 2, E. Martinez3, G. Vijay Karnad1, K. Lee1, N. Kim2, D. Han2, J. Kim2, T. Schulz4, C. You2, H. Swagten2 and M. Kläui1, 2. 1. Department of Physics, Johannes Gutenberg-University Mainz, Mainz, Germany; 2. Graduate School of Excellence Materials Science in Mainz (MAINZ), Mainz, Germany; 3. Fisica Aplicada, Universidad de Salamanca, Salamanca, Spain; 4. Daegu Gyeongbuk Institute of Science and Technology (DGIST), Daegu, The Republic of Korea; 5. Department of Applied Physics, Eindhoven University of Technology, Eindhoven, Netherlands

DE-15. Observation of DMI and Skyrmions in Pt/Co/Os/Pt thin films. R.D. Tolley1, S.A. Montoya1, T. Hennen1 and E.E. Fullerton1. 1. Center for Memory and Recording Research, University of California San Diego, La Jolla, CA
Session DF

2D AND 3D NANOSTRUCTURED ARRAYS I

Nicoleta Lupu, Chair
National Institute of Research and Development for Technical Physics,
Iasi, Romania

1:30
DF-01. Potential dependent Tuning of magnetic and structural properties of electrodeposited NiZn nanowires in Al$_2$O$_3$ templates. N. Ahmad$^{1,2}$, S. Ghumen$^3$, L. Wenjing$^1$, S. Khan$^2$, S.A. Shah$^3$, S.U. Awan$^4$, J. Iqbal$^3$, A. Majid$^6$ and X. Han$^1$
1. Institute of Physics, Chinese Academy of Sciences, Beijing, China; 2. Department of Physics, International Islamic University, Islamabad, Pakistan; 3. Materials Science & Engineering, University of Washington, Seattle WA, USA, Seattle, WA; 4. Physics, COMSATS Institute Of Information Technology, Islamabad, Pakistan, Islamabad, Pakistan; 5. Physics, Quaid-i-azam University, Islamabad, Pakistan; 6. Physics, University of Gujrat, Gujrat, Pakistan

1:42
DF-02. Controlled Electrodeposition of Co$_{35}$Fe$_{65}$ Nanowires with the Highest Magnetic Saturation for Biomedical Applications. A. Ghemes$^1$, O. Dragos$^1$, H. Chiriac$^1$, N. Lupu$^1$, M. Grigoras$^1$, D. Shore$^2$, B. Stadler$^2$ and I. Tabakovic$^2$
1. National Institute of Research and Development for Technical Physics, Iasi, Romania; 2. ECE Department, University of Minnesota, Minneapolis, MN

1:54
DF-03. Pushing Forward Electrodeposited Magnetic Nanowires: Trying to Pin Domain Walls. L.A. Costa Arzuza$^1$, D. Salazar-Aravena$^1$, V. Vega$^2$, V.M. de la Prida$^2$, F. Béron$^1$ and K.R. Pirota$^1$
1. Universidade Estadual de Campinas, Campinas, Brazil; 2. Universidad de Oviedo, Oviedo, Spain

2:06
DF-04. Wafer Scale Growth of Aligned Co Nanowires and Their Magnetic Properties. J. Mohapatra$^1$, K.H. Gandha$^1$, K. Elkins$^1$, N. Poudyal$^1$ and P. Liu$^1$
1. Physics, University of Texas at Arlington, Arlington, TX

2:18
DF-05. High Quality Magnetic Nanofibers Composites for RF applications. X. Chen$^1$, Z. Zhou$^1$ and G. Grocke$^1$
1. Energy Systems Division, Argonne National Laboratory, Lemont, IL

2:30
DF-06. Tailoring the Supermagnetic Order in Arrays of Dipolarly Coupled Nanomagnets. S. Sloetjes$^1$, H. Urdahl$^1$, J.K. Grepstad$^1$ and E. Folven$^1$
1. Department of Electronics and Telecommunications, NTNU, Trondheim, Norway
2:42

DF-07. Nonlinear response of classical nanoparticles: Equilibrium and dynamical. R. Lopez-Ruiz1, F. Luis1, J. Bartolome1, C. Deranlot2 and F. Petroff2 1. Universidade Estadual de Campinas (UNICAMP), Campinas, Brazil; 2. UMPhy CNRS/Thales, Palaiseau, France; 3. Instituto de Ciencia de Materiales de Aragon - CSIC - Universidad de Zaragoza, Zaragoza, Spain

2:54

DF-08. Three-Dimensional Magnetic Vortices in Cobalt Nanospheres. M. Urbanek1,3, O. Vyroubal3, P. Kolibal1,2, L. Flajsman1, M. Vanatka1, T. V. Ashworth2 and T. Sikola1,3 1. CEITEC BUT, Brno University of Technology, Brno, Czech Republic; 2. NanoScan AG, Duebendorf, Switzerland; 3. Institute of Physical Engineering, Brno University of Technology, Brno, Czech Republic

3:06

DF-09. Enhanced coercivity in Co-doped $\alpha$-Fe$_2$O$_3$ cubic shaped nanocrystals assemblies synthesized via a magnetic field-assisted hydrothermal approach. K.H. Gandha1, J. Mohapatra1, N. Poudyal1, K. Elkins1 and P. Liu1 1. Physics, University of Texas at Arlington, Arlington, TX

3:18

DF-10. Three-dimensional magneto-optic spatial light modulator with artificial magnetic lattice. (Invited) H. Takagi1, K. Nakamura1, T. Goto1, Y. Nakamura1, P. Lim1, H. Uchida1 and M. Inoue1 1. Toyohashi University of Technology, Toyohashi, Japan; 2. JST, PRESTO, Kawaguchi, Japan

3:54

DF-11. 3D Printing of Polymer Bonded Rare-Earth Magnets With a Variable Magnetic Compound Density for a Predefined Stray Field. C. Huber1, C. Abert1, F. Bruckner1, M. Groenefeld2, S. Schuschnigg3, I. Teliban2, G. Wautischer1 and D. Sues1 1. Institute of Solid State Physics, Christian Doppler Laboratory for Advanced Magnetic Sensing and Materials, Vienna University of Technology, Vienna, Austria; 2. Magnefabrik Bonn GmbH, Bonn, Germany; 3. Montanuniversitaet Leoben, Leoben, Austria

4:06

DF-12. Highly-tunable Magnetic Properties In Novel Cu$_{1-x}$Ni$_x$ Architectures: From Fully Dense Films To Patterned Pillars And Micro-/nanoporous Structures. A. Quintana Puebla1, J. Zhang1, A. Varer2, S. Pané3, E. Pellicer1 and J. Sort1,4 1. Physics, Universitat Autonoma de Barcelona, Bellaterra, Spain; 2. Engineering: Electronics, Universitat de Barcelona, Barcelona, Spain; 3. ETH Zurich, Zurich, Switzerland; 4. Catalan Institution for Research and Advanced Studies (ICREA), Barcelona, Spain
3D Magnetic Nanowires: Fabrication and Advanced Magnetic Characterization. D. Sanz-Hernández, J. Pablo-Navarro, S. Lerrano-Ramón, C. Magén, R. Streubel, M. Im, J. De Teresa, P. Fischer and A. Fernandez-Pacheco. University of Cambridge, Cambridge, United Kingdom; 2. LBNL, Berkeley, CA; 3. CXRO, Lawrence Berkeley National Laboratory, Berkeley, CA; 4. Laboratorio de Microscopías Avanzadas (LMA), Zaragoza, Spain; 5. Departamento de Física de la Materia Condensada, Universidad de Zaragoza, Zaragoza, Spain; 6. Instituto de Ciencia de Materiales de Aragón (ICMA), Zaragoza, Spain

Session DG
MN- AND CO-BASED HIGH ANISOTROPY SYSTEMS
Cristina Bran, Chair
ICMM-CSIC, Madrid, Spain


DG-03. Withdrawn


DG-06. Structural and Magnetic Properties of MnPtGa Heusler thin film. R. Sahoo¹, A.K. Nayak¹, B. Ernst¹, S. Selle², T. Hoeche² and C. Felser¹. 1. Inorganic Chemistry, Max Planck Institute for Chemical Physics of Solids, Dresden, Germany; 2. Fraunhofer Institute for Mechanics of Materials IWM, Halle, Germany, Halle, Germany

DG-07. Magnetic and Structural Properties of $L_1_0$ MnGa Epitaxial Thin Films on MgO(100) and SrTiO₃(100). S. Zhao¹,² and T. Suzuki¹,³ 1. Center for Materials for Information Technology, University of Alabama, Tuscaloosa, AL; 2. Department of Metallurgical and Materials Engineering, University of Alabama, Tuscaloosa, AL; 3. Department of Metallurgical and Materials Engineering & Electrical and Computer Engineering, University of Alabama, Tuscaloosa, AL

DG-08. CaO Matrix Processing of MnBi Alloys for Permanent Magnets. A. Gabay¹ and G. Hadjipanayis¹ 1. Physics and Astronomy, University of Delaware, Newark, DE

DG-09. Magnetic Properties and Structure of Low Temperature Phase MnBi with Islands Structure. M. Itoh¹,⁴, Y. Tanaka², G. Mankey¹,³, R. Schaad¹,² and T. Suzuki¹,² 1. Center for Materials for Information Technology, University of Alabama, Tuscaloosa, AL; 2. Departments of Electrical and Computer Engineering, and Metallurgical and Materials Engineering, University of Alabama, Tuscaloosa, AL; 3. Department of Physics and Astronomy, University of Alabama, Tuscaloosa, AL; 4. Materials Development Center, Technology HQ, TDK Cooperation, Ichikawa, Japan

DG-10. Electronic Structures of Ferromagnetic Mn₀.₅TM₀.₅Al Alloys (TM = Mn, Fe, and Co). M. Choi¹, Y. Hong¹, J. Park¹, W. Lee¹, H. Won¹, C. Choi², W. Lee³ and M. Jung⁴ 1. Electrical and Computer Engineering and MINT Center, The University of Alabama, Tuscaloosa, AL; 2. Korea Institute of Materials Science, Changwon, The Republic of Korea; 3. Department of Materials Science and Engineering, Yonsei University, Seoul, The Republic of Korea; 4. Department of Physics, Sogang University, Seoul, The Republic of Korea

DG-11. The Phase Stability And Intrinsic Magnetic Properties Of MnAl Alloys Doped With Carbon. S. Zhao¹, C. Jiang², J. Wang³, T. Zhang³ and J. Liu² 1. Beihang University, Beijing, China; 2. School of Materials Science and Engineering, Beihang University, Beijing, China

DG-12. Manipulation Of Morphology And Magnetic Properties In Cobalt Nanowires. C. Li¹, Q. Wu¹, M. Yue¹, H. Xu¹, K. Elkins² and P. Liu² 1. College of Materials Science and Engineering, Beijing University of Technology, Beijing, China; 2. University of Texas-Arlington, Arlington, TX

DG-14. Phase Decomposition of Metastable Co₃C Powders. M.S. Lucas¹, Z. Turgut², J. Horwath³ and E. Karapetrova⁴. 1. RXCC, Air Force Research Laboratory, Wright-Patterson AFB, OH; 2. RQQM, AFRL, Wright-Patterson AFB, OH; 3. Air Force Research Laboratory, Wright-Patterson AFB, OH; 4. Advanced Photon Source, Argonne, IL.

WEDNESDAY AFTERNOON

1:30

Session DH

COMPLEX OXIDES III: FILMS AND HETEROSTRUCTURES

Alpha N'Diaye, Chair
Lawrence Berkeley National Laboratory, Berkeley, CA

DH-01. Strong spin-orbit interaction on SrTiO₃ thin films on Si substrates. N. Theodoropoulou¹, R.C. Cottier¹, D.A. Currie¹ and B.D. Koehne¹. 1. Physics, Texas State University, San Marcos, TX.

1:42

DH-02. A Strain Mediated Ferromagnetic to Antiferromagnetic Transition in ESMO Thin Films. S.M. Disseler¹, A. Grutter¹, E. Moon², D.A. Gilbert¹, E. Arenholz² and S. May³. 1. NIST Center for Neutron Research, Gaithersburg, MD; 2. Drexel University, Philadelphia, PA; 3. LBNL, Berkeley, CA; 4. Materials Science and Engineering, Drexel University, Philadelphia, PA.

1:54

DH-03. Current-induced modulation of switching magnetic field in Laₓ₀.₆₇Srₓ₀.₃₃MnO₃/SrTiO₃ structures. M. Yamanouchi¹, T. Oyamada¹, T. Katase¹ and H. Ohta¹. 1. Research Institute for Electronic Science, Hokkaido University, Sapporo, Japan; 2. Department of Electronics and Information Engineering, School of Engineering, Hokkaido University, Sapporo, Japan.
DH-04. Electric Field Effects of Spin Accumulation in Nb doped SrTiO$_3$ with Ni/AlO$_x$ as Spin Injection Contacts. A. Das$^1$, A.M. Kamerbeck$^1$, A. Majumdar$^1$, A. Goossens$^1$ and T. Banerjee$^2$. I. Zernike Institute for Advanced Materials, University of Groningen, Groningen, Netherlands; 2. University of Groningen, Groningen, Netherlands

DH-05. Disentangling strain and charge-mediated magnetoelectric effects in complex oxide-based artificial multiferroic heterostructures. R. V. Chopdekar$^1$ and Y. Takamura$^1$. I. Materials Science and Engineering, University of California - Davis, Davis, CA

DH-06. Voltage-induced tuning of magnetism in La$_{1-x}$Sr$_x$MnO$_3$ films by means of an ionic liquid. A. Molinari$^1$, P.M. Leufke$^1$, C. Reitz$^1$, S. Dasgupta$^1$, R. Kruk$^1$ and H. Hahn$^1$. I. Institute of Nanotechnology (INT), Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen (Karlsruhe), Germany


DH-08. Complex Magnetic Interface Interactions at the (111)-oriented La$_{0.7}$Sr$_{0.3}$MnO$_3$/LaFeO$_3$ interface. I. Hallsteinsen$^{1,2}$, M. Moreau$^1$, A. Grutter$^1$, D.A. Gilbert$^2$, A.T. N’Diaye$^2$, B.J. Kirby$^2$, E. Arenholz$^2$ and T. Tybell$^1$. I. Dep. of Electronics and Telecommunications, NTNU - Norwegian University of Science and Technology, Trondheim, Norway; 2. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA; 3. NIST Center for Neutron Research, NIST, Gaithersburg, MD

DH-09. Interlayer Coupling-induced Distinct Spin Structure In The [LaCoO$_3$/LaMnO$_3$]$_5$ Superlattices. J. Zhang$^1$, H. Zhang$^1$, X. Zhang$^1$, B. Liu$^1$ and J. Sun$^1$. I. Institute of Physics, Chinese Academy of Sciences, Beijing, China
3:18

DH-10. Controlling Emergent Ferromagnetism at Complex Oxide Interfaces. (Invited) A. Gatter1, A. Vailionis6, B.I. Kirby1, J. Borchers1, C. He2, E. Arenholz3, M.T. Gray5, U.S. Alaan6, C. Flint4 and Y. Suzuki4
1. NIST Center for Neutron Research, NIST, Gaithersburg, MD; 2. Materials Science and Engineering, University of California, Berkeley, CA; 3. LBNL, Berkeley, CA; 4. Stanford University, Stanford, CA; 5. Materials Science and Engineering, Stanford University, Stanford, CA; 6. Geballe Laboratory for Advanced Materials, Stanford University, Stanford, CA

3:54

DH-11. Dimension modulated magnetism in SrRuO3/SrTiO3 superlattices with controlling the RuO6 octahedrons connections. M. Gu1, K. Wang1, Y. Wang1, Q. Xie1, A. Zhang2, G. Zhang2 and X. Wu1. 1. Nanjing University, Nanjing, China; 2. College of Science, Hohai University, Nanjing, China; 3. Physics, Indiana State University, Terre Haute, IN

4:06

DH-12. Multiferroic Properties and Strain Induced Spin Phonon Coupling in BiFeO3/CoFe2O4 Thin Film Heterostructures. M.K. Singh1, G. Singh1, A. Kumar1, B. Khan1 and R.S. Katiyar5
1. Centre of Material Sciences, University of Allahabad, Allahabad, India; 2. Department of Physics and Institute of Functional Nano Materials, University of Puerto Rico, San Juan, PR

4:18

DH-13. Magnetic coupling and enhancement of the switching field in Fe3O4/NM/Fe tri-layer system. T. Nagahama1, K. Oomori2, T. Kawai2, T. Yanase1 and T. Shimada1
1. Graduate School of Engineering, Hokkaido University, Sapporo, Japan; 2. Graduate School of Chemical Sciences and Engineering, Hokkaido University, Sapporo, Japan

WEDNESDAY STUDIO 3-4
AFTERNOON
1:30

Session DI
MAGNETIC MICROSCOPY AND IMAGING
Stephen McVitie, Chair
University of Glasgow, Glasgow, United Kingdom

1:30

DI-02. Magneto-Optic Kerr Effect CCD Imaging with Polarization Modulation Technique. S. Nakayama, M. Okano, Y. Nozaki and S. Watanabe. 1. Department of Physics, Faculty of Science and Technology, Keio University, Yokohama, Japan

DI-03. Magneto-optical Color Imaging Of Magnetic Field Distribution. Y. Nagakubo, Q. Liu, G. Lou and T. Ishibashi. 1. Department of Materials Science & Technology, Nagaoka University of Technology, Niigata, Japan


3:06

DI-09. Magnetic scanning gate microscopy of CoFeB lateral spin valve. H. Corte-León1,4, P. Krzyzczeko2, J. Lee3, A. Fernandez-Scarioni2, D. Cox1,5, R. Cowburn1, H.W. Schumacher2, V. Antonov1, O. Kazakova1. 1. TQEM, National Physical Laboratory, Teddington, United Kingdom; 2. Nanomagnetism, PTB, Braunschweig, Germany; 3. Physics, University of Cambridge, Cambridge, United Kingdom; 4. Royal Holloway University of London, Egham, United Kingdom; 5. Applied Technology Institute, Surrey University, Guildford, United Kingdom

3:18


3:30

DI-11. Imaging Defects In Magnetic Multilayers Using Scanning Electron Microscopy. E. Jackson1, S. Duttagupta2, S. Fukami2, H. Ohno2 and A. Hirohata1. 1. Department of Electronics, University of York, York, United Kingdom; 2. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan

3:42

DI-12. High Resolution SEMPA Imaging of Domain Wall Spin Configurations in Mesoscopic Fe Rings. R.M. Reeve1, P. Krautscheid1,2, M. Lauf1, B. Krüger1 and M. Kläui1,2. 1. Institut für Physik, Johannes Gutenberg-Universität Mainz, 55099 Mainz, Germany; 2. Graduate School of Excellence Materials Science in Mainz (MAINZ), 55128 Mainz, Germany

3:54

DI-13. Mapping Geometric Frustration in Quasicrystal Artificial Spin Ice Lattices. V. Brajuskovic1,2, F. Barrows1,3, C. Phatak1 and A. Petford-Long1,2. 1. Materials Science Division, Argonne National Laboratory, Argonne, IL; 2. Materials Science and Engineering, Northwestern University, Evanston, IL; 3. Applied Physics Program, Northwestern University, Evanston, IL
¹. Department of Physics, University of Oregon, Eugene, OR; ². Center for Recording Research, University of California San Diego, La Jolla, CA

4:18

DI-15. Electron Current Control of Biskyrmion Lattices. Y. Zhang¹ and L. Peng¹ ¹. Chinese Academy of Science, Institute of Physics, Beijing, China
DP-07. Studies of High-Frequency Iron Core Loss for Synchronous Electric Machines Used in Electric Vehicles. R. Pei1
1. Shanghai Innmag New Energy Co., Ltd., Shanghai, China

DP-08. A Low-velocity Water Generator Based On High-permeability Electromagnetic Transducer. Z. Lin1, J. Yang1, J. Zhao1, N. Zhao1 and Q. Awais1
1. Department of Optoelectronic Engineering, Research Center of Sensors and Instruments, Chongqing University, Chongqing, China

1. Departamento de Engenharia de Computação e Automação, Universidade Federal do Rio Grande do Norte, Natal, Brazil; 2. Instituto Federal do Rio Grande do Norte, Natal, Brazil; 3. Departamento de Engenharia Mecânica, Universidade Federal do Rio Grande do Norte, Natal, Brazil

DP-10. A New Hybrid Excitation Flux Switching Motor with Ferrite Permanent Magnet. Y. Du1, Q. Wang1, L. Quan1 and X. Zhu1
1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China

DP-11. Design of a New Four-Leg Three-Phase Voltage Source Inverter with Fewer Transistors. Y. Luo1, C. Liu1, F. Yu1 and C. Lee2
1. School of Energy and Environment, City University of Hong Kong, Hong Kong, China; 2. Department of Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong, China

1. School of Energy and Environment, City University of Hong Kong, Hong Kong, China; 2. Department of Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong, China

1. School of Electrical Engineering, Southeast University, Nanjing, China

1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China

1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China; 2. Jiangsu University, Zhenjiang, China
Session DQ
POWER AND CONTROL MAGNETICS II
(Poster Session)
Igor Barsukov, Chair
University of California Riverside, Riverside, CA

DQ-01. An Optimization Method of Back-EMF Waveforms for Outer-Rotor Permanent Magnet Brushless Machines with Different Magnet Configurations. H. Zhang1 and H. Wei1
1. School of Electrical Engineering, Southeast University, Nanjing, China

DQ-02. A Model Predictive Current Control of Flux-Switching Permanent Magnet Machines for Torque Ripple Minimization. W. Huang1, H. Wei1 and F. Yu1
1. School of Electrical Engineering, Southeast University, Nanjing, China; 2. School of Electrical Engineering, Nantong University, Nantong, China

DQ-03. Parametric Analysis and Optimized Torque Characteristic of Coaxial Magnetic Gear Based on Subdomain Analytical Model. K. Shin1, H. Cho1 and J. Choi1
1. Dept. of Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea

DQ-04. Design and Analysis of Tubular Permanent Magnet Linear Generator for Small-Scale Wave Energy Converter. J. Kim1, J. Choi1, M. Koo1, J. Jeong1 and K. Hong3

DQ-05. Design and Analysis of Linear Oscillatory Single-Phase Permanent Magnet Generator for Free-Piston Stirling Engine Systems. J. Kim1, J. Choi1, K. Lee2 and S. Lee2

DQ-06. An Inductance Fourier Decomposition-based Current-Hysteresis Control Strategy of Switched Reluctance Motors for Torque Ripple Minimization. H. Wei1 and J. Qi1
1. School of Electrical Engineering, Southeast University, Nanjing, China

DQ-07. Optimum Design characteristics for 210KW Traction Interior Permanent Magnet Synchronous Motor considering Torque Ripple Improvement. Y. Kim1, S. Lee1 and J. Lee1
1. Department of Electrical Engineering, Hanbat National University, Dongseo-daero, The Republic of Korea

DQ-08. Withdrawn
DQ-09. Evaluation of Parameter Sensitivities for Flux-Switching Permanent Magnet Machines Based on Simplified Equivalent Magnetic Circuits. G. Zhang1, H. Wei1 and M. Cheng1 1. School of Electrical Engineering, Southeast University, Nanjing, China

DQ-10. Decoupling Analysis of A Novel Bearingless Flux-Switching Permanent Magnet Motor. C. Zhao1 and H. Zhu1 1. Jiangsu University, Zhenjiang, China

DQ-11. Comparative Study and Experiment of a Double-Sided Permanent Magnet Linear Synchronous Generator According to Magnetization Pattern. S. Seo1, M. Koo1, G. Jang1 and J. Choi1 1. Electrical Engineering, Chung Nam National University, Daejeon, The Republic of Korea


DQ-15. Design and Implementation Analysis of a Double-layer Transverse Flux Induction Heating System with Distributed Spiral Coils. J. Wang1, J. Li2, M. Yao2, K. Liu2, M. Long1 and Z. Fang1 1. School of Electrical Engineering, Wuhan University, Wuhan, China; 2. Wuhan University of Technology, Wuhan, China

WEDNESDAY GRAND BALLROOM AFTERNOON

2:30

Session DR

SOFT MAGNETIC MATERIALS I
(Poster Session)
Albrecht Jander, Chair
Oregon State University, Corvallis, OR

DR-01. Thermal stability and magnetic properties of MgFe₂O₄@ZnO nanoparticles. M. Shanigaram1, D. Prabhu2 and V. Srinivas1 1. Indian Institute of Technology, Chennai, India; 2. Centre for Automotive Energy Materials, International Advanced Research Centre for Powder Metallurgy and New Materials, Chennai 600113, India, Chennai, India; 3. Department of Physics, Indian Institute of Technology Madras, Chennai, India
DR-02. Microstructural, Phase Stability and Mössbauer Studies of Mn$_{1-x}$Ni$_x$Fe$_2$O$_4$ (x = 0.3, 0.7) Ferrites Synthesized by Glycol-thermal Method. I.P. Ezekiel$^1$ and T. Moyo$^1$. Physics, University of KwaZulu-Natal, Durban, South Africa

DR-03. Time evolution of magnetic properties of MgFe$_2$O$_4$ nanoparticles: Role of cation distribution. S. Raghavan$^1$3 and F. Mazaleyrat$^2$ and S. Kane$^1$. School of Physics, Devi Ahilya University, Indore, India; 2. SATIE-CNRS, ENS Cachan, Cachan, France

DR-04. Effects of Zn-doping on magnetic and dielectric properties of magnetoelastic GaFe$_2$O$_4$ nanocrystals. T. Han$^1$, C. Yen$^1$ and Y. Chung$^1$. Department of Applied Physics, National University of Kaohsiung, Kaohsiung, Taiwan

DR-05. High-Temperature Structural Changes and Thermal Hysteresis in and Mixed Ferrite Core-Shell Nanoparticles. G.S. Gomide$^1$, V. Pilati$^1$, P. Coppola$^1$, F. Gomes da Silva$^1$, F. Luis de Oliveira Paula$^1$,$^4$, R. Perzynski$^4$, R. Aquino$^3$ and J. Depeyrot$^1$. 1. Institute of Physics, Universidade de Brasília, Brasília, Brazil; 2. Material Science Program, Universidade de Brasília, Brasília, Brazil; 3. Institute of Chemistry, Universidade de Brasília, Brasília, Brazil; 4. Laboratoire PHENIX, Université Pierre et Marie Curie, Paris, France

DR-06. Synthesis, chemical composition, Mossbauer and magnetic characterizations of iron oxide nanoparticles. S.K. Sharma$^1$, Sarveena$^2$, J. Vargas$^3$, D. Shukla$^4$, P. Zélis$^5$, C. Meneses$^6$ and M. Singh$^7$. 1. Physics, Universidade Federal do Maranhão, São Luiz, Brazil; 2. Physics, H P University, Shimla, India; 3. Centro Atômico Bariloche (CNEA), Instituto Balseiro (U. N. Cuyo) and Conicet, 8400 San Carlos de Bariloche, Rio Negro, Argentina; 4. UGC DAE Consortium for Scientific Research, Indore, India; 5. Instituto de Física de La Plata (IFLP-CONICET), Universidad Nacional de La Plata (UNLP), La Plata, Argentina; 6. Núcleo de Pós-Graduação em Física, SE, Brazil

DR-07. Investigation on the magnetic and structural properties of CoAl$_{2-x}$Fe$_x$O$_4$. I. Ferraz$^1$, S. da Silva$^1$, T.D. Castro$^1$,$^2$, A. Franco Jr$^3$, J. Silva$^1$ and P. Morais$^1$,$^4$. 1. Instituto de Física, Universidade de Brasília, Brasília, Brazil; 2. Instituto Federal de Educação, Ciência e Tecnologia de Brasília, Brasília, Brazil; 3. Instituto de Física, Universidade Federal do Goiás, Brasília, Brazil; 4. College of Chemistry and Chemical Engineering, Hefei, China

DR-08. Variations in the Ferromagnetic Resonance (FMR) Properties of Epitaxial Magnetite Thin Films across the Verwey Transition. A.V. Singh$^1$, J. Beik Mohammadi$^2$, T. Mewes$^{3,1}$ and A. Gupta$^1$. 1. MINT, The University of Alabama, Tuscaloosa, AL; 2. Physics, MINT, University of Alabama, Tuscaloosa, AL

DR-09. Effects of Carbon Contents on Magnetic and Microwave Properties of FeGaC Thin Films. X. Liang$^1$, C. Dong$^1$, X. Wang$^1$ and Y. Gao$^1$. 1. ECE, Northeastern University, Boston, MA

DR-11. Improved structural, magnetic and spectroscopic properties of M-type strontium hexaferrite synthesised by citrate precursor method. K. Rana1, P. Thakur1 and A. Thakur1 1. School of Physics & material Science, Shoolini University, Solan, Solan, India

DR-12. Effect of heat treatment on magnetic and electrical characteristics in FeSi@CrPO4 core/shell composites. S. Tong1, M.J. Tung1, W.S. Ko1, C.P. Wu1, Y.P. Wang1 and L.C. Wang1 1. Electromagnetic Material and Device Lab., Industrial Technology Research Laboratories, Hsinchu, Taiwan

DR-13. New Metal Bonding for the Motor Core using Ceramic Precursor and Nano Ceramic Powder. K. Yun1, M. Hirano1, S. Yanase1 and Y. Ohya1 1. Engineering, Gifu University, Gifu, Japan

DR-14. First-principles calculations of the magnetic properties of Fe3P-based alloys. I. Zhuravlev1, V. Antropov2 and K. Belashchenko1 1. Department of Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE; 2. Ames Laboratory, Ames, IA

DR-15. Flaky FeSiAl particles: prepared by ball milling and their orientation in a magnetic field. X. Peng1, J. Li1, Y. Yang2, B. Hong1, X. Wang2 and H. Ge2 1. China Jiliang University, Hangzhou, China; 2. College of Materials Science and Engineering, China Jiliang University, Hangzhou, China

WEDNESDAY GRAND BALLROOM
AFTERNOON
2:30
Session DS
SOFT MAGNETIC MATERIALS II (Poster Session)
Junjia Ding, Co-Chair
Argonne National Laboratory, Argonne, IL
Valentyn Novosad, Co-Chair
Argonne National Laboratory, Argonne, IL

DS-01. Effect Of Sintering Temperature On High Frequency Core Loss Of NiZn Ferrite. G. Frajer1,2, G. Delette1,2, O. Isnard1,2, H. Chazal1,4, P. Perichon1,5 and F. Servant1,2 1. Université Grenoble Alpes, Grenoble, France; 2. CEA, LITEN, LMA, Grenoble, France; 3. Institut Néel, CNRS, Grenoble, France; 4. Laboratoire du Génie Electrique de Grenoble G2Elab, Grenoble, France; 5. CEA, LITEN, L2EP, Grenoble, France
DS-02. Effect of Cr Substitution on Structural, and Magnetic Properties of Ni-Co Ferrite Composite. B. Nandan1 and M.C. Bhatnagar1. 1. Physics, IIT Delhi, New Delhi, India

DS-03. Tuning Magnetic Properties in Nickel Ferrite through Patterning and pH. A. Cruz1 and J. Schwartz1. 1. Material Science, North Carolina State University, Raleigh, NC

DS-04. Curie temperature and magnetic properties of low temperature sintered CoTi-dope barium ferrite thick films for microwave devices. D. Chen1,2, G. Wang1, Y. Li3 and H. Zhang4. 1. College of Materials and Chemical Engineering, Hainan University, Haikou, China; 2. School of Microelectronics and Solid-State Electronics, University of Electronic Science and Technology of China, Chengdu, China; 3. State Key Lab of Electronic Thin Films and Integrated Devices, University of Electronic Science and Technology of China, Chengdu, China; 4. University of Electronic Science and Technology of China, Chengdu, China

DS-05. Substitution effects on magnetic properties of Mg13-xMnxAlxFe18-O4 ferrite. M. Kuo1. 1. China Steel Corporation, Kaohsiung, Taiwan

DS-06. Structure and magnetic properties of Mg0.35Cu0.2Zn0.45Fe2O4 ferrite synthesized by co-precipitation method. B. Yang1 and Z. Wang1. 1. Department of Applied Physics, Tianjin University, Tianjin, China

DS-07. Untangling the contributions of cerium and iron ions to the magnetism of Ce-doped yttrium iron garnet. B. Casals1, R. Cicheler1, H. Babu Vasili2, J. Geshev3, M. Espinola1, S. Geprügs4, M. Opel4, R. Gross5, J. Fontcuberta1 and G. Herranz1. 1. Institut de Ciència de Materials de Barcelona ICMAB-CSIC, Bellaterra, Spain; 2. ALBA Synchrotron Light Source, Cerdanyola del Vallès, Spain; 3. Instituto de Física, UFRGS, Porto Alegre, Brazil; 4. Wallther-Meißner-Institut, Bayerische Akademie der Wissenschaften, Garching, Germany; 5. Physik-Department, Technische Universität München, Garching, Germany


DS-09. Observation of high negative uniaxial anisotropy in pulsed laser deposited Yttrium iron garnet thin films. B. Bhoi1, N. Venkataramani2, S. Prasad3, R. Aiyar1, G. Kumar2, I. Samajdar1,2 and M. Kostylev3. 1. Center for Research in Nanotechnology and Science, Indian Institute of Technology Bombay, Mumbai, India; 2. Department of Metallurgical and Material Science, Indian Institute of Technology Bombay, Mumbai, India; 3. Physics, Indian Institute of Technology Bombay, Mumbai, India; 4. School of Physics, The University of Western Australia, Crawley, WA, Australia
DS-10. Investigation of magnetic and thermal properties of the Bio-plasma treated Ni$_x$Zn$_{1-x}$Fe$_2$O$_4$ based on Mössbauer spectroscopy. H. Choi$^1$, S. Kim$^1$, S. Yoon$^2$ and C. Kim$^1$
1. Department of Physics, Kookmin University, Seoul, The Republic of Korea; 2. Department of Physics, Gunsan National University, Gunsan, The Republic of Korea

DS-11. The crystalline, magnetic and dielectric properties of Zn doped strontium Z-type hexaferrite synthesized by polymerizable complex method. J. Lim$^1$, E. Hahn$^2$, I. Shim$^1$ and C. Kim$^1$
1. Kookmin University, Seoul, The Republic of Korea; 2. Suwon University, Hwaseong, The Republic of Korea

DS-12. The ferromagnetic resonance linewidth of thin La$_x$YIG films prepared by liquid phase epitaxy method. Q. Yang$^1$
1. University of Electronic Science and Technology of China, Chengdu, China

DS-13. Effect of Thickness on Magnetic and Microwave Properties of RF-Sputtered Zn-Ferrite Thin Films. B. Sahu$^1$,
N. Venkataramani$^2$, S. Prasad$^1$ and R. Krishnan$^1$
1. Physics, Indian Institute of Technology Bombay, Mumbai, India; 2. Department of Metallurgical and Material Science, IIT Bombay, Mumbai, India; 3. Retired scientists, CNRS/Universite de Versailles-St-Quentin, Versailles Cedex, France

DS-14. Monodomain MgCuZn Ferrite With Equivalent Permeability And Permittivity In The Broad Frequency Range. H. Jia$^1$, W. Liu$^1$, Z. Zhang$^1$, F. Chen$^1$, Y. Li$^1$, J. Liu$^1$ and Y. Nie$^1$
1. Huazhong University of Science and Technology, Wuhan, China

DS-15. Spin Seebeck Effect of Y$_3$Fe$_5$O$_{12}$ (YIG) prepared by Sol-Gel Synthesis. M. Jang$^1$, K. Lee$^1$ and S. Baek$^2$
1. School of Mechanical & Advanced Material Engineering, Ulsan National Institute of Science Technology, Ulsan, The Republic of Korea; 2. Electronic Materials Research Center, Korea Institute of Science and Technology (KIST), Seoul, The Republic of Korea

WEDNESDAY GRAND BALLROOM
AFTERNOON
2:30

Session DT
SOFT MAGNETIC MATERIALS III
(Poster Session)
Michael McHenry, Chair
Carnegie Mellon University, Pittsburgh, PA

DT-01. Magnetic Losses in Si-Fe Alloys for Avionic Applications. A. Faba$^1$, E. Cardelli$^2$, S. Quondam Antonio$^1$ and M. Pompei$^1$
1. Department of Engineering, University of Perugia, Perugia, Italy; 2. Ingegneria, Universita di Perugia, Perugia, Italy

DT-02. Effect of Aluminum on the magnetic domain walls of non-oriented electrical steels. H. Choi$^1$, Y. Koo$^1$ and S. Lee$^2$
1. POSTECH, Pohang, The Republic of Korea; 2. POSCO, Pohang, The Republic of Korea
DT-03. Effect of cobalt doping on martensitic transformations and magnetic properties of Ni$_{50-x}$Co$_x$Mn$_{37}$Sn$_{13}$(x=1, 2, 3) Heusler ribbons. S. Louidi$^1$ and J. Sunol$^2$. 1. Physics Department, University of 20 August-1955 Skikda, Skikda, Algeria; 2. Physics, University of Girona, Dep. De Fisica, Universitat de Girona, Campus de Montitlivi, Girona 17071, Spain., Spain

DT-04. Effect of amidosulfate in a DES-based bath on structural and magnetic properties of electroplated Fe-Ni films. T. Akiyoshi$^1$, K. Azuma$^1$, T. Yanai$^1$, M. Nakano$^1$ and H. Fukunaga$^1$. 1. Nagasaki University, Nagasaki, Japan

DT-05. FeSiAl soft magnetic composites with NiZn ferrite coating produced via solvothermal method. J. Li$^1$, X. Peng$^1$, H. Ge$^1$ and X. Wang$^1$. 1. China Jiliang University, Hangzhou, China

DT-06. Fe-rich Fe-Mo-Si-B-P amorphous alloy ribbons with stable good soft magnetic properties and corrosion resistance. Y. Han$^1$, J. Ding$^1$, F. Kong$^2$, A. Inoue$^{1,2}$, S. Zhu$^1$ and Z. Wang$^1$. 1. School of Materials Science and Engineering, Tianjin University, Tianjin, China; 2. Josai International University, Tochigi, Japan; 3. Department of Applied Physics, Tianjin University, Tianjin, China

DT-07. Structure and magnetic properties of FeCoAlSiBaNbCu alloys. Z. Xie$^1$, Z. Wang$^1$ and Y. Xu$^1$. 1. Department of Applied Physics, Tianjin University, Tianjin, China

DT-08. Upper limit for obtaining high $B_s$ and low $H_c$ in nanocrystalline FeCoSiBPCu alloys. Y. Zhang$^1$, P. Sharma$^1$ and A. Makino$^1$. 1. Institute for Materials Research, Tohoku University, Sendai, Japan

DT-09. The Deformation Behavior of Fe$_{83}$Si$_2$B$_{11}$P$_3$C$_1$ Amorphous Strips at Cryogenic Temperature. W. Wei$^1$, C. Chang$^2$, Y. Wang$^1$, Y. Liu$^1$, Y. Long$^1$, S. Zong$^1$ and H. Kuang$^1$. 1. School of Material Science and Engineering, University of Science and Technology Beijing, Beijing, China, Beijing, China; 2. Key Laboratory of Magnetic Materials and Devices, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, Ningbo, China; 3. Institute of Physics, Chinese Academy of Sciences, Beijing, China

DT-10. Fe-Si-B-P-Cu Nanocrystalline Soft Magnetic Powders With High $B_s$ And Low Coreloss. T. Takahashi$^1$, K. Yoshida$^1$, Y. Shimizu$^1$, A.D. Setyawan$^2$, M. Biyo$^1$, M. Abe$^1$ and A. Makino$^2$. 1. Tokohu Magnet Institute Co., LTD, Sendai, Japan; 2. Research and Development Center for Ultra High Efficiency Nano-crystalline Soft Magnetic Materials, Institute for Materials Research, Tohoku University, Sendai, Japan

DT-11. Fabrication and Characterisation of Novel Amorphous/ SMA CoFeSiB/NiTi Multilayer Microwires Obtained by Functionally Graded Deposition of NiTi Thin Films. F. Borza$^1$, S. Corodeanu$^1$, T.A. Ovari$^1$, M. Grigoras$^1$ and H. Chiriac$^1$. 1. National Institute of Research and Development for Technical Physics, Iasi, Romania
1. Graduate School of Science and Engineering, Ehime University, Matsuyama, Japan; 2. University Education Center, Fukuyama University, Fukuyama, Japan

DT-13. Correlation between pre-annealing temperature and \{110\}<001> annealing texture in C- and Al-free Fe-3%Si-0.1%Mn-0.002%S electrical steel. E. Oh, N. Heo and Y. Koo.
1. POSTECH, Pohang, Gyeongbuk, The Republic of Korea

WEDNESDAY GRAND BALLROOM
AFTERNOON 2:30

Session DU
MAGNETIC SENSORS II
(Poster Session)
Joseph Davies, Chair
NVE Corporation, Eden Prairie, MN

1. Department of Engineering, University of Perugia, Perugia, Italy


DU-03. Analysis of thin-film magnetoimpedance behavior at low MHz region based on domain wall equation and bias susceptibility theory. C. Sumida, H. Kikuchi, H. Uetake, S. Oe, S. Yabukami, S. Hashi, K. Ishiyama.
1. Iwate University, Morioka, Japan; 2. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 3. Tohoku-Gakuin University, Tagajo, Japan

1. Iwate University, Morioka, Japan; 2. Tohoku-Gakuin University, Tagajo, Japan

1. National Institute of Research and Development for Technical Physics, Iasi, Romania
DU-06. Real-time brain activity measurement and signal processing system using highly sensitive MI sensor. K. Wang1 and T. Uchiyama1 1. Nagoya University, Nagoya, Japan; 2. Electrical Engineering, Nagoya University, Nagoya, Japan

DU-07. MI-based vibration sensor for non-invasive flow rate measurements. S. Corodeanu1, C. Hlenschi1, F. Borza1, H. Chiriac1, N. Lupu1 and T.A. Ovari1 1. National Institute of Research and Development for Technical Physics, Iasi, Romania

DU-08. Sub-nano Tesla Magnetic Imaging Based On Room-temperature Magnetic Flux Sensors With Vibrating Sample Magnetometry. Y. Adachi1 and D. Oyama1 1. Applied Electronics Laboratory, Kanazawa Institute of Technology, Shibuya-ku, Japan

DU-09. Magneto-optical Micromechanical Systems for Magnetic Field Mapping. A. Truong1 1. CEA, Grenoble, France

DU-10. Evaluation of Superficial Crack Depth Using Eddy Current Method with Magnetic Tunnel Junction. Z. Jin1, M. Abe1, K. Fujiwara1, M. Oogane1 and Y. Ando1 1. Applied Physics, Tohoku university, Sendai, Japan

DU-11. Thin resolver using the easy magnetization axis of the grain-oriented silicon steel as an angle indicator. J. Oshino1 and I. Sasada1 1. Applied Science for Electronics and Materials, Kyushu University, Kasuga, Japan

DU-12. Tunneling magnetoresistance biosensor for the detection of E. coli O157:H7 bacteria. Y. Wu1 1. Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, NingBo, China


DU-14. Giant Magnetostrictive Thin Film Pressure Sensor Based on Villari Effect. S. Yu1,2 and B. Wang1 1. Electrical Engineering, Hebei University of Technology, Tianjin, China; 2. Information Engineering, Renai College of Tianjin University, Tianjin, China


DU-16. Phase–sensitive dc magnetometer based on piezoelectric–magnetostrictive heterostructure. M. Zhang1 and S. Or1 1. Department of Electrical Engineering, The Hong Kong Polytechnic University, Kowloon, Hong Kong
Session DV
MAGNETIC INSTRUMENTATION AND CHARACTERIZATION II
(Poster Session)
Yaohua Liu, Co-Chair
Oak Ridge National Laboratory, Oak Ridge, TN
Claudia Stahl, Co-Chair
Max Planck Institute for Intelligent Systems, Stuttgart, Germany

DV-01. Magneto-electroluminescence in OLED Devices with Ferromagnetic Electrodes. N. Lee1, Y. Bae1, H. Jung2, C. Lee2 and T. Kim1 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

DV-02. Direct Imaging and Detection of Fast Magnetic Domain Behavior in Nanowires by Magnetic Domain Scope Method using Contact-scanning of Magnetic Recording Head with AC preamplifier. Y. Miyamoto1, M. Okuda1 and M. Kawana1 1. Science & Technology Research Labs., NHK (Japan Broadcasting Corporation), Tokyo, Japan

DV-03. Torque Magnetometry And Susceptometry Using Split-Beam Optomechanical Nanocavities. T. Firdous1,2, M. Wu3,4, N. Wu3,4, F. Fani Sani1,2, J. Losby1,2, P. Barclay3,4 and M. Freeman1,2 1. Department of Physics, University of Alberta, Edmonton, AB, Canada; 2. National Institute for Nanotechnology, Edmonton, AB, Canada; 3. Department of Physics and Astronomy, University of Calgary, Calgary, AB, Canada; 4. Institute for Quantum Science and Technology, University of Calgary, Calgary, AB, Canada


DV-07. Characterization of Magnetostriction and Delta-E Effect of FeGaB Thin Films Using Optical Technique. C. Dong1, H. Zhou1, M. Li1, Z. Wang1, X. Wang1, Y. Gao2 and N.X. Sun3 1. ECE, Northeastern University, Boston, MA; 2. Winchester Technologies, LLC., Burlington, MA; 3. Northeastern University, Boston, MA

DV-08. The Output Characteristic Of Cantilever-like Tactile Sensor Based On The Inverse-magnetostrictive Effect. L. Wan1 and B. Wang2 1. Hebei University of Technology, Tianjin, China; 2. Electrical Engineering, Hebei University of Technology, Tianjin, China

DV-09. Mechanical-magnetic-electric coupled behaviors for stress-driven Terfenol-D energy harvester. S. Cao1, J. Zheng1, B. Wang1, R. Pan1 and R. Zhao1 1. Hebei University of Technology, Tianjin, China

DV-10. Novel Mechanical Magnetometry of a Micron-sized Superconducting Ring. H. Choi1,2, Y. Kim1 and J. Choi1,2 1. Division of Physical Metrology, Korea Research Institute of Standards and Science, Daejeon, The Republic of Korea; 2. Nano science, University of Science and Technology, Daejeon, The Republic of Korea

DV-11. Thermoelectric Detection of Inclusions in Metallic Biomaterials by Magnetic Sensing. H. Carreon1 1. Universidad Michoacana, Morelia, Mexico

DV-12. Beamline I21 – Resonant Inelastic X-ray Scattering (RIXS) at Diamond Light Source. K. Zhou1, A. Walters1 and M. Garcia-Fernandez2 1. Physical Science, Diamond Light Source Ltd, Didcot, United Kingdom

DV-13. Control of relaxation time by self-synchronization on a spin torque oscillator. S. Tsunegi1,2, E. Grimaldi2, R. Lebrun2, H. Kubota1, K. Yakuishi2, J. Grollier2, A. Fukushima1, S. Yuasa1 and V. Cross1 1. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Palaiseau, France; 2. Unité Mixte de Physique CNRS/Thales, Palaiseau, France

DV-14. Tilt Angle Dependence of the Modulated Interference Effects in Photo-Elastic Modulators. M. Talukder1 and W.J. Geerts2 1. Physics, Texas State University, Austin, TX; 2. Physics, Texas State University, San Marcos, TX

DV-15. Magnetoelectric intrinsic gradiometer with high sensitivity and high ambient noise rejection. M. Zhang1 and S. Or1 1. Department of Electrical Engineering, The Hong Kong Polytechnic University, Kowloon, Hong Kong
Session DW

HYPERTHERMIA, MRI, AND OTHER BIO-ASSAYS II

(Poster Session)

Cindi Dennis, Chair
NIST, Gaithersburg, MD

M. Eizadi Sharifabad1, T. Mercer2 and T. Sen1 1. Centre for Materials Science, University of Central Lancashire, Preston, United Kingdom; 2. Jeremiah Horrocks Institute for Mathematics. Physics & Astrophysics, University of Central Lancashire, Preston, United Kingdom

DW-03. Experimental Ex-Vivo Validation Of PMMA-Based Bone Cements Loaded With Magnetic Nanoparticles Enabling Hyperthermia Of Metastatic Bone Tumors. M. Harabech1, N.R. Kiselovs2, W. Maenhoudt2, G. Crevecoeur1, D. Van Roost2 and L. Dupré1 1. Ghent University, Zwijnaarde - Ghent, Belgium; 2. Ghent University Hospital, Ghent, Belgium

DW-04. Magnetic, Structural, And Magnetocaloric Properties Of Ni-Al And Ni-Si Binary Alloys For Self-Controlled Hyperthermia Applications. S. Pandey1, A. Quetz1, A. Aryal1, I. Dubenko1, D. Mazumdar1, S. Studler2 and N. Ali1 1. Physics, Southern Illinois University, Carbondale, IL; 2. Physics, Louisiana State University, Baton Rouge, LA

DW-05. Withdrawn

DW-06. Frequency Dependence of Initial Heat Generation in Magnetite Nanoparticles. S. Yoon1, C. Kim2, H. Choi2 and J. Choi2 1. Dept. of Physics, Gunsan National University, Gunsan, The Republic of Korea; 2. Department of Physics, Kookmin University, Seoul, The Republic of Korea

DW-07. Tissue temperature analysis in Magnetic Hyperthermia with Fe-Cr-Nb-B magnetic particles. L. Astefanoaei1, H. Chiriac2 and A. Stancu1 1. Department of Physics, Alexandru Ioan Cuza University, Iasi, Romania; 2. National Institute of R&D for Technical Physics, Iasi, Romania

DW-08. Mossbauer study on silica magnetite composite microspheres with different annealing temperature. Y. Zhu1, W. Chao1, Q. Chen1, X. Zhou1, J. Yue1, H. Yuan1, Y. Yin1, H. Huang1,2, Y. Zhai1,2, B. You1 and J. Du3 1. Department of Physics, Southeast University, Nanjing, China; 2. School of Material Science and Engineering, Southeast University, Nanjing, China; 3. National Laboratory of Solid Microstructures, Nanjing University, Nanjing, China

DW-09. Relationship between Ion Concentration of Ferrofluid and Response Signals of Magnetic Nanoparticles against AC magnetic fields. S. Oda1 and Y. Kitamoto1 1. Innovative and Engineered Materials, Tokyo Institute of Technology, Yokohama, Japan
DW-10. Effects of Magnetic Stimulation on K-Ras-Driven Lung Cancer in Mice. N. Zhang1,2, S. Wang1, C. Zhang2 and S. Wang1 1. State Key Laboratory of Electrical Insulation and Power Equipment, Faculty of Electrical Engineering, Xi’an Jiaotong University, Xi’an, China; 2. Oncology, Johns Hopkins University School of Medicine, Baltimore, MD

DW-11. Instrumentation for the Development of Ultra-Low Field Magnetic Resonance Contrast Agents. X. Yin1,2, Y. Nakashima1,3, M.A. Boss1, J. Mates1, C. Clickner1, J. Brown1, E. Elliott1,4, S. Liou2 and J. Moreland1 1. National Institute of Standards and Technology, Boulder, CO; 2. Department of Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE; 3. Kyushu University, Fukuoka, Japan; 4. William G. Lowrie Department of Chemical and Biomolecular Engineering, The Ohio State University, Columbus, OH

DW-12. Spatial resolution and maximum compensation factor of two-dimensional selective excitation pulses for MRI of objects containing conductive implants. T. Woo1, D. Kim1, T. Someya1 and M. Sekino1 1. The University of Tokyo, Tokyo, Japan

DW-13. Effect of Varying MRI Data on Volume Stimulated in Brain during Transcranial Magnetic Stimulation. F. Syeda1, E.G. Lee2, D.C. Jiles3 and R.L. Hadimani1,3 1. Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA; 2. Department of Psychiatry, Massachusetts General Hospital, Boston, MA; 3. Department of Electrical and Computer Engineering, Iowa State University, Ames, IA

DW-14. Transcranial Magnetic Stimulation- Coil Design with Improved Focality. P. Rastogi1, E.G. Lee3, R. Hadimani2 and D.C. Jiles4 1. Department of Electrical and Computer Engineering, Iowa State University, Ames, IA; 2. Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA; 3. Department of Psychiatry, Massachusetts General Hospital, Harvard Medical School, Boston, MA

DW-15. Superparamagnetic-particles Mediated Quantification Of Biomarkers. M. Rivas1, D. Lago-Cachón1, A. Moyano1,2, M. Salvador1,2, J.C. Martínez-García1, J.A. García1, M. Oliveira-Rodríguez2, M. Blanco-López2 and J. Rivas3 1. Department of Physics, University of Oviedo, Gijón, Spain; 2. Department of Physical and Analytical Chemistry, University of Oviedo, Oviedo, Spain; 3. Applied Physics, Univ. Santiago de Compostela, Santiago de Compostela, Spain
WEDNESDAY MARDI GRAS A-E
EVENING
6:00

Session ZA
EVENING SESSION: NEUROMORPHIC COMPUTING
Peter Fischer, Chair
Lawrence Berkeley National Laboratory, Berkeley, CA

6:00
Introductions and Best Student Presentation Award

6:10
ZA-01. Neuromorphic Computing. (Invited) I.K. Schuller1 1. Physics and Center for Advanced Nanoscience, UCSD, La Jolla, CA

6:40
ZA-02. Nonvolatile Brain-Inspired VLSIs Based on CMOS/MTJ Hybrid Technology for Ultralow-Power Performance and Compact Chip. (Invited) T. Endoh1 and Y. Ma1 1. Tohoku University, Sendai, Japan

7:10
ZA-03. Spintronic nanodevices for bio-inspired computing. (Invited) J. Grollier1 1. Unité Mixte CNRS/Thales, Palaiseau, France

THURSDAY MARDI GRAS A-E
MORNING
8:30

Session EA
SYMPOSIUM: TERAHERTZ SPINTRONICS
Markus Münzenberg, Chair
Ernst-Moritz-Arndt University, Greifswald, Germany

8:30
EA-01. Ultrafast spintronics with terahertz radiation. (Invited) T. Kampfrath1 and T. Seifert1 1. Fritz Haber Institute, Max Planck Society, Berlin, Germany

9:06
EA-02. THz-driven Ultrafast Spin-Lattice Scattering In Metallic Thin Films. (Invited) S. Bonetti1, M. Hoffmann2, M. Sher2, Z. Chen3, M. Hudl1, S. Kovaev4, N. Awari4, B. Green4, M. Gensch1, S. Yang2, M. Samant2, S.S. Parkin6 and H. Durr2 1. Department of Physics, Stockholm University, Stockholm, Sweden; 2. SLAC National Accelerator Laboratory, Menlo Park, CA; 3. Physics, Stanford University, Stanford, CA; 4. HZDR, Dresden, Germany; 5. IBM Almaden Research Center, San Jose, CA; 6. Max Planck Institute for Microstructure Physics, Halle (Saale), Germany
EA-03. THz Magnetization Dynamics and Transient Spin Currents. (Invited) L. Bocklage\textsuperscript{1,2} 1. Photon Science, Deutsches Elektronen-Synchrotron DESY, Hamburg, Germany; 2. The Hamburg Centre for Ultrafast Imaging, Hamburg, Germany

10:18

EA-04. Theory of THz magnons in ferrimagnets and spin-pumping. (Invited) J. Barker\textsuperscript{1} and G.E. Bauer\textsuperscript{2,3} 1. IMR, Tohoku University, Sendai, Japan; 2. IMR & WPI-AIMR, Tohoku University, Sendai, Japan; 3. Kavli Institute of NanoScience, Delft University of Technology, Delft, Netherlands

10:54

EA-05. Ultrafast magnetization dynamics in ferromagnetic thin films induced by a THz pulse – from the weak to the strong-field regime. (Invited) C. Hauri\textsuperscript{1} 1. SwissFEL, Paul Scherrer Institute, Hunzenschwil, Switzerland

MARDI GRAS F-H

THURSDAY MORNING

Session EB

MAGNONICS III

Haiming Yu, Chair
Beihang University, Beijing, China

8:30

EB-01. Magnetization oscillation and waves excited by the nonlocal spin injection. (Invited) V.E. Demidov\textsuperscript{1}, S. Urazhdin\textsuperscript{2} and S. Demokritov\textsuperscript{1} 1. University of Muenster, Muenster, Germany; 2. Emory University, Atlanta, GA

9:06

EB-02. Spin wave caustics driven by the Dzyaloshinskii-Moriya interaction and spin currents. J. Kim\textsuperscript{1}, R. Stamps\textsuperscript{2} and R.E. Camley\textsuperscript{3} 1. Centre for Nanoscience and Nanotechnology (C2N), CNRS, Univ. Paris-Sud, Universite Paris-Saclay, 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, Colorado Springs, CO

9:18

EB-03. Doppler Effect In A Solid Medium: Spin Wave Emission By A Precessing Domain Wall In Spin Current. H. Xia\textsuperscript{1}, J. Chen\textsuperscript{1}, X. Zeng\textsuperscript{2} and M. Yan\textsuperscript{1} 1. Physics, Shanghai University, Shanghai, China; 2. Mathematics, Shanghai University, Shanghai, China


EB-06. All-electrical broadband phase-resolved spectroscopy of propagating spin waves in micrometer sized thin magnetic films. F. Ciubotaru1,2, T. Devolder3, M. Manfrini1, C. Adelmann1 and I.P. Radu1 1. imec, Leuven, Belgium; 2. KU Leuven, Leuven, Belgium; 3. University Paris-Sud, Orsay, France

EB-07. Withdrawn

EB-08. Voltage Induced Mechanical/Spin Wave Propagation Over Long Distances. C. Chen1, C. Liang1, G. Carman1 and A.E. Sepulveda1 1. Department of Mechanical and Aerospace Engineering, UCLA, Los Angeles, CA

EB-09. The mechanical back-action of a spin-wave resonance in a magnetoelastic thin film on a surface acoustic wave. P. Gowtham1, D. Labanowski2 and S. Salahuddin1 1. EECS, University of California, Berkeley, CA; 2. University of California, Berkeley, CA

EB-10. Spin wave propagation in a non-uniform temperature profile in a yttrium iron garnet (YIG) thin film. G.A. Riley3, C.I. Ordóñez-Romero2 and K. Buchanan1 1. Department of Physics, Colorado State University, Fort Collins, CO; 2. Solid State, Physics Institute, UNAM, Mexico City, Mexico
11:06

EB-12. Magnon-polaritons at milli-Kelvin temperatures.
M.P. Weides1,2, I. Boventer1, J. Krause2, M. Pfirrmann2, A. Schneider2 and M. Kläui1. 1. Physics, Johannes Gutenberg - University Mainz, Mainz, Germany; 2. Institute of Physics, Karlsruhe Institute of Technology, Karlsruhe, Germany

11:18


THURSDAY

MORNING

8:30

Session EC
MAGNETIZATION DYNAMICS II: DOMAINS AND ULTRAFAST EFFECTS
Grégoire de Loubens, Chair
CEA Saclay, Gif-sur-Yvette, France

8:30

EC-01. Control of Magnetic States in Metallic Ferromagnets with Surface Acoustics Waves. N. Statuto1, J. Hernández Ferras1, M. Foerster2, S. Finizio3, A. Hernández-Minguez2, S. Lendinez4,5, P. Santos6, J. Fontcuberta7, M. Kläui8, L. Aballe5 and F. Macià7,1. 1. Condensed Matter Physics Department, University of Barcelona, Barcelona, Spain; 2. Physics, Johannes Gutenberg - University Mainz, Mainz, Germany; 3. SIN, Paul Scherrer Institut, Villigen PSI, Switzerland; 4. Materials Science Division, Argonne National Laboratory, Lemont, IL; 5. ALBA synchrotron light facility, Cerdanyola del Valles, Spain; 6. Paul-Drude-Institut für Festkörperphysik, Berlin, Germany; 7. Institut de Ciencia de Materials de Barcelona (ICMAB-CSIC), Bellaterra, Spain

8:42

EC-02. Domain wall velocity shift in the high field regime induced by vertical Bloch line dynamics and disorder. M. Voto1, L. Lopez-Diaz1 and L. Torres1. 1. Dept. Física Aplicada, Universidad de Salamanca, Salamanca, Spain
EC-03.  High-Frequency Magnetization Dynamics of Individual
Atomic-Scale Magnets. S. Krause1, A. Sonntag1, I. Hermenau1,
J. Friedlein1 and R. Wiesendanger1 1. Department of Physics,
University of Hamburg, Hamburg, Germany

9:06

EC-04.  Crafting reconfigurable magnetic nanopatterns via
thermally assisted scanning probe lithography. (Invited)
E. Albisetti1, D. Petti1, M. Pancaldi4, M. Madami2, S. Tacchi2,3,2,
J. Curtis4, W.P. King4, A. Papp4, G. Csaba4, W. Porod5,2,
P. Vavassori4, E. Riedo3 and R. Bertacco2 1. Dipartimento di
Fisica, Politecnico di Milano, Milano, Italy; 2. Dipartimento di
Fisica e Geologia, Università di Perugia, Perugia, Italy;
3. University of Notre Dame, South Bend, IN; 4. CIC
nanoGUNE Consolider, San Sebastian, Spain; 5. Istituto
Officina dei Materiali del CNR (CNR-IOM), Perugia, Italy;
6. School of Physics, Georgia Institute of Technology, Atlanta,
GA; 7. Department of Mechanical Science and Engineering,
University of Illinois Urbana-Champaign, Urbana, IL;
8. CUNY-Advanced Science Research Center and City College
New York, City University of New York, New York, NY

9:42

EC-05.  Angular Dependent Magnetization Dynamics of Kagome
Artificial Spin Ice Incorporating Topological Defects.
V.S. Bhat1, F. Heimbach2, I. Stasinopoulos2 and D. Grundler3
1. Materials Science and Engineering, Ecole Polytechnique
Fédérale de Lausanne, Lausanne, Switzerland; 2. Physik
Department E10, Technische Universität München, Garching,
Germany

9:54

EC-06.  Stochastic Dynamics Of Strongly-Bound Magnetic Vortex
Pairs. A. Bondarenko1,2, E. Holmgren1, B.C. Koop1,2,
T. Descamps1, B. Ivanov2 and V. Korenivski3 1. Nanostructure
Physics, KTH Royal Institute of Technology, Stockholm,
Sweden; 2. Institute of Magnetism, Kyiv, Ukraine

10:06

EC-07.  Characterizing the magnetization processes in magnetic
wires with dynamic FORC diagrams. D. Cimpoesu1,2,
I. Dumitru1 and A. Stancu2 1. Physics, Alexandru Ioan Cuza
University of Iasi, Iasi, Romania; 2. Department of Physics,
Alexandru Ioan Cuza University of Iasi, Iasi, Romania
EC-08. Pump-Probe Holographic Imaging of Nanoscale Magnetic Domains. S. Schleitzer1, L. Müller1, A. Philippi-Kobs1,2, W. Roseker1, C. Gutt2, M.H. Berntsen3,4, B. Pfau1, D. Weder1, J. Geilhufe3, C. von Korff Schmising4, B. Vodungbo5, J. Gautier6, K. Li1, G. Malinowski2, B. Tudu1, F. Capotondi8, E. Pedersoli8, M. Kiskinova10, J. Lüning9, S. Eisebitt4,7 and G. Grübel1,5 1. Deutsches Elektronen-Synchrotron (DESY), Hamburg, Germany; 5. The Hamburg Centre of Ultrafast Imaging, Hamburg, Germany; 6. KTH Royal Institute of Technology, Kista, Sweden; 7. Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Berlin, Germany; 8. Laboratoire d’Optique Appliquée, Palaiseau, France; 9. Laboratoire de Chimie Physique Matière et Rayonnement, Paris, France; 10. Elettra-Sincrotrone Trieste, Trieste, Italy

EC-09. Indirect excitation of ultrafast demagnetization: the role of hot electrons. G. Malinowski1, N. Bergeard2, T. Ferte2, A. Hillion1, M. El Hadri1, M. Huhn3, C. Boeglin2 and S. Mangin1 1. Institut Jean Lamour - CNRS - Université de Lorraine, Vandoeuvre-lès-Nancy, France; 2. Institut d’Optique, Palaiseau, France


EC-11. Ultrafast Laser Induced Spin Dynamics in RE-TM Alloys in Magnetic Fields up to 30T. J.J. Becker1, A. Tsukamoto2, A. Kirilyuk1, J.C. Maan3, T. Rasing1, P.C. Christianen3 and A. Kimel1 1. Institute for Molecules and Materials, Radboud University, Nijmegen, Netherlands; 2. Electronic Engineering, College of Science and Technology Nihon University, Funabashi, Japan; 3. High Field Magnet Laboratory (HFML - EMFL), Radboud University, Nijmegen, Netherlands


THURSDAY La Galerie 3
MORNING 8:30

Session ED
MULTIFERROIC THIN FILMS, TRANSPORT AND MAGNETOELECTRIC COMPOSITES
Brandon Howe, Chair
Air Force Research Lab, Wright Patterson Air Force Base, OH

8:30

9:06
ED-02. Voltage control of two magnon scattering and an enhanced ME coupling in multiferroic heterostructures. X. Xue, Z. Zhou, M. Zhu, W. Ren, Z. Ye and M. Liu. 1. School of Electrical and Information Engineering, Xian Jiaotong University, Xian, China; 2. Energy Systems Division, Argonne National Laboratory, Lemont, IL; 3. Department of Chemistry and 4D LABS, Simon Fraser University, Burnaby, BC, Canada

9:18
ED-03. Tuning of magnetic properties of ferromagnetic and ferroelectric coupled composites. A. Farheen, G. Thirupathi and R. Singh. 1. School of Physics, University of Hyderabad, Hyderabad, India

9:30
ED-04. Spin dependent scattering in non-magnetic metallo-molecular interfaces. F. Al Ma'Mari, T. Moorsom, A. Shengelaya, D. Daraselia, J. Japaridze, F. Herling, B. Hickey and O. Cespedes. 1. Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 2. Physics, Sultan Qaboos University, Muscat, Oman; 3. Department of Physics, Faculty of Exact and Natural Sciences, Tbilisi State University, Tbilisi, Georgia
ED-05. CoFe₂/Al₂O₃/PMNPT multiferroic heterostructures by atomic layer deposition. Z. Zhou¹, G. Grocke¹, A. Yanguas-Gil¹, X. Wang², Y. Gao², N.X. Sun², B.M. Howe¹ and X. Chen¹. 1. Energy Systems Division, Argonne National Laboratory, Lemont, IL; 2. ECE, Northeastern University, Boston, MA; 3. Materials and Manufacturing Directorate, Air Force Research Lab, Wright Patterson Air Force Base, OH

ED-06. Ionic Liquid Gating Control of Interfacial Magnetism. S. Zhao¹, Z. Zhou¹,², B. Peng¹, Q. Yang¹, Y. Zhang¹, W. Ren¹, Z. Ye¹,² and M. Liu¹. 1. School of Electrical and Information Engineering, Xian Jiaotong University, Xian, China; 2. Energy Systems Division, Argonne National Laboratory, Chicago, IL; 3. Department of Chemistry and 4D LABS, Simon Fraser University, Burnaby, BC, Canada


ED-08. Imaging of magnetoelectric coupling mediated by entangled ferroelastic domain and polar domain walls in non-polar materials. B. Casals¹, A. Casiraghi², D. López González², S.J. Hämäläinen², V. Skumryev¹,³, V. Laukhin¹,³, X. Granados¹, E. K. H. Salje², J. Fontcuberta¹, E. K. H. Salje⁴, J. Fontcuberta¹, S. van Dijken² and G. Herranz¹. 1. Institut de Ciència de Materials de Barcelona ICMAB-CSIC, Bellaterra, Spain; 2. NanoSpin, Department of Applied Physics, Aalto University School of Science, FI-00076 Aalto, Finland; 3. ICREA, Barcelona, Spain; 4. Department of Earth Sciences, University of Cambridge, Cambridge, United Kingdom

ED-09. Exchange bias in Ba₀.₄Sr₀.₆TiO₃/La₀.₇Sr₀.₃MnO₃ heterostructures. S. Singamaneni²,³, J.T. Prater¹ and J. Narayan¹. 1. Materials Science and Engineering, North Carolina State University, Raleigh, NC; 2. Physics, University of Texas, El Paso, El Paso, TX

Large electric-field control of perpendicular magnetic anisotropy in strained \([\text{Co/Ni}] / \text{PZT}\) heterostructures.

D.B. Gopman, C. Dennis, Y.L. Iunin, M. Staruch, P. Finkel, and R. Shull

1. Materials Science & Engineering Division, National Institute of Standards and Technology, Gaithersburg, MD; 2. Materials Science and Technology, Naval Research Laboratory, Washington, DC; 3. Institute of Solid State Physics, Russian Academy of Sciences, Chernogolovka, Russian Federation

Withdrawn

N-type carrier-induced ferromagnetic semiconductor and electrical control of ferromagnetism by wavefunction engineering.  

(Invited) L. Anh, P. Nam Hai, Y. Kasahara, Y. Iwasa, and M. Tanaka

1. Department of Electrical Engineering and Information Systems, University of Tokyo, Tokyo, Japan; 2. Department of Physical Electronics, Tokyo Institute of Technology, Tokyo, Japan; 3. Center for Spintronics Research Network, University of Tokyo, Tokyo, Japan; 4. QPEC & Department of Applied Physics, University of Tokyo, Tokyo, Japan; 5. Department of Physics and Astronomy, Kyoto University, Kyoto, Japan; 6. RIKEN Center for Emergent Matter Science, Wako, Japan

Spin-Orbitronics with Ferroelectric Rashba


1. Department of Physics, Politecnico di Milano, Milano, Italy; 2. CNR-SPIN, Consiglio Nazionale delle Ricerche, Chieti, Italy; 3. Universitàt Wuerzburg, Wuerzburg, Germany; 4. Unité Mixte de Physique, CNRS, Thales, Palaiseau, France; 5. INAC–SP2M, Université Grenoble Alpes and CEA, Grenoble, France; 6. Unité Mixte de Physique CNRS Thales, CNRS, Palaiseau, France; 7. Paul-Drude-Institut für Festkörperelektronik, Berlin, Germany; 8. CNRS/Thales, University Paris-Sud, Palaiseau, France
9:03. Electric field control of magnetic skyrmion bubbles nucleation and annihilation. A. Bernard-Mantel, M. Schott, J. Vogel, S. Pizzini, L. Ranno, H. Bea and D. Givord. 1. Institut Néel, CNRS, Grenoble, France; 2. Institut Néel, Univ. Grenoble Alpes, Grenoble, France; 3. SPINTEC, CNRS, Grenoble, France; 4. INAC-SPINTEC, CEA, Grenoble, France.

9:30. Direct Probe of Voltage-induced Fe Oxidation Effects on Spin Transport Property of the Fe/ZnO Ferromagnet-Semiconductor Device. S. Chang, S. Lo, P. Chang, W. Lin and Y. Tseng. 1. Materials Science & Engineering, National Chiao-Tung University, Hsin-Chu, Taiwan; 2. Department of Physics, National Taiwan Normal University, Taipei, Taiwan; 3. National Taiwan Normal University, Taipei, Taiwan.


9:54. Electric Field Control of Magnetism Direction in Ultrathin FeRh/MgO Bilayers across Metamagnetic Transition. N. Kioussis, G. Zheng, S. Ke, M. Mao, J. Kim and R. Ramesh. 1. Physics, California State University Northridge, Northridge, CA; 2. School of Physics Science and Engineering, Tongji University, Shanghai, China; 3. Materials Sciences Division, University of California, Berkeley, CA.


EE-10. Deterministic switching of PMA by electric field control of spin reorientation transition in ultrathin (Co/Pt)/PMN-PT (011) heterostructures. B. Peng1, T. Nan2, Q. Yang1, X. Wang2, Y. Zhang1, S. Zhao1, W. Ren1, Z. Ye1,2, N.X. Sun1,2 and M. Liu1 1. Electronic Materials Research Laboratory, Key Laboratory of the Ministry of Education & International Center for Dielectric Research, Xi’an Jiaotong University, Xi’an, China; 2. Electrical and Computer Engineering Department, Northeastern University, Boston, MA; 3. Department of Chemistry and 4D LABS, Simon Fraser University, Burnaby, BC, Canada

10:54

EE-11. Influence of ultrathin Cr insertion on perpendicular magnetic anisotropy and its electric field induced change at Fe/MgO interface. A. Koziol-Rachwal1,2, T. Nozaki1, V. Zayets3, H. Kubota1, A. Fukushima1, S. Yuasa1 and Y. Suzuki1,3 1. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan; 2. Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, Kraków, Poland; 3. Graduate School of Engineering Science, Osaka University, Toyonaka, Japan

11:06

EE-12. Tuning Voltage Induced Precessional Switching in CoFeB-MgO Perpendicular Magnetic Tunnel Junctions. M. Xu1, H. Almasi1, C. Bi1, Y. Xu1 and W. Wang1 1. Department of Physics, University of Arizona, Tucson, AZ

11:18

EE-13. Voltage control of magnetic properties in BaTiO3 heterostructures. O. Rousseau1, R. Weil1, S. Rohart1 and A. Mougin1 1. CNRS, Univ. Paris-Sud, Universite Paris-Saclay, Laboratoire de Physique des Solides, Orsay, France

THURSDAY STUDIO 1-2 MORNING

8:30

Session EF

MAGNETORESISTANCE I: GMR AND TMR

Olaf van ’t Erve, Chair

Naval Research Laboratory, Washington, DC

8:30

EF-01. Stability of a highly spin polarized surface resonance of Co2MnSi at spin-valve interfaces. C. Lidig1, A. Kronenberg1, A. Hloskovsky2, H. Elmers1, J.G. Schoenhense1, M. Kläui1 and M. Jourdan1 1. Institut für Physik, Johannes Gutenberg Universität Mainz, Mainz, Germany; 2. Deutsches Elektronen-Synchrotron DESY, Hamburg, Germany
EF-02. Temperature and Spacer-layer Thickness Dependence in Co0.7Fe0.3Mn0.3Si/Ag-Mg/Co0.7Fe0.3Mn0.3Si CPP-GMR Devices. T. Kubota1,2, Y. Ina1, Z. Wen1 and K. Takanashi1,2 1. Institute for Materials Research, Tohoku University, Sendai, Japan; 2. Center for Spintronics Research Network, Tohoku University, Sendai, Japan

EF-03. Magnetotransport properties in the magnetic junctions with a Cu(In0.8Ga0.2)Se2 semiconductor spacer and Co0.7Fe(Ga0.5Ge0.5) ferromagnetic electrodes. K. Mukaiyama1, K. Masuda1, S. Kasai1,2, Y. Takahashi1, P. Cheng1, I. Ikhtia1, Y. Miura1, T. Ohkubo1, S. Mitani1 and K. Hono1 1. Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science (NIMS), Tsukuba, Japan; 2. Center for Emergent Matter, RIKEN, Wako, Japan; 3. Electrical Engineering and Electronics, Kyoto Institute of Technology, Kyoto, Japan

EF-04. Heusler Alloys with bcc Tungsten Seed Layers for GMR Junctions. W.J. Frost1 and A. Hirohata2 1. Department of Electronics, University of York, York, United Kingdom; 2. University of York, York, United Kingdom

EF-05. Fe3MnGe: A comparison of bulk and thin film samples. B.D. Clark1, S. Keshavarz1, N. Naghibolashrafi1, R. Martens1, W. Butler1, P.R. LeClair1, A. Gupta1, G. Mankey1 and S. Gupta1 1. Center for Materials for Information Technology, University of Alabama, Tuscaloosa, AL

EF-06. Giant spin-valve effect in (Ga,Fe)Sb/(In,Fe)As spin diodes. T. Otsuka1, Y. Arakawa1, M. Tanaka2,3 and P. Nam Hai1 1. Department of Electrical and Electronic Engineering, Tokyo Institute of Technology, Tokyo, Japan; 2. Department of Electrical Engineering and Information Systems, Univ. of Tokyo, Tokyo, Japan; 3. Center for Spintronics Research Network, The University of Tokyo, Tokyo, Japan

EF-07. Deposition and Spin Polarization Measurement of Fe3N (001) Thin Film on Ag and Cr Underlayer. H. Li1, X. Li1, D. Zhang2, T. Chen1 and J. Wang2 1. University of Minnesota, Minneapolis, MN; 2. Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN; 3. Physics, Arizona State University, Tempe, AZ

EF-08. Enhancement in Low-field Sensitivity of TMR in 2D Co/AlF Granular Films. Y. Cao1, Y. Zhang1, S. Ohnuma1,2, N. Kobayashi2 and H. Masumoto1 1. Frontier Research Institute for Interdisciplinary Sciences, Tohoku University, Sendai, Japan; 2. Research Institute for Electromagnetic Materials, DENJIKEN, Sendai, Japan
EF-09. Developing perpendicular magnetic tunnel junctions with $L_10$-phase FePd free layer. D. Zhang, K. Schliep, P. Quarterman, Y. Lv, H. Li, J. Chen, Z. Zhao, X. Chao, M. Jamali and J. Wang. 1. Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN; 2. Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN


EF-11. Spin Scattering in Pt and at its Interfaces. R. Freeman, A. Zhoulud and S. Urazhdin. 1. Physics, Emory University, Decatur, GA

EF-12. Continuous control of spin polarization using a magnetic field. J. Gifford, G. Zhao, B. Li, B. Tracy, J. Zhang, D. Kim, D. Smith and T. Chen. 1. Physics, Arizona State University, Tempe, AZ

EF-13. Theory of spin loss at metallic interfaces. K. Belashchenko, A. Kovalev and M. van Schilfgaarde. 1. Department of Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE; 2. Department of Physics, King’s College London, London, United Kingdom


Session EG
ELEME NTALLY MODIFIED INTERMETALLICS
Semih Ener, Chair
Technische Universität Darmstadt, Darmstadt, Germany

8:30
EG-01. 4f electronic clouds in rare-earth based magnets: first-principles study with Wannier functions. H. Tsuchiura¹, M. Mišina², T. Yoshioka¹ and P. Novák³. ¹. Department of Applied Physics, Tohoku University, Sendai, Japan; ². Institute of Physics of ASCR, Prague, Czech Republic

8:42
EG-02. Role of granular microstructure on coercivity of nano- and microcrystalline Nd-Fe-B melt-spun magnets. J. Fidler¹,², G. Zickler¹,² and A. Asali¹. ¹. TU Vienna, Vienna, Austria; ². Institute of Solid State Physics, TU Vienna, Vienna, Austria

8:54
EG-03. Enhanced coercivity related to the microstructure of the sintered Nd-Fe-B magnets with Ho addition. J. Di¹, S. Guo¹, L. Chen¹, G. Ding¹, K. Chen¹, J. Song¹ and A. Yan¹. ¹. Ningbo Institute of Material Technology and Engineering, Chinese Academy of Sciences, Ningbo, China

9:06
EG-04. The Status of Chines Permanent Magnet Industry and R&D Activities. S. Dong¹ and W. Li¹. ¹. Central Iron & Steel Research Institute, Beijing, China

9:18
EG-05. Permanent magnets based on exchange coupled nanocomposites. V. Nachbaur¹, F. Ayadi¹, N. Maat¹, R. Larde¹, J. Juraszek¹ and J. Le Breton¹. ¹. Normandie Univ. UNIROUEN, INSA Rouen, CNRS, Groupe de Physique des Matériaux, 76000 Rouen, France

9:30
EG-06. Influence of cooling rate on structural and magnetic properties of (Fe₇₈Nb₈B₁₄)₁₋ₓTbx alloys. G. Ziolkowski¹, A. Chrobak¹, J. Klimontko¹, D. Chrobak³ and R. Nirina². ¹. Institute of Physics, University of Silesia, Katowice, Poland; ². Institut des Molécules et des Matériaux du Mans, Université du Maine, Le Mans, France; ³. Institute of Materials Science, University of Silesia, Chorzów, Poland

9:42
EG-07. Where are Cobalt and Gallium in a Nd-Fe-Co-B Sintered Magnet? H. Chen¹, F. Yun¹, Z. Ye², S. Ringer³ and R. Zheng¹. ¹. School of Physics, The University of Sydney, Sydney, NSW, Australia; ². DMEGC, Dongyang, China; ³. Australian Institute for Nanoscale Science and Technology (AINST), The University of Sydney, Sydney, NSW, Australia
9:54

EG-08. Direct observation of reversed magnetic domains induced by Cu and Al additions in a sintered Nd-Fe-B magnet. H. Chen1, Y. Yao2, F. Yun1, S. Ringer2 and R. Zheng1 1. School of Physics, The University of Sydney, Sydney, NSW, Australia; 2. Electron Microscope Unit, Mark Wainwright Analytical Centre, The University of New South Wales, Sydney, NSW, Australia; 3. Australian Institute for Nanoscale Science and Technology (AINST), The University of Sydney, Sydney, NSW, Australia

10:06

EG-09. Magnetization reversal in Dy-diffused permanent magnets. J. Fischbacher1, L. Exl2, T. Schrefl1, H. Sepehri-Amin3, T. Ohkubo4 and K. Hono5 1. Danube University Krems, Wiener Neustadt, Austria; 2. Vienna University, Vienna, Austria; 3. Magnetic Materials Unit, NIMS, Tsukuba, Japan

10:18

EG-10. Coercivity enhancement in Nd-Fe-B(Nb-Cu) nanocrystalline alloys by grain boundary infiltration. A. Martin-Cid1, D. Salazar1, J.S. Garitaonandia1, R. Madugundo1, J.M. Barandiaran1,3 and G. Hadjipanayis2 1. BCMaterials, Derio, Spain; 2. Physics and Astronomy, University of Delaware, Newark, DE; 3. University of the Basque Country, Bilbao, Spain

10:30

EG-11. Enhancement of Coercivity in Sm( CoFeCuZr) Permanent Magnets by Doping Cu Powders. Y. Wang1, M. Yue1, S. Su1, D. Zhang1 and W. Liu1 1. College of Materials Science and Engineering, Beijing University of Technology, Beijing, China

10:42

EG-12. Structure and Magnetic Properties of (Nd,Tb)2Fe14B Nanoflakes Prepared by Sulfactant-assisted Ball Milling. H. Li1, M. Yue1, Y. Li1, W. Liu1, D. Zhang1 and Q. Lu1 1. College of Materials Science and Engineering, Beijing University of Technology, Beijing, China

10:54


11:06

EG-14. Mechanical anisotropy in Sm( CoFe0.06Cu0.06Zr0.7)7.68 (x=0.020–0.035) magnets. F. Yanping1,2, L. Liu1, Z. Liu1, M. Li1, C. Wang1,3, Y. Sun1, D. Lee1,4 and A. Yan1 1. Province Key Laboratory of Magnetic Materials and Application Technology, Ningbo Institute of Material Technology and Engineering, Ningbo, China; 2. School of Material Science and Engineering, Chongqing University of Technology, Chongqing, China; 3. University of Science and Technology of China, HeFei, China; 4. University of Dayton, Dayton, OH
Session EH
MAGNETO-CALORIC MATERIALS II
Yaroslav Mudryk, Chair
Iowa State University, Ames, IA

8:30
L.M. Moreno-Ramírez, J.S. Blázquez, J. Law, V. Franco and A. Conde. 1. Condensed Matter Physics, Sevilla University, Sevilla, Spain

8:42
EH-02. Analysis of the thermal and magnetic hysteresis of Heusler type magnetocaloric alloys.
V. Franco, J.S. Blázquez, A. Conde, T. Gottschall, K.P. Skokov and O. Gutfleisch. 1. Condensed Matter Physics, Sevilla University, Sevilla, Spain; 2. FM, TU Darmstadt, Darmstadt, Germany

8:54
EH-03. Platinum induced stabilization of the tetragonal phase in epitaxial NiPtMnGa films.
L. Helmich, N. Teichert, F. Scheibef, R. Meckenstock, A. Gruenebohm, M. Acet and A. Huetten. 1. Physics Department, Center for Spinelectronic Materials and Devices, Bielefeld University, Bielefeld, Germany; 2. Faculty of Physics and CENIDE, University of Duisburg-Essen, Duisburg, Germany

9:06
N. Teichert and A. Huetten. 1. Department of Physics, Center for Spinelectronic Materials and Devices, Bielefeld University, Bielefeld, Germany

9:18
EH-05. The irreversible structural change in Mn_{1.1}Fe_{0.9}P_{0.8}Ge_{0.2}: A new magnetic driver?
X. Liu, D. Ryan, L. Cranswick, D. Liu, Y. Ming and Z. Altounian. 1. Physics Department, McGill University, Montreal, QC, Canada; 2. McGill University, Montreal, QC, Canada; 3. Canadian Neutron Beam Centre, Chalk River, ON, Canada; 4. Beijing University of Technology, Beijing, China

EH-07. Realization of room temperature magnetostriuctural transition and magnetocaloric/elastocaloric effects in NiMnGa alloys by isoelectronic substitution of In for Ga. J. Wang1, Q. Yu1, J. Liu1, T. Zhang1 and C. Jiang1. 1. School of Materials Science and Engineering, Beihang University, Beijing, China

EH-08. The role of intra-layer Mn-Mn distances in the metamagnetism of the CoMnSi compound. R. Kou1,2, J. Gao1, Y. Ren2, S.M. Heald2, B.L. Fisher3 and C. Sun2. 1. Key Laboratory of Electromagnetic Processing of Materials (Ministry of Education), Northeastern University, Shenyang, China; 2. Advanced Photon Source, Argonne National Laboratory, Westmont, IL; 3. Center for Nanoscale Materials, Argonne National Laboratory, Argonne, IL

EH-09. Effect of B-doping on the structure and magnetocaloric properties of plate-shaped La0.6Pr0.4Fe11.4Si1.6Hx sintered in high-pressure H2 atmosphere. N. Sun1. 1. School of Science, Shenyang Ligong University, Shenyang, China

EH-10. Exploring the hydrogen sorption kinetics in magnetocaloric La-Fe-Si structure via in-situ neutron diffraction. X. Hai1,2, C. Mayer2, V. Nassif1, F. Porcher1 and S. Miraglia1. 1. Condensed Matter and Functional Materials, Néel Institute, Grenoble, France; 2. Erasteel SAS, Paris, France; 3. Laboratoire Léon Brillouin, Gif sur Yvette, France

EH-11. Wide temperature range magnetocaloric effect in novel Gd2Fe14Si multiphase alloy. T.P. Rashid1, I. Curlik2, S. Ilkovic2, M. Reiffers2 and R. Nagalakshmi1. 1. Physics, National Institute of Technology, Tiruchirappalli, India; 2. Faculty of Humanities and Natural Sciences, Presov University, Presov, Slovakia
10:42

EH-12. Gadolinium thin films as benchmark for magneto-caloric thin films. L. Helmich1, M. Bartke1, N. Teichert1, M. Dunz1, B. Schleicher2, A. Waske2, J. Beik Mohammadi3, C.K. Mewes3, T. Mewes3 and A. Huetten1. 1. Physics Department, Center for Spin electronic Materials and Devices, Bielefeld University, Bielefeld, Germany; 2. IFW Dresden, Dresden, Germany; 3. Physics and Astronomy / MINT, University of Alabama, Tuscaloosa, AL.

10:54

EH-13. Magnetocaloric Effect of Gd-based Microwires from Binary to Quaternary System. F. Qin1, Y. Wang1, Y. Wang1, H. Wang1 and H. Peng1. 1. Materials Science and Engineering, Zhejiang University, Hangzhou, China

11:06


11:18


THURSDAY MORNING

8:30

Session EI

ELECTRONIC STRUCTURE AND MAGNETIC SEMICONDUCTORS

Vlado Lazarov, Chair
University of York, York, United Kingdom

8:30

EI-01. Direct evidence for a helical spin-locked Dirac state in the Half-Heusler compound YPtBi. (Invited) M. Jourdan1, A. Kronenberg1, J. Braun1, J. Minar3, H. Elmers1, D. Kutnyakhov1, A. Zaporozhchenko1, R. Wallauer1, S. Chernov1, K. Medjani1, J.G. Schoenhense1, M. Kläui1, S. Chadov2 and H. Ebert1. 1. Institute of Physics, Johannes Gutenberg-University Mainz, Mainz, Germany; 2. Inorganic Chemistry, Max Planck Institute for Chemical Physics of Solids, Dresden, Germany; 3. Chemistry Department, Ludwig-Maximilians-University Munich, Munich, Germany
Influence of post-annealing on the structural and electronic properties of thin CoFe films. A. Gloskovskii1, S. Chadow2, J. Hamrle1, H. Elmers4, Y. Sukuraba3, K. Takanashi5 and W. Drube1. 1. Photon Science/DESY, Hamburg, Germany; 2. Max Planck Institute for Chemical Physics of Solids, Dresden, Germany; 3. VSB–Technical University, Ostrava, Czech Republic; 4. Uni-Mainz, Mainz, Germany; 5. NIMS, Tsukuba, Japan; 6. Institute for Materials Research, Sendai, Japan

Revealing the Hidden Structural Phase of FeRh. J. Kim1, R. Ramesh2 and N. Kioussis1. 1. Physics, California State University, Northridge, CA; 2. Materials Science & Engineering, University of California, Berkeley, CA

Spin-resolved Band Structure of a Heisenberg Ferromagnet. T. Gerber1, M. Eschbach1, E. Mlynczak1, P. Lömker1, P. Gospodaric1, M. Gehlmann1, R. Pentcheva2, L. Plucinski1, C.M. Schneider1,2 and M. Müller1,2. 1. Peter Grünberg Institute, PGI-6, Research Center Jülich, Jülich, Germany; 2. Faculty of Physics, University Duisburg-Essen, Jülich, Germany

Giant perpendicular magnetic crystalline anisotropy of Ir-doped α-Fe2O3: first-principles calculations. Y. Kitaoka1 and H. Imamura1. 1. Spintronics Research Center, AIST, Tsukuba, Japan

Role of Oxygen Vacancies in Fe-Doped NiO from ab Initio Calculations. J.E. Petersen1, L. Scolfaro1, P. Borges2 and W.J. Geerts1. 1. Texas State University, San Marcos, TX; 2. Universidade de Vicoso, Minas Gerais, Brazil

Electronic and Atomic Structure Study of Polar Fe3O4(111)/SrTiO3(111) Interface. V. Lazarov1, Z. Nedelkoski1, B. Kuerbanjiang1, K. Matsuuki2, T. Susaki2, L. Larri1, D. Kepaptsoglou1, Q.M. Ramasse1, S. Tear1 and K.P. McKenna1. 1. Physics, University of York, York, United Kingdom; 2. Tokyo Institute of Technology, Yokohama, Japan; 3. SuperSTEM Laboratory, Daresbury, United Kingdom

EI-09. Interplay of localization and magnetism in (Ga,Mn)As and (In,Mn)As. Y. Yuan1, M. Sawicki2, T. Dietl2, M. Helm1 and S. Zhou1 1. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. Institute of Physics, Polish Academy of Sciences, Warsaw, Poland

EI-10. The magnetic anisotropy of III-Mn-V ferromagnetic semiconductors prepared by ion implantation and pulsed laser melting. C. Xu1,2, Y. Yuan1,3, M. Sawicki3, R. Boettger1, M. Helm3 and S. Zhou1 1. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. Institute of Physics, Polish Academy of Sciences, Warszawa, Poland; 3. Technische Universität Dresden, Dresden, Germany

EI-11. Diluted magnetic semiconductors with narrow band gaps: Theoretical study of Mn-doped BaZn2As2 and BaZn2Sb2. B. Gu1 and S. Maekawa1,2 1. Advanced Science Research Center, Japan Atomic Energy Agency, Tokai, Japan; 2. ERATO, Japan Science and Technology Agency, Sendai, Japan


Session EP
MAGNETIC FLUIDS AND NANOPARTICLES
APPLICATIONS
(Poster Session)
Zoe Boekelheide, Chair
Lafayette College, Easton, PA

EP-01. Monitoring Sedimentation of Magnetorheological Fluids Using a Vertical Axis Monitoring System with a Low Aspect Ratio Sensor Coil. M. Wen1,2, N.M. Wereley1, J. Chambers1 and M. Yu2 1. Dept. of Aerospace Engineering, University of Maryland, College Park, MD; 2. College of Optoelectronic Engineering, Chongqing University, Chongqing, China

EP-02. Using Mason Number to Predict MR Fluid Damper Performance from Limited Test Data. A. Becnel1 and N.M. Wereley1 1. Dept. of Aerospace Engineering, University of Maryland, College Park, MD


EP-04. Design and Test of a Magnetorheological Fluid-Based Universal Gripper. Y. Choi1, C. Hartzell1 and N.M. Wereley1 1. Dept. of Aerospace Engineering, University of Maryland, College Park, MD

EP-05. Response time of magnetorheological suspensions and its dependence on Mason number. S.G. Sherman1 and N.M. Wereley1 1. Dept. of Aerospace Engineering, University of Maryland, College Park, MD


EP-07. Magneto-viscosity of Hydrothermal Synthesized Cu-Zn Ferrite Ferrofluids. N. Gautam1, G. Thirupathi1 and R. Singh1 1. School of Physics, University of Hyderabad, Hyderabad, India


EP-09. Withdrawn
EP-10. Electroacoustic quantification of nanoparticle surface properties in applied magnetic fields. Y. Wroczynskyj1, P. Manna1, J.H. Page1, D. Miller2 and J. van Lierop1 1. Physics and Astronomy, University of Manitoba, Winnipeg, MB, Canada; 2. Pharmacology and Therapeutics, University of Manitoba, Winnipeg, MB, Canada


EP-14. Temperature dependence of induced magnetic anisotropy in \(\text{Co}_{0.8-2}\text{Fe}_{x}\text{Mn}_{y}\text{Nb}_{4}\text{B}_{14}\text{Si}_2\) soft magnetic nanocomposites. A. Leary1, V. Keylin2, P. Ohodnicki2 and M.E. McHenry1 1. Carnegie Mellon University, Pittsburgh, PA; 2. Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, PA; 3. National Energy Technology Laboratory, Pittsburgh, PA

THURSDAY GRAND BALLROOM
MORNING
9:30

Session EQ
2D AND 3D NANOSTRUCTURED ARRAYS II (Poster Session)
Amalio Fernandez-Pacheco, Chair
University of Cambridge, Cambridge, United Kingdom

EQ-01. Magnetostatic Interactions between CoFe Nanowires as a Tool for Probing the Self-Ordering of Nanopores in Anodic Alumina. A. Esmaeili1, A. Razavian1,2, M. Venkatesan1 and M. Coey2 1. School of Physics and CRANN, Trinity College Dublin, Dublin, Ireland; 2. Trinity College, Dublin, Dublin, Ireland; 3. Institute of Nanoscience and Nanotechnology, University of Kashan, Kashan, The Islamic Republic of Iran

NIST Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD; 2. University of Minnesota, Minneapolis, MN; 3. Department of Physics and Astronomy, The University of Texas at San Antonio, San Antonio, TX; 4. Institute of Magnetism, National Academy of Sciences of Ukraine, Kiev, Ukraine


Institute of Physics, Beijing, China; 2. University of the Punjab, Lahore, Pakistan; 3. Physics, Forman Christian College, Lahore, Pakistan


Materials Science and Engineering, Yonsei University, Seoul, The Republic of Korea; 2. Department of Applied Sciences & Humanities, Inderprastha Engineering College, Delhi, India; 3. Mechanical Engineering, Sungkyunkwan University, Suwon, The Republic of Korea


CNRS-Institut Néel, Grenoble, France; 2. Univ. Grenoble Alpes, Institut Néel, Grenoble, France; 3. Friedrich-Alexander-Universität, Nürnberg-Erlangen, Germany; 4. SPINTEC, CNRS, Grenoble, France

Temperature dependent magnetic properties of Ni nanotubes synthesized by atomic layer deposition. A. Pereira, J.L. Palma, J.C. Denardin, J. Escrig.

Departamento de Física, Universidad de Santiago Chile, Santiago, Chile; 2. CEDENNA, Universidad de Santiago de Chile, Santiago, Chile


Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA; 2. Pennsylvania State University, University Park, PA; 3. Department of Physics, Colorado State University, Fort Collins, CO; 4. Physics, The University of Arizona, Tucson, AZ


Paul-Drude-Institute, Berlin, Germany


National Institute of Technology, Tokyo College, Hachioji, Japan; 2. Toyoashi University of Technology, Toyohashi, Japan

Thursday
EQ-10. Study of Magnetization Reversal Process in Metallic Core-Shell Nanowires; M (M=Ni, Fe, Co)-CoO. A. Nairan1, U. Khan2 and M. Iqbal1 1. University of the Punjab, Lahore, Pakistan; 2. Institute of Physics, Beijing, China

EQ-11. Withdrawn

EQ-12. Morphological and magnetic characterization of FeCo nanoparticles synthesized via different chelate compounds of cobalt. S. Alikhanzadeh-Arani1 1. University of Kashan, Institute of Nano Science and Nano Technology, Kashan, The Islamic Republic of Iran


EQ-15. Magnetic Reversal Modes in Magnetite Nanotube Arrays Synthesized by Atomic Layer Deposition. J.L. Palma1,2, A. Pereira1,2, J.C. Denardin1,2 and J. Escrig1,2 1. Physics, Universidad de Santiago, Santiago, Chile; 2. CEDENNA, Center for the Development of Nanotechnology and Nanoscience, Santiago, Chile

THURSDAY GRAND BALLROOM
MORNING 9:30

Session ER
PATTERNED FILMS II (Poster Session)
Caroline Ross, Chair
MIT, Cambridge, MA

ER-01. Modelling the charge and magnetic x-ray scattering from nanoscale FePd patterned arrays. T.P. Hase1, D. Greving1, R. Procter1, E. Östman2, U. Arnalds2, V. Kapaklis2, L. Bouchenoire1,4, P. Thompson1,4, D. Haskel5, Y. Choi6 and B. Hjörvarsson2 1. Physics, University of Warwick, Coventry, United Kingdom; 2. Physics and Astronomy, Materials Physics, Uppsala, Sweden; 3. Department of Physics, University of Liverpool, Liverpool, United Kingdom; 4. European Synchrotron Radiation Facility, XMaS Beamline, Grenoble, France; 5. Advanced Photon Source, Argonne National Laboratory, Argonne, IL; 6. X-ray Science Division, Argonne National Laboratory, Argonne, IL

ER-02. Size-dependent magnetic properties of FeGaB/AlOx multilayer micro-islands. X. Wang1, Y. Gao2, Z. Wang1 and N.X. Sun1 1. ECE, Northeastern University, Boston, MA; 2. Winchester Technologies LLC, Winchester, MA
ER-03. Effect of volume fraction on the magnetic properties for FePt/Fe nano-composites. R. Kurosu1, A. Sugawara1,2, H. Iwama1, M. Doi1 and T. Shimai 1. Faculty of Engineering, Tohoku Gakuin University, Tagajo, Japan; 2. Tohoku Gakuin University, Tagajo, Japan

ER-04. Interplay Between Magnetic History and Geometrical Configuration in Hexagonal Networks with Weak Perpendicular Magnetic Anisotropy. F. Valdés-Bango1,2, J. Martin1,2, M. Velez Fraga1,2, L. Alvarez-Prado1,2 and J. Alameda1,2 1. Dpto. Fisica, Universidad de Oviedo, Oviedo, Spain; 2. CINN (CSIC-Universidad de Oviedo), El Entrego, Spain

ER-05. Self-assembled surface nanostructure on CoPd thin film: magnetism and morphology evolution. W. Lin1, C. Hsu1, P. Chang1 and H. Chiu1 1. Department of Physics, National Taiwan Normal University, Taipei, Taiwan

ER-06. Self-biased microwave ferromagnetic performance of patterned Ni80Fe20 thin films. R. Yang1, X. Liu1, N.X. Sun2, H. Lin2 and S. Li1,3 1. Qingdao University, Qingdao, China; 2. Northeastern University, Boston, MA; 3. National Laboratory of Solid State Microstructures, Nanjing University, Nanjing, China

ER-07. Arrays of magnetic nanodots studied by x-ray holographic microscopy and scattering. R. Frömtner1, K. Bagschik1, J. Wagner1, S. Freercks1, C. Thoenissen1, B. Beyersdorf2, L. Müller2, S. Schleiter2, M.H. Bernsten1, G. Grübel1 and H. Oepen1 1. Institut für Nanostruktur- und Festkörperphysik, Universität Hamburg, Hamburg, Germany; 2. FS-CXS, DESY, Hamburg, Germany; 3. KTH Royal Institute of Technology, Kista, Sweden

ER-08. Interplay between ferromagnetic resonance and surface plasma resonance on Ag/Co nano-dot arrays. Y. Chang1, K. Lin1, D. Schmool2 and J. Wu3 1. Department of Materials Science and Engineering, National Chung Hsing University, Taichung, Taiwan; 2. Groupe d’Etude de la Matière Condensée GEMaC, CNRS, Université de Versailles/Saint-Quentin, Versailles, France; 3. Physics, National Changhua University of Education, Changhua, Taiwan


ER-10. The enhancement of thermoelectric effect by surface roughness-controlled nanowire. C. Li5, H. Huang1, Y. Xu1, Y. Tsao1 and Z. Wei1 1. Institute of Nanoengineering and Microsystems, National Tsing Hua University, Hsinchu, Taiwan

ER-11. Magnetic resonance spectra in arrays of dipole coupled nanomagnets. I. Nekrashevich1 and D. Litvinov1 1. Materials Engineering, University of Houston, Houston, TX

ER-13. Direct growth of perpendicular CoFeB/MgO structure on piezoelectric films for strain control of domain wall motion. D. Lam1, J. Adam1, G. Agnus1, S. Eimer1, L.H. Diez1, N. Vernier1, T. Devolder1, T. Maroutian1, P. Auber1, P. Lecoque1 and D. Ravelosona1 1. Centre de Nanosciences et de Nanotechnologies, CNRS, Univ. Paris-Sud, Univ Paris-Saclay, C2N, Orsay, France

THURSDAY GRAND BALLROOM MORNING 9:30

Session ES
SUPERCONDUCTIVITY AND MAGNETIC SEMICONDUCTORS (Poster Session)
Sean Langridge, Chair Rutherford Appleton Laboratory, Chilton, United Kingdom

ES-01. The first-principles investigations on magnetic ground-state in Sm-doped phenanthrene. J. Han1,2, G. Zhong2,4, X. Wang2, X. Chen3 and H. Lin2 1. Peking University, Beijing, China; 2. Beijing Computational Science Research Center, Beijing, China; 3. Center for High Pressure Science and Technology Advanced Research, Shanghai, China; 4. Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China

ES-02. Transport properties of the iron-based superconductor FeSe0.5Te0.5. T. Wang1 and Z. Xing2 1. Mathematics, Nanjing University of Aeronautics and Astronautics, Nanjing, China; 2. National Laboratory of Solid State Microstructures, and School of Electronic Science and Engineering, Nanjing University, Nanjing, China

ES-03. Control of Superconductivity with a Single Ferromagnet in Nb/Er Bilayers. N. Satchell1,2, J.D. Witt2, M.G. Flokstra3, S. Lee4, J. Cooper1, C. Kinane1, S. Langridge1 and G. Burnell1 1. ISIS Neutron and Muon Facility, Didcot, United Kingdom; 2. Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 3. Physics and Astronomy, University of St Andrews, St Andrews, United Kingdom

ES-04. Vortices Propagating and Hall Effect in Nb Thin Films with Channeled Pinning Potential Landscapes. L. Horng1 and T. Wu1 1. Dep. Physics, National Changhua University of Education, Changhua, Taiwan; 2. Department of Electronic Engineering, National Formosa University, Yunlin, Taiwan
ES-05. Superconducting Properties of Zr$_{1+x}$Ni$_2$Ga and Zr$_{1-x}$Ni$_2$Ga Heusler compounds. S.A. Alzahrani$^1$ and M.U. Khan$^1$. 1. Physics Department, Miami University-Oxford, Oxford, OH

ES-06. Broken time-reversal symmetry probed by muon spin relaxation in the caged type superconductor Lu$_3$Rh$_2$Sn$_{18}$. A. Bhattacharyya$^1$. 1. Department of Physics, RKMVU, Belur Math, Belur, India

ES-07. High Temperature Ferromagnetism in (In,Fe)As Grown on Vicinal GaAs Substrates. M. Yoshida$^1$, A. Nagamine$^1$, M. Tanaka$^{2,3}$ and P. Nam Hai$^{1,2,3}$ 1. Department of Electrical and Electronic Engineering, Tokyo Institute of Technology, Tokyo, Japan; 2. Department of Electrical Engineering and Information Systems, University of Tokyo, Tokyo, Japan; 3. Center for Spintronics Research Network, University of Tokyo, Tokyo, Japan

ES-08. Temperature-dependent shape anisotropy in patterned ferromagnetic (Ga,Mn)As films with low Mn concentration. X. Li$^1$, S. Dong$^1$, T. Yoo$^1$, X. Liu$^1$, J. Furdyna$^1$ and M. Dobrowolska$^1$. 1. Department of Physics, University of Notre Dame, Notre Dame, IN

ES-09. A First Principles Study of Fe Doped Diamond: Control of Clustering and Ferromagnetic Stabilization by Charge State Manipulation. E. Benecha$^1$ and E. Lombardi$^1$. 1. School of Interdisciplinary and Graduate Studies, University of South Africa (UNISA), Pretoria, South Africa

ES-10. Magnetic and Electron Spin Resonance studies on SrSn$_{1-x}$Fe$_x$O$_{3-\delta}$ (x=0.05 and 0.08) nano-sticks. K. Radhika$^1$ and H. Narayanan$^1$. 1. Physics, IIT Madras, Chennai, India

ES-11. Probing spin polarization of various concentration of oxygen vacancies Co-doped ZnO via Point-contact Andreev reflection technique. K.S. Yang$^1$, T. Huang$^1$, G.D. Dwivedi$^1$, L. Lin$^2$, S. Lee$^1$, S. Sun$^4$ and H. Chou$^5$. 1. Physics, National Sun Yat-sen University, Kaohsiung, Taiwan; 2. Physics, Academia Sinica, Taipei, Taiwan; 3. Institute of Physics, Academia Sinica, Taipei, Taiwan; 4. Applied Physics, National University of Kaohsiung, Kaohsiung, Taiwan; 5. National Sun Yat-Sen University, Kaohsiung, Taiwan

ES-12. Magnetic anisotropy of quaternary GaMnAsP ferromagnetic semiconductor. H. Lee$^1$, S. Lee$^1$, S. Choi$^1$, S. Bac$^1$, A. Nasir$^1$, S. Lee$^1$, A. Pardo$^1$, V. Kanzyuba$^{1,6}$, S. Dong$^1$, X. Li$^1$, S. Rouvimov$^{1,6}$, X. Liu$^1$, J. Furdyna$^1$ and M. Dobrowolska$^1$. 1. Physics, Korea University, Seoul, The Republic of Korea; 2. Physics, Universidad del Atlantico, Barranquilla, Colombia; 3. Department of Physics, University of Notre Dame, Notre Dame, IN; 4. Electrical Engineering, University of Notre Dame, Notre Dame, IN; 5. Integrated Imaging Facility, University of Notre Dame, Notre Dame, IN

ES-14. Direct Evidence of Co 3d Impurity Band in Room-Temperature Ferromagnetism of Diluted Magnetism Semiconductors Co Doped ZnO by Hard X-ray Photoelectron Spectroscopy. P. Chuang\textsuperscript{1} I. Physics, National Cheng Kung University, Tainan, Taiwan

ES-15. Theoretical and experimental study of nanostructures of ZnO doped with nickel (II) and chromium (III). N. dos S. Castro\textsuperscript{1}, P. Borges\textsuperscript{2}, L. Scolfaro\textsuperscript{3} and R.C. de Lima\textsuperscript{1} 1. Universidade Federal de Uberlandia, Uberlandia, Brazil; 2. Universidade Federal de Vicsa, Rio Paraiba, Brazil; 3. Texas State University, San Marcos, TX

THURSDAY MORNING

9:30

Session ET

DOMAIN WALL, VORTEX AND SKYRMION DYNAMICS III (Poster Session)

Hendrik Ohldag, Co-Chair
SLAC National Accelerator Laboratory, Menlo Park, CA
Elena Bankowski, Co-Chair
U.S. Army TARDEC, Warren, MI

ET-01. Current-driven skyrmion motion along disordered magnetic tracks. V. Raposo\textsuperscript{1}, R. Luis-Martinez\textsuperscript{1} and E. Martinez\textsuperscript{1} 1. Applied Physics, University of Salamanca, Salamanca, Spain

ET-02. Electrical detection of single magnetic skyrmion at room temperature. R. Tomasello\textsuperscript{1}, M. Ricci\textsuperscript{2}, P. Burrascano\textsuperscript{2}, V. Pulfio\textsuperscript{2}, M. Carpentieri\textsuperscript{3} and G. Finocchio\textsuperscript{4} 1. Department of Engineering, Polo Scientifico Didattico di Terni, University of Perugia, Terni, Italy; 2. Department of Engineering, University of Messina, Messina, Italy; 3. Department of Electrical and Information Engineering, Politecnico di Bari, Bari, Italy; 4. Department of Mathematical and Computer Sciences, University of Messina, Messina, Italy

ET-03. Study of Domain Wall Switching Behavior in Permalloy Thin Film Rings. K. Lai\textsuperscript{1}, L. Chan\textsuperscript{1}, D. Shiu\textsuperscript{1}, J. Wu\textsuperscript{1} and L. Horng\textsuperscript{1} 1. Dep. Physics, National Changhua University of Education, Changhua, Taiwan

ET-04. Investigation of Exchange Bias Mediated Domain-wall Dynamics in a IrMn/CoFeB Multilayered & Crossed Magnetic Nanowire Device by Magneto-optical Kerr Effect Microscopy. Y. Hong\textsuperscript{1}, D. Shiu\textsuperscript{1}, C. Lin\textsuperscript{1}, K. Lai\textsuperscript{1}, J. Wu\textsuperscript{1} and L. Horng\textsuperscript{1} 1. National Changhua University of Education, Changhua, Taiwan

ET-05. Effect of Gilbert damping constant on domain wall pinning in permanent magnets: effect of the damping constant at grain boundary. K. Yamada\textsuperscript{1} and Y. Nakatani\textsuperscript{2} 1. Department of Chemistry and Biomolecular Science, Gifu University, Gifu, Japan; 2. University of Electro-communications, Tokyo, Japan

Thursday 169
ET-06. Analytical study of field-driven bubble expansion in PMA materials under the application of in-plane fields. S. Nasseri1,3 and G. Durin2,1. 1. ISI Foundation, Torino, Italy; 2. Nanoscience and Material, Istituto Nazionale di Ricerca Metrologica, Torino, Italy; 3. Politecnico di Torino, Torino, Italy

ET-07. Magnetization reversal of spiral rhaped nanowires via domain wall motion. R. Schumm1, N. Greenberg1 and A. Kunz1. 1. Physics, Marquette University, Milwaukee, WI

ET-08. Significant Enhancement of Domain Wall Speed in Ferromagnetic Pt/Co/Ti Film. M. Park1, D. Kim1, Y. Park1,2, B. Min1 and S. Choe1. 1. Physics and Astronomy, Seoul National University, Seoul, The Republic of Korea; 2. Center for Spintronics, Korea Institute of Science and Technology (KIST), Seoul, The Republic of Korea

ET-09. Control of the Magnetic Ground State of Thick Stadium-shaped Ferromagnetic Elements. M. Park1, D. Kim1, Y. Park1,2, B. Min1 and S. Choe1. 1. Physics and Astronomy, Seoul National University, Seoul, The Republic of Korea; 2. Center for Spintronics, Korea Institute of Science and Technology (KIST), Seoul, The Republic of Korea

ET-10. Magnetic nano-transistor. A. Espejo1, N.S. Vidal1, J. Lopez2, D. Gorlitz3, K. Nielsch1 and J. Escrig1. 1. Universidad de Santiago de Chile, Santiago, Chile; 2. Universidad Técnica Federico Santa María, Valparaíso, Chile; 3. University of Hamburg, Hamburg, Germany; 4. Departamento de Física, Universidad de Santiago Chile, Santiago, Chile

ET-11. Influence of Structural Inversion Asymmetry on Current-induced Domain Wall Motion in Bilayer Nanowires with Ferro- and Antiferromagnetic Coupling. T. Komine1 and T. Aono1. 1. Faculty of Engineering, Ibaraki University, Ibaraki, Japan

ET-12. Microwave Assisted Nucleation Of Magnetic Skyrmions. Y. Huang1,3, J. Xia1, X. Zhang1, W. Kang1,3, W. Zhao1,3 and Y. Zhou1. 1. Fert Beijing Research Institute, Beihang University, Beijing, China; 2. Department of Physics, The University of Hong Kong, Hong Kong, Hong Kong; 3. Beijing Advanced Innovation Center for Big Data and Brain Computing (BDBC), Beihang University, Beijing, China

ET-13. Magnetic domain wall dynamics in constricted nanowire. M. Al Bahri1 and R. Sbiaa1. 1. Physics Department, Sultan Qaboos University, Muscat, Oman

ET-14. Velocity enhancement for current-induced skyrmion drift in a finite channel. J.C. Martínez1, W. Gan2, C. Ho1, Z. Sun1, W. Lew2 and M.B. Jalil3. 1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; 2. School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore; 3. Information Storage Materials Laboratory, Electrical and Computer Engineering Department, National University of Singapore, Singapore, Singapore
ET-15. Use of in-plane anisotropy to control energy transfer time in a pair of coupled magnetic vortex nanodisks. H. Vigo Cotrina¹ and A. Passos Guimarães¹ 1. Centro Brasileiro de Pesquisas Fisicas (CBPF), Rio de Janeiro, Brazil

THURSDAY GRAND BALLROOM
MORNING
9:30

Session EU
MRAM AND MAGNETIC LOGIC DEVICES III
(Poster Session)
Byong-Guk Park, Chair
Korea Advanced Institute of Science and Technology (KAIST), Daejeon, The Republic of Korea

EU-01. Micromagnetic analysis of geometrically controlled current-driven magnetization switching. O. Alejos¹, V. Raposo², M. Hernandez², L. Sanchez-Tejerina¹, S. Moretti² and E. Martinez² 1. Electricidad y Electrónica, Universidad de Valladolid, Valladolid, Spain; 2. Applied Physics, University of Salamanca, Salamanca, Spain

EU-02. Voltage-Controlled Asymmetrical All Spin Logic Device. Z. Zhang¹, Y. Zhang¹, L. Su¹, Y. Zhang¹ and W. Zhao¹ 1. Fert Beijing Institute, Beihang University, Beijing, China

EU-03. Novel Magnetic Wire Fabrication Process by way of Nanoimprint Lithography for Current Induced Magnetization Switching. T. Asari¹, A. Hiroyuki² and R. Shibata¹ 1. Information Storage Materials Laboratory, Toyota Technological Institute, Nagoya, Japan

EU-04. Domain-wall mediated thermal switching of in-plane STT-MRAM cell. A. Belanovsky¹, N. Dmitriev¹, M. Kutiean², V. Lomakin² and A.V. Khvalkovskiy¹ 1. Moscow Institute of Physics and Technology (State University), Moscow, Russian Federation; 2. Department of Electrical and Computer Engineering, University of California, San Diego, La Jolla, CA; 3. Crocus Nano Electronics, Moscow, Russian Federation

EU-05. Increased boron content in perpendicular CoFeB/MgO-based MTJs for wider process tolerance. J.P. Pellegren¹, M. Furuta², V. Sunda², J. Zhu²³ and V.M. Sokalski¹ 1. Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, PA; 2. Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA; 3. Data Storage Systems Center, Carnegie Mellon University, Pittsburgh, PA

EU-06. Magnetization Switching for Perpendicular Magnetic Tunnel Junctions Driven by Spin Torque from the Spin Hall Effect. C. Lee¹, T. Wu¹ and J. Wu¹ 1. National Yunlin Univ. of Science and Technology, Douliou, Taiwan; 2. Physics, National Changhua University of Education, Changhua, Taiwan
EU-07. Design of changeable logic device using hybrid magnetic tunnel junctions with normal and inverse magnetoresistive effect. S. Isogami1 1. Fukushima National College of Technology, Iwaki, Japan

EU-08. Transmission of Information along a Nanomagnetic Logic Path Clocked by Current. V. Puliafito1, A. Giordano2, B. Azzerboni1 and G. Finocchiaro3 1. Department of Engineering, University of Messina, Messina, Italy; 2. Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina, Messina, Italy

EU-09. Controlled Data Storage for Emerging Non-Volatile Memory Based on Nano Magnetic Logic. F. Riente1, G. Ziemys1, C. Mattersdorfer1, S. Boche1, G. Turvani2 and S. Breitkreutz-v. Gamm1 1. Institute for Technical Electronics, Technische Universität München, Munich, Germany

EU-10. Withdrawn


EU-12. A Self-Terminated One-Phase Write Driver for Complementary-MTJ Based Memory Cells. D. Suzuki1 and T. Hanyu1 1. Tohoku University, Sendai, Japan


EU-14. Time-resolved magneto-optical Kerr effect study of the Co80Fe40B20 films with a perpendicular magnetic anisotropy. D. Huang1, X. Ruan1, J. Cai1, J. Wu1, B. Liu1, L. He1, M. Gao1, H. Tu1, J. Du1, K. Wang1 and Y. Xu1 1. Nanjing University, Nanjing, China; 2. Chinese Academy of Sciences, Beijing, China; 3. The University of York, York, United Kingdom

EU-15. Perpendicular Magnetic Anisotropy of CoFeB/Ta Bilayers on ALD HfO2. B.F. Vermeulen1,2, J. Swerts2, S. Couet2, I.P. Radu1, C. Detavernier1, J. Jochum1, M. Van Bael1, K. Temst1, G. Groeseneken1, N. Shukla2, S. Miwa2, Y. Suzuki3 and K.M. Martens2 1. Department of Physics and Astronomy, KU Leuven, Leuven, Belgium; 2. Imec, Leuven, Belgium; 3. Department of Physics, University of Ghent, Ghent, Belgium; 4. Department of Electrical Engineering, KU Leuven, Leuven, Belgium; 5. Graduate School of Engineering Science, Osaka University, Osaka, Japan
Session EV
POWER MACHINES I
(Poster Session)
Vitaliy Lomakin, Chair
University of California, San Diego, La Jolla, CA

EV-01. Design and Analysis of Novel PM Motor with Hybrid PM Excitation and Asymmetric Rotor Structure. G. Liu1,2, G. Xu1,2, W. Zhao1,2, Q. Chen2 and X. Du1,2. 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China; 2. Jiangsu Key Laboratory of Drive and Intelligent Control for Electric Vehicle, Zhenjiang, China.


EV-03. Design and Analysis of Reluctance Synchronous Machines With Asymmetric Salient Pole. Q. Chen1,2, G. Liu1,2, W. Zhao1,2, G. Xu1,2 and X. Du1,2 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China; 2. Jiangsu Key Laboratory of Drive and Intelligent Control for Electric Vehicle, Zhenjiang, China.


EV-05. A Novel Linear Permanent-Magnet Vernier Motor for Long Stroke Applications. S. Wang1,2, W. Zhao1,2 and J. Ji1,2 1. Jiangsu University, Zhenjiang, China; 2. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China.

EV-06. A Real-Time Model of a Maglev Planar Motor Based on Composite Numerical Integration. B. Kou1, X. Feng1, L. Zhang1 and Y. Zhou2,1 1. Harbin Institute of Technology, Harbin, China; 2. School of Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, China.

EV-07. Relationship Between Iron Loss and Pole-Pair Number in Flux-Switching Permanent-Magnet Machines. J. Luo1, J. Ji1, W. Zhao1 and J. Zheng1 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China.


Thursday 173
EV-09. Field Analysis of a Novel Permanent Magnet Linear Synchronous Motor with Ring-Structure Winding. L. Zhang\textsuperscript{1} and B. Kou\textsuperscript{1}. Department of Electrical Engineering, Harbin Institute of Technology, Harbin, China

EV-10. Eddy Current Loss Analysis and Axial Segmentation of Open-Slot Fault-Tolerant Permanent-Magnet Motors. J. Luo\textsuperscript{1}, J. Ji\textsuperscript{1}, W. Zhao\textsuperscript{1} and Q. Lei\textsuperscript{1}. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China

EV-11. A Study for Flux-Variable Memory Motor Depending on the Position of the Permanent Magnets. S. Kim\textsuperscript{1}. KETI, Gwangju, The Republic of Korea

EV-12. Thermal Analysis and Experimental Verification for a Staggered-Teeth Transverse-Flux Permanent-Magnet Linear Machine. P. Zheng\textsuperscript{1}, S. Zhang\textsuperscript{1}, B. Yu\textsuperscript{1}, J. Liu\textsuperscript{1} and Z. Yin\textsuperscript{1}. School of Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, China

EV-13. A Double-winding Bearingless Flux-switching Permanent Magnet Machine. Y. Sun\textsuperscript{1}, H. Wu\textsuperscript{1} and Y. Du\textsuperscript{1}. Jiangsu University, Zhenjiang, China

EV-14. Research on a Novel Axial-Flux Magnetic-Field-Modulated Brushless Double-Rotor Machine with Low Axial Force and High Efficiency. C. Tong\textsuperscript{1}, Z. Song\textsuperscript{1} and P. Zheng\textsuperscript{1}. Department of Electrical Engineering, Harbin Institute of Technology, Harbin, China

EV-15. Characteristic Analysis of a Novel Hybrid Permanent Magnet Assisted Synchronous Reluctance Motor for EVs Application. W. Wu\textsuperscript{1}, X. Zhu\textsuperscript{1}, Z. Xiang\textsuperscript{1} and Q. Lu\textsuperscript{1}. School of electrical and information engineering, Jiangsu University, Zhen Jiang, China

THURSDAY GRAND BALLROOM
MORNING 9:30

Session EW
POWER AND CONTROL MAGNETICS III
(Poster Session)
Ichiro Sasada, Chair
Kyushu University, Kasuga, Japan

EW-01. Torque Ripple Minimization of Interior Permanent Magnet Machines Using Harmonic Injection. G. Liu\textsuperscript{1}, Y. Zeng\textsuperscript{1} and W. Zhao\textsuperscript{1}. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China

EW-02. A Novel Axial Flux Stator and Rotor Dual Permanent Magnet Machine. Y. Wang\textsuperscript{1}, S. Niu\textsuperscript{1} and W. Fu\textsuperscript{1}. Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, China
EW-03. A High Power Factor Permanent-Magnet Fault-Tolerant Vernier Machine. W. Zhao1, X. Zhu1, J. Ji1, J. Zhu1 and J. Liu1 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China


EW-05. Performance Comparison of an Outer-Rotor-Permanent-Magnet Flux-Switching Machine and an Outer-Rotor Surface-Mounted Permanent Magnet Machine. H. Zhang1 and H. Wei1 1. School of Electrical Engineering, Southeast University, Nanjing, China

EW-06. A New Dual Stator Linear Permanent-Magnet Vernier Machine with Reduced Copper Loss. F.F. Bian1, W. Zhao1 and J. Ji1 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China

EW-07. Back-EMF Waveform Optimization of Flux-Reversal Permanent Magnet Machines. X. Zhu1 and H. Wei1 1. School of Electrical Engineering, Southeast University, Nanjing, China

EW-08. Eddy Current Loss in Double-sided Cored Slotless Type Permanent Magnet Linear Synchronous Generator Using Analytical Method. G. Jang1, M. Koo1, S. Seo3 and J. Choi1 1. Electrical Engineering, Chung Nam National University, Daejoen, The Republic of Korea

EW-09. Effective method to reduce the stray voltage of the crane hook used to handle a heavy solid-fuel rocket. A. Ueda1, K. Tajima1, T. Nishida1, M. Muto1, I. Sasada2 and J. Oshino2 1. Japan Aerospace Exploration Agency (JAXA), Sengen, Japan; 2. Applied Science for Electronics and Materials, Kyushu University, Kasuga, Japan

EW-10. Mathematical Model of Half-Magnet Type Bearingless Flux-Switching Permanent Magnet Motor. C. Zhao1 and H. Zhu1 1. Jiangsu University, Zhenjiang, China

EW-11. A comparison between one-way and two-way coupled analyses of electromagnetic machines considering magnetic and structural interactions. J. Nam1, C. Kang1, J. Song1 and G. Jang1 1. Dept. of Mechanical Convergence Engineering, Hanyang University, Seoul, The Republic of Korea

EW-12. Comparative Analysis and Optimization of Dynamic Charging Coils for Roadway-Powered Electric Vehicles. B. Jia1 and Z. Zhang1 1. School of Electrical Engineering and Automation, Tianjin University, Tianjin, China

EW-13. Modeling and Analysis of a New HTS Electromagnetic Screw for Artificial Heart. Z. Ling1, W. Zhao1 and J. Ji1 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China
EW-14. Quantitative Comparison of Embedded and Surface-mounted Magnetic Screws. Z. Ling1, W. Zhao1 and J. Ji1 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China

EW-15. Performance Evaluation of a Tubular Flux-modulated PM Linear Generator with Sandwiched Armature. M. Ma1 1. School of Electrical Engineering and Automation, Hefei University of Technology, Hefei, China

THURSDAY MARDI GRAS A-E
AFTERNOON 1:30

Session FA
SYMPOSIUM: SPINTRONICS WITH SUPERCONDUCTIVITY
Hans Nembach, Chair
NIST, Boulder, CO

1:30 FA-01. Quasiparticle-Mediated Spin Hall Effect in a Superconductor. (Invited) Y. Otani1,2 1. ISSP, University of Tokyo, Kashiwa, Japan; 2. CEMS, RIKEN, Wako, Japan

2:06 FA-02. Superconducting Spin Switch with Internal Exchange Fields and Spin Polarized Current. (Invited) J. Moodera1,2 1. Physics, MIT, Cambridge, MA; 2. Francis Bitter Magnet Lab and Plasma Science and Fusion Center, MIT, Cambridge, MA


Session FB

SPIN CURRENT AND RELATED EFFECTS II
Shinji Yuasa, Chair  
National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan

1:30

FB-01. Exchange-dominated pure spin current transport in Alq3 molecules. (Invited) D. Wu1 1. Nanjing University, Nanjing, China

2:06


2:18

FB-03. Investigation of spin to charge conversion at Bi/Ag interface on yttrium iron garnet. M. Matsushima1, S. Dushenko1, R. Ohshima1, Y. Ando1, T. Shinjo1 and M. Shiraishi1 1. Kyoto Univ., Kyoto, Japan

2:30

FB-04. Driving a Pure Spin Current with Dynamic-Nuclear-Polarization Gradients. N. Harmon1 and M.E. Flatte1 1. Physics, University of Iowa, Iowa City, IA

2:42

FB-05. Modulation of the spin currents in graphene by magnetic proximity effect of a ferromagnetic insulating material. S. Singh1, J. Katoch1, T. Zhu1, N. Harmon2, M. Meng1, J. Brangham1, F. Yang1, M.E. Flatte2 and R. Kawakami1 1. Department of Physics, The Ohio State University, Columbus, OH; 2. Physics, Univ Iowa, Iowa City, IA

2:54

FB-06. Atomic hydrogen induced resonant scattering and magnetic moments in bilayer graphene. J. Katoch1, T. Zhu1, D. Kochan2, S. Singh1, J. Fabian2 and R. Kawakami1 1. Department of Physics, The Ohio State University, Columbus, OH; 2. University of Regensburg, Institute for Theoretical Physics, Regensburg, Germany
FB-07. Gate-Tunable Spin-Charge Conversion and a Role of Spin-Orbit Interaction in Graphene. (Invited) S. Dushenko¹, H. Ago², K. Kawahara², T. Tsuda³, S. Kuwabata³, T. Takenobu³, T. Shinjo³, Y. Ando¹ and M. Shiraishi¹ 1. Kyoto University, Kyoto, Japan; 2. Kyushu University, Kasuga, Japan; 3. Osaka University, Suita, Japan; 4. Nagoya University, Nagoya, Japan

FB-08. Spin accumulation and transport signals in CoFe/MgO/Si devices with confined structure of n+-Si layer. Y. Saito¹, T. Inokuchi¹, M. Ishikawa¹, T. Ajay¹ and H. Sugiyama¹ 1. Corporate R&D Center, Toshiba Corporation, Kawasaki, Japan

FB-09. Hole Spin Transport in Epitaxial p-Ge(111) Layers. M. Kawano¹, K. Santo¹, M. Ikawa¹, S. Sakai¹, S. Yamada¹, T. Kanashima¹ and K. Hamaya¹ 1. Graduate School of Engineering Science, Osaka University, Toyonaka, Japan

FB-10. Electrical Gate Control of Spin/Valley Lifetime in Monolayer WS2. Y. Luo¹, M. Newburger¹, E.J. Bushong¹, K.M. McCreary², S. Fullerton-Shirey³, B. Jonker⁴ and R. Kawakami¹ 1. Physics, The Ohio State University, Columbus, OH; 2. Naval Research Laboratory, Washington, DC; 3. Department of Chemical and Petroleum Engineering, University of Pittsburgh, Pittsburgh, PA; 4. Naval Research Laboratory/SSD, Washington, DC

Session FC
ANTIFERROMAGNETIC SPINTRONICS
Aurelien Manchon, Chair
King Abdullah University of Science and Technology,
Thuwal, Saudi Arabia

1:30

FC-01. Anomalous Hall effect in non-collinear antiferromagnets.
A.K. Nayak1,2, J. Fischer1, Y. Sun1, B. Yan1, C. Felser1 and
S.S. Parkin2 1. Max Planck Institute for Chemical Physics of
Solids, Dresden, Germany; 2. Max Planck Institute for
Microstructure Physics, Halle (Saale), Germany

1:42

FC-02. Spin-orbit Torques with Antiferromagnetic Topological
Insulators. S. Ghosh1 and A. Manchon1 1. King Abdullah
University of Science and Technology, Thuwal, Saudi Arabia

1:54

FC-03. Spin diffusion and Hall effect in Antiferromagnets.
A. Manchon1 and H.B. Saidaoui1 1. Physical Sciences and
Engineering, King Abdullah University of Science and
Technology, Jeddah, Saudi Arabia

2:06

FC-04. Narrow-band THz electric-field emission from Mn$_2$Ga
Heusler alloys. N. Awari1,2, S. Kovalev2, C. Fowley3, K. Rode4,
R. Gallardo3, Y. Lau4, D. Betto4, N. Thiyyagarajah4, B. Green2,
O. Yildirim3, J. Lindner1, J. Fassbender3, M. Coey4, A.M. Deac3
and M. Gensch2 1. University of Groningen, Groningen, Netherlands;
2. Institute for Radiation Physics, Helmholtz-
Zentrum Dresden-Rossendorf, Dresden, Germany; 3. Institute of
Ion Beam Physics and Materials Research, Helmholtz-Zentrum
Dresden-Rossendorf, Dresden, Germany; 4. CRANN, AMBER
and School of Physics, Trinity College Dublin, Dublin, Ireland;
5. Departamento de Fisica, Universidad Técnica Federico
Santa Maria, Valpariso, Chile

2:18

FC-05. Self-sustained Oscillations of a Biaxial Antiferromagnet
Under a Spin-transfer Torque. I. Lisenkov1,2, R. Khymyn1,
V. Tyberkeyych1 and A.N. Slavin1 1. Department of Physics,
Oakland University, Auburn Hills, MI; 2. Institute of
Radioengineering and Electronics of RAS, Moscow, Russian
Federation
FC-07. Spin Transport through Antiferromagnetic NiO and Magnetoresistance in YIG/NiO/Pt Structures. Y. Hung¹, C. Hahn¹, H. Chang², M. Wu², H. Ohldag³ and A.D. Kent¹  
¹. Department of Physics, New York University, New York City, NY; ². Department of Physics, Colorado State University, Fort Collins, CO; ³. SLAC National Accelerator Laboratory, Menlo Park, CA

2:42

FC-08. Antiferromagnetic Spin Current Rectifier. R. Khymyn¹, V. Tyberkevych¹ and A.N. Slavin¹  
¹. Department of Physics, Oakland University, Rochester, MI

3:06

FC-09. Effect of Interfacial Magnetic Moments on Spin Hall Magnetoresistance and Anisotropic Magnetoresistance in Antiferromagnetic Insulator/Normal Metal Heterostructures. L. Lang¹, L. Ma¹, Z. Shi¹, X. Qiu¹ and S. Zhou¹  
¹. School of Physics Science and Engineering, Tongji University, Shanghai, China

3:18

FC-10. Electric-field-induced antiferromagnetic resonance in antiferromagnetic insulators with spin-orbit coupling. T. Chiba¹ and A. Sekine¹,²  
¹. Institute for Materials Research (IMR), Tohoku University, Sendai, Japan; ². Department of Physics, University of Texas at Austin, Austin, TX

3:30

FC-11. Giant Current-Induced Switching Efficiency in Ferrimagnets near Compensation Point. R. Mishra¹, X. Qiu¹ and H. Yang¹  
¹. Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore

3:42

FC-12. Spin Orbit Torque Efficiency in Compensated Ferrimagnetic Cobalt-Terbium Alloys. J.T. Finley¹ and L. Liu¹  
¹. EECS, MIT, Cambridge, MA

4:06

FC-14. High-throughput screening for antiferromagnetic Heusler compounds using density functional theory. J. Balluff, M. Meinert and G. Reiss. 1. Center for Spinelectronic Materials and Devices, Bielefeld University, Bielefeld, Germany

4:18

FC-15. Magnon-mediated spin currents and torques in chiral magnets. A. Kovalev and V. Zyuzin. 1. Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE

THURSDAY La Galerie 3
AFTERNOON
1:30

Session FD
SINGLE-PHASE MULTIFERROIC AND MAGNETOELECTRIC MATERIALS
Sara Majetich, Chair
Carnegie Mellon University, Pittsburgh, PA

1:30

FD-01. Understanding the multiferroic behavior of LuFeO₃ and related materials. (Invited) S.M. Disseler. 1. NIST Center for Neutron Research, Gaithersburg, MD

2:06

FD-02. Strain driven E-type commensurability in o-TbMnO₃ thin films under ambient pressure. S. Mukherjee, K. Shimamoto, J.S. White, L. Chapon, M. Kenzelmann, C.W. Schneider and C. Niedermayer. 1. Laboratory for Neutron Scattering and Imaging, Paul Scherrer Institut, Villigen, Switzerland; 2. Energy and Environment Research Department, Paul Scherrer Institut, Villigen, Switzerland; 3. Institut Laue Langevin, Grenoble, France; 4. Laboratory for Scientic Development and Novel Materials, Paul Scherrer Institut, Villigen, Switzerland

2:18

FD-04. Electronic and magnetic properties of boundaries in magnetoelectric Cr$_2$O$_3$ thin films from STEM EELS and first principles calculations. C. Sun$^1$, Z. Song$^1$, A. Rath$^1$, M. Street$^2$, W. Echtenkamp$^2$, C. Binek$^2$ and P. Voyles$^1$
1. Department of Materials Science and Engineering, University of Wisconsin-Madison, Madison, WI; 2. Department of Physics and Astronomy, University of Nebraska, Lincoln, NE

FD-05. Control of Magnetoelectric Switching Energy in Cr$_2$O$_3$ Films. M. Al-Mahdaw$^1$, Y. Shiokawa$^1$, S. Pan$^1$, S. Ye$^1$, T. Nozaki$^1$ and M. Sahashi$^{1,2}$
1. Department of Electronic Engineering, Tohoku University, Sendai, Japan; 2. ImPACT Program, Japan Science and Technology Agency, Tokyo, Japan

FD-06. Theory Of Phase Transitions In Triangular-lattice Multiferroic MnI$_2$. O.I. Utesov$^1$ and A.V. Syromyatnikov$^{1,2}$
1. Theory Division, Petersburg Nuclear Physics Institute NRC "Kurchatov Institute", St. Petersburg, Russian Federation; 2. Department of Physics, Saint Petersburg State University, St. Petersburg, Russian Federation

FD-07. A comparative study of ultra-low-temperature thermal conductivity of multiferroic orthoferrites RFeO$_3$ (R = Gd and Dy). J. Zhao$^1$, Z. Zhao$^1$, J. Wu$^1$, H. Xu$^1$, X. Liu$^1$, X. Zhao$^2$ and X. Sun$^1$
1. Hefei National Laboratory for Physical Sciences at Microscale, University of Science and Technology of China, Hefei, China; 2. School of Physical Sciences, University of Science and Technology of China, Hefei, China

FD-08. Magnetic, dielectric and magneto-dielectric properties of Li$_3$NiRuO$_5$. S.K. Upadhyay$^1$, K.K. Iyer$^1$, P.L. Paulose$^1$ and E.V. Sampathkumaran$^1$
1. Department of Condensed Matter Physics and Material Science, Tata Institute of Fundamental Research, Mumbai, India, Mumbai, India

FD-09. Multiferroelectricity of perovskite manganates. D. Bogdan$^1$, K. Chapagain$^1$, O. Chmaissem$^1$, S. Kolesnik$^1$, S. Kamba$^2$ and V. Goian$^2$
1. Physics, Northern Illinois University, DeKalb, IL; 2. Institute of Physics, Academy of Sciences of the Czech Republic, Prague, Czech Republic

FD-10. Effect of the ionic size of the rare-earth dopant on the structural and magnetic properties of HoCrO$_3$. S. Yin$^1$, M.S. Seehra$^2$ and M. Jain$^1$
1. Physics, University of Connecticut, Storrs, CT; 2. Physics, West Virginia University, Morgantown, WV
3:54

FD-11. E-type Magnetic Order and Large Magneto-dielectric Effect in Yb₂CoMnO₆. J. Blasco¹, J. García-Muñoz², J. García¹, J. Stankiewicz³, G. Subías¹, C. Ritter¹ and J. Rodríguez-Velamazán¹. ¹. Instituto de Ciencia de Materiales de Aragón, CSIC-Universidad de Zaragoza, Zaragoza, Spain; ². Institut de Ciència de Materials de Barcelona - CSIC, Bellaterra, Spain; ³. Institute Laue Langevin, Grenoble, France

4:06

FD-12. Electric Field Controlled Melting of Charge-Ordering in Pr₈₋₆Ca₆MnO₃ Single Crystals. C.V. Tomy¹, H. Sharma¹, A. Tulapurkar², G. Balakrishnan³, M.R. Lees¹ and D.M. Paul¹ ¹. Physics Department, Indian Institute of Technology Bombay, Mumbai, India; ². Electrical Engineering Department, Indian Institute of Technology Bombay, Mumbai, India; ³. Physics Department, University of Warwick, Coventry CV4 7AL, United Kingdom

4:18

FD-13. Second order phonon anomalies near the magnetic phase transitions in BiFeO₃ thin films. M.K. Singh¹, G. Singh¹, A. Kumar¹, B. Khan¹ and R.S. Katiyar². ¹. Centre of Material Sciences, University of Allahabad, Allahabad, India; ². Department of Physics and Institute of Functional Nano Materials, University of Puerto Rico, PR 00931-3343, USA, SanJuan, PR

THURSDAY AFTERNOON

1:30

La Galerie 4-5

Session FE

SPIN-ORBIT AND VOLTAGE CONTROLLED EFFECTS

Pedram Khalili, Chair

UCLA, Los Angeles, CA

1:30

FE-01. Determining spin-orbit torques easily; new domain wall depinning analysis scheme in comparison to spin torque magnetometry. K. Lee¹, T. Schulz¹, B. Krüger¹, R. Lo Conte¹, G. Vijay Karnad¹, K. Garcia-Hernandez², L. Vila³, B. Ocker³, D. Ravelosona³ and M. Kläui¹ ¹. Physics, Johannes Gutenberg - University Mainz, Mainz, Germany; ². Graduate School of Excellence “Materials Science in Mainz” (MAINZ), Mainz, Germany; ³. Institut d'Electronique Fondamentale, Orsay Cedex, France; 4. Université Grenoble Alpes, Grenoble, France; 5. CEA, Grenoble, France; 6. Singulus Technologies AG, Kahl am Main, Germany
FE-02. Reducing critical current density to switch perpendicular magnetization due to Spin Hall effect of Pt on Co₉Tb₁₋₉ based multilayers. J. Rojas-Sanchez¹, T. Pham¹, P. Vallobra¹, S. Je²-³, T. Fache¹, M. Cyrille¹, O. Boulle², G. Gaudin², G. Malinowski³, M. Hehn¹ and S. Mangin¹ 1. Institut Jean Lamour - Univ. Lorraine UMR7198 CNRS, 54506 Vandoeuvre les Nancy, France; 2. SPINTEC, CEA-INAC/CNRS/Univ. Grenoble Alpes, 38054 Grenoble, France; 3. Univ. Lorraine, 54506 Vandoeuvre lès Nancy, France; 4. CEA-LETI, 38034, 38054 Grenoble, France

FE-03. Significant Interfacial Contribution to the Spin-Orbit Torques in HM/FM Heterostructures with In-Plane Magnetization. A. Trifu¹, I. Miron¹, C. Avei², K. Garello², J. Nath³, S. Auffret¹, O. Boulle¹, P. Gambardella² and G. Gaudin¹ 1. Univ. Grenoble Alpes, INAC-SX / CEA, INAC-SX / CNRS, SX, SPINTEC, F-38000 Grenoble, France; 2. Department of Materials, ETH Zürich, Zürich, Switzerland

FE-04. Nanoscale Imaging of Magnetization Reversal Driven by Spin-Orbit Torque. I. Gilbert¹, P.J. Chen², D.B. Gopman², A.L. Balk¹-³, D.T. Pierce¹, M. Stiles¹ and J. Unguris¹ 1. CNST, NIST, Gaithersburg, MD; 2. Materials Science & Engineering Division, National Institute of Standards and Technology, Gaithersburg, MD; 3. Maryland NanoCenter, University of Maryland, College Park, MD

FE-05. Temperature Dependence of Spin-Orbit Torques in W/CoFeB Bilayers. W. Skowronski¹, M. Cecot¹, J. Kanak¹, S. Zietek¹, T. Stobiecki¹, L. Yao², S. van Dijken², T. Nozaki², K. Yakushiji² and S. Yuasa² 1. Department of Electronics, AGH University of Science and Technology, Krakow, Poland; 2. Spintronics Research Center, AIST, Tsukuba, Japan; 3. School of Science, Aalto University, Espoo, Finland

FE-06. Electric Field Control of Magnetic Domain Wall Motion in CoFeB/MgO Devices. W. Lin¹, N. Vernier¹, G. Agnus¹, K. Garcia¹, J. Langer², B. Ocker², E.E. Fullerton¹ and D. Ravelosona¹ 1. Institut d’Electronique Fondamentale, Université Paris-Sud - CNRS, Orsay, France; 2. Singulus Technology AG, Kahl am Main, Germany; 3. Center for Magnetic Recording Research, University of California San Diego, La Jolla, CA

FE-07. Voltage-induced spin-diode effect in magnetic tunnel junctions with in-plane and perpendicular effective anisotropy. M. Frankowski¹, J. Checinski¹, W. Skowronski¹ and T. Stobiecki¹ 1. Department of Electronics, AGH University of Science and Technology, Krakow, Poland
FE-08. Detection of Voltage Excited Spin Wave by Pico-second Time-resolved Kerr Microscope. B. Rana1, Y. Fukuma1,2, K. Miura3, H. Takahashi3 and Y. Otani3,4 1. Center for Emergent Matter Science, RIKEN, Wako, Japan; 2. Frontier Research Academy for Young Researchers, Kyushu Institute of Technology, Kawazu, Japan; 3. Research and development group, Hitachi Ltd., Tokyo, Japan; 4. ISSP, University of Tokyo, Kashiwa, Japan

3:06

FE-09. Parametric Amplifier of Spin Waves Using Electric Field. Y. Chen1, R.V. Verba2, V. Tyberkevych3, A.N. Slavin3 and I. Krivorotov1 1. Physics and Astronomy, University of California, Irvine, Irvine, CA; 2. Institute of Magnetism, Kyiv, Ukraine; 3. Department of Physics, Oakland University, Rochester, MI

3:18

FE-10. Electric field dependence of magnetic damping of Fe-layer: A first-principles study. Y. Miura1, M. Tsujikawa2 and M. Shirai2 1. Electrical Engineering and Electronics, Kyoto Institute of Technology, Kyoto, Japan; 2. RIEC and CSRN, Tohoku University, Sendai, Japan

3:30

FE-11. Magnetoelastic tuning of the Inverse spin-Hall effect. J. Vargas1, J. Gomez1, L. Avilés-Félix1 and A. Butera1 1. Magnetic Resonance Laboratory, Conicet / Bariloche Atomic Center, Bariloche, Argentina

3:42

FE-12. The Effect of DC Bias on Spin-Transfer Torque Driven Ferromagnetic Resonance in Magnetic Tunnel Junctions. M.C. Williamson1, H. Seinige1, H. Almasi2, X. Chao3, W. Wang2, J. Wang2 and M. Tsui1 1. Physics Department, University of Texas at Austin, Austin, TX; 2. Physics, University of Arizona, Tucson, AZ; 3. University of Minnesota, Minneapolis, MN

3:54

FE-13. Patterns and Thresholds of Magnetoelastic Switching in Spin Logic Devices. D.E. Nikonov1, S. Manipatruni1 and I. Young1 1. Intel, Hillsboro, OR

4:06

FE-15. Large Voltage-induced Modulation of Magnetic Anisotropy and Spin-orbit Torques in Hf/CoFeB/MgO Multilayer. F. Xue1, N. Sato2, S. Wang2 and I. He1. 1. Department of Electrical Engineering, High Voltage Institution, Beijing, China; 2. Electrical Engineering, Stanford University, Stanford, CA

THURSDAY STUDIO 1-2
AFTERNOON 1:30

Session FF
MAGNETORESISTANCE II: GMR AND TMR
Connie Li, Chair
Naval Research Laboratory, Washington, DC

1:30

FF-01. Tunneling across MgO barrier driven by double oxygen vacancies. E.N. Monteblanco Vinces1, B. Taudul2, U. Halisdemir3, D. Lacour4, F. Schleicher4, F. Montaigne5, E. Beaurepaire5, S. Boukari6, M. Hehn6, M. Alouani7 and M. Bowen7. 1. Institut Jean Lamour, Université de Lorraine - CNRS, Vandoeuvre les Nancy, France; 2. Institut de physique et Chimie des Matériaux de Strasbourg, CNRS, Strasbourg, France

1:42

FF-02. Tunneling Magnetoresistance with zero-moment half-metallic electrodes. K. Borisov1, D. Betto1, Y. Lau1, C. Fowley2, A. Titova2, N. Thiyagarajah1, G. Atcheson1, J. Lindner2, A.M. Deac2, M. Coey1, P.S. Stamenov1 and K. Rode1. 1. Trinity College, Dublin, Dublin, Ireland; 2. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany

1:54

FF-03. Correlation between MOKE amplitude measured in full sheet films and tunnel magnetoresistance in subsequently patterned tunnel junctions. T.H. Nguyen2, R.C. Sousa1, S. Auffret1, L. Vila1 and B. Diény1. 1. I. SPINTEC, Univ. Grenoble Alpes / CEA / CNRS, Grenoble, France

2:06

FF-04. Cation-ordered MgAl2O4 magnetic tunnel junctions with highly spin-polarized Co2FeAl electrodes. T. Scheike1,2, H. Sukegawa1, K. Inomata1, T. Ohkubo1, K. Honjo3 and S. Mitani1,2. 1. Magnetic Materials Unit, NIMS, Tsukuba, Japan; 2. University of Tsukuba, Tsukuba, Japan
FF-05. Spin Caloritronic Properties of Heusler Compound MTJs: From an Efficient Model to Improved Devices. A. Boehnke1, T. Huebner1, U. Martens2, A. Niesen1, C. Sterwerf1, J. Ludwig1, A. Thomas4, T. Kuschel1,5, C. Heiliger3, M. Münzenberg2 and G. Reiss1 1. Physics Department, Bielefeld University, Bielefeld, Germany; 2. Institute of Physics, Ernst-Moritz-Arndt University, Greifswald, Germany; 3. I. Physikalisches Institut, Justus Liebig University, Giessen, Germany; 4. Institute for Metallic Materials, Leibniz Institute for Solid State and Materials Research Dresden (IFW Dresden), Dresden, Germany; 5. Zernike Institute for Advanced Materials, University of Groningen, Groningen, Netherlands

2:30

FF-06. Epitaxial Fe/MgAl2O4/Fe(001) magnetic tunnel junctions prepared by a direct sputtering technique and Mg-Al insertion. M. Belmoubarik1, H. Sukegawa1, T. Ohkubo1, S. Mitani1 and K. Hono1 1. National Institute for Materials Science, Japan, Tsukuba, Japan

2:42

FF-07. Tuneable magnetism via charge transfer and orbital hybridization in molecular interfaces. (Invited) O. Cespedes1, F. Al Ma'Mari1, T. Moorsom1, S. Lee2, T. Prokscha3, H. Luetkens3, M.D. Rogers1, B. Hickey1, D.A. Arena1, M. Valvidares5, G. Burnett1, S. Langridge6 and C. Kinane6 1. School of Physics & Astronomy, University of Leeds, Leeds, United Kingdom; 2. School of Physics & Astronomy, University of St. Andrews, St. Andrews, United Kingdom; 3. Laboratory for Muon Spin Spectroscopy, Paul Scherrer Institut, Villigen, Switzerland; 4. Physics, University of South Florida, Tampa, FL; 5. BOREAS beamline, ALBA Synchrotron Light Facility, Barcelona, Spain; 6. Rutherford Appleton Laboratory, ISIS Neutron and Muon Source, Didcot, United Kingdom

3:18

FF-08. Room Temperature Spin Filtering in Metallic Ferromagnet-Graphene-Ferromagnet Junctions. E. Cobas1, O. van ’t Erve1 and B. Jonker1 1. Naval Research Laboratory, Washington, DC

3:30

FF-09. Modeling the negative magnetoresistance of Ferromagnet-Graphene-Ferromagnet junction. O. van ’t Erve1, E. Cobas1 and B. Jonker1 1. Naval Research Laboratory, Washington, DC

3:42

FF-10. Perpendicular magnetic anisotropy induced at MgO/Co2FeSi and Co2FeSi/MgO interfaces. S. Nakagawa1, K. Shinohara1 and Y. Takamura1 1. School of Engineering, Tokyo Institute of Technology, Tokyo, Japan
FF-11. Tunnel magnetoresistance of perpendicular magnetic tunnel junctions with ultra-thin strained MnGa electrode.

K. Suzuki1, R. Ranjbar2, J. Okabayashi3, Y. Miura4, A. Sugihara5, H. Tsuchiura6 and S. Mizukami1 1. WPI-AIMR, Tohoku University, Sendai, Japan; 2. Applied Physics, WPI Advanced Institute for Materials Research Tohoku University, Sendai, Japan; 3. Research Center for Spectrochemistry, University of Tokyo, Tokyo, Japan; 4. Electrical Engineering and Electronics, Kyoto Institute of Technology, Kyoto, Japan; 5. Tohoku University, Sendai, Japan; 6. Department of Applied Physics, Tohoku University, Sendai, Japan

4:06


E. Auerbach1, H. Arthaber2, C. Abert1, N. Leder2 and D. Suess1 1. Institute of Solid State Physics, Vienna University of Technology, Vienna, Austria; 2. Institute of Electrodynamics, Microwave, and Circuit Engineering, Vienna University of Technology, Vienna, Austria

4:18

FF-13. Influence of heavy metal layers on voltage controllable perpendicular magnetic tunnel junctions.

Session FG
RARE-EARTH-LEAN AND CE-SUBSTITUTED COMPOUNDS
Michael McGuire, Chair
Oak Ridge National Laboratory, Oak Ridge, TN

1:30

FG-01. Phase Stability and formation energy of NdFe12(N) with Ti, V, Zr and Si substitutes- an alternative to NdFeB. 

1:42


1:54

FG-04. Mössbauer and neutron study of Zr_{1-x}CexFe_{10}Si_{2} alloys for permanent magnet applications. A. Martín-Cid¹, D. Salazar¹, J.M. Barandiaran¹², J.S. Garitaonandia¹², T. Hansen⁴ and G. Hadjipanayis² ¹ BCMaterials, Derio, Spain; ² Physics and Astronomy, University of Delaware, Newark, DE; ³ University of the Basque Country, Bilbao, Spain; ⁴ Institut Max von Laue-Paul Langevin, Grenoble, France

FG-05. Magnetic Performance and Microstructure of Die-upset Anisotropic (CeNd)Fe_{14}B Multiphase Magnets. C. Jin¹, X. Tang¹, W. Yin¹, R. Chen¹ and A. Yan¹ ¹ Ningbo Institute of Materials Technology & Engineering, CAS, Ningbo, China

FG-06. Coercivity enhancement through the synergies additions of Y and Ce for Nd-Fe-B sintered magnets. X. Fan¹, S. Guo², K. Chen², R. Chen², D. Lee², C. You² and A. Yan² ¹ Xi’an University of Technology; ² Ningbo Institute of Material Technology and Engineering, Ningbo, China; ³ Xi’an University of Technology, Xi’an, China

FG-07. Permanant Magnet Materials with Abundant Rare Earth Elements: La₉Ce₂ₓCo₁₆₋ₓTi. B.S. Conner¹, M. McGuire¹, S.K. Veedu¹, D. Parker¹ and B.C. Sales¹ ¹ Oak Ridge National Laboratory, Oak Ridge, TN; ² Materials Science & Technology, Oak Ridge National Laboratory, Oak Ridge, TN

FG-08. Coercivity enhancement of (Nd,Ce)-Fe-B sintered magnets by doping Nd-Fe additives. K. Chen¹, S. Guo¹, X. Fan², G. Ding¹, L. Chen¹, R. Chen¹, D. Lee¹ and A. Yan¹ ¹ Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences., Ningbo, China; ² Xi’an University of Technology; Ningbo Institute of Material Technology and Engineering, Ningbo, China

FG-09. Tuning the magnetoelectric properties and microstructure of hot-pressed and die-upset (Nd,Ce)Fe₁₄B/CaF₂ Composite magnets. L. Zheng¹², F. Bai², R. Jiang¹², M. Zhu¹ and W. Li¹ ¹ Central Iron & Steel Research Institute, Beijing, China; ² College of Materials Science and Engineering, Hebei University of Engineering, Handan, China

3:30 FG-11. The Effect of Cerium Substitution in Nd-Fe-B Submicron Anisotropic Magnet Powders Obtained by Hydrogen Treatment. I. Poenaru1,2, A. Lixandru1,2, K. Gueth1, R. Gauss1 and O. Gutfleisch2,1 1. Fraunhofer ISC – Project Group Materials Recycling and Resource Strategies IWKS, Hanau, Germany; 2. Technische Universität Darmstadt, Darmstadt, Germany

THURSDAY AFTERNOON

1:30 Session FH

MAGNETIC SENSORS III
Maria Torija, Chair
NVE Corporation, Eden Prairie, MN

1:30 FH-01. Magnetic functionalities for flexible interactive electronics. (Invited) D. Makarov1 1. Intelligent materials and devices, Helmholtz-Zentrum Dresden-Rossendorf e.V., Dresden, Germany

2:06 FH-02. Nonlinear magnetoelectric effect in Metglas/PZT composite and its application for highly-sensitive DC magnetic field sensor. M. Li1, H. Zhou2, C. Dong1 and N.X. Sun1 1. Electrical and Computer Engineering, Northeastern University, Boston, MA; 2. Mechanical Engineering, China Jiliang University, Hangzhou, China

2:18 FH-03. Graphene-based thin and flexible Hall sensors. U. Inkaya1, Y. Uysalli2 and A. Oral2 1. Physics, Middle East Technical University, Ankara, Turkey; 2. Orta Dogu Teknik Universitesi, Ankara, Turkey

Thursday 191
FH-04. Nanoparticle Detection Method Based on Non-Linear Magnetoimpedance Effect. J. Beato¹,²,³, J. Perez-de Landazabal¹,²,³ and C. Gomez-Polo¹,²,³. ¹. Physics, UPNA (universidad pública de Navarra), Pamplona, Spain; ². Universidad Publica de Navarra, Pamplona, Spain; ³. INAMAT, Pamplona, Spain

FH-05. Development of Precise Magneto-Impedance Gradiometer for Magnetocardiograph. T. Uchiyama¹ and T. Takiya¹. ¹. Electrical Engineering, Nagoya University, Nagoya, Japan

FH-06. Absolute magnetic-field measurement using nanogranular in-gap magnetic sensor with second-harmonic and liquid-nitrogen-temperature operation. K. Tsukada¹, T. Yasugi¹, Y. Majima¹, K. Sakai² and T. Kiwa¹. ¹. Okayama University, Okayama, Japan; ². Graduate School of Natural Science and Technology, Okayama University, Okayama, Japan

FH-07. Suppression of Magnetic Noise in MgO/CoFeB Based Sensors by Voltage Controlled Magnetic Anisotropy. P. Wisniowski¹, M. Dabek¹, T. Stobiecki¹, S. Cardoso² and P.P. Freitas². ¹. Department of Electronics, AGH University of Science and Technology, Krakow, Poland; ². INESC-MN and IN- Institute of Nanoscience and Nanotechnology, Lisbon, Portugal

FH-08. Low Noise Tunneling Magnetoresistive Magnetic Field Sensors. J.G. Deak¹, Z. Zhou¹ and W. Shen². ¹. R&D, MultiDimension Technology Co., Ltd, Zhangjiagang, China; ². Wafer Front End, MultiDimension Technology Co., Ltd, San Jose, CA

FH-09. Magnetic Field Sensor Performance in Magnetic Tunnel Junctions with Amorphous CoFeSiB Electrode for Biomagnetic Field Sensor Devices. D. Kato¹, M. Oogane¹, K. Fujiwara¹, Y. Arai¹, J. Jono², H. Naganuma¹, M. Tsuchida² and Y. Ando¹. ¹. Tohoku University, Sendai, Japan; ². Konicaminolta Inc., Hachioji, Japan

FH-10. Effect of Metal Shielding on a Wireless Power Transfer System. J. Li¹, X. Huang¹, C. Chen¹, L. Tan¹, W. Wang¹ and J. Guo¹. ¹. School of Electrical Engineering, Southeast University, Nanjing, China

FH-11. Mathematical Modelling of Tri-axial Field Simulator Cage for Large Volume Applications. A.G. Modi¹, F. Kazi¹ and N. Singh¹. ¹. Department of Electrical Engineering, Veermata Jijabai Technological Institute, Mumbai, India
Session Fi
FUNDAMENTAL PROPERTIES: SPIN GLASSES AND FRUSTRATION II
Maciej Misiorny, Chair
Chalmers University of Technology, Poznan, Poland

1:30

FI-01. Artificial Magnets As Model Systems: From the Fragmentation of Magnetization to the 6-vertex Model. (Invited) B. Canals1, Y. Perrin1, I. Chioar1, V. Nguyen1, D. Lacour1, M. Hehn2, F. Montaigne2, A. Locatelli3, T. Mentes3, B. Santos3 and N. Rougemaille1 1. CNRS - Institut NEEL, Grenoble, France; 2. IJL UMR 7198 CNRS, Vandoeuvre lès Nancy, France; 3. ELETTRA Synchrotrone, Trieste, Italy

2:06

FI-02. Magnetic diffuse scattering in artificial kagome spin ice. N. Leo1,2, O. Sendetskyi1,2, L. Anghinolfi1,2, V. Scagnoli1,2, G. Möller1, A. Alberca2, J. Kohlbrecher2, J. Lüning4,5, U. Staub2 and L. Heyderman1,2 1. Department of Materials, ETH Zurich, Zurich, Switzerland; 2. Paul Scherrer Institute, Villigen, Switzerland; 3. University of Kent, Canterbury, United Kingdom; 4. UPMC Univ. Paris 06, Sorbonne Universités, Paris, France; 5. CNRS, Paris, France

2:18


2:30

FI-04. Fluctuations of Single-domain Island Moments with Inter-island Interactions in Artificial Spin Ice. Y. Lao1, J. Sklenar1, I. Gilbert1,2, D. Gardeazabal1, I. Carraquillo1, J.D. Watts3,4, L. O’Brien5,6, M. Manno3, C. Leighton3, A. Scholl3, G. Chern6, C. Nisoli8 and P. Schiffer1 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. School of Physics and Astronomy, University of Minnesota, Minneapolis, MN; 5. Thin Film Magnetism Group, Department of Physics, Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom; 6. Lawrence Berkeley National Laboratory (LBNL), Berkeley, CA; 7. Department of Physics, University of Virginia, Charlottesville, VA; 8. Theoretical Division Division and Center for Nonlinear Studies, Los Alamos National Laboratory, Los Alamos, NM
FI-05. Magnetotransport in connected artificial spin ice networks - effects beyond the ice model. J. Sklenar1, B.L. Le1, J. Park1, G. Chenu2, C. Nisoli3, J.D. Watts4, M. Manno4, D. Rench6, N. Samarth6, C. Leighton4 and P. Schiffer1 1. Physics and Frederick Seitz Materials Research Laboratory, University of Illinois at Urbana-Champaign, Urbana, IL; 2. Physics, University of Virginia, Charlottesville, VA; 3. Theoretical Division, LANL, Los Alamos, NM; 4. Chemical Engineering and Material Science, University of Minnesota, Minneapolis, MN; 5. Physics, University of Minnesota, Minneapolis, MN; 6. Physics and Materials Research Institute, Pennsylvania State University, University Park, PA

2:54

FI-06. Vogel-Fulcher-type freezing in artificial spin ice observed via resonant soft X-ray photon correlation spectroscopy (XPCS). S. Morley1, D. Alba Venero2, J. Porro2, S.T. Riley3, A. Stein4, P. Steadman5, R. Stamps6, S. Langridge2 and C.H. Marrows1 1. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 2. ISIS, Rutherford Appleton Laboratory, Didcot, United Kingdom; 3. School of Electrical and Electronic Engineering, University of Leeds, Leeds, United Kingdom; 4. CFN, Brookhaven National Laboratory, Upton, NY; 5. Diamond Light Source, Oxford, United Kingdom; 6. University of Glasgow, Glasgow, United Kingdom

3:06

FI-07. Glassy dynamics in ferromagnetic/antiferromagnet bilayers. T. Ma1, X. Cheng1, S. Boettcher1 and S. Urazhdin1 1. Physics, Emory University, Atlanta, GA

3:18

FI-08. Nanosecond Elastic Step Cooperative Response in Spin Crossover Compounds. C. Enachescu1, L. Stoleriu1, A. Stancu1 and E. Collet2 1. Department of Physics, Al. I. Cuza University, Iasi, Romania; 2. Institut de Physique de Rennes, Université de Rennes, Rennes, France

3:30

FI-09. Concepts of Ferrovalley Material and Anomalous Valley Hall Effect. W. Tong1 1. East China Normal University, Shanghai, China

3:42

FI-10. Supercooled Spin Liquid Behavior In Pyrochlore Titanates. A. Eyvazov1, A. Eyal1 and S. Davis1,2 1. Department of Physics, Cornell University, Ithaca, NY; 2. Condensed Matter Physics and Materials Science Department, Brookhaven National Laboratory, Upton, NY

3:54

FI-12. Yttrium Dilution in the Geometrically Frustrated Pyrochlore Gd$_2$Ti$_2$O$_7$. J.G. Ramon$^1$, R.S. Freitas$^1$, M. Moraes Leite$^2$, F. Maron Vichi$^2$ and J.S. Gardner$^3$
1. Institute of Physics, University of Sao Paulo, Sao Paulo, Brazil; 2. Institute of Chemistry, University of Sao Paulo, Sao Paulo, Brazil; 3. Neutron Group, NSRRC, Hsinchu, Taiwan

FI-13. Magnetic properties of V and Nb clusters: spin-lattice relaxation and spin-impurity screening. A. Kirilyuk$^1$, A. Diaz Bachs$^1$, V. Chernyy$^1$, R. Logemann$^1$ and E. Muskens$^1$
1. Institute for Molecules and Materials, Radboud University Nijmegen, Nijmegen, Netherlands

THURSDAY GRAND BALLROOM
2:30

Session FP
ULTRAFAST SWITCHING AND DOMAIN WALL MOTION
(Poster Session)
Markus Münzenberg, Co-Chair
Ernst-Moritz-Arndt University, Greifswald, Germany
Gregory Malinowski, Co-Chair
Institut Jean Lamour, Vandoeuvre-lès-Nancy, France

FP-01. Dynamics of an incomplete skyrmion state in confined helimagnetic nanostructures. M. Beg$^1$, M. Albert$^1$, M. Bisotti$^1$, D.I. Cortes$^1$, W. Wang$^2$, R. Carey$^1$, M. Vousden$^1$, O. Hovorka$^1$ and H. Fangohr$^1$
1. Faculty of Engineering and the Environment, University of Southampton, Southampton, United Kingdom; 2. School of Science, Ningbo University, Ningbo, China

FP-02. Photo-assisted magnetization reversal in a perpendicularly magnetized L1$_0$ FePt film with single ultrafast laser pulse. J. Shi$^1$, Z. Zhang$^1$, S. Zhou$^2$, H. Zhao$^1$ and L. Chen$^1$
1. Shanghai Ultra-precision Optical Engineering Research Center, and Key Laboratory of Micro and Nano Photonic Structures (Ministry of Education), Department of Optical Science and Engineering, Fudan University, Shanghai, China; 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

FP-03. Periodic domain configurations in single crystal nickel nanowires. M.V. Lubarda$^{1,2}$, J. Kan$^2$, S. Manna$^4$, K.T. Chan$^2$, V. Uhir$^2$, V. Lomakin$^3$ and E.E. Fullerton$^{2,4}$
1. Faculty of Polytechnics, University of Donja Gorica, Podgorica, Montenegro; 2. Center for Memory and Recording Research, University of California, San Diego, La Jolla, CA; 3. Department of Electrical and Computer Engineering, University of California, San Diego, La Jolla, CA; 4. Nanoengineering, University of California San Diego, La Jolla, CA

Thursday 195
FP-04. **Cumulative Effect in Helicity-Dependent All-Optical Switching of TbCo Films.** J. Chen¹, L. He¹, D.T. Valley², D.J. Flannigan², J. Wang³ and L. Mo¹. ¹. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN; ². Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN

FP-05. **Laser Induced Ultrafast Magnetization Reversal in TbCo Film.** W. Cheng¹,², X. Li¹, H. Wang³, X. Cheng¹,² and X. Miao¹,² ¹. School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan, China; ². Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, China

FP-06. **Steady Motion of Skyrmions and Domains Walls under Spin-diffusive Torques.** G. Elías¹,², A. Manchon³ and N. Vidal-Silva¹ ¹. Physics, Universidad de Santiago, Santiago, Chile; ². Physics, Cedenia, Santiago, Chile; ³. King Abdullah University of Science and Technology, Thuwal, Saudi Arabia

FP-07. **Atomistic simulation of heat assisted linear reversal mode in nano-dots with perpendicular anisotropy.** Y. Wang¹, T. Tanaka¹ and K. Matsuyama¹ ¹. Faculty of Information Science and Electrical Engineering, Kyushu University, Fukuoka, Japan

FP-08. **Vortex Motion in Amorphous Ferrimagnetic Thin Film Elements.** H. Oezelt¹, E. Kirk²,³, P. Wohlhüter²,³, E. Müller¹, L. Heyderman²,³, A. Kovacs¹ and T. Schrefl¹ ¹. Center for Integrated Sensor Systems, Danube University Krems, Wiener Neustadt, Austria; ². Laboratory for Micro- and Nanotechnology, Paul Scherrer Institute, Villigen PSI, Switzerland; ³. Laboratory for Mesoscopic Systems, ETH Zurich, Zurich, Switzerland; 4. Laboratory of Biomolecular Research, Paul Scherrer Institute, Villigen PSI, Switzerland

FP-09. **Ultrafast optical control of magnetization in yttrium iron garnet films.** L. Shen¹, L. Zhou², J. Shi¹, Z. Zheng¹, H. Zhao¹, D. Wu² and L. Chen¹ ¹. Department of Optical Science and Engineering, Fudan University, Shanghai, China; ². Department of Physics, Nanjing University, Nanjing, China

FP-10. **Ultrafast Control of Magnetic Order in Magnetically Doped Topological Insulator Thin Films.** Y. Ni¹, L. Luo²,³, Z. Zhang⁴, C.I. Nlebedim³, J. Wang²,³ and D.C. Jiles¹ ¹. Department of Electrical and Computer Engineering, Iowa State University, Ames, IA; ². Department of Physics and Astronomy, Iowa State University, Ames, IA; ³. Ames Laboratory, U.S. Department of Energy, Ames, IA; ⁴. School of Materials Engineering, Purdue University, West Lafayette, IN

FP-12. Modeling of domain wall motion in multiferroic heterostructures. Z. Xiao1, C. Liang2, G. Carman2 and R.N. Candler1,3 1. Electrical Engineering, University of California, Los Angeles, Los Angeles, CA; 2. Mechanical and Aerospace Engineering, University of California, Los Angeles, Los Angeles, CA; 3. California NanoSystems Institute, Los Angeles, CA

FP-13. Current-induced Domain Wall Motion Modulated by Magnetic Pinning in Zigzag Shaped Nanowires. X. Zhou1, Z. Huang1, W. Zhang1, J. Yue1, Q. Chen1, Y. Yin1, H. Yuan1, Y. Zhai1,2 and S. Dong1 1. Department of Physics, Southeast University, Nanjing, China; 2. National Laboratory of Solid State Microstructures, Nanjing University, Nanjing, 210093, China

THURSDAY GRAND BALLROOM
AFTERNOON
2:30

Session FQ
MAGNETIZATION DYNAMICS III: SPIN PUMPING AND OTHER EFFECTS (Poster Session)
Yan Zhou, Chair
University of Hong Kong, Hong Kong

FQ-01. Demagnetisation energy and magnetisation variation effects on the confined isolated skyrmion state dynamics. M. Beg1, M. Albert1, M. Bisotti1, D.I. Cortes1, W. Wang2, R. Carey3, M. Vousden1, O. Hovorka1 and H. Fangohr1 1. Faculty of Engineering and the Environment, University of Southampton, Southampton, United Kingdom; 2. School of Science, Ningbo University, Ningbo, China

FQ-02. Spin Transfer Torque Magnetization Reversal In Hard/Soft Composite Structures. M. Kuteifa1, C.A. Lambert4, M.V. Lubarda1, S. Mangin2 and V. Lomakin1 1. Department of Electrical and Computer Engineering, University of California, San Diego, La Jolla, CA; 2. Institut Jean Lamour, Université de Lorraine, Vandoeuvre-les-Nancy, France; 3. Faculty of Polytechnics, University of Donja Gorica, Podgorica, Montenegro; 4. University of California, Berkeley, CA
FQ-03. Rate-Dependent Extensions of the Parametric Magneto-Dynamic Model with Magnetic Hysteresis. S. Steentjes¹, M. Petrun², G. Glehn¹, D. Dolinar³ and K. Hameyer¹ 1. Institute of Electrical Machines, RWTH Aachen University, Aachen, Germany; 2. FERI, University of Maribor, Maribor, Slovenia

FQ-04. Large spin pumping effect in antisymmetric precession of Ni₇₀Fe₂₀/Ru/Ni₇₀Fe₂₀. H. Yang¹, Y. Li¹ and W. Bailey¹ 1. Applied Physics and Applied Mathematics, Columbia University, New York, NY

FQ-05. Element specific magnetisation dynamics at NiFe/Cr interfaces. D.M. Burn¹, R. Fan¹, D. Atkinson² and P. Steadman¹ 1. Diamond Light Source, Harwell, United Kingdom; 2. Durham University, Durham, United Kingdom

FQ-06. Dependence of spin dynamics on nitrogen site ordering in γ'-Fe₄N thin films. S. Isogami¹ 1. Fukushima National College of Technology, Iwaki, Japan

FQ-07. Voltage tuning spin wave resonance at ferromagnetic/ferroelectric interfaces. M. Zhu¹, Z. Zhou¹, W. Ren¹, Z. Ye¹,² and M. Liu¹ 1. School of Electrical and Information Engineering, Xi’an Jiaotong University, Xi’an, China; 2. Department of Chemistry and 4D LABS, Simon Fraser University, Burnaby, BC, Canada

FQ-08. Manipulation of magnetization in GaMnAs layers by spin-orbit induced field. S. Lee¹, S. Choi¹, S. Bac¹, A. Nasir¹, S. Lee¹, X. Liu² and J. Furdyna² 1. Physics, Korea University, Seoul, The Republic of Korea; 2. Physics, University of Notre Dame, Notre Dame, IN

FQ-09. Exchange-coupling Induced Anisotropy Modulation of Fe-CoO Films Triggered by Photo-induced Charge Transfer Effect. Z. Zheng¹, H. Zhao¹, J. Shi¹, L. Shen², Y. Wu³ and T. Gu³ 1. Department of Optical Science and Engineering, Fudan University, Shanghai, China; 2. Fudan, Shanghai, China; 3. Physics Department, Fudan University, Shanghai, China

FQ-10. 1-Dimensional Fe₇Co₃₋ₓ nanowires; Ferromagnetic Resonance and Magnetization dynamics. S. Aslam¹,², M. Khanna² and B.K. Kuan³ 1. Special Centre for Nanoscience, Jawaharlal Nehru University, New Delhi, India; 2. Bhaskaracharya College of Applied Sciences, University of Delhi, New Delhi, India; 3. Department of Physics, University of Colorado at Colorado Springs, Colorado Springs, CO

FQ-11. Investigating Nanodevices Driven by the Spin Hall Effect with Nitrogen-Vacancy Centres in Diamond. Z. Flansberry¹, A. Solyom¹, A. Bourassa¹,², L. Childress¹ and J.C. Sankey¹ 1. Physics, McGill University, Montreal, QC, Canada; 2. University of Chicago, Chicago, IL

FQ-12. Field fluctuations due to thermally excited spin waves. J. Liu¹, S. Yoon¹,² and B. McMichael¹ 1. Center for Nanoscale Science and Technology, National Institute of Standards and Technology, Gaithersburg, MD; 2. Maryland Nanocenter, University of Maryland, College Park, MD
I. Materials Science Division, Argonne National Laboratory, Argonne, IL; 2. Texas A&M University, College Station, TX

Applied Physics and Applied Mathematics, Columbia University, New York, NY

FQ-15. Spin pumping in single crystalline Fe/Pt heterostructure by broadband ferromagnetic resonance measurement. Y. Huo, F. Zeng, C. Zhou and Y. Wu
Physics, Fudan University, Shanghai, China; 2. Fudan University, Shanghai, China

THURSDAY
AFTERNOON
2:30

Session FR
EMERGENT AND NOVEL MAGNETIC ORDER IN THIN FILMS II
(Poster Session)
Hendrik Ohldag, Chair
SLAC National Accelerator Laboratory, Menlo Park, CA

FR-01. Effect of epitaxial strain on magnetic and transport behaviors in metamagnetic FeRh thin films. Y. Xie, Q. Zhan, T. Shang, H. Yang, B. Wang and R. Li
Ningbo Institute of Industrial Technology, Chinese Academy of Sciences, Ningbo, China

Condensed Matter Physics and Material Sciences, S N Bose National Centre For Basic Sciences, Kolkata, India

National Institute of Technology, Tokyo college, Hachioji, Japan; 2. Toyohashi University of Technology, Toyohashi, Japan

Physics Engineering, Mie University, Tsu City, Japan; 2. Institute for Chemical Research, Kyoto University, Uji, Japan

Materials Science and Engineering, NC State University, Raleigh, NC
FR-06. Magnetic phases of thin terbium films. F.H. Sales¹, A.S. Carriço² and A.L. Dantas². IFMA, São Luís, Brazil; 2. Department of Physics, Universidade Federal do Rio Grande do Norte, Natal, Brazil; 3. Departament of Physics, University of State of Rio Grande do Norte, Natal, Brazil

FR-07. Physical properties of ultrathin La₁₋ₓSrₓCoO₃/SrTiO₃: Nb heterojunctions. Y. Li¹, S. Peng¹, T. Mao¹, D. Wang¹ and K. Wu¹. 1. Faculty of Science, Wuhan University of Science and Technology, Wuhan, China

FR-08. Reversible Hydrogenation Induced Spin-Reorientation Transition In Co₉₀Pd₁₀ Alloy Thin Films. P. Chang¹, Y. Chen¹, C. Hsu¹, V. Mudinepalli¹ and W. Lin¹. 1. Department of Physics, National Taiwan Normal University, Taipei, Taiwan

FR-09. Spin-Vortex Resonance In Patterned Ferromagnetic/ Superconducting Structures. S. Lendinez¹, J. Ding¹, P.N. Lapa¹,², G. Karapetrov³, J.E. Pearson¹ and V. Novosad¹. 1. Materials Science Division, Argonne National Laboratory, Lemont, IL; 2. Texas A&M University, College Station, TX; 3. Drexel University, Philadelphia, PA

FR-10. Strain effect on the magnetic and electronic transport properties of LaCoO₃ films. Y. Li¹, T. Mao¹, S. Peng¹, D. Wang¹, K. Wu¹ and J. Sun². 1. Faculty of Science, Wuhan University of Science and Technology, Wuhan, China; 2. State key laboratory for Magnetism, Institute of Physics, Chinese Academy of Sciences, Beijing, China

FR-11. The Ferromagnetic Phase in MnAl/Ag Thin Films. K. Yang¹ and R.A. Lukaszew¹. 1. Department of Physics, College of William and Mary, Williamsburg, VA


FR-13. The role of an interfacial FeCu alloy on the magnetism in nanostructured thin films of Fe in Cu. R.D. Desautels¹,², C. Shueh³, K. Lin³, J.W. Freeland³ and J. van Lierop³. 1. Physics and Astronomy, University of Manitoba, Winnipeg, MB, Canada; 2. Quantum Condensed Matter Division, Oak Ridge National Laboratory, Oak Ridge, TN; 3. Department of Materials Science and Engineering, National Chung Hsing University, Taichung, Taiwan; 4. Argonne National Laboratory, Argonne, IL
FR-14. Vortex-Antivortex coexistence in Nb based Superconductor/ Ferromagnet heterostructures. A.M. Cuocolo1,2, F. Bobba1,2, C. Di Giorgio1, D. D’Agostino1, A. Scarfato1, M. Iavarone1, S.A. Moore3, G. Karapetrov4, V. Novosad5 and V. Yefremenko5
1. Department of Physics “E.R. Caianiello”, University of Salerno, Salerno, Italy; 2. CNR-SPIN, Salerno, Italy; 3. Department of Physics, Temple University, Philadelphia, PA; 4. Department of Physics, Drexel University, Philadelphia, PA; 5. Materials Science Division, Argonne Nat Lab, Argonne, IL

1. Department of Physics, State Key Laboratory of Surface Physics, Fudan University, Shanghai, China; 2. NCEM, Lawrence Berkeley National Lab, Berkeley, CA

THURSDAY GRAND BALLROOM
AFTERNOON 2:30

Session FS
SPIN INJECTION, SPIN TRANSFER TORQUE AND SPIN-ORBIT INTERACTION
(Poster Session)
Shingo Tamaru, Chair
National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan

FS-01. Spin Polarization enhancement at the n-MnSb(0001)/GaAs(111) Interface. C.E. Ouserigha1, H. Wang1, C. Burrows1, T.P. Hase1 and G. Bell1
1. Physics, University of Warwick, Coventry, United Kingdom

FS-02. Bias Dependence of Tunneling Spin Injection into Graphene. T. Zhu1, H. Wen1, S. Singh1, J. Katoch1, W. Amamou2 and R. Kawakami1
1. Department of Physics, The Ohio State University, Columbus, OH; 2. Material Science and Engineering Program, University of California, Riverside, CA

FS-03. Temperature dependence of spin-to-charge conversion in MoS2 monolayer from spin pumping. P. Bonnet1, C. Cheng1, M. Collet1, B. Dlubak1, P. Seneor1, H. Kim2, G. Han2, Y. Lee2, H. Yang2 and A. Anane1
1. Unité Mixte de Physique CNRS, Thales, Univ. Paris-Sud, Université Paris-Saclay, Plateau, France; 2. CINAP Institute for Basic Science; Department of Energy Science, Sungkyunkwan University, Suwon, The Republic of Korea

FS-04. A role of impurity- and phonon-induced momentum scattering to spin lifetime in degenerate Si. S. Lee1, N. Yamashita1, S. Dushenko1, Y. Ando1, H. Koike2 and M. Shiraishi1
1. Department of Electronic Science and Engineering, Kyoto University, Kyoto, Japan; 2. Technology HQ, TDK Corporation, Ichikawa, Japan
FS-05. Field-angle and DC-bias Dependence of the Spin-torque Diode Effect in Giant-magneto resistive Microstripe. X. Li1, Y. Zhou2, M. Chan3 and P. Pong1 1. Department of Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong, Hong Kong; 2. Physics, University of Hong Kong, Hong Kong, Hong Kong; 3. Department of Electronic and Computer Engineering, Hong Kong University of Science and Technology, Hong Kong, Hong Kong

FS-06. Spin transfer torque switching in nano-pillars with SAF reference layer. M. Arora1, C. Fowley2, T. McKinnon1, E. Kowalska2, V. Shuka2, A.M. Deac2, B. Heinrich1 and E. Girt1 1. Department of Physics, Simon Fraser University, Burnaby, BC, Canada; 2. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 3. Department of Physics, New York University, New York, NY


FS-08. Intrinsic spin-orbit torque in a single domain nanomagnet. A. Kalitsov1, S. Nikolaev2, J. Velev3 and M. Chshiev2 1. MINT Center, University of Alabama, Tuscaloosa, AL; 2. UMR 8191 CEA/CNRS/UJF, SPINTEC, Grenoble, France; 3. School of Applied and Engineering Sciences, Beijing, China

FS-09. Electrical control over perpendicular magnetization switching driven by spin-orbit torques. X. Zhang1, C. Wan1, Z. Yuan1, Q. Zhang1, H. Wu1, L. Huang1, W. Kong1, C. Fang1, U. Khan1 and X. Han1 1. Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences, Beijing, China

FS-10. Spin-Orbit Torque Control of Dipole Field-Localized Spin Wave Modes. C. Zhang1, Y. Pu1, S.A. Manuilov1, E. Blomberg1, S. White1, V.P. Bhallamudi1, W. Ruane1, D.V. Pelekikh1 and P. Hammel1 1. Department of Physics, The Ohio State University, Columbus, OH


FS-12. Spectral Linewidth of Spin-Current Nano-Oscillators Driven by Nonlocal Spin Injection. S. Urazhdin1, V.E. Demidov2, B. Divinsky2 and S. Demokritov2 1. Physics, Emory University, Atlanta, GA; 2. Institute for Applied Physics, University of Muenster, Muenster, Germany

FS-13. Very high Q factor in elliptical shaped spin torque oscillators. B. Wang1, H. Kubota1, K. Yakushiji1, A. Fukushima1 and S. Yuasa1 1. National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan
Measurements of the lifetime and generation time of magnetic droplet solitons. J. Hang1, C. Hahn1, N. Statuto2, F. Macia2,3 and A.D. Kent1 1. Department of Physics, New York University, New York, NY; 2. Dept. of Condensed Matter Physics, University of Barcelona, Barcelona, Spain; 3. Institut de Ciencia de Materials de Barcelona, Bellaterra, Spain

Spin transfer torque mechanisms in three terminal spin-torque oscillators. E. Jué1, W. Rippard1, M. Pufall1 and E.R. Evarts1 1. Spin Electronics Group, National Institute of Standards and Technology, Boulder, CO

Session FT
MULTI-LAYER FILMS AND SUPERLATTICES II (Poster Session)
Wen-Chin Lin, Chair
National Normal University, Taipei, Taiwan

Magnetic leverage effects in amorphous SmCo/CoAlZr heterostructures. T.P. Hase1, R. Procter1, F. Magnus2,3, G. Andersson1, C. Sanchez-Hanke1,4 and B. Hjörvarsson1 1. Physics, University of Warwick, Coventry, United Kingdom; 2. Science Institute, University of Iceland, Reykjavik, Iceland; 3. Dept of Physics and Astronomy, Uppsala University, Uppsala, Sweden; 4. NSLS, Brookhaven National Laboratory, Upton, NY; 5. DIAMOND Light Source, Didcot, United Kingdom

Angular Dependence of Resonant Absorption in Coupled Magnetic Thin Films. D.J. Adams1,2, P. Poudyal1,2, M.A. Khan1 and L. Spinu1,2 1. Physics, University of New Orleans, New Orleans, LA; 2. Advanced Materials Research Institute, University of New Orleans, New Orleans, LA

[CoPd/Pd] and [Co/Pd] hybrid stacks for the memory layer of high density magnetic random access memory cells. X. Dong1, D. Oshima1, T. Kato1, Y. Sonobe2 and S. Iwata1 1. Nagoya University, Nagoya, Japan; 2. Samsung R&D Institute Japan, Yokohama, Japan

Synthetic antiferromagnets with vortices and antivortices in domain walls. A. Ognev1, A.S. Samardak1, A.G. Kolesnikov1, M.E. Stebliy1, E. Pustovalov2, V.S. Plotnikov1, O. Tretiakov1,2 and L. Chebotkevich1 1. School of Natural Sciences, Far Eastern Federal University, Vladivostok, Russian Federation; 2. Tohoku University, Sendai, Japan

Hybridization-Induced Large XMCD of Carbon in Pd-Fe-C60 Composite Thin Films. K. Hsu1, H. Hsu1, P. Chang1, C. Hsu1 and W. Lin1 1. Department of Physics, National Taiwan Normal University, Taipei, Taiwan
FT-06. Co L-edge and Pd M-edge XMCD in perpendicular magnetic anisotropy system: Co/Pd multilayers.
J. Okabayashi¹ and H. Munekata² ¹. The University of Tokyo, Research Center for Spectrochemistry, Tokyo, Japan; 2. Tokyo Institute of Technology, Yokohama, Japan

FT-07. Effect of nanostructure layout on spin pumping phenomena in antiferromagnet/ nonmagnetic metal/ ferromagnet multilayered stacks. A. Kravets¹-², D. Polishchuk¹-², Y. Tykhonenko-Polishchuk¹, T. Polek¹, H. Gomonay³, A. Tovstolytkin¹, A. Pogoryly¹ and V. Korenivski² ¹. Institute of Magnetism, National Academy of Sciences of Ukraine, Kyiv, Ukraine; 2. Nanostructure Physics, Royal Institute of Technology, Stockholm, Sweden; 3. National Technical University of Ukraine “KPI”, Kyiv, Ukraine; 4. Institut für Physik, Johannes Gutenberg Universität Mainz, Mainz, Germany

FT-08. Magnetic-control-electric and reversal behavior of multiferroic ZnO/NiFe/ZnO multilayer films. P. Chi¹, D. Wei¹, C. Xu² and Y. Yao³ ¹. Institute of Manufacturing Technology and Department of Mechanical Engineering, National Taipei University of Technology, Taipei, Taiwan; 2. Department of Applied Physics, National University of Kaohsiung, Kaohsiung, Taiwan; 3. Institute of Physics, Academia Sinica, Taipei, Taiwan

FT-09. Enhanced Extraordinary Hall Effect of Co/Pd Multilayers Films Deposited on Nanodomes Substrate. J.C. Denardin¹, S. Michea¹, S. Vidal¹ and S. Oyarzun¹ ¹. Physics, Universidad de Santiago, Santiago, Chile

FT-10. Ferromagnetic Resonance and Interlayer Exchange Coupling in Magnetic Multilayers with Compositional Gradients. D. Polishchuk¹-², A. Kravets¹-², Y. Tykhonenko-Polishchuk¹, A. Tovstolytkin¹ and V. Korenivski² ¹. Institute of Magnetism, National Academy of Science of Ukraine, Kyiv, Ukraine; 2. Nanostructure Physics, Royal Institute of Technology, Stockholm, Sweden

THURSDAY GRAND BALLROOM
AFTERNOON 2:30

Session FU

DOMAIN WALL AND DOMAIN WALL DEVICES II
(Poster Session)
Matthias Benjamin Jungfleisch, Chair
Argonne National Laboratory, Argonne, IL

FU-01. Impact of Ta-Mo Seedlayer Alloying on the Interfacial Dzyaloshinskii-Moriya Interaction in FeCoB/MgO Thin Films. D. Lau¹, J. Pellegren¹, P. Rengasamy¹ and V.M. Sokalski¹ ¹. Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, PA
Control of magnetic domain wall motion on the nanoscale by using magnetic anisotropy contrast. D. Ravelosona¹, L.H. Diez², G. Agnus³, J. Adam¹, T. Devolder¹, S. Eimer¹, N. Vernier¹, A. Digiacomo¹, R. Mantovan², A. Lamperti³, G. Tallarina², M. Fanciulli², J. Langer², B. Ocker², L. Baldi³, M. Marianni², S. Manna² and E.E. Fullerton¹. CNRS, University of Paris Sud, University of Paris Saclay, Center for Nanoscience and Nanotechnology, Orsay, France; 2. CNR-IMM MDM Laboratory, Agrate Brianza (MB), Italy; 3. Laboratorio MDM, IMM-CNRS, Agrate Brianza, Italy; 4. Singulus AG, Kahl, Germany; 5. Micron Semiconductor Italia, Agrate Brianza, Italy; 6. Nanoeengineering, University of California San Diego, La Jolla, CA; 7. University of California San Diego, La Jolla, CA

Domain walls as efficient spin current sources in lateral devices. W. Savero Torres¹, G. Zahnd¹, V. Pham¹, P. Laczkowski¹, A. Marty¹, L. Vila¹ and J. Attane¹. Spintec, CEA Grenoble, Grenoble, France

Filamentary Ferromagnetic Domain Structure Imaged in Metamagnetic FeRh. R.C. Temple¹, J. Massey¹, T. Moore¹ and C.H. Marrows¹. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom

Stochasticity of Domain-Wall Speed Driven by Current. Y. Nam¹, M. Park¹, D. Kim¹, Y. Park¹, J. Kim¹, B. Min² and S. Choe¹. Physics and Astronomy, Seoul National University, Seoul, The Republic of Korea; 2. Center for Spintronics, Korea Institute of Science and Technology (KIST), Seoul, The Republic of Korea

Micromagnetic Simulation of Domain Wall Propagation Along Meandering Magnetic Strip With Spatially Modulated Material Parameters. Z. Zhang¹, T. Tanaka¹ and K. Matsuyama¹. Faculty of Information Science and Electrical Engineering, Kyushu University, Fukuoka, Japan

Enhancement of Spin Orbit Torques in a Tb-Co Alloy Magnetic Wire by Controlling its Tb Composition. Y. Kurokawa¹, A. Shibata¹ and A. Hiroyuki¹. Information Storage Materials Laboratory, Toyota Technological Institute, Nagoya, Japan

Intrinsic asymmetry in chiral domain-walls due to the Dzyaloshinskii-Moriya interaction. D. Kim¹, D. Kim¹ and S. Choe¹. Physics and Astronomy, Seoul National University, Seoul, The Republic of Korea

Tuning magnetodynamic properties in NiFe film with localized diffusion for domain wall devices. T. Jin¹, M. Ranjar², W. Law¹, W. Lew¹ and S.N. Piramanayagam¹. School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore
FU-10. Tailoring the Domain Wall Pinning Potential in CoFeB/MgO Films with Perpendicular Magnetic Anisotropy. B. Sarma1,2, Y. Liu1, X. Zhang3, N. Vernier1, M. Voto4, A. Magni5, S. Nasseri1,2, L. Lopez-Diaz3, J. Langer6, B. Ocker6, G. Durin5, L.H. Diez3 and D. Ravelosona1 1. ISI Foundation, Turin, Italy; 2. Department of Applied Science and Technology, Politecnico di Torino, Corso Duca Degli Abruzzi 24, 10129, Turin, Italy; 3. Centre de Nanosciences et de Nanotechnologies, CNRS, Univ. Paris-Sud, Université Paris-Saclay, C2N – Orsay, 91405, Orsay cedex, France; 4. Departamento Física Aplicada, Universidad de Salamanca, plaza de los Caídos s/n E-38008, Salamanca, Spain; 5. Istituto Nazionale di Ricerca Metrologica, Torino, Italy; 6. Singulus Technologies AG, Kahl am Main 63796, Germany

FU-11. Stress Driven Domain Wall Motion in FeCo Nanowires. S. Bhatti1,2, T. Ikeda2, S.N. Piramanayagam1 and X. Liu2 1. School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore; 2. Department of Electrical and Computer Engineering, Shinshu University, Nagano, Japan

FU-12. Nanometric alternating magnetic field generator. A. Espejo1, F.S. Tejo1, N.S. Vidal1 and J. Escrig1 1. Departamento de Física, Universidad de Santiago Chile, Santiago, Chile

FU-13. Electrical detection of magnetic domain walls by inverse and direct spin Hall effect. V. Pham1,2, L. Vila1,2, G. Zahnd1,2, A. Marty1,2, W. Savero-Torres1, P. Noël1,2, F. Rortais1,2, M. Jamet1,2, C. Vergnaud1,2 and J. Attane1,2 1. SPINTEC, INAC, CEA-Grenoble, Grenoble, France; 2. Université Grenoble Alpes, Grenoble, France


FU-15. Thermal conductivity of magnetic nanowire with controlled domain walls. H. Huang1, C. Li2 and Z. Wei1 1. Institute of Nanoengineering and Microsystems, National Tsing Hua University, Hsinchu, Taiwan
SESSION FV
MICROWAVE AND MAGNETOCALORIC MATERIALS
(POSTER SESSION)
Zbigniew Celinski, Co-Chair
UCCS, Colorado Springs, CO
Radhika Barua, Co-Chair
Northeastern University, Quincy, MA

FV-01. Design and evaluation of noise suppression sheet for GHz band utilizing surface magneto-elastic effect. T. Igarashi1, K. Kondo1 and S. Yoshida1. NEC Tokin Corporation, Sendai, Japan

FV-02. Magnetic and mechanical properties of iron-based $\alpha$-Fe$_2$O$_3$/nano-sized MgO-coated composites. L. Xiao1, M. Li1 and W. Cheng1. Xi’an University of Science and Technology, Xi’an, China; 2. Department of Basic Courses, Mechanics Research Center, Xi’an University of Science and Technology, Xi’an, China

FV-03. Synthesis of layer structured Fe$_3$O$_4$ nanodisk and microstructures dependent microwave absorption property. N. Song1, S. Geng1, J. Zhou1, H. Yang2 and Z. Cheng3. Beijing University of Chemical Technology, Beijing, China; 2. Institute of Physics, Beijing, China; 3. Chinese Academy of Sciences, Beijing, China

FV-04. Hard/soft ferrite-based CoFe$_2$O$_4$/NiFe$_2$O$_4$ nanocapsules with enhanced exchange-coupling interaction and microwave absorption. C. Feng1 and S. Or2. 1. Department of Electrical Engineering, The Hong Kong Polytechnic University, Kowloon, Hong Kong

FV-05. Non-Spherical Magnetic Particle Orientation Inside Magnetic Composites in Thermoforming. K. Miura1, H. Okubo1 and H. Osada1. 1. Faculty of Science and Engineering, Iwate University, Morioka, Japan

FV-06. Band-Notched Ultrawideband (UWB) Antenna Loaded with Ferrite. H. Wang1, W. Zong1, N.X. Sun2, H. Lin2 and S. Li1,3. 1. Qingdao University, Qingdao, China; 2. Northeastern University, Boston, MA; 3. National Laboratory of Solid State Microstructures, Nanjing University, Nanjing, China

FV-07. Synthesis and characterization of Yttrium Iron Garnet (YIG) Nanoparticles - Microwave Material. V. Sharma1, J. Saha2, S. Patnaik2 and B.K. Kuanr1. 1. Special Centre for Nanoscience, Jawaharlal Nehru University, New Delhi, India; 2. School of Physical Sciences, Jawaharlal Nehru University, New Delhi, India
FV-08. Enhanced microwave absorbing characteristics of flake-shaped ferritic stainless steel/reduced graphene oxide/epoxy composites. R. Yang1, C. Chen2, W. Liang1, L. Ho1 and H. Liu3
1. Aerospace and Systems Engineering, Feng Chia University, Taichung, Taiwan; 2. Ph.D. Program of Mechanical and Aeronautical Engineering, Feng Chia University, Taichung, Taiwan; 3. Department of Mechanical and Computer-Aided Engineering, Feng Chia University, Taichung, Taiwan

FV-09. Study on magnetocaloric effect investigated by crystallographic and magnetic properties of Mn_{1-x}Fe_{x}As (x = 0.001, 0.003, 0.005). J. Lim1, H. Cho1 and C. Kim1
1. Kookmin University, Seoul, The Republic of Korea

FV-10. Large rotating magnetocaloric effect in ErAlO₃ single crystal. X. Zhang1, Y. Wu1, Y. Ma1, Q. Dong2, Y. Ke1 and Z. Cheng1
1. Institute of Physics, Chinese Academy of Sciences, Beijing, China; 2. Capital Normal University, Center for Condensed Matter & Beijing Key Laboratory of Metamaterials and Devices, Department of Physics, Beijing, China

1. Physics, Indian Institute of Technology Madras, Chennai, India; 2. DCMP&MS, Tata Institute of Fundamental Research, Mumbai, India; 3. Departamento de Física Teórica e Experimental, Universidade Federal do Rio Grande do Norte, Natal, Brazil

FV-12. Magnetic Structures and “lattice-spin-charge” correlation in antiperovskite structured Mn₃XN(C) compounds. C. Wang1, Y. Sun1, L. Wang1, K. Shi1, S. Deng2 and Q. Huang2
1. Physics, Beijing Institute of Technology, Beijing, China; 2. NIST Center for Neutron Research, Gaithersburg, MD

THURSDAY GRAND BALLROOM
AFTERNOON 2:30

Session FW
POWER MACHINES II
(Poster Session)
Gino Hrkac, Chair
University of Exeter, Exeter, United Kingdom

FW-01. Research on a New Magnetic-Field-Modulated Brushless Double-Rotor Machine with Sinusoidal-Permeance Modulating Ring. P. Zheng1, J. Liu1, J. Bai2, Z. Song1 and B. Zhao1
1. Department of Electrical Engineering, Harbin Institute of Technology, Harbin, China; 2. Harbin Institute of Technology, Harbin, China


Design of Levitation and Guidance Control for Semi-high-speed Maglev train with Electromagnetic and Dynamic Coupling. C. Ha, M. Kim, J. Jeong, C. Kim and J. Lim.

Design of a Novel Cambered 2-DOF PM In-wheel Motor. F. Chai, L. Gan, Y. Pei and S. Cheng.


Thursday 209
FW-12. Analytical Model for Loaded Magnetic Field and Electromagnetic Power of Ultra-high Speed PMSMs. W. Cheng, L. Huang, M. Li, L. Xiao, H. Lin, Y. Sun and L. Yu. 1. Department of Basic Courses, Mechanics Research Center, Xi’an University of Science and Technology, Xi’an, China; 2. Suzhou SLAC Precision Equipment Co., Ltd, Suzhou, China; 3. State Key Laboratory for Strength and Vibration of Mechanical Structures, Xi’an Jiaotong University, Xi’an, China

FW-13. Transient Line Starting Analysis of the Ultra-high Speed PMSM. W. Cheng, W. Li, L. Xiao, M. Li, Y. Tian, Y. Sun and L. Yu. 1. Department of Basic Courses, Mechanics Research Center, Xi’an University of Science and Technology, Xi’an, China; 2. State Key Laboratory for Strength and Vibration of Mechanical Structures, Xi’an Jiaotong University, Xi’an, China; 3. Institute of Engineering Thermophysics, Chinese Academy of Science, Beijing, China

FW-14. Asymmetric double-sided linear actuator with suppressed thrust ripple for syringe pump system. W. Li, K. Chau and T. Ching. 1. The University of Hong Kong, Hong Kong, Hong Kong; 2. University of Macau, Macao, China


FRIDAY MARDI GRAS A-E
MORNING
8:30

Session GA

SYMPOSIUM: ULTRALOW DAMPING
Gilles Gaudin, Chair
SPINTEC (CNRS/CEA), Grenoble, France
8:30

GA-01. Co,MnSi Half-Metal Magnetic Character Studied by Spin-Resolved PhotoEmission Spectroscopy and FerroMagnetic Resonance. (Invited) S. Andrieu, A. Neggache, C. Guillermard, T. Hauet, S. Petit-Watelot, T. Devolder, A. Hallal, M. Chshiev, A.M. Bataille, P. Le Fevre and F. Bertran. 1. Institut Jean Lamour (CNRS/Université de Lorraine), Vandoeuvre Les Nancy, France; 2. IEF, Orsay, France; 3. UMR 8191 CEA/CNRS/UJF, SPINTEC, Grenoble, France; 4. IRAMIS/LLB, CEA, Gif sur Yvette, France; 5. SOLEIL synchrotron, Saint Aubin, France

9:42


10:18


10:54

GA-05. Chiral damping of magnetic domain walls. (Invited) I. Miron. SPINTEC, CEA-INAC/CNRS/Univ. Grenoble Alpes, Grenoble, France

FRIDAY MORNING 8:30

Session GB

SPIN SEEBECK AND RELATED EFFECTS

Yunlong Jin, Chair
University of Nebraska, Lincoln, NE

8:30


8:42

GB-02. Observation of Spin Seebeck Effect in nanometer thick YIG/Pt stripe. M. Collet, P. Bortolotti, M. Muñoz, V. Cros and A. Anane. Unité Mixte de Physique CNRS/Thales and Université Paris Sud, Palaiseau, France; 2. IMM-Instituto de Microelectronics de Madrid, Madrid, Spain

8:54

GB-03. Thermal Imaging of Spin Peltier Effect. S. Daimon, R. Iguchi, T. Hioki, E. Saitoh and K. Uchida. Institute for Materials Research, Tohoku University, Sendai, Japan; 2. WPI Advanced Institute for Materials Research, Tohoku University, Sendai, Japan; 3. ERATO, Spin Quantum Rectification Project, Japan Science and Technology Agency, Sendai, Japan; 4. PRESTO, Japan Science and Technology Agency, Sendai, Japan
GB-04. Propagating Spin Wave Spectroscopy for Spin-orbitronics. O. Gladii1, M. Collet2, K. Garcia-Hernandez2, C. Cheng3, S. Xavier4, P. Bortolotti5, V. Cros6, J. Kim3, A. Anane2, Y. Henry7 and M. Baillieu1 1. Institut de physique et de chimie des materiaux de Strasbourg, Strasbourg, France; 2. Unité Mixte de Physique CNRS/Thales and Université Paris Sud, Palaiseau, France; 3. Centre for Nanoscience and Nanotechnology (C2N), CNRS, Univ. Paris-Sud, Université Paris-Saclay, Palaiseau, France; 4. Thales Research and Technology, Palaiseau, France

GB-05. Spin Seebeck effect in compensated ferrimagnets across the compensation point. J. Cramer1,2, S. Geprägs3, A. Kehlberger1, G. Jakob1, S.T. Goennenwein1 and M. Kläui1,2 1. Institute of Physics, Johannes Gutenberg-Universität Mainz, Mainz, Germany; 2. Graduate School of Excellence Materials Science in Mainz, Mainz, Germany; 3. Walther-Meißner-Institut, Bayerische Akademie der Wissenschaften, Garching, Germany

GB-06. Correlation of magnetic anisotropy and switching behavior of Y3Fe5O12 with longitudinal spin Seebeck effect. V. Kalappattil1, R. Das1, M. Phan1 and H. Srikanth1 1. Department of Physics, University of South Florida, Tampa, FL

GB-07. Longitudinal spin Seebeck effect contribution in transverse spin Seebeck effect experiments in Pt/YIG and Pt/NFO. D. Meier1, D. Reinhardt1, M. van Straaten1, C. Kiewe1, M. Althammer2, M. Schreier2, S.T. Goennenwein2, A. Gupta1, M. Schmid2, C. Back2, J. Schmalhorst1, T. Kuschel6 and G. Reiss1 1. Department of Physics, Bielefeld University, Bielefeld, Germany; 2. Bayerische Akademie der Wissenschaften, Walther-Meissner-Institut, Garching, Germany; 3. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA; 4. Center for Materials for Information Technology, University of Alabama, Tuscaloosa, AL; 5. Department of Physics, University of Regensburg, Regensburg, Germany; 6. Zernike Institute for Advanced Materials, University of Groningen, Groningen, Netherlands

GB-08. Observation of a phonon anomaly in the spin Seebeck effect. T. Kikkawa1, K. Shen2, B. Flebus3, R. Duine3,4, K. Uchida3,6, Z. Qi4,5,8, G.E. Bauer1,2 and E. Saitoh1,8 1. Institute for Materials Research and WPI-AIMR, Tohoku University, Sendai, Japan; 2. Kavli Institute of NanoScience, Delft University of Technology, Delft, Netherlands; 3. Institute for Theoretical Physics and Center for Extreme Matter and Emergent Phenomena, Utrecht University, Utrecht, Netherlands; 4. Department of Applied Physics, Eindhoven University of Technology, Eindhoven, Netherlands; 5. Institute for Materials Research, Tohoku University, Sendai, Japan; 6. PRESTO, Japan Science and Technology Agency, Saitama, Japan; 7. WPI-AIMR, Tohoku University, Sendai, Japan; 8. Spin Quantum Rectification Project, ERATO, Japan Science and Technology Agency, Sendai, Japan
GB-09. Quantitative evaluation of the longitudinal spin Seebeck effect. A. Sola1, P. Bougiatioti2, D. Meier2, M. Kuepferling1, V. Basso1, M. Pasquale1 and G. Reiss2 1. INRIM, Torino, Italy; 2. Bielefeld University, Bielefeld, Germany

GB-10. Study of spin thermoelectric generation in Fe3O4/Pt-based heterostructures. R. Ramos1,2, T. Niizeki1, A. Anadón5,6, I. Lucas5,6, M.H. Aguirre5,7, K. Uchida3,4, L. Morellón5,6, P.A. Algarabel6,7, M. Ibarrar6,8 and E. Saitoh1,9 1. WPI-AIMR, Tohoku University, Sendai, Japan; 2. Spin Quantum Rectification Project, ERATO, Japan Science and Technology Agency, Sendai 980-8577, Japan; 3. Institute for Materials Research and Center for Spintronics Research Network, Tohoku University, Sendai 980-8577, Japan; 4. PRESTO, Japan Science and Technology Agency, Saitama 332-0012, Japan; 5. Instituto de Nanociencia de Aragón, Universidad de Zaragoza, Zaragoza 50018, Spain; 6. Departamento de Física de la Materia Condensada, Universidad de Zaragoza, Zaragoza 50009, Spain; 7. Laboratorio de Microscopias Avanzadas, Universidad de Zaragoza, Zaragoza 50018, Spain; 8. Instituto de Ciencia de Materiales de Aragón-CSIC, Universidad de Zaragoza, Zaragoza 50009, Spain; 9. Advanced Science Research Center, Japan Atomic Energy Agency, Tokai 319-1195, Japan


GB-13. Noncollinear Magnetization Between Surface And Bulk Y3Fe5O12. P. Wu1 and S. Huang1 1. Physcis, National Taiwan University, Taipei, Taiwan

GB-14. Proximity Induced Ferromagnetism in Pt Using Magnetic Insulator CoFe2O4. I.V. Pinchuk1, W. Amamou2, A. Goad3 and R. Kawakami1 1. Physics, The Ohio State University, Columbus, OH; 2. Physics and Astronomy, UC Riverside, Riverside, CA; 3. Baltimore University, Baltimore, MD
GB-15. Magnon scattering dominance in MoTe₂ crystals at low temperatures. D. Suri¹, S.P. Dash² and R.S. Patel¹
¹. Department of Physics, BITS Pilani - K K Birla Goa Campus, Zuarinagar, India; ². Microtechnology and Nanoscience, Chalmers University of Technology, Gothenburg, Sweden

FRIDAY La Galerie 1-2
MORNING
8:30

Session GC
MAGNETIZATION DYNAMICS IV: SPIN TORQUE AND INTERFACIAL EFFECTS
Giovanni Finocchio, Chair
University of Messina, Messina, Italy

8:30

GC-01. Spin-orbit torque induced magnetization dynamics in YIG/Pt bilayers. (Invited) G. de Loubens¹, V. Naletov¹, O. Klein², P. Bortolotti², V. Cros², A. Anane², J. Ben Youssef³, M. Muñoz⁴, V.E. Demidov⁵ and S. Demokritov⁶ 1. Service de Physique de l’Etat Condensé, CEA Saclay, Gif-sur-Yvette, France; 2. CNRS / THALES and Univ. Paris-XI, Plateau, France; 3. Institute for Applied Physics, University of Muenster, Muenster, Germany; 4. Institute of Physics, Kazan Federal University, Kazan, Russian Federation; 5. SPINTEC, CEA/ CNRS and Univ. Grenoble Alpes, Grenoble, France; 6. LMB, Université de Bretagne Occidentale, Brest, France

9:06

GC-02. Effect of nonlinear damping on spin torque driven auto-oscillatory dynamics. J. Zhang¹, Y. Chen², A. Smith³ and I. Krivorotov⁴ 1. Physics Department, University of California, Irvine, CA; 2. Physics and Astronomy, University of California, Irvine, CA

9:18

GC-03. Chaotic magnetization dynamics excited by RF spin transfer torque in elliptical nanodots. E.A. Montoya¹, S. Perna¹, M. d’Aquino², C. Serpico³ and I. Krivorotov⁴ 1. Physics and Astronomy, University of California, Irvine, Irvine, CA; 2. Dipartimento di Ingegneria, Università degli Studi di Napoli “Parthenope”, Napoli, Italy; 3. DIETI, University of Naples Federico II, Naples, Italy

9:30

GC-04. Magnetization dynamics under a strong spin-orbit torque in W/FeCoB/MgO layers. T. Moriyma¹, K. Kim¹, S.C. Baeck², B. Park², S. Lee³, K. Lee³ and T. Ono¹ 1. Kyoto University, Uji, Japan; 2. KAIST, Daejeon, The Republic of Korea; 3. Korea University, Seoul, The Republic of Korea
Probing the mechanism underlying NV diamond-based detection of ferromagnetic resonance excited at frequencies far from the NV resonance. V.P. Bhallamudi1, M. Page1, F. Guo2, C.M. Purser1, J.G. Schulze1, T. Nakatani3, C.S. Wolfe1, J.R. Childress3, G.D. Fuchs2 and P. Hammel1 1. Department of Physics, The Ohio State University, Columbus, OH; 2. School of Applied and Engineering Physics, Cornell University, Ithaca, NY; 3. San Jose Research Center, HGST, a Western Digital company, San Jose, CA

Interfacial Dzyaloshinskii-Moriya interaction in Pt/CoFeB films. S. Tacchi1, R. Troncoso2, M. Ahlberg3, G. Gubbiotti1, M. Madami5, J. Akerman3,4 and P. Landeros2 1. CNR-Istituto Officina dei Materiali, Perugia, Italy; 2. Departamento de Física, Universidad Técnica Federico Santa María, Valparaiso, Chile; 3. Department of Physics, University of Gothenburg, Gothenburg, Sweden; 4. Materials and Nano Physics, Royal Institute of Technology, Stockholm-Kista, Sweden; 5. Dipartimento di Fisica e Geologia, Università di Perugia, Perugia, Italy

Phenomenological and Microscopic Theory of Chiral Damping. A. Manchon1, C.A. Akosa2, I. Miron4 and G. Gaudin3 1. King Abdullah University of Science and Technology, Thuwal, Saudi Arabia; 2. Material Science and Engineering, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia; 3. SPINTEC (CNRS/CEA) URA 2512, Grenoble, France; 4. CNRS INAC-SPINTEC, Grenoble, France

Spin Pumping Damping and Magnetic Proximity Effect in Pd and Pt Spin-sink Layers. M. Caminale1,2, A. Ghosh1, S. Auffret1, U. Ebels1, K.J. Ollefs5, F. Wilhelm4, A. Rogalev4 and W. Bailey3,2 1. SPINTEC, Univ. Grenoble Alpes / CEA / CNRS, Grenoble, France; 2. Fondation Nanosciences, Grenoble, France; 3. Applied Physics, Columbia University, New York, NY; 4. ESRF, Grenoble, France; 5. Universität Duisburg-Essen, Duisburg, Germany

Tuning the Phase-Locking of Spin-Torque Nano-Oscillators Through Their Mutual Magneto-Static Interaction. F. Abreu Araujo1 and J. Grollier1 1. Unité Mixte de Physique, CNRS/Thales, Paris, France

10:54

GC-11. Phase-locking of multiple magnetic droplets by a microwave magnetic field. C. Wang1, D. Xiao1, Y. Zhou2, J. Åkerman3 and Y. Liu 1. Tongji University, Shanghai, China; 2. Physics, University of Hong Kong, Hong Kong, Hong Kong; 3. Univ Gothenburg, Göteborg, Sweden

11:06

GC-12. Highly efficient magnetization switching by spin-orbit torque in magnetic multi-layers. P. Sethi1,2, S. Krishnia1, S.H. Li1, Y. Chen2, S.H. Leong2 and W. Lew1 1. Division of Physics and Applied Physics, School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore; 2. Data Storage Institute (A*STAR), Agency for Science, Technology and Research, Singapore, Singapore

11:18

GC-13. Interfacial spin-orbit torque in the NiFe/Pt bilayer. S. Li1,2 and T. Zhu1 1. State Key Lab for Magnetism, Institute of Physics, Chinese Academy of Sciences, Beijing, China; 2. College of Science, Guangdong Ocean University, Zhanjiang, China

FRIDAY La Galerie 3
MORNING
8:30

Session GD
LOW-DIMENSIONAL SYSTEMS, FERRITES AND GARNETS
Laurentiu Stoleriu, Co-Chair
Al. I. Cuza University, Iasi, Romania
Ivan Skorvanek, Co-Chair
Institute of Experimental Physics Slov. Acad. Sci., Kosice, Slovakia

8:30

GD-01. Manifestation of Spin-Vibron Coupling in Transport Spectroscopy of Single Magnetic Molecules. A. Kenawy1, J. Splettstoesser1 and M. Misiorny2 1. Department of Microtechnology and Nanoscience — MC2, Chalmers University of Technology, Göteborg, Sweden; 2. Faculty of Physics, Adam Mickiewicz University, Poznan, Poland

8:42

GD-02. Disentangling surface and bulk transport in topological insulator p-n junctions. D. Backes1, R. Mansell1, M. Lanius2, J. Kampmeier2, G. Mussler2, D. Ritchie1, D. Gruetzmacher2 and V. Narayan1 1. Department of Physics, University of Cambridge, Cambridge, United Kingdom; 2. Peter Gruenberg Institute (PGI-9), Forschungszentrum Juelich, Juelich, Germany

216 Friday
GD-03. XMCD Studies of 5d Transition Metal Complexes - Building Blocks for Molecular Magnets. A. Rogalev1, K.S. Pedersen2,3, F. Wilhelm1 and R. Clérac2,3. 1. ESRF, Grenoble, France; 2. CRPP, UPR 8641, University of Bordeaux, Pessac, France; 3. ICMCB, UPR 9048, CNRS, Pessac, France

9:06

GD-04. Portraying entanglement between molecular qubits with four-dimensional inelastic neutron scattering. E. Garlatti1, T. Guidi2, S. Ansbro3, P. Santini1, G. Amoretti1, J. Ollivier3, H. Mutka3, G. Timco4, I. Vitorica-Yrezabal4, G. Whitehead4, R. Wipenny4 and S. Carretta1. 1. Department of Physics and Earth Sciences, University of Parma, Parma, Italy; 2. ISIS Facility, Rutherford Appleton Laboratory, Didcot, United Kingdom; 3. Institut Laue-Langevin, Grenoble, France; 4. School of Chemistry, University of Manchester, Manchester, United Kingdom; 5. Department of Chemistry, University of Liverpool, Liverpool, United Kingdom

9:18

GD-05. Electro-Nuclear Atomic Clock Transitions in a Holmium Molecular Nanomagnet. D. Komijani1, M. Shiddiq1, Y. Duan2, A. Gaita-Arino2, E. Coronado2 and S. Hill1. 1. Florida State University and NHMFL, Tallahassee, FL; 2. Instituto de Ciencia Molecular (ICMol), University of Valencia, Valencia, Spain

9:30

GD-06. Withdrawn

9:42

GD-07. Charge density wave like phase transition in doped Na2IrO3. K. Mehlawat1 and Y. Singh1. 1. Physics, IISER Mohali, Mohali, India

9:54

GD-08. Magnetic and structural properties of nanometre thick sputtered Yttrium iron garnet films. A. Mitra1, O. Cespedes1, Q.M. Ramasse2, C. Kinane1, S. Langridge1 and B. Hickey1. 1. School of Physics & Astronomy, University of Leeds, Leeds, United Kingdom; 2. superSTEM Dewsbury, Leeds, United Kingdom; 3. Rutherford Appleton Laboratory, Oxford, United Kingdom

10:06


GD-13. Anisotropy and Ferromagnetic Resonance Linewidth in Iron-deficient LiZn Ferrite. X. Jiang1, W. Wang1, Z. Yu1, K. Sun1, Z. Lan1, X. Zhang1 and V.G. Harris2 1. State Key Laboratory of Electronic Thin Films and Integrated Devices, University of Electronic Science and Technology of China, Chengdu, China; 2. Department of Electrical and Computer Engineering, Northeastern University, Boston, MA


GD-15. Correlations between site specific defects and damping in Fe3O4(111)/YZO thin films. C. Love1,2, B. James1, V. Lazarov1, K. Matsuzaki3, T. Susaki3, S.S. Dhesi2, G. van der Laan1 and S.A. Cavill1 1. Physics, University of York, York, United Kingdom; 2. Diamond Light Source, Didcot, United Kingdom; 3. Materials and Structures Laboratory, Tokyo Institute of Technology, Tokyo, Japan
Session GE

SPIN TRANSPORT IN SEMICONDUCTORS AND ARTIFICIAL STRUCTURES

Saroj Dash, Chair
Chalmers University of Technology, Gothenburg, Sweden

8:30


9:06

GE-02. Spin Transport at Interfaces with Spin-Orbit Coupling. V. Amin1,2 and M. Stiles1. National Institute of Standards and Technology, Gaithersburg, MD; 2. Maryland NanoCenter, University of Maryland, College Park, MD

9:18

GE-03. Room Temperature Spin Kondo Effect and Interdiffusion in Co/Cu Non-Local Spin Valves. J.D. Watts1, L. O’Brien2,2, J.S. Jeong3, K.A. Mkhoyan2, P.A. Crowell1 and C. Leighton1. Physics and Astronomy, University of Minnesota, Minneapolis, MN; 2. Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom; 3. Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN

9:30


9:42

GE-05. Giant Magnetoresistance in excess of 10 % in metal based lateral spin valves. G. Zahnd1, V. Pham1, P. Laczkowski1, W. Savero Torres1, A. Marty1, C. Beigne1, L. Vila1 and J. Attane1. Spintec, CEA Grenoble, Grenoble, France

9:54


10:06

GE-07. Spin Accumulation up to 10 meV in Si Non-local Devices with MgO/Fe Tunnel Contacts. A.M. Spiesser1, H. Saito1, Y. Fujita2, S. Yamada2, K. Hamaya2, S. Yuasa2 and R. Jansen1. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan; 2. Graduate School of Engineering Science, Osaka University, Osaka, Japan
10:18

GE-08. Pure spin currents in Ge heterostructures probed by inverse spin-Hall effect. F. Bottegoni1, C. Zucchetti1, J. Frigerio1, M. Bollani2, A. Farina1, M. Finazzi1, G. Isella1 and F. Ciccacci1
1. Physics, Politecnico di Milano, Milano, Italy; 2. CNR-IFN, Milano, Italy

10:30

GE-09. Short Spin Diffusion Length of n+-Ge at Low Temperatures. Y. Fujita1, M. Yamada1, S. Yamada1, T. Kanashima1, K. Sawano2 and K. Hamaya1
1. Graduate School of Engineering Science, Osaka University, Toyonaka, Japan; 2. Advanced Research Laboratories, Tokyo City University, Tokyo, Japan

10:42

GE-10. Spin Absorption Effect at Ferromagnetic Alloy/n+-Ge Interfaces. M. Yamada1, Y. Fujita1, S. Yamada1, T. Kanashima1, K. Sawano2 and K. Hamaya1
1. Graduate School of Engineering Science, Osaka University, Toyonaka, Japan; 2. Advanced Research Laboratories, Tokyo City University, Setagaya, Japan

10:54

GE-11. Ultrafast and Gigantic Spin Injection in Semiconductors. M. Battiato1 and K. Held1
1. Technical University Vienna, Vienna, Austria

11:06

GE-12. Spin transport in the persistent photoconductor Al0.3Ga0.7As:Si. J. Kim1, K. Kountouriotis1, T. Liu1, J. Lu2, X. Yu2, J. Zhao2, S. von Molnar1 and P. Xiong1
1. Florida State University, Tallahassee, FL; 2. Institute of Semiconductor, Beijing, China

11:18

GE-13. Highly Efficient Spin-Current Operation in a Cu Nanoring. B.A. Murphy1, A.J. Vick1, J. Kim1, M. Samiepour2 and A. Hirohata2
1. Physics, University of York, York, United Kingdom; 2. Electronics, University of York, York, United Kingdom
Session GF
HIGH FREQUENCY AND MICROWAVE DEVICES II
Peng Li, Chair
Colorado State University, Fort Collins, CO

8:30

9:06

9:18

9:30
GF-04. Controlling the Spectrum of a Magneto-Acoustic Oscillator. A. Litvinenko, R. Khymyn, V. Tyberkevych, A.N. Slavin and S. Grishin. 1. Saratov State University, Saratov, Russian Federation; 2. Department of Physics, Oakland University, Rochester, MI
GF-05. Frequency Domain Simulation on Surface Acoustic Wave Driven Ferromagnetic Resonance Device. X. Li1, S. Keller2 and C.S. Lynch3 1. Mechanical and Aerospace Engineering, UCLA, Los Angeles, CA; 2. TANMS, UCLA, Los Angeles, CA; 3. Mechanical and Aerospace Engineering, UCLA, Los Angeles, CA

GF-06. Reconfigurable Integrated Self-Biased Ferrite Coupled Line Circulators. H. Lin1 and N.X. Sun2 1. ECE, Northeastern University, Boston, MA; 2. Northeastern University, Boston, MA

GF-07. Tunable RF Band-Pass Filters Based on NEMS Magnetoelectric Resonators. H. Lin1, T. Nan1, Y. Gao2, H. Chen1, X. Wang1 and N.X. Sun2 1. ECE, Northeastern University, Boston, MA; 2. Northeastern University, Boston, MA

GF-08. On-chip ferrite-core inductor with highest inductance density for the X-band. R. Sai1, N. Bhat2, M. Yamaguchi1 and S.A. Shivashankar2 1. Department of Electrical Engineering, Tohoku University, Sendai, Japan; 2. Centre for Nano Science and Engineering, Indian Institute of Science, Bengaluru, India

GF-09. Detection and estimation of magnetization induced resonances in unilateral NMR sensors. N. Prabhu Gaunkar1, I. Bulu2, M. Mina1, Y. Song2 and D.C. Jiles1 1. Department of Electrical and Computer Engineering, Iowa State University, Ames, IA; 2. NMR Fluids Research Division, Schlumberger-Doll Research, Cambridge, MA

GF-10. Frequency response of laser-pulse-heated anomalous Nernst effect. S. Yoon1,2, J. Liu1 and B. McMichael1 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

GF-11. Enhanced wave absorbing properties for CoFe@C core-shell nanocomposites derived from Prussian blue nanocubes. X. Zeng1, B. Yang1, L. Zhu1, H. Yang1 and R. Yu1 1. Beihang University, Beijing, China

GF-12. Absorption properties of epsilon iron oxide nanomagnets in the Terahertz region. M. Yoshikiyo1, A. Namai1 and S. Ohtoshi1 1. The University of Tokyo, Tokyo, Japan
GF-13. **THz-TDS measurement of millimeter wave absorption properties on gallium substituted epsilon-iron oxide.**

A. Namai¹, M. Yoshikiyo¹ and S. Ohkoshi¹ ¹ The University of Tokyo, Tokyo, Japan

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**FRIDAY**

**STUDIO 9-10**

**MORNING**

8:30

**Session GG**

**PROCESSING AND MAGNETIC HARDENING OF RARE-EARTH TRANSITION METAL COMPOUNDS**

Emma White, Chair

Ames Laboratory of USDOE, Ames, IA

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8:30

**GG-01.** Preparation of submicron-sized Sm₂Fe₁₇N₃ powders with high coercivity by reduction-diffusion process. S. Okada¹, K. Suzuki², E. Node¹, K. Takagi¹, K. Ozaki¹ and Y. Enokido²

¹. Magnetic Powder Metallurgy Research Center, National Institute of Advanced Industrial Science and Technology, Nagoya, Japan; ². Materials Development Center, Technology HQ, TDK Corporation, Narita, Japan

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8:42

**GG-02.** Domain wall pinning within sintered NdFeB magnets studied by Lorentz microscopy and electron holography. A. Sugawara¹, T. Akashi¹, Y. Takahashi¹ and T. Tanigaki¹

¹. Center for Exploratory Research, Research and Development of Group, Hitachi Ltd., Hatoyama, Saitama, Japan

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8:54

**GG-03.** Analysis of Magnetization Reversal Mechanism in Nd-Fe-B magnets. T. Yoshioka¹ and H. Tsuchiura¹

¹. Department of Applied Physics, Tohoku University, Sendai, Japan

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9:06

**GG-04.** Micromagnetic simulation for initial magnetization process of Nd-Fe-B hot-deformed nanocrystalline permanent magnet. H. Tsukahara¹, K. Iwano¹, C. Mitsumata¹, T. Ishikawa² and K. Ono¹

¹. IMSS, KEK, Tsukuba, Japan; ². High Energy Accelerator Research Organization, Tsukuba, Japan; ³. NIMS, Tsukuba, Japan

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9:18

**GG-05.** Texture Formation Mechanism and the Constitutive Equation for Anisotropic Hot-deformed Rare-Earth Permanent Magnets. M. Zhu¹ and W. Li²

¹. Central Iron & Steel Research Institute, China., Beijing, China

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**Friday**

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GG-06. Controlling Microstructure of Rare Earth Permanent Magnet Materials Using High Magnetic Field. M. McGuire¹, O. Rios¹, B.S. Conner¹, W.G. Carter², L. Zhou², B. Jensen², K. Sun², M. Huang², C.I. Nlebedim³ and M.J. Kramer² ¹ Oak Ridge National Laboratory, Oak Ridge, TN; ² Ames Laboratory, Iowa State University, Ames, IA

GG-07. The High Squareness Sm-Co Magnet Having Hcb=10.6kOe at 150°C. H. Machida¹, T. Fujiwara¹, R. Kamaida², Y. Morimoto² and M. Takezawa² ¹ NEC TOKIN Corporation, Sendai, Japan; ² Faculty of Engineering, Kyusyu Institute of Technology, Kitakyushu, Japan

GG-08. Additive Manufacturing of High Performance NdFeB Bonded Magnets. L. Li¹, A. Tirado¹, C.I. Nlebedim², O. Rios¹, B. Post¹, V. Kunc¹, R. Lowden¹, E. Lara-Curzio¹, R. Fredette³, J. Ormerod¹, T.A. Lograsso² and M. Paranthaman¹ ¹ Oak Ridge National Laboratory, Oak Ridge, TN; ² Ames Laboratory, Ames, IA; ³ Magnet Applications, Inc., DuBois, PA

GG-09. Microstructure change of anisotropic d-HDDR Nd-Fe-B powder prepared with several hydrogen disproportionation conditions. M. Yamazaki¹,², T. Horikawa¹, C. Mishima¹, M. Matsuura¹, N. Tezuka¹ and S. Sugimoto¹ ¹ Department of Materials Science, Graduate School of Engineering, Tohoku University, Sendai, Japan; ² Aichi Steel Corporation, Tokai, Japan

GG-10. Magnetization reversal processes of isotropic permanent magnets with various inter-grain exchange interactions. H. Tsukahara¹, K. Iwano¹, C. Mitsumata³, T. Ishikawa² and K. Ono² ¹ IMSS, KEK, Tsukuba, Japan; ² KEK, Tsukuba, Japan; ³ NIMS, Tsukuba, Japan; 4 High Energy Accelerator Research Organization, Tsukuba, Japan

GG-11. Study in recycling of Nd-Fe-B sintered magnet wastes. Y. Ming¹, W. Liu¹ and D. Zhang¹ ¹ Beijing University of Technology, Beijing, China
Session GH  
**MAGNETIC RECORDING II**  
Dieter Suess, Chair  
Vienna University of Technology, Vienna, Austria

8:30  
**GH-01.** Dependence of SNR on free layer damping constant.  
*C. Kaiser*, Y. Zheng¹, Z. Diao⁰, D. Mauri¹, Y. Sun¹, Y. Ding¹ and M. Jiang¹  
1. Western Digital, Fremont, CA

8:42  
**GH-02.** Realization of high quality epitaxial current-perpendicular-to-plane giant magnetoresistive pseudo spin-valves on Si(001) wafer using NiAl buffer layer.  
*J. Chen¹,², J. Liu², Y. Sakuraba², H. Sukegawa², S. Li² and K. Hono²,³*  
1. Pure and Applied Sciences, University of Tsukuba, Tsukuba, Japan;  
2. Research Center for Magnetic and Spintronic Materials, National Institute for Material Science, Tsukuba-City, Japan

8:54  
**GH-03.** Probe-based Spin Torque Transfer Device for Writing Hard Disks.  
*J. Hong¹, O. Lee³, S. Salahuddin¹ and J. Bokor³*  
1. UC Berkeley, Berkeley, CA; 2. EECS Department, University of California, Berkeley, CA; 3. Korea Institute of Science and Technology, Seoul, The Republic of Korea

9:06  
**GH-04.** Experimental Determination of Reader Resolution using PRS Patterns and Application to Media Cluster Size Measurement.  
*B. Valcu¹, X. Wu¹, G. Albuquerque¹, C. Papusoi¹ and M. Desai¹*  
1. Western Digital Company, San Jose, CA

9:18  
**GH-05.** Magnetization Dynamics of Resonantly Interacting Spin-Torque Oscillator and Recording Media: Readout Method Using Magnetic Resonance.  
*T. Kanao¹, H. Suto¹, K. Kudo¹, T. Nagasawa¹, M. Yamagishi¹, K. Mizushima¹ and R. Sato¹*  
1. Corporate Research & Development Center, Toshiba Corporation, Kawasaki, Japan

9:30  
**GH-06.** Large Voltage Output In Current-Perpendicular-To-Plane Magnetoresistance Pseudo Spin-Valves Using Mg-Ti-O Spacer Material.  
*Y. Du¹,², T. Nakatani¹, Y. Sakuraba¹, T. Furubayashi¹, Y. Takahashi¹, T. Sasaki¹ and K. Hono¹,²*  
1. National Institute for Materials Science, Tsukuba, Japan;  
2. University of Tsukuba, Tsukuba, Japan

9:42  
**GH-07.** HAMR capacity prediction and approaches to optimization.  
*Y. Jiao¹ and R.H. Victora¹*  
1. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN
GH-08. Surface Segregation of Pt in L1₀-FePt Nano-grains.
H. Sepehri-Amin¹, H. Iwama³, G. Hrkac², T. Shima³ and K. Hono¹ 1. National Institute for Materials Science (NIMS), Tsukuba, Japan; 2. Engineering, Mathematics and Physical Sciences, University of Exeter, Exeter, United Kingdom; 3. Faculty of Engineering, Tohoku Gakuin University, Tagajo, Japan

3. Materials Science & Engineering, Carnegie Mellon University, Pittsburgh, PA

GH-10. Structural and magnetic properties of L1₀ FePt/MgO, W, Pt / L1₀ FePt trilayers. G. Giannopoulos¹, A. Kaidatzis¹, V. Psycharis¹, D. Niarchos¹, J. Garcia-Martín², G. Varvaro³, A. Testa³ and G. Barucca⁴ 1. Institute of Nanoscience and Nanotechnology, NCSR Demokritos, Athens, Greece; Athens, Greece; 2. IMM-Instituto de Microelectronica de Madrid, CSIC, Tres Cantos, Spain; 3. ISM-CN, Area della Ricerca RM1, P.B. 10-00015, Monterotondo Scalo, Roma, Italy, Rome, Italy; 4. Università Politecnica delle Marche, Dipartimento SIMAU, Via Brecce Bianche, Ancona 60131, Italy, Rome, Italy

GH-11. High Density Shingled Recording Using Bit Patterned Media and HAMR. A. Venugopal¹, A. Ghoreyshi¹ and R.H. Victora¹ 1. MINT, Electrical Engineering, University of Minnesota, Minneapolis, MN

GH-12. Molecular Dynamics Simulation Study of Plasma Etching L1₀ FePt Recording Media in Embedded Mask Patterning Process. J. Zhu¹, P. Quarterman¹ and J. Wang¹ 1. Electrical Engineering, University of Minnesota, Minneapolis, MN; 2. Electrical and Computer Engineering, School of Physics & Astronomy, Minneapolis, MN

GH-13. Effects of Island Size and Position Fluctuation on Multitrack Reading Scheme in BPMR Systems. C. Buajong¹, C. Warisarn¹ and P. Supnithi² 1. College of Advanced Manufacturing Innovation, King Mongkut’s Institute of Technology Ladkrabang, Bangkok, Thailand; 2. Faculty of Engineering, King Mongkut’s Institute of Technology Ladkrabang, Bangkok, Thailand
Utilization of Multiple Read Heads for TMR Prediction and Correction in Bit-Patterned Media Recording. W. Busyatras¹, C. Warisarn¹, P. Supnithi², Y. Okamoto³, Y. Nakamura³, L.M. Myint⁴ and P. Kovintavewat⁵. ¹. College of Advanced Manufacturing Innovation, King Mongkut’s Institute of Technology Ladkrabang, Bangkok, Thailand; ². Faculty of Engineering, King Mongkut’s Institute of Technology Ladkrabang, Bangkok, Thailand; ³. Department of Electrical and Electronic Engineering and Computer Science, Ehime University, Matsuyama, Japan; ⁴. School of Information Technology, Shinawatra University, Pathumthani, Thailand; ⁵. Data Storage Technology Research Center, Nakhon Pathom Rajabhat University, Nakhon Pathom, Thailand

Reduced Complexity of Multi-track Joint 2-D Viterbi Detectors for Bit-Patterned Media Recording Channel. L.M. Myint¹ and C. Warisarn². ¹. School of Information Technology, Shinawatra University, Pathumthani, Thailand; ². College of Advanced Manufacturing Innovation, King Mongkut’s Institute of Technology Ladkrabang, Bangkok, Thailand

Analysis and Modeling of Leakage Current Sensor under Pulsating Direct Current. K. Li¹, Y. Dai¹, Y. Wang¹, F. Niu¹, S. Huang¹ and E. Li¹. ¹. Province-Ministry Joint Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability, Hebei University of Technology, Tianjin, China

An Easy Method for Vessel Detection and Coil Powering in All-Surface Inductive Heating Systems. V. Kilic¹, E. Unal¹ and H. Demir¹,². ¹. Department of Electrical and Electronics Engineering, Department of Physics, UNAM-Institute of Materials Science and Nanotechnology, Bilkent University, Ankara, Turkey; ². School of Electrical and Electronic Engineering, School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore

Inductance Optimization of Miniature Broadband Transformers with Racetrack Shaped Ferrite Cores for Ethernet Applications. D. Bowen¹, C. krafft¹ and I. Mayergoz². ¹. Laboratory for Physical Sciences, College Park, MD; ². Electrical and Computer Engineering, University of Maryland College Park, College Park, MD
GI-04. Ferroresonance Modeling and Simulations by Using Extended Inverse Jiles-Atherton Hysteresis Theory. M. Zou1
1. School of Electrical Engineering, Chongqing University, Chongqing, China

GI-05. Sensor transfer error compensation method for pulsating DC leakage current. K. Li1, Y. Dai1, F. Niu1, Y. Wang1, S. Huang1 and E. Li11. Province-Ministry Joint Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability, Hebei University of Technology, Tianjin, China

GI-06. A Novel NiZn ferrite Integrated Magnetic Solenoid Inductor with a High Quality Factor at 0.7 – 6 GHz. X. Wang1, H. Chen1, X. Shi2, Y. Gao2, H. Lin1 and N.X. Sun1,2 1. ECE, Northeastern University, Boston, MA; 2. Winchester Technologies LLC, Winchester, MA; 3. Northeastern University, Boston, MA

GI-07. Significant Tuning of Inductance Values of Highly Scaled on-chip Inductors Incorporating Co-Zr-Ta-B Films Through Electric Current Biasing. H. Wu1, M. Khdour1 and H. Yu1 1. Arizona State University, Tempe, AZ


GI-09. Voltage impulse induced non-volatile control of inductance in electrically tunable magnetoelectric inductors. B. Peng1, C. Zhang1, Y. Yan1 and M. Liu1 1. Electronic Materials Research Laboratory, Key Laboratory of the Ministry of Education & International Center for Dielectric Research, Xi’an Jiaotong University, Xi’an, China

GI-10. Homogenization of Mixed Magnetic Material Cores. S. Saha1 and N. Fernando1 1. School of Engineering, RMIT University, Melbourne, VIC, Australia

GI-11. Eddy Current Loss Evaluation of Magnetic Powder Core Based on Electric and Magnetic Networks. S. Konda1, Y. Yoshida2 and O. Ichinokura1 1. Tohoku University, Sendai, Japan; 2. Akita University, Akita, Japan
GP-01. Growth and characterization of metal-organic frameworks [(CH₃)₂NH₂]Mn(HCOO)₃ single crystal. S. Ji, Z. Zhang, S. Wang and P. Li. 1. Department of Physics, Center for Optoelectronics Materials and Devices, Zhejiang Sci-Tech University, Hangzhou, China

GP-02. Enhanced ferromagnetism in BiFeO₃ powders by rapid combustion of graphite powders. Q. Xu, C. Hu, J. Wang and J. Du. 1. Department of Physics, Southeast University, Nanjing, China; 2. National Laboratory of Solid State Microstructures, Nanjing University, Nanjing, China; 3. Department of Physics, Nanjing University, Nanjing, China

GP-03. The Magnetic Properties of Multiferroic BaCoF₄. S. Zhou, C. Dai, Q. Xu and J. Du. 1. Department of Physics, Southeast University, Nanjing, China; 2. Department of Physics, Nanjing University, Nanjing, China

GP-04. The Wasp-Waisted Hysteresis Loop and Exchange Bias in Multiferroic BaNiF₄. S. Zhou, J. Wang, Q. Xu and J. Du. 1. Department of Physics, Southeast University, Nanjing, China; 2. Department of Physics, Nanjing University, Nanjing, China

GP-05. Strain driven ferroic properties in the mixed-phase and rhombohedral-phase BiFeO₃ thin films. F. Shao, J. Miao, K. Meng, W. Wu, X. Xu, J.K. Chen and Y. Jiang. 1. School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing, China

GP-06. Dramatic Variation of the Multiferroic Properties in Sr Doped CaₓSr₄MnO₁₂. P. Jain, J. Saha, L.C. Gupta, S. Patnaik, A.K. Ganguli and R. Chatterjee. 1. Physics, Indian Institute of Technology, New Delhi, India; 2. School of Physical Sciences, Jawaharlal Nehru University, New Delhi, India; 3. Chemistry, Indian Institute of Technology, New Delhi, India; 4. Institute of Nano Science and Technology, Habitat Centre, Mohali, India

GP-07. Studies on structural, optical and magnetic properties of multiferroic KBiFe₂O₆. Z. Wang, M. Zhang, S. Lin, Y. Wang, Y. Pan, W. Liu and H. Yan. 1. College of Material Science and Engineering, Beijing University of Technology, Beijing, China
GP-08. The annealing effects of multiferroic DyMn$_2$O$_5$ nanorods.
Y. Tung$^1$, C. Yang$^1$, Y. Chen$^2$, T. Hsu$^1$ and C. Kao$^1$
$^1$. Department of Physics, Chung Yuan Christian University, Chung-Li, Taiwan; 2. Academia Sinica, New Taipei, Taiwan

GP-09. Effect of size on multiferroic SmMn$_2$O$_5$ nanorods. T. Hsu$^1$, C. Yang$^1$, C. Chu$^1$, T. Tsai$^1$, Y. Tong$^1$ and K. Lin$^2$
$^1$. Physics, Chung Yuan Christian University, Taoyuan City, Taiwan; 2. Department of Chem. Eng. and Mat. Sci., Yuan Ze University, Taoyuan, Taiwan

GP-10. Local bonds anomalies and dynamics in bismuth ferrite.
J. Lin$^1$, J.S. Gardner$^2$, C. Wang$^2$, G. Deng$^1$, C. Wu$^2$ and J. Lin$^4$
$^1$. National Synchrotron Radiation Research Center (NSRRC), Hsinchu, Taiwan; 2. Neutron Group, NSRRC, Hsinchu, Taiwan; 3. ANSTO, Sydney, NSW, Australia; 4. CCMS, NTU, Taipei, Taiwan

$^1$. Departamento de Físicas Experimental de Baixas Energias, Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil; 2. Federal University of Rio de Janeiro, Rio de Janeiro, Brazil; 3. Havana University, La Habana, Cuba; 4. Fluminense Federal University of Rio de Janeiro, Rio de Janeiro, Brazil; 5. Centro Atómico Constituyentes, Buenos Aires, Argentina

GP-12. Effects of Zn-Ti substitution on the magnetoelectric coupling in Co$_2$Z hexaferrites at room temperature.
X. Wang$^1$, K. Song$^2$, H. Luo$^1$, F. Chen$^1$ and R. Gong$^1$
$^1$. School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan, China

GP-13. Microscopic evidence of magnetic and structure phase transition in multiferroic spinel Fe$_2$O$_4$. B. Myoung$^1$, J. Lim$^1$, T. Kouh$^1$ and C. Kim$^1$
$^1$. Kookmin University, Seoul, The Republic of Korea

GP-14. Multiferroicity in orthorhombic epitaxial HoMn$_2$O$_5$ thin films. T. Han$^1$ and Y. Liu$^1$
$^1$. Department of Applied Physics, National University of Kaohsiung, Kaohsiung, Taiwan

GP-15. Ab-initio Study of Magnetoelectric ε-Fe$_2$O$_3$. I. Ahamed$^1$, R. Choudhary$^1$, R. Skomski$^{2,3}$ and A. Kashyap$^1$
$^1$. School of Basic Sciences (Physics), Indian Institute of Technology, Mandi, Mandi, India; 2. Department of Physics and Astronomy, University of Nebraska - Lincoln, Lincoln, NE; 3. Nebraska Center for Materials and Nanoscience, University of Nebraska, Lincoln, NE

$^1$. Institut de Ciència de Materials de Barcelona -CSIC, Bellaterra, Spain; 2. ICN2- Institut Catala de Nanociencia i Nanotecnologia, Bellaterra, Spain; 3. Institut Català de Recerca i Estudis Avançats (ICREA), E-08010 Barcelona, Spain; 4. ALBA Synchrotron Light Facility, 08290 Cerdanyola del Vallés, Spain

230 Friday
GP-17. Systematic control of magnetoelectric coupling with cobalt substitution in M-type hexaferrite thin film. H. Izadkhah1,2, S. Zare1,2, S. Somu3, F. Lombardi1 and C. Vittoria1,2
1. Electrical and Computer Engineering Department, Northeastern University, Boston, MA; 2. Microwave Material Laboratory, Boston, MA; 3. Kostas Micro and Nano Fabrication Facility, Northeastern University, Boston, MA

FRIDAY
MORNING
9:30

Session GQ
ANISOTROPY EFFECTS IN THIN FILMS II
(Poster Session)
Roopali Kukreja, Chair
University of California, Davis, CA

GQ-01. Ferromagnetic Anisotropic Behavior in Room Temperature of Mn Doped β-Ga2O3 Epitaxial Thin Film. D. Guo1,2, P. Li1,2 and W. Tang1 1. Department of Physics, Center for Optoelectronics Materials and Devices, Zhejiang Sci-Tech University, Hangzhou, China; 2. Laboratory of Optoelectronics Materials, School of Science, Beijing University of Posts and Telecommunications, Beijing 100876, China

GQ-02. Tuning the magnetism of Ni80Fe20/La0.7Sr0.3MnO3/SrTiO3(001) thin films with low-energy Ar ion-beam bombardment on the LSMO surface. P. Manna1, I. Bergenti2, C. Lin3, P. Graziosi2, A. Ruotolo2, J. van Lierop1, K. Lin4 and V.A. Dediu2 1. Physics & Astronomy, University of Manitoba, Winnipeg, MB, Canada; 2. ISMN-CNR, Bologna, Italy; 3. Department of Materials Science and Engineering, National Chung Hsing University, Taichung, Taiwan; 4. City University of Hong Kong, Kowloon, Hong Kong

GQ-03. TEM and XMCD studies of ultrathin CoFeB amorphous films on GaAs(100). Y. Yan1, C. Lu1, H. Tu2, X. Lu3, W. Liu3, J. Wang1, I. Will1, B. Kuerbanjiang4, V. Lazarov3, J. Wu3, J. Du2 and Y. Xu1 1. Electronics, University of York, York, United Kingdom; 2. Physics, Nanjing University, Nanjing, China; 3. Physics, University of York, York, United Kingdom; 4. University of York, York, United Kingdom

GQ-04. Tuning perpendicular magnetic anisotropy in CoFeB-MgO ultra-thin films using light Ion Irradiation. S. Manna1, L.H. Diez2, B. Ocker2, J. Langer2, E.E. Fullerton2 and D. Ravelosona2 1. Nanoengineering, University of California San Diego, La Jolla, CA; 2. Singulus AG, Kahl, Germany; 3. UC San Diego 0401, La Jolla, CA; 4. Centre de Nanosciences et de Nanotechnologies, CNRS, Univ. Paris-Sud, Université Paris-Saclay, Orsay, France
Tuning Perpendicular Magnetic Anisotropy At Permalloy/Cu Interfaces Through Interface Composition.


Enhancement of Perpendicular Anisotropy in BiFeO3/CoPt Bilayer Structure.

Y. Wang, H. An, T. Harumoto, Y. Nakamura, K. Nakada, S. Nakagawa and J. Shi. 1. School of Materials and Chemical Engineering, Tokyo Institute of Technology, Tokyo, Japan; 2. Engineering School, Tokyo Institute of Technology, Tokyo, Japan; 3. Department of Applied Physics and Physico-Informatics, Keio University, Tokyo, Japan; 4. Technical Center, TDK Corporation, Tokyo, Japan

Spin interaction induced in-plane magnetic anisotropy of soft magnetic FePt layer in FePt/NiO/FePt trilayer structure.

T. Gao, T. Harumoto, Y. Nakamura and J. Shi. 1. School of Materials and Chemical Technology, Tokyo Institute of Technology, Tokyo, Japan

High post-annealing stability in perpendicularly magnetized stacks of FeZr/CoFeB/MgO.

D. Son, J. An, S. Lim and S. Lee. 1. Department of Materials Science and Engineering, Korea University, Seoul 02841, The Republic of Korea; 2. Department of Semiconductor System Engineering, Korea University, Seoul 02841, The Republic of Korea

Magnetic Properties in CoFeB/CoFeBV Hybrid Perpendicularly Magnetized Systems.

D. Kim and E.E. Fullerton. 1. Center for Memory and Recording Research, University of California San Diego, San Diego, CA

Thickness and temperature driven spin reorientation transition analyzed by high-order energy terms in ultrathin cobalt films.

Q. Yang, B. Peng, X. Wang, W. Ren, Z. Ye, N.X. Sun and M. Liu. 1. School of Electrical and Information Engineering, Xian Jiaotong University, Xian, China; 2. ECE, Northeastern University, Boston, MA; 3. Department of Chemistry and 4D LABS, Simon Fraser University, Burnaby, BC, Canada

The effect of annealing temperature on the magnetic anisotropy in Co ultrathin film on MgO(001) substrate.

Y. Zhang, W. He, X. Zhang and Z. Cheng. 1. Chinese Academy of Sciences, Beijing, China

Origin of perpendicular magnetic anisotropy in epitaxial Pd/Co/Pd trilayers.

GQ-13. Interfacial Perpendicular Magnetic Anisotropy of Oxide/CoFeB/Ta Stack with a Ferroelectric as Oxide Layer. W. Lin1, H. Yoong1, J. Xiao1, R. Guo1, H. Wang1 and J. Chen1 1. Materials Science and Engineering, National University of Singapore, Singapore, Singapore

GQ-14. Tunable anisotropy field and millimeter wave loss of highly oriented scandium substituted barium hexaferrite thin films for millimeter wave applications. D. Chen1,2, Y. Li1, G. Wang1 and H. Zhang1 1. College of Materials and Chemical Engineering, Hainan University, Haikou, China; 2. School of Microelectronics and Solid-State Electronics, University of Electronic Science and Technology of China, Chengdu, China; 3. State Key Lab of Electronic Thin Films and Integrated Devices, University of Electronic Science and Technology of China, Chengdu, China; 4. University of Electronic Science and Technology of China, Chengdu, China

GQ-15. Magnetic properties of composition modulated Mn,Ga epitaxial thin films. Y. Takahashi1, T. Shima1 and M. Doi1 1. Faculty of Engineering, Tohoku Gakuin University, Tagajo, Japan

Friday Grand Ballroom

MORNING
9:30

Session GR
EXCHANGE BIAS I
(Poster Session)
Denys Makarov, Chair
IFW Dresden, Dresden, Germany

GR-01. Crystal Structure Manipulation of the Exchange Bias in an Antiferromagnet Film. W. Yuan1, T. Su1, Q. Song1, W. Xing1, Y. Chen1, T. Wang1, Z. Zhang2, X. Ma2, P. Gao2, J. Shi3 and W. Han1 1. International Center for Quantum Materials, Peking University, Beijing, China; 2. Electron Microscopy Laboratory, School of Physics, Peking University, Beijing, China; 3. Department of Physics and Astronomy, University of California Riverside, Riverside, CA

GR-02. Exchange bias of Ir-doped Fe2O3 inserted Cr2O3/Co thin film system. S. Ye1, S. Pati1, Y. Shikawa1, M. Al-Mahdawi1, T. Nozaki1 and M. Sahashi1,2 1. Department of Electronic Engineering, Tohoku University, Sendai, Japan; 2. ImPACT Program, Japan Science and Technology Agency, Tokyo, Japan

GR-03. Anomalous Zero-Field-Cooled Magnetization and Exchange Bias in Nanostructured (Mn,Zn,Fe)3O4 Films. U.S. Alaan1,2, G. Sreenivasalu1, K. Yuf1, P. Shafer2, E. Arenholz1 and Y. Suzuki1,6 1. Geballe Laboratory for Advanced Materials, Stanford University, Stanford, CA; 2. Department of Materials Science and Engineering, Stanford University, Stanford, CA; 3. Department of Physics, Oakanad University, Rochester, MI; 4. Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA; 5. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA; 6. Department of Physics and Applied Physics, Stanford University, Stanford, CA
GR-04. Magnetic Profile of the NiFe/IrMn/Co Exchange Biased Trilayer. V.P. Nascimento1, J. Tonnerre2,3, F. Fetter2,3, E. Mossang2,3, E.C. Passamani1, H.D. Leite1, P. Ohresser4, A. Krohling1 and R. Magalhães-Paniago1. 1. Física, Universidade Federal do Espírito Santo, Vitória, Brazil; 2. Institut Néel, CNRS, Grenoble, France; 3. Université Grenoble Alpes, Grenoble, France; 4. Synchrotron SOLEIL, Paris, France; 5. Física, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil

GR-05. High blocking temperature of perpendicular exchange bias in Al-doped Cr2O3/Co exchange coupled thin film system. T. Nozaki1, Y. Shiokawa1, S. Pati1, S. Ye1, M. Al-Mahdawi1 and M. Sahashi1,2. 1. Department of Electronic Engineering, Tohoku University, Sendai, Japan; 2. ImPACT Program, Japan Science and Technology Agency, Tokyo, Japan

GR-06. Uncompensated Magnetization in FeMn Measured with Polarized Neutron Reflectometry. I.V. Roshchin1,2, P.N. Lapa2,3, A.G. Glavic4,5, H. Ambaye5, V. Lauter5, T.M. Eggers6, C.W. Miller7,6 and K. Belashchenko8. 1. Department of Materials Science and Engineering, Texas A&M University, College Station, TX; 2. Department of Physics and Astronomy, Texas A&M University, College Station, TX; 3. Material Science, Argonne National Laboratory, College Station, TX; 4. Laboratory for Neutron Scattering and Imaging, Paul Scherrer Institut, Villigen PSI, Switzerland; 5. Neutron Scattering Science Division, Oak Ridge National Laboratory, Oak Ridge, TN; 6. Department of Physics, University of South Florida, Tampa, FL; 7. Materials Science, Rochester Institute of Technology, Rochester, NY; 8. Department of Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE

GR-07. Magnetic and transport properties of MnN/Co3FeN epitaxial bilayers. T. Yoshida1, H. Ando1, T. Hajiri1 and H. Asano1. 1. Crystalline Materials Science, Nagoya University, Nagoya, Japan

GR-08. Current induced modulation of Magnetic Anisotropy in Antiferromagnetic-Ferromagnetic-Heavy Metal structure. C. Engel1, S. Goolaup1 and W. Lew1. 1. Nanyang Technological University, Singapore, Singapore

GR-09. Magnetic Properties and Exchange Bias in MnN/Fe Bilayers. R. Yanes1, E. Simon2, L. Szunyogh2 and U. Nowak1. 1. Physics Department, University of Konstanz, Konstanz, Germany; 2. Department of Theoretical Physics, Budapest University of Technology and Economics, Budapest, Hungary

Session GS
EXCHANGE BIAS II
(Poster Session)
Fang-Yuh Lo, Chair
National Taiwan Normal University, Taipei, Taiwan

Y. Hu1,2, X. Li1, X. Chi1, W. Rui1 and J. Du1. College of Sciences, Northeastern University, Shenyang, China; 2. MOE Key Laboratory for Anisotropy and Texture of Materials, Northeastern University, Shenyang, China; 3. National Laboratory of Solid State Microstructures and Department of Physics, Nanjing University, Nanjing, China


GS-03. Perpendicular Exchange Bias in IrMn/Co-Pt Multilayers. K. Elphick1, G. Vallejo-Fernandez1, T.J. Klemmer2, J. Thiele2 and K. O’Grady1. 1. University of York, York, United Kingdom; 2. Seagate Media Research, Fremont, CA


GS-05. Antiferromagnetic Ru2MnGe Heusler compound as a pinning layer for exchange bias devices. J. Balluff1, M. Meinert1, J. Schmalhorst1, E. Arenholz2 and G. Reiss1. 1. Center for Spin electronic Materials and Devices, Bielefeld University, Bielefeld, Germany; 2. LBNL, Berkeley, CA

GS-06. Brillouin Light Scattering study of the rotatable magnetic anisotropy in exchange biased bilayers of Ni81Fe19(10nm)/Ir20Mn50. R. Rodriguez1, F. Estrada2,3, A. Oliveira4, O. Alves2, A. Azevedo2 and S.M. Rezende2. 1. Instituto de Física, Pontificia Universidad Católica de Chile, Santiago, Chile; 2. Departamento de Física, Universidade Federal de Pernambuco, Recife, Brazil; 3. Biologia, Universidad Michoacana de San Nicolas de Hidalgo, Morelia, Mexico; 4. Departamento de Física, Universidad Federal de Rio Grande do Norte, Natal, Brazil

GS-07. Ferromagnetic Resonance Study Of The Anisotropic Relaxation In IrMn/CoFe Exchange Bias System. J. Beik Mohammad1, J.M. Jones1, B. Khodadadi1, T. Mewes1, C.K. Mewes1, C. Kaiser2 and S. Paul1. 1. Physics/MINT, The University of Alabama, Tuscaloosa, AL; 2. Western Digital, Fremont, CA
GS-08. Magnetization reversal process of Co$_3$FeN/MnN exchange-coupled bilayers studied by magneto-optical Kerr effect.
T. Hajiri¹, T. Yoshida¹, S. Jaiswal², M. Filianina², B. Borie², H. Ando¹, H. Asano¹, H. Zabel² and M. Kläui²
1. Crystalline Materials Science, Nagoya University, Nagoya, Japan;
2. Institute of Physics, Johannes Gutenberg-Universität Mainz, Mainz, Germany

GS-09. Large exchange bias in Co$_{80}$Fe$_{40}$B$_{20}$/MnN bilayers for spintronic applications. D. Zhang¹, K. Schliep²
P. Quarterman¹, J. Liu¹, J. Chen¹ and J. Wang¹
1. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN;
2. Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN

GS-10. Development of Exchange Bias in Bulk Nanocomposite FeMn, I. McDonald¹, L.G. Marshall¹, D. Heiman² and L.H. Lewis¹
1. Chemical Engineering, Northeastern University, Boston, MA;
2. Physics, Northeastern University, Boston, MA

GS-11. Modeling of GMI effect in exchange biased NiFe Ferromagnetic thin films. C. Garcia¹, C.A. Ross² and U. Kilic²
1. Physics, UTFSM-Universidad Técnica Federico Santa María, Valparaíso, Chile;
2. Electrical Engineering Department, Nebraska University at Lincoln, Lincoln, NE;
3. Materials Science, Massachusetts Institute of Technology, Cambridge, MA

FRIDAY GRAND BALLROOM

MORNING 9:30

Session GT
MAGNONICS IV
(Poster Session)
Sebastian Wintz, Chair
Paul Scherrer Institut, Villigen PSI, Switzerland

GT-01. Design of a CMOS Integrated On-Chip Oscilloscope for Spin Wave Characterization. E. Egel¹, C. Meier¹, G. Csaba² and S. Breitkreutz-v. Gammi¹
1. Institute for Technical Electronics, Technische Universität München, Munich, Germany;
2. University of Notre Dame, Notre Dame, IN

GT-02. Propagation of collective spin wave in transversely magnetized bi-component nanowire array. R. Silvani¹, S. Tucchi¹, M. Madami², G. Carlotti³, A. Adeyeye⁴ and G. Gubbio⁴
1. CNR-Istituto Officina dei Materiali, Perugia, Italy;
2. Dipartimento di Fisica e Geologia, Università di Perugia, Perugia, Italy;
3. IOM-CNR, Perugia, Italy;
4. Electrical & Computer Engineering, National University of Singapore, Singapore, Singapore;
5. Dipartimento di Fisica, University of Perugia, Perugia, Italy

GT-03. Standing spin wave resonant properties of spin-twist structure in exchange coupled composite films. X. Ya¹, T. Tanaka¹ and K. Matsuyama¹
1. Kyushu University, Fukuoka, Japan
GT-04. The Boltzmann Equation for Magnon Transport with Three Magnons Scattering. T. Liu1, J. Ren1, Y. Liu1 and J. Zhang1
1. School of Physics, Tongji University, Shanghai, China

GT-05. Electric Field Manipulation of Spin Wave Propagation. S. Wang1,2, X. Guan1,2, X. Cheng1,2, C. Lian1,2, T. Huang1,2 and X. Miao1,2
1. School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan, China; 2. Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, China

GT-06. Frequency- and Amplitude Modulation of Spin Wave Signals emitted from Topological Spin Textures. S. Wintz1,2, S. Finizio1, K. Schultheiss2, V. Liersch2, F. Kilibarda2, T. Warnatz2, A.K. Suszka1,3, P. Wohlfahrt2,3, A. Erbe2, J. Lindner2, J. Fassbender2,4 and J. Raabe1
1. Paul Scherrer Institut, Villigen PSI, Switzerland; 2. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 3. ETH Zürich, Zurich, Switzerland; 4. Technische Universität Dresden, Dresden, Germany

GT-07. Tunable Spin Wave Dynamics In Two-Dimensional Quasi-Magnonic Crystals. S. Choudhury1, S. Saha1, Y. Otani2,3 and A. Barman1
1. Condensed Matter Physics and Materials Sciences, S N Bose National Centre For Basic Sciences, Kolkata, India; 2. ISSP, University of Tokyo, Kashiwa, Japan; 3. RIKEN-CEMS, Hirosawa, Japan

GT-08. Towards Strain-Mediated Control of Spin Waves for Logic. A. Barra1 and G. Carman1
1. Mechanical Engineering, University of California, Los Angeles, Los Angeles, CA

1. University of Münster, Münster, Germany; 2. Unité Mixte de Physique CNRS/Thales, Palaiseau, France; 3. Física Aplicada, Universidad Politécnica de Madrid, Madrid, Spain; 4. Service de Physique de l’État Condensé, CEA Saclay, Gif-sur-Yvette, France; 5. Instituto de Microelectrónica de Madrid, Madrid, Spain; 6. Université de Bretagne Occidentale, Brest, France; 7. Kazan Federal University, Kazan, Russian Federation; 8. INAC-SPINTEC, Grenoble, France

GT-10. Laser-pulse-induced spin-wave propagation modified by spin-orbit torques. D. Lee1, S. Lee1, G. Go1, S. Mizukami2 and K. Lee1
1. Korea University, Seoul, The Republic of Korea; 2. WPI-AIMR, Tohoku University, Sendai, Japan

GT-11. Spin Wave and Fluctuation Effect in Monoaxial Chiral Magnet. Y. Masaki1 and R. Stamps2
1. The University of Tokyo, Tokyo, Japan; 2. University of Glasgow, Glasgow, United Kingdom

GT-12. Spin wave generator via oscillating vortex core in NiFe disk array. L. Chang1, M. Kao1, J. Liang2 and S. Lee1
1. Institute of Physics, Academia Sinica, Taipei, Taiwan; 2. Department of Physics, Fu Jen Catholic University, New Taipei, Taiwan
GT-13. Long-range propagation of magnetostatic surface spin waves in ordered FeRh epitaxial thin films. T. Usami1, I. Suzuki1, M. Itoh1 and T. Taniyama1. Laboratory for Materials and Structures, Tokyo Institute of Technology, Yokohama, Japan

GT-14. Unidirectional short-wavelength spin wave propagation using one-dimensional nanogratings. J. Chen1, H. Chang2, C. Liu1, T. Liu3, T. Stückler1, Z. He4, W. Zhao1, Z. Liao3, D. Yu5, M. Wu6 and H. Yu4. 1. Fert Beijing Research Institute, School of Electronic and Information Engineering, Beihang University, Beijing, China; 2. Department of Physics, Colorado State University, Fort Collins, CO; 3. State Key Laboratory for Mesoscopic Physics and Electron Microscopy Laboratory, School of Physics, Peking University, Beijing, China

GT-15. Withdrawn

FRIDAY GRAND BALLROOM
MORNING 9:30

Session GU
DMI AND SPIN–ORBIT TORQUES
(Poster Session)
Felix Buettner, Chair
Massachusetts Institute of Technology, Cambridge, MA

GU-01. Large enhancement of spin-orbit torques in MnGa/Ta films with inserting ferromagnetic layers. K. Meng1, J. Miao1, X. Xu1 and Y. Jiang1. 1. School of Materials Science and Engineering, University of Science & Technology Beijing, Beijing, China

GU-02. Initialization-free multilevel states driven by spin-orbit torque switching. C. Yang1, K. Huang1, D. Wang1, M. Tsai2, H. Lin3 and C. Lai1. 1. Materials Science and Engineering, National Tsing Hua University, Hsinchu, Taiwan; 2. Physics, National Tsing Hua University, Hsinchu, Taiwan

GU-03. Large interfacial spin-orbit torque in Fe|MgO|V tunnel junctions. S. Miwa1,2, J. Fujimoto3, P. Risius1, M. Goto1,2 and Y. Suzuki1,2. 1. Graduate School of Engineering Science, Osaka University, Toyonaka, Japan; 2. Center for Spintronics Research Network, Osaka University, Toyonaka, Japan; 3. Institute for Chemical Research, Kyoto University, Uji, Japan

GU-04. Temperature Dependence Study of Spin Orbit Torque in Cu–Au Alloy. Y. Wen1, X. Zhang1, A. Manchon1, J. Xiao2, P. Li3 and Q. Zhang1. 1. King Abdullah University of Science and Technology, Thuwal, Saudi Arabia; 2. University of Delaware, Newark, DE
GU-05. Effect of the interlayer exchange torque on the domain wall dynamics in perpendicularly magnetized synthetic antiferromagnetic nanowires. S. Krishnia1, P. Sethi1, W. Gan1, F.N. Kholde1, I. Purmana1, R. Maddu1, T. Hermg2, J. Ding2 and W. Lew3 1. Division of Physics and Applied Physics, School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore; 2. Materials Science & Engineering, National University of Singapore, Singapore, Singapore

GU-06. Doppler Shift Picture of the Dzyaloshinskii-Moriya Interaction. T. Kikuchi1, T. Koretsune1,2, R. Arita1 and G. Tatara1 1. Center for Emergent Matter Science, RIKEN, Saitama, Japan; 2. JST, PRESTO, Saitama, Japan


GU-08. Pt thickness dependence of interfacial Dzyaloshinskii-Moriya interaction energy and role of Cu insertion layer at the Pt/Co and Co/AlOx interfaces. N. Kim1, J. Jung1, J. Cho2, D. Han1, Y. Yin1, J. Kim1, H. Swagten1, K. Lee4, M. Jung2 and C. You1 1. Emerging Materials Science, Daegu Gyeongbuk Institute of Science & Technology (DGIST), Daegu, The Republic of Korea; 2. Physics, Inha University, Incheon, The Republic of Korea; 3. Department of Applied Physics, Eindhoven University of Technology, Eindhoven, Netherlands; 4. Johannes Gutenberg University Mainz, Mainz, Germany; 5. Department of Physics, Sogang University, Seoul, The Republic of Korea


GU-10. Empirical correlation between Dzyaloshinskii-Moriya interaction and electronegativity in Pt/Co/X trilayers. Y. Park1,2, M. Park1, D. Kim1 and S. Choe1 1. Physics and Astronomy, Seoul National University, Seoul, The Republic of Korea; 2. Center for Spintronics, Korea Institute of Science and Technology, Seoul, The Republic of Korea

GU-11. Effects of capping layer on formation and magnetic properties of MnBi thin films for spintronic applications. P. Quarterman1, D. Zhang2, K. Schlipf1, Y. Lv2 and J. Wang2 1. Electrical Engineering, University of Minnesota, Saint Paul, MN; 2. Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN; 3. Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN
GU-12. Phase Diagram of Isolated Skyrmions in a Ferromagnet. 
F. Buettner and G. Beach. 1. Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA

FRIDAY MORNINGS

Session GV
VOLTAGE CONTROLLED MAGNETISM III
(Poster Session)
Ian Gilbert, Chair
NIST, Gaithersburg, MD


GV-02. Enhanced Tunability of Electrical and Magnetic Properties in (La,Sr)MnO3 Thin Films via Field-assisted Oxygen Vacancy Modulation. H. Wong, S. Ng, W. Cheng, X. Chen, C. Mak, J. Dai and C. Leung. 1. Department of Applied Physics, The Hong Kong Polytechnic University, Hong Kong, China


GV-04. A qualitative picture for voltage controlled magnetic anisotropy. J. Zhang, P. Lukashev, S. Jaswal and E.Y. Tsymbal. 1. Department of Physics and Astronomy, University of Nebraska, Lincoln, NE; 2. Department of Physics, University of Northern Iowa, Cedar Falls, IA

GV-05. Exchange bias controlled by electric current: Interplay of Joule heating and the induced field. K. Oda, T. Moriyama, M. Kawaguchi, M. Kaniwa, K. Tanaka, K. Kim and T. Ono. 1. Institute for Chemical Research, Kyoto University, Uji city, Japan

GV-07. Magnetoresistive Detection of Pinned Uncompensated Magnetization in Antiferromagnetic FeMn. P.N. Lapa1,2, I.V. Roshchin1,3, J. Ding1, J.E. Pearson1, V. Novosad1, S. Jiang1 and A. Hoffmann1 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 Material Science and Engineering, Texas A&M University, College Station, TX


GV-09. Strain Manipulation Of Antiferromagnetic Domains In Mn2Au. A. Sapozhnik1,2, S. Finizio3, R. Abrudan4, M. Kläui1, H. Elmers1, H. Zabel1 and M. Jourdan1 1. Institute of Physics, Johannes Gutenberg University, Mainz, Germany; 2. Graduate School Material Science in Mainz, Mainz, Germany; 3. SYN, Paul Scherrer Institut, Villigen PSI, Switzerland; 4. Helmholtz Zentrum Berlin für Materialien und Energie, Berlin, Germany

GV-10. Charge-induced spin torque and voltage-driven magnetization switching in Weyl semimetals. D. Kurebayashi1 and K. Nomura1 1. Institute for Materials Research, Tohoku University, Sendai, Japan

GV-11. Manipulation of Magnetism in Co/Fullerene C60 Through Thermoelectric Stimuli. M.D. Rogers1, T. Moorsom1, F. Al Ma’Mari1, M. Ali1, B. Hickey1 and O. Cespedes1 1. School of Physics & Astronomy, University of Leeds, Leeds, United Kingdom

GV-12. Synthesis of compensated ferrimagnetic Mn2CrGa with Pt or Fe substitution for Cr. W. Zhang1, P.R. Kharel2, S. Valloppilly1, T. Chen3, R. Skomski4 and D.J. Sellmyer1,4 1. Nebraska Center for Materials and Nanoscience, University of Nebraska, Lincoln, NE; 2. Physics, South Dakota State University, Brookings, SD; 3. Physics, Arizona State University, Tempe, AZ; 4. Physics and Astronomy, University of Nebraska, Lincoln, NE

GV-13. Spin dependent charge trapping in C60 studied via XAS. T. Moorsom1, M.D. Rogers1, F. Al Ma’Mari1, P. Gargiani2, M. Valvidares2, S. Lee3, G. Burnell1 and O. Cespedes1 1. School of Physics & Astronomy, University of Leeds, Leeds, United Kingdom; 2. BOREAS beamline, ALBA Synchrotron Light Facility, Barcelona, Spain; 3. School of Physics and Astronomy, University of St. Andrews, St Andrews, United Kingdom

GV-14. Electric field effect on perpendicular magnetic anisotropy in Fe/MgO interfaces annealed at different temperatures. Q. Xiang1,2, H. Sukegawa1, S. Kasa1 and S. Mitani1,2 1. National Institute for Materials Sciences, Tsukuba, Japan; 2. University of Tsukuba, Tsukuba, Japan
GW-01. Measuring Magnetic Properties of Non-Oriented Electrical Steel Sheets in Arbitrary Directions under Compressive Stress Normal to Their Surface. Y. Maeda¹, S. Urata¹, H. Nakai³, Y. Takeuchi², S. Yanase² and Y. Okazaki² ¹. Toyota Central R&D Labs., Inc., Nagakute, Japan; ². Gifu University, Gifu, Japan

GW-02. Loss Reduction of Vehicle Horn using Slinky-Laminated Pole and Armature. J. Sim¹, K. Jung¹, S. Hwang¹ and J. Hong¹ ¹. Automotive Engineering, Hanyang University, Seoul, The Republic of Korea

GW-03. Improvement in Thrust Force Estimation of Solenoid Valve applying Minor Hysteresis Loop. M. Yoon¹, Y. Choi¹ and J. Hong¹ ¹. Hanyang University, Seoul, The Republic of Korea


GW-05. Dynamic Analysis Method of A Rotating Shaft with Magnetic Pattern. H. Hsiao¹, S. Shih¹ and J. Chang¹ ¹. Power Mechanical Engineering, National Tsing Hua University, Hsinchu, Taiwan

GW-06. Torque Analysis and Measurement of Halbach Array Magnetic Spur Gear Based on 3-D Analytical Method. T. Bang¹, K. Shin¹, M. Koo¹, H. Cho¹ and J. Choi¹ ¹. Dept. of Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea

GW-07. Torque Characteristic Analysis and Measurements of Axial Flux Type Non-Contact Permanent Magnet Device with Halbach Array Based on 3D Analytical Method. G. Jang¹, M. Koo¹, C. Baek¹ and J. Choi¹ ¹. Electrical Engineering, Chung Nam National University, Daejeon, The Republic of Korea

GW-08. Irreversible Demagnetization Characteristic Analysis according to Speed Change in Constant Torque Region of PM BLDC Motor. J. Park¹, H. Kim¹ and J. Hur² ¹. Ulsan University, Ulsan, The Republic of Korea; ². Incheon International University, Incheon, The Republic of Korea

MARDI GRAS A-E
FRIDAY AFTERNOON
1:30
Session HA
SYMPOSIUM: ALL OPTICAL SWITCHING
Eric Fullerton, Chair
UC San Diego, La Jolla, CA
1:30
HA-01. Femtosecond Control of Electric Currents and Spins with Polarized Light in Magnets. (Invited) A. Kimel1. Radboud University, Nijmegen, Netherlands
2:06
HA-02. Accumulative magnetic switching of ultra-high-density recording media by circularly polarized light. (Invited) Y. Takahashi1, R. Medapalli2, S. Kasai1, J. Wang1, K. Ishioka1, S. Wee1, O. Hellwig3, K. Hono1 and E.E. Fullerton2 1. NIMS, Tsukuba, Japan; 2. UC San Diego, La Jolla, CA; 3. Western Digital Company, San Jose, CA
2:42
3:18
HA-04. Ultrafast All-Optical Switching of Magnetic Tunnel Junctions With Sub-Picosecond Infrared Laser Pulses. (Invited) J. Chen1, L. He2, J. Wang1 and L. Mo2 1. Electrical and Computer Engineering, School of Physics & Astronomy, Minneapolis, MN; 2. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN
3:54
Session HB
SPIN CURRENT AND RELATED EFFECTS III
Tingyong Chen, Chair
Arizona State University, Tempe, AZ

1:30

HB-01. Towards efficient spin orbit torque. (Invited) W. Han\textsuperscript{1,2}
1. International Center for Quantum Materials, Peking University, Beijing, China; 2. Collaborative Innovation Center of Quantum Matter, Beijing, China

2:06

HB-02. Thin Films Of Topological Kondo Insulator SmB\textsubscript{6}: Strong Spin-orbit Torque Without Surface Conduction. Y. Li\textsuperscript{1}, Q. Ma\textsuperscript{1}, S. Huang\textsuperscript{1} and C. Chien\textsuperscript{1} 1. Department of Physics and Astronomy, Johns Hopkins University, Baltimore, MD; 2. Physics and Astronomy, Johns Hopkins University, Baltimore, MD

2:18

HB-03. Scaling for the spin-electricity current conversion on surface state of topological Insulators. K. Yamamoto\textsuperscript{1}, Y. Shiom\textsuperscript{1,2}, K. Segawa\textsuperscript{3,4}, Y. Ando\textsuperscript{3,5} and E. Saitoh\textsuperscript{2,6} 1. Institute for Materials Research, Tohoku University, Sendai, Japan; 2. Spin Quantum Rectification Project, ERATO, Japan Science and Technology Agency, Sendai, Japan; 3. Institute of Scientific and Industrial Research, Osaka University, Osaka, Japan; 4. Department of Physics, Kyoto Sangyo University, Kyoto, Japan; 5. Institute of Physics II, University of Cologne, Cologne, Germany; 6. WPI-AIMR, Tohoku University, Sendai, Japan

2:30

HB-04. Direct comparison of current-induced spin polarization in topological insulators and InAs Rashba states. C.H. Li\textsuperscript{1}, O. van ‘t Erve\textsuperscript{1}, S. Rajput\textsuperscript{3}, L. Li\textsuperscript{1} and B. Jonker\textsuperscript{2} 1. Naval Research Laboratory, Washington, DC; 2. Naval Research Laboratory/SSD, Washington, DC; 3. Physics, University of Wisconsin, Milwaukee, Milwaukee, WI

2:42

HB-05. Experimental and theoretical study of phonon skew scattering in Platinum. G. Vijay Karnad\textsuperscript{1}, C. Gorini\textsuperscript{2}, K. Lee\textsuperscript{1}, U. Eckern\textsuperscript{1}, R. Raimondi\textsuperscript{1}, T. Schulz\textsuperscript{2}, R. Lo Conte\textsuperscript{1,5}, N. Kim\textsuperscript{6}, D. Han\textsuperscript{1}, J. Kim\textsuperscript{1}, C. You\textsuperscript{6}, H. Swagten\textsuperscript{7} and M. Klüui\textsuperscript{1,5} 1. Institute of Physics, Johannes Gutenberg - University Mainz, Mainz, Germany; 2. University of Regensburg, Regensburg, Germany; 3. University of Augsburg, Augsburg, Germany; 4. Roma Tre University, Rome, Italy; 5. Graduate School of Excellence “Materials Science in Mainz” (MAINZ), Mainz, Germany; 6. Department of Physics, Inha University, Incheon, The Republic of Korea; 7. Eindhoven University of Technology, Eindhoven, Netherlands

244 Friday
HB-06. Gigantically enhanced interface spin current transparency by Kondo effect in iron-doped coppe. S. Yang1, P. Xu2, W. Zhang3, J. Jeong4, Y. Ferrante4 and S.S. Parkin5 1. IBM Almaden Research Center, San Jose, CA; 2. MPI, Halle, Germany; 3. MISE, Stanford, Stanford, CA; 4. Spintronics and Magnetoelectronics, IBM Almaden Research Center, San Jose, CA; 5. Max Planck Institute for Microstructure Physics, Halle (Saale), Germany

3:06


3:42

HB-08. Large and tunable spin Hall angles in gold based alloys. J. Rojas-Sanchez1,2, P. Laczkowski2, Y. Fu3, P. Noël3, N. Reyren3, C. Deranlot3, S. Collin2, A. Marty3, P. Warin3, J. Attane1, H. Jaffres3, J. George3, L. Vila3 and A. Fert3 1. Institut Jean Lamour - Univ. Lorraine UMR7198 CNRS, 54506 Vandoeuvre les Nancy, France; 2. Unité Mixte de Physique, CNRS, Thales, Univ. Paris-Sud, Université Paris-Saclay, 91767, Palaiseau, France; 3. SPINTEC, CEA-INAC/CNRS/Univ. Grenoble Alpes, 38054 Grenoble, France

3:54

HB-09. Influence of dc-bias current on spin transfer torque ferromagnetic resonance in NiFe/Pt bilayer. S. Hirayama1,2, S. Kasai1 and S. Mitani1,2 1. National Institute for Materials Science, Tsukuba, Japan; 2. University of Tsukuba, Tsukuba, Japan

4:06

HB-10. Dynamics of the spin currents in acoustic and optical modes of ferromagnetic resonance in spin valve multilayers. A. Timopheev3, Y.G. Pogorelov2, S. Cardoso3, P.P. Freitas3, G.N. Kakazei4 and N. Sobolev3 1. INAC - Institute for Nanoscience and Cryogenics, SPINTEC Laboratory, CEA Grenoble, Grenoble, France; 2. Departamento de Fisica, Universidade do Porto, Porto, Portugal; 3. INESC-MN and IN-Institute of Nanoscience and Nanotechnology, Lisbon, Portugal; 4. IFIMUP-IN/Department of Physics, University of Porto, Porto, Portugal; 5. Departamento de Fisica e I3N, Universidade de Aveiro, Aveiro, Portugal
4:18

**HB-11.** Dependence of spin-charge transduction efficiency on Py/Pt stacking order measured by VNA-FMR. A.J. Berger¹, E. Edwards¹, H. Nembach¹, J. Shaw¹, A.D. Karenowska², M. Weiler³ and T. Silva¹ ¹. Div. 687, NIST, Boulder, CO; ². Physics, University of Oxford, Oxford, United Kingdom; ³. Walther-Meißner-Institut, Garching, Germany

FRIDAY  La Galerie 1-2
AFTERNOON
1:30

**Session HC**

**SPIN TORQUE OSCILLATORS**

Igor Zutic, Chair
University at Buffalo, Buffalo, NY

1:30

**HC-01.** Stochastic spintronic devices for bio-inspired computing. *(Invited)* A. Mizrahi¹², N. Locatelli², R. Lebrun², A. DiRienzo-Acioli², V. Crost³, A. Fukushima⁴, H. Kubota⁴, S. Yuasa⁴, J. Kim⁴, D. Querlioz² and J. Grollier⁴ ¹. Unité Mixte CNRS/Thales, Bourg la Reine, France; ². Institu d’Electronique Fondamentale, Université Paris-Saclay, Orsay, France; ³. UMR CNRS/THALES, Palaiseau, France; ⁴. Unité Mixte de Physique CNRS/Thales, Palaiseau, France; 5. AIST, Tsukuba, Japan; 6. National Institute of Advance Industrial Science and Technology (AIST), Tsukuba, Japan; 7. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan

2:06

**HC-02.** Suppression of phase noise in spin torque oscillator stabilized by phase locked loop. *(Invited)* S. Tamaru¹, H. Kubota¹, K. Yakushiji¹, S. Yuasa¹ and A. Fukushima¹ ¹. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan

2:42

**HC-03.** Spin pumping driven auto-oscillator for phase-encoded logic. S. Rakheja¹ and N. Kani¹ ¹. Electrical and Computer Engineering, New York University, Brooklyn, NY; ². Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, GA

2:54

**HC-04.** An Electrically Coupled Spin-Hall Oscillator Array for Pattern Matching Operation. K. Kudo¹ and T. Morie² ¹. Research and Development Center, Toshiba Corporation, Kawasaki, Japan; ². Graduate School of Life Science and Systems Engineering, Kyushu Institute of Technology, Kitakyushu, Japan
HC-05. Enhancing the mutual synchronization range of electrically coupled spin-torque oscillators by selecting the vortex excitation mode. M. Romera1, P. Talatchian1, R. Lebrun1, K.J. Merazzo2, P. Bortolotti1, L. Vila2, J. Costa4, R. Ferreira4, P.P. Freitas4, M. Cyrille2,3, U. Ebels2, V. Cros3 and J. Grollier1
1. Unité Mixte de Physique CNRS Thales, Univ. Paris-Sud, Université Paris-Saclay, Palaiseau, France; 2. Univ. Grenoble Alpes, CEA, CNRS, SPINTEC, F-38000 Grenoble, France; 3. Univ. Grenoble Alpes, CEA-LETI MINATEC, F-38000 Grenoble, France; 4. International Iberian Nanotechnology Laboratory (INL), 4715-31, Braga, Portugal

HC-06. Enhancement of emission power by electrical mutual synchronization of 4 nano-oscillators. S. Tsunegi1, R. Lebrun2, K. Yakushiji1, A. Fukushima1, V. Cros2, S. Yuasa1 and H. Kubota3. 1. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Palaiseau, France; 2. Unité Mixte de Physique CNRS/Thales, Palaiseau, France


HC-09. Large-Angle Dynamics of Co-Mn-Ge Spin Transfer Nanocontact Oscillators. M. Pufall1, J. Shaw1, E. Edwards1 and W. Rippard1. 1. National Institute of Standards and Technology, Boulder, CO

HC-10. Direct observation of mutually synchronized spin Hall nano-oscillators using micro-Brillouin Light Scattering. A.A. Awad9, P. Dürrenfeld1, A. Houshang1, M. Dvornik1, E. Iacocca1, R.K. Dumas1 and J. Akerman2,1. 1. Physics department, University of Gothenburg, Gothenburg, Sweden; 2. Materials and Nano Physics, KTH Royal Institute of Technology, Kista, Sweden
HC-11. Current-Induced Dynamics in Coupled Co$_2$(Fe,Mn)Si Magnetic Vortices. T. Yamamoto$^1$, T. Seki$^{1,2}$ and K. Takanashi$^3$
1. IMR, Tohoku Univ., Sendai, Japan; 2. JST-PRESTO, Saitama, Japan

FRIDAY La Galerie 3
AFTERNOON
1:30

Session HD
MAGNETOELECTRONIC MATERIALS AND TRANSPORT III
Weigang Wang, Co-Chair
University of Arizona, Tucson, AZ
Chong Bi, Co-Chair
University of Arizona, Tucson, AZ

1:30
HD-01. Disentangling Interface and Bulk Contributions to the Anisotropic Magnetoresistance in Pt/Co/Pt Sandwiches. A. Philippi-Kobs$^{1,2}$ and H.P. Oepen$^2$
1. Deutsches Elektronen-Synchrotron (DESY), Hamburg, Germany; 2. Universität Hamburg, Hamburg, Germany

1:42
HD-02. Magnetism, Electron-transport and Spin Polarization of Epitaxial CoFeCrAl Films. Y. Jin$^{1,2}$, P.R. Kharel$^{1,2}$, S. Valloppilly$^2$, X. Li$^2$, D. Kim$^4$, G. Zhao$^4$, T. Chen$^4$, 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. Physics, South Dakota State University, Brookings, SD; 4. Physics, Arizona State University, Mesa, AZ

1:54
HD-03. Magnetic characterisation of MBE grown Cr$_x$Sb$_2$Te$_3$ Magnetic Topological Insulator through electrical transport. A. Singh$^1$, V. Kamboj$^1$, L. Mcintyre$^2$, T. Hesjedal$^2$, D. Ritchie$^1$ and C. Barnes$^1$
1. Physics, University of Cambridge, Cambridge, United Kingdom; 2. Physics, University of Oxford, Oxford, United Kingdom

2:06
HD-04. High field magnetotransport in thin films of the topological insulator Bi$_2$Se$_3$. E. de Vries$^1$, M. Meijer$^2$, S. Pezzini$^2$, N. Koirala$^3$, M. Salehi$^4$, J. Moon$^3$, S. Oh$^3$, S. Wiedmann$^2$ and T. Banerjee$^1$
1. University of Groningen, Groningen, Netherlands; 2. High Field Magnet Laboratory, Radboud University, Nijmegen, Netherlands; 3. Department of Physics & Astronomy, Rutgers, State University of New Jersey, Piscataway, NJ; 4. Department of Materials Science and Engineering, Rutgers, State University of New Jersey, Piscataway, NJ
HD-05. Nonadiabatic Berry Phase in Nanocrystalline Magnets. R. Skomski and D.J. Sellmyer. 1. Physics and Astronomy, University of Nebraska - Lincoln, Lincoln, NE

HD-06. Determination of spin polarization of half-Heusler NiMnSb by nonlocal spin valve measurement. G. Qu,1,2, P. Cheng,1,2, Y. Sakuraba,1, S. Kasai,1, T. Furubayashi,1, T. Ohkubo,1 and K. Hono.1,2 1. Research Centre for Magnetic and Spintronic Materials, National Institute for Materials Science, Tsukuba, Japan; 2. Graduate School of Pure and Applied Sciences, University of Tsukuba, Tsukuba, Japan

HD-07. Nanometer Resolved Profiles Of Half-Metallic Full Heusler Alloy Thin Films Determined From Polarisated Neutron Reflectometry. S.E. Glover,1, T. Saerbeck,2, B. Kuerbanjiang,1, Z. Nedelkoski,1, D. Kepaptsoglou,1, A. Ghasemi,1, S. Yamada,1, C. Burrows,1, Q.M. Ramasse,1, P.J. Hasnip1, K. Hamaya,1, A. Hirohata,1, V. Lazarov,1, T.P. Hase1 and G. Bell.1 1. Physics, University of Warwick, Coventry, United Kingdom; 2. Institut Laue-Langevin, Grenoble, France; 3. Physics, University of York, York, United Kingdom; 4. SuperSTEM laboratory, SciTech Daresbury Campus, Daresbury, United Kingdom; 5. Department of Systems Innovation, Osaka University, Toynaka, Japan; 6. Electronics, University of York, York, United Kingdom

HD-08. Atomic and Electronic Study of Co2FeAl0.5Si0.5/Ge(111) Interface. B. Kuerbanjiang,1, Z. Nedelkoski,1, D. Kepaptsoglou,1, A. Ghasemi,1, S.E. Glover,1, S. Yamada,1, A. Sanchez1, Q.M. Ramasse,1, T.P. Hase,1, G. Bell,1, K. Hamaya,1, A. Hirohata1 and V. Lazarov1. 1. University of York, York, United Kingdom; 2. SuperSTEM Laboratory, Daresbury, United Kingdom; 3. Physics, University of Warwick, Coventry, United Kingdom; 4. Department of Systems Innovation, Osaka University, Toynaka, Japan

HD-09. Computational Investigation of Heusler Alloys for Spintronic Applications. J. Ma,1, K. Munira2, Y. Xie1, S. Keshavarz2,3, A.W. Ghosh1 and W. Butler2,3. 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

HD-10. Determining the effects of epitaxy on low moment Heusler-type MnAl thin films. M.E. Jamer,1, Y. Wang2, J. Borchers1, B.I. Kirby1, B. Barbiellini2, A. Bansil2 and D. Heiman2. 1. NIST Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD; 2. Physics, Northeastern University, Boston, MA
3:30

HD-11. Reduced Interface Spin Polarization By Antiferromagnetically Coupled Co$_2$MnSi/ GaAs(001) Interface. A. Rath$^1$, C. Shivakumar$^2$, S. Patel$^3$, K. Christie$^4$, T. Peterson$^4$, G. Stecklein$^4$, P. Crowell$^4$, C. Palmstrøm$^3$, W. Butler$^2$ and P. Voyles$^1$
1. Department of Materials Science and Engineering, University of Wisconsin-Madison, Madison, WI; 2. Department of Physics and Center for Materials and Information Technology, University of Alabama, Tuscaloosa, AL; 3. Department of Materials Science and Engineering, University of California-Santa Barbara, Santa Barbara, CA; 4. School of Physics and Astronomy, University of Minnesota, Minneapolis, MN

3:42

1. Department of Electronics Engineering, Tohoku University, Sendai, Japan; 2. Graduate School of Integrated Science and Technology, Shizuoka University, Hamamatsu, Japan

3:54

HD-13. Anomalous Hall effect in $L_1_0$-MnAl films with controllable orbital two-channel Kondo effect. L. Zhu$^1$, S. Nie$^1$ and J. Zhao$^1$
1. State Key Laboratory For Superlattices And Microstructures, Institute of Semiconductors, Chinese Academy of Sciences, Beijing, China

4:06

HD-14. Highly sensitive flexible magnetic sensor based on anisotropic magnetoresistance effect. Z. Wang$^1$, X. Wang$^1$, M. Li$^2$ and N.X. Sun$^2$
1. ECE, Northeastern University, Boston, MA; 2. Northeastern University, Boston, MA

4:18

1. Florida State University, Tallahassee, FL; 2. Institute of Physics Chinese Academy of Sciences, Beijing, China; 3. University of California, Irvine, CA
Session HE

SPIN TRANSPORT IN TWO-DIMENSIONAL MATERIALS
Ching-Tzu Chen, Chair
IBM Thomas J Watson Research Center, Yorktown Heights, NY

1:30

HE-01. Spin transport in two-dimensional materials and van der Waals heterostructures. (Invited) S.P. Dash
I. Microtechnology and Nanoscience, Chalmers University of Technology, Gothenburg, Sweden

2:06

HE-02. Strong Interfacial Exchange Field in the Graphene/EuS Heterostructure. (Invited) C. Chen
1. IBM TJ Watson Research Center, Yorktown Heights, NY

2:42

HE-03. A Two-Dimensional Spin Field-Effect Transistor. W. Yan
1. Microtechnology and Nanoscience, Chalmers University of Technology, Gothenburg, Sweden
2. University of Rochester, Rochester, NY

2:54

HE-04. Giant Spin Accumulation in Graphene by Electrical Spin Injection through SrO Tunnel Barrier. R. Kawakami
S. Singh1, J. Katoch1, T. Zhu1, R. Wu2, A. Ahmed
1. Department of Physics, The Ohio State University, Columbus, OH; 2. Department of Chemical Engineering & Materials Science, University of Minnesota, Minneapolis, MN; 3. Physics and Astronomy, University of Minnesota, Minneapolis, MN

3:06

HE-05. Spin Lifetimes Exceeding 12 ns in Graphene Nonlocal Spin Valve Devices. M. Drögeler
C. Franzen1, F. Volmer1, T. Puhlmann1, L. Banszerus1, M. Wolter1, K. Watanabe2, T. Taniguchi2, C. Stampfer1,2 and B. Beschoten1,2. 2nd Institute of Physics and JARA-FIT, RWTH Aachen University, Aachen, Germany; 3. Peter Grünberg Institute (PGI-9), Forschungszentrum Jülich, Jülich, Germany

3:18

HE-06. Nanosecond Spin Relaxation Times in Single Layer Graphene Spin Valves with Hexagonal Boron Nitride Tunnel Barriers. J. Xu1, S. Singh1, J. Katoch1, C. Tan1, T. Zhu1, W. Amamou2, J. Hone3 and R. Kawakami1,2. 1. Physics, The Ohio State University, Columbus, OH; 2. Physics and Astronomy, UC Riverside, Riverside, CA; 3. Mechanical Engineering Department, Columbia University, New York, NY
HE-07. Spin Absorption In Graphene Lateral Spin Valves For Spin Transfer Torque Devices. W. Amamou¹, G. Stecklein², S. Turkyilmaz³, T. Zhu⁴, S. Singh⁴, J. Katoch⁴, P.A. Crowell⁵ and R. Kawakami⁶ 1. Physics and Astronomy, UC Riverside, Riverside, CA; 2. University of Minnesota, Minneapolis, MN; 3. Electrical Engineering, UC Riverside, Riverside, CA; 4. Physics, The Ohio State University, Columbus, OH

HE-08. Spin Signal Inversion in Ferromagnet|Hexagonal Boron Nitride-Graphene van der Waals Heterostructure Non-local Spin Valves. M. Kamalakar¹,², A. Dankert¹, P. Kelly³ and S.P. Dash¹ 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 and MESA+ Institute for Nanotechnology, University of Twente, Enschede, Netherlands

HE-09. Spin-Orbit Torques In Topological Insulator Ferromagnets. M. Ramezani Masir¹, N. Okuma² and A.H. MacDonald³ 1. University of Texas at Austin, Austin, TX; 2. Physics, University of Tokyo, Tokyo, Japan; 3. Physics, University of Texas at Austin, Austin, TX

HE-10. Temperature dependence of ferromagnetic resonance spectra of Py deposited on (Bi1-xSbx)2Te3. S. Gupta¹, S. Kanai²,³, F. Matsukura¹,³ and H. Ohno²,³ 1. WPI-Advanced Institute for Materials Research (WPI-AIMR), Tohoku University, Sendai, Japan; 2. Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 3. Center for Spintronics Integrated Systems, Tohoku University, Sendai, Japan

HE-11. MOKE measurements of spin polarization in topological insulators. B. Jonker¹, O. van ’t Erve¹, S. Rajput⁴, L. Li² and C.H. Li¹ 1. Materials Science & Technology Division, Naval Research Laboratory, Washington, DC; 2. Department of Physics, University of Wisconsin, Milwaukee, Milwaukee, WI
Session HF
SOFT MAGNETIC MATERIALS IV
Hongbin Yu, Chair
Arizona State University, Tempe, AZ

1:30

1:42
HF-02. Left-handed metacomposites containing carbon fibers and ferromagnetic microwires. Y. Luo1, F. Scarpa1, F. Qin3, M. Ipatov2, A. Zhukov2 and H. Peng3 1. ACCIS, University of Bristol, Bristol, United Kingdom; 2. Dpto. de Fisica de Materiales, Universidad del Pais Vasco, San Sebastian, Spain; 3. Institute for Composites Science Innovation, Zhejiang University, Hangzhou, China

1:54
HF-03. High frequency soft magnetic properties of (hcp-Co)-SiO2 nano-granular films with high perpendicular magnetic anisotropy. H. Aoki Kijima1,2, H. Masumoto1, K. Arai3 and M. Yamaguchi4 1. Frontier Research Institute for Interdisciplinary Sciences, Tohoku University, Sendai, Japan; 2. Department of Electrical Engineering, Tohoku University, Sendai, Japan; 3. DENJIKEN, Sendai, Japan; 4. Graduate School of Engineering, National Institute for Materials Science, Sendai, Japan

2:06

2:18
HF-05. Effects of cold reduction on recrystallization and grain growth behavior of textures using in-situ heating EBSD in 3% Si non-oriented electrical steels. H. Mun1, Y. Koo1 and S. Lee2 1. POSTECH, Pohang, The Republic of Korea; 2. POSCO, Pohang, The Republic of Korea
2:30

HF-06. Magnetic Properties and Crystallization Kinetics of (Fe_xNi_{1-x})_80Nb_4Si_2B_14 Metal Amorphous Nanocomposites. N. Aronhime¹, E. Zoghlin¹, V. Keylin¹, X. Jin¹ and M.E. McHenry¹. 1. Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, PA

2:42

HF-07. Soft Magnetic Properties and Damping Parameter of Fe-Al Alloy Thin Films. I. Kanadai¹, ², A. Cruce¹, ³, T. Mewes¹, ², S. Wu¹, ³, C.K. Mewes¹, ³, G. Mankey¹, ³ and T. Suzuki¹, ⁴ 1. Center for Materials for Information Technology, The University of Alabama, Tuscaloosa, AL; 2. Materials Development Center, TDK Corporation, Narita, AL; 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

2:54

HF-08. Influence of Temperature on Magnetic Property of Silicon Steel Lamination. J. Chen¹, ², D. Wang¹, X. Zheng¹, Z. Chen¹, F. Birnkammer² and D. Gerling². 1. Naval University of Engineering, Wuhan, China; 2. University of Federal Defense Munich, Munich, Germany; 3. Huazhong University of Science and Technology, Wuhan, China

3:06

HF-09. The Effect of Ni Addition on Microstructure and Soft-magnetic Properties of FeCoZrBCu Nanocrystalline Alloys. B. Shen¹, X. Fan¹ and Y. Tang¹. 1. School of Materials Sciences and Engineering, Southeast University, Nanjing, China

3:18

HF-10. Evolution of FINEMET powders microstructure and magnetic properties versus dry/wet milling conditions. L.C. Budeanu¹, ², L.C. Whitmore¹, G. Ababei¹, G. Stoian¹, H. Chiriac¹, M. Neagu² and N. Lupu¹. 1. National Institute of Research and Development for Technical Physics, Iasi, Romania; 2. Faculty of Physics, Alexandru Ioan Cuza University, Iasi, Romania

3:30

HF-11. Final thickness reduction and development of Goss texture in C- and Al-free Fe-3%Si-0.1%Mn-0.012%S electrical steel. N. Heo¹, E. Oh¹ and Y. Koo¹. 1. POSTECH, Pohang. Gyeongbuk, The Republic of Korea

3:42

HF-12. Probing the magnetic structure of CoₓFeₓMn₁₋ₓSi thin films. A. Hauser¹, J. Phillips¹, M. Pendharkar², S. Patel² and C. Palmstrøm². 1. University of Alabama, Tuscaloosa, AL; 2. Materials, University of California-Santa Barbara, Santa Barbara, CA
HF-13. Millimeter Wave Transmittance/Absorption Measurements on Micro/Nano Hexaferrites. K. Korolev1,2, S. Chen3, Y. Chen4, R. Barua1, M. Alsaier and V. Harris6 1. Northeastern University, Boston, MA; 2. Extremely High Frequency Medical and Technical Association, Moscow, Russian Federation; 3. Arent Fox LLP, Washington, DC; 4. Rogers Innovation Center, Burlington, MA; 5. Tufts University, Medford, MA; 6. Northeastern University, Boston, MA

HF-14. Mössbauer study and magnetic properties of MgFe2O4 crystallized from the glass system B2O3/K2O/P2O5/MgO/Fe2O3. S.M. El Shabrawy1, C. Rüssel2, C. Bocker2, P. Schaaf3, M. Georgieva4, R. Harizanova2,1, M. Miglierini5 and D. Tzankov4 1. Otto-Schott Institute for Materials Research, Jena, Germany; 2. Department of Physics, University of Chemical Technology and Metallurgy, Sofia, Bulgaria; 3. Ilmenau University of Technology, Ilmenau, Germany; 4. University of Sofia, St. Kl. Ohridski, Sofia, Bulgaria; 5. Department of Nuclear Reactors, Czech Technical University in Prague, Prague, Czech Republic

HF-15. Magnetic Properties Of Sintered CoFe2O4 Particulate Prepared Using Conventional and Ultrafast Microwave Furnaces. K.R. Jimenez1, C.P. Perdomo2, A.J. Gualdi1, P.C. de Camargo1,3, D. Garcia1, R.H. Kiminami2 and A.J. de Oliveira1 1. Physics Department, Federal University of São Carlos, São Carlos, Brazil; 2. Department of Materials Engineering, Federal University of São Carlos, São Carlos, Brazil; 3. Institute of Advanced and Strategic Studies, Federal University of São Carlos, São Carlos, Brazil

FRIDAY AFTERNOON 1:30

Session HG
MAGNETO-ELASTIC, MAGNETO-OPTIC, AND MICROWAVE MATERIALS
Norman Wereley, Co-Chair
University of Maryland, College Park, MD
Ivan Lisenkov, Co-Chair
Oakland University, Auburn Hills, MI

HG-01. Control Of The Magnetization Dynamics In Magnetostrictive Nanostructures Through The Magnetostatic Elastic Coupling Effect. S. Finizio1, E. Kirk1, S. Wintz1 and J. Raabe1 1. Paul Scherrer Institut, Villigen PSI, Switzerland

HG-03. Study of Heusler type 1D nanostructures fabricated by electrodeposition method. K. Javed1,2, U. Khan1, L. Wenjing1, M. Irfan1, S. Ali1 and X. Han1. 1. Chinese Academy of Sciences, Institute of Physics, Beijing, China; 2. Physics, Forman Christian College (University), Lahore, Pakistan

HG-05. Giant magnetically induced reorientation of martensitic variants in magnetic shape memory Ni-Mn-Ga thin films by microstructure engineering. F. Albertini1, S. Fabbrici1,2, F. Casoli1, L. Nasi1, P. Ranzieri1, M. Campanini1, C. Magen1, F. Celegato4, G. Barrera4, P. Tiberto4,5, G. Varvaro4 and E. Villa6. 1. IMEM-CNR, Parma, Italy; 2. MIST E-R, Bologna, Italy; 3. Instituto de Nanociencia de Aragón, Zaragoza, Spain; 4. INRIM, Torino, Italy; 5. ISM-CNR, Roma, Italy; 6. IENI-CNR, Lecco, Italy

HG-06. Withdrawn


HG-09. Magnetic Properties of Ni Coated Fibers In A Polymer Matrix. Z. Celinski1, R.E. Camley1, S. Goldman1, K. Livesey1, T. Robinson2, D. Meyers2 and S. Maat2. 1. Physics, University of Colorado, Colorado Springs, Colorado Springs, CO; 2. YTC-America, Camarillo, CA
2:54
HG-10. A new microwave material for C to U Band Application; BaM/YIG Nano-composites. V. Sharma1, S. Kumari2 and B.K. Kuane1,2. 1. Special Centre for Nanoscience, Jawaharlal Nehru University, Delhi, India; 2. Department of Physics, University of Colorado at Colorado Springs, Colorado Springs, CO

3:06
HG-11. Soft Magnetic Multilayered Thin Films With Tunable Magnetic Properties For High Frequency Applications. C. Falub1, H. Rohrmann1, M. Bless1, J.H. Richter1, M. Meduna2,3 and M. Padrun1 1. Evatec AG, Trübbach, Switzerland; 2. Department of Condensed Matter Physics, Masaryk University, Brno, Czech Republic; 3. CEITEC, Masaryk University, Brno, Czech Republic

3:18
HG-12. Characterization of Nanostructure Ferrite Material on Gallium Nitride on SiC Substrate for Millimeter Wave Integrated Circuit. B. O’Keefe1, T. Liang1, M.N. Afsar1 and V. Koomson1 1. Electrical and Computer Engineering, Tufts University, Somerville, MA

3:30
HG-13. Miniaturization of Magneto-optical Q-switched Laser Using Magnetic Garnet Films. R. Morimoto1, T. Goto1, J.W. Pritchard1, H. Takagi1, Y. Nakamura1, P. Lim1, M. Mina1, T. Taira4, H. Uchida1 and M. Insue1 1. Toyohashi University of Technology, Toyohashi, Japan; 2. JST PRESTO, Kawasaki, Japan; 3. Iowa State University, Ames, IA; 4. Institute for Molecular Science, Okazaki, Japan

3:42
HG-14. Optical Polarization Rotation Induced by Spin-Orbit Coupling in Polaron. B. Casals1, R. Cichelero1, P. García-Fernández2, J. Junquera3, D. Pesquera1, M. Campoy-Quiles3, I.C. Infante1, F. Sanchez1, J. Fontcuberta1 and G. Herranz1 1. Institut de Ciència de Materials de Barcelona ICMAB-CSIC, Bellaterra, Spain; 2. Departamento CITIMAC, Universidad de Cantabria, Santander, Spain; 3. Institut de Ciència de Materials de Barcelona ICMAB-CSIC, Barcelona, Spain

3:54
Session HH
ENERGY ASSISTED RECORDING II
Christoph Vogler, Chair
Vienna University of Technology, Vienna, Austria

1:30

1:42
HH-02. Temperature variation in granular media during heat assisted magnetic recording. A. Ghoreyshi1 and R.H. Victora1. 1. Electrical Engineering, University of Minnesota, Minneapolis, MN

1:54
HH-03. Effects of ion-irradiation and annealing on L10 ordering in FePt-C/BN thin films. J.C. De Rojas1, D. Ravelosona2, J. Reiner1, O. Hellwig1 and K. Liu1. 1. Physics Department, University of California, Davis, CA; 2. Institut d’Electronique Fondamentale, Orsay, France; 3. Western Digital Company, San Jose, CA

2:06
HH-04. Ru addition into L10-FePt thin film to lower Tc for heat-assisted magnetic recording. T. Ono1,2, H. Nakata1,2, T. Moriya1,2, N. Kikuchi3, S. Okamoto3, O. Kitakami3 and T. Shimatsu4. 1. Fuji Electric Co., Ltd., Sendai, Japan; 2. FRIS, Tohoku University, Sendai, Japan; 3. IMRAM, Tohoku University, Sendai, Japan; 4. RIEC, Tohoku University, Sendai, Japan

2:18

2:30
HH-06. Tc controlled TbFe/GdFeCo hybrid thermo-magnetic structure for small switching field and high thermal stability. A. Tsukamoto1, Y. Sonobe2 and H. Yoshikawa3. 1. College of Science and Technology, Nihon University, Funabashi, Japan; 2. Samsung R&D Institute Japan, Yokohama, Japan; 3. Graduate School of Science and Technology, Nihon University, Funabashi, Japan
HH-07. Effect of CrB insertion on the (001) texture of MgO seed layer and magnetic properties of FePt-C HAMR media. J. Wang1, Y. Takahashi1, K. Nakashima2, H. Sepehri-Amin1, H. Kubota2 and K. Hono1 1. Magnetic Materials Unit, NIMS, Tsukuba, Japan; 2. Spintronics Research Center, AIST, Tsukuba, Japan

HH-08. Effect of substrate surface roughness on the texture and magnetic property of FePt-C granular film. J. Wang1, Y. Takahashi1, H. Sepehri-Amin1 and K. Hono1 1. Magnetic Materials Unit, NIMS, Tsukuba, Japan

HH-09. Write-Position Shifts in Heat-Assisted Magnetic Recording. Z. Wang1, J. Hohlfeld2, C. Rea2 and R.H. Victora1,3 1. School of Physics and Astronomy, University of Minnesota, Minneapolis, MN; 2. Seagate Technology, Bloomington, MN; 3. Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN


HH-13. Microwave Assisted Magnetization Switching Behaviors in a Ferrimagnetic Amorphous Gd-Fe-Co Single Dot. Y. Lu1, S. Okamoto1,2, N. Kikuchi1,2, B. Lao1, Y. Kusanagi1, O. Kitakami1,3 and T. Shimatsu2,3 1. IMRAM Tohoku University, Sendai, Japan; 2. FRIS Tohoku University, Sendai, Japan; 3. CSRN Tohoku University, Sendai, Japan
HH-14. Generation of high frequency large angle out of plane oscillation in mag-flip spin torque oscillator using in-plane magnetized Fe₄Co field generation layer and highly spin polarized FePt/Co₂FeGa₀.₅Ge₀.₅ perpendicular spin injection layer. S. Bosu¹, H. Sepehri-Amin¹, Y. Sakuraba¹, S. Kasai¹, M. Hayashi¹ and K. Hono¹ 1. National Institute for Materials Science, Tsukuba, Japan

HH-15. Stability analysis of microwave-assisted magnetization reversal in exchange coupled nano magnets. T. Yamaji¹ and H. Imamura¹ 1. Spintronics Research Center, AIST, Tsukuba, Japan
HI-05. Design and Analysis of a Flux Switching Permanent Magnet Machine of 3D Flux Path with SMC Cores and Ferrite Magnets. C. Liu1, Y. Wang1, J. Zhu2, Y. Guo2 and G. Lei2 1. College of Electrical Engineering, Hebei University of Technology, Tianjin, China; 2. University of Technology, Sydney, Sydney, NSW, Australia


HI-08. A Novel Flux-switching Permanent Magnet Machine with V-Shaped Magnets. G. Zhao1, H. Wei1 and P. Su1 1. Southeast University, Nanjing, China

HI-09. Experimental validation of a distribution theory based analysis of the effect of manufacturing tolerances on Permanent Magnet Synchronous Machines. M. Trapanese1, V. Franzitta1, D. Curto1, D. Rao1 and A. Viola1 1. DEIM, Università di Palermo, Palermo, Italy

HI-10. A theory of magnetic and thermal properties of thermomagnetic generator. M. Trapanese1, V. Franzitta1, A. Viola1, D. Curto1 and D. Rao1 1. DEIM, Università di Palermo, Palermo, Italy


HI-12. Performance Comparison Between Rotor Flux-Switching and Stator Flux-Switching Machines Considering Irreversible Demagnetization. P. Su1 and H. Wei1 1. Electric Engineering, Southeast University, Nanjing, China

HI-14. Research on Fuzzy PI Control and Minimization of Torque Ripple of Switched Reluctance Motor. Q. Lu¹, H. Wei¹ and J. Qi¹ ¹ School of Electrical Engineering, Southeast University, Nanjing, China
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