WELCOME

Dear Colleague,

It is my honor to welcome you to the International Magnetics Conference, INTERMAG 2012, in Vancouver from May 7th to May 11th, 2012.

INTERMAG is the premier conference on all aspects of applied magnetism, and all members of the international scientific communities interested in new developments in magnetism and associated technologies are invited to attend and submit their latest findings to INTERMAG 2012. The conference provides a range of oral and poster presentations, invited talks and symposia, a tutorial session, and exhibits reviewing the latest developments in magnetism. Selected papers from the conference will be published in the IEEE Transactions on Magnetics.

We would like to cordially invite you to attend the conference, actively participate in its technical sessions, and contribute to the continued success of this conference series.

Vancouver, the site of this year's conference, is well known for its majestic natural beauty, as it is nestled between the Coast Mountains and the Pacific Ocean. It is frequently ranked as one of the "best cities to live in" and is certainly a beautiful destination to visit. The Convention Center is located right in Downtown Vancouver, and the five conference hotels are located within a short walking distance from the Convention Centre. The Downtown area holds many of the city's attractions and is home to beautiful architecture, fine dining and world class shopping. For the many things to see and to do in and around Vancouver, please visit the official webpage of the tourism office, www.tourismvancouver.com.

On behalf of the Management Committee of Intermag 2012, I welcome you in Vancouver and to an exciting and enjoyable conference.

Sincerely,

Jan-Ulrich Thiele

General Chair of Intermag 2012

LOCATION

The technical program and exhibits of Intermag 2012 are being held in the **East section of the Vancouver Convention Centre**. Built on the original Pier B-C on Vancouver's Waterfront, the Vancouver Convention Centre first served as the Canada Pavilion for the World's Fair Expo in 1986. Since then, we've grown to become recognized as one of the leading convention centres in the world. From the airport, the easiest way to get to almost anywhere in the Metro Vancouver area is by skytrain. The skytrain has a station inside the airport, getting on the train there will take you to downtown Vancouver where you can find your hotel. The Vancouver Convention Centre East is a convenient one minute walk from waterfront skytrain station in downtown Vancouver.

HOTEL ACCOMMODATION

Located within an easy walk are five hotels that offer special Intermag Conference rates. The rates are $199/night for a standard room at four of the hotels, and $165/night at the MET. The first three hotels listed below also offer harbor/water view rooms at a slightly higher rate of $219/night. The Intermag Conference room blocks are small in each property, so we urge you to make your hotel room reservations soon.

Please use the links provided on the Conference webpage to select your hotel room and make your reservation. Every Conference participant is responsible for making his/her own hotel reservation directly with the hotel of his/her choice and for paying all personal bills upon checkout.

The Marriott Pinnacle Downtown is located about three blocks from the Centre and will be the location for several of the smaller IEEE Magnetics Society Committee Meetings. Complimentary internet service in the sleeping rooms is offered for all Intermag registrants.

The Renaissance is across the street from the Marriott Pinnacle Downtown and has recently been renovated. Complimentary internet service in the sleeping rooms is offered for all Intermag registrants. Some Committee Meetings will also be held here.

The Coast Coal Harbour is located in the same block as the Marriott and Renaissance. It is new and elegant. Complimentary internet is offered in all sleeping rooms.

The Fairmont is directly across the street from the Convention Centre and offers an inside walkway between the two in case of inclement weather. In order to obtain complimentary internet service in your room, you must enroll (complimentary) in the Fairmont President's Club by going to www.fairmont.com/fpcenroll or by calling 1-800-663-7575.

The MET Vancouver is holding a small block of 30 rooms at rates of $165/night, some of which can be shared by up to 4 people. This hotel is located one block from the Canada Line rapid transit from the airport and five blocks from the Vancouver Convention Centre. Complimentary internet services are offered in the sleeping rooms.

CONFERENCE REGISTRATION

All 2012 Intermag Conference attendees, including invited speakers, must pay registration fees. You can register in advance at a reduced rate prior to Monday, April 9, 2012. You are encouraged to register via the secure web site at: www.yesevents.com/intermag

If you prefer to send your payment by mail, you may also register by downloading, completely filling out, and mailing or faxing the Advance Registration Form. Payment in U.S. dollars must be made by MasterCard, Visa or American Express credit card or by personal or corporate check (drawn on a U.S. bank only). Checks are to be made payable to "2012 IEEE Intermag Conference."

REMEMBER: All "Advance Registration" forms must be accompanied by FULL payment and must be received by April 9, 2012. Onsite registration during the Conference will be at the higher rates listed below. After April 9th, only the higher registration fees will be accepted, and only at the Onsite Registration Desks at the Conference. Mail-in forms not accompanied by payment or with incomplete or incorrect credit card information will be considered "late" and the higher rates will be collected onsite at the Conference.

As usual, IEEE members will enjoy a significant discount on registration fees. To become eligible for these lower fees, prospective attendees are encouraged to join IEEE and the Magnetics Society at: http://www.ieee.org/web/membership/join/join.html.

REGISTRATION FEES	Until April 9	After April 9 or On-site
IEEE Members	$550	$650
Non-IEEE Members	$700	$820
Student IEEE Members	$150	$200
Student Non-IEEE Members	$200	$250

The registration fees do not include any full meals or meal service during the Conference week.

Registration Cancellation Policy: Cancellations of advance registrations must be submitted in writing and received no later than Monday, April 9, 2012. Refunds of the original payment, less a $75 service fee, will be mailed to the original registrant following the Conference.

Substitutions: Attendee substitutions may be made at any time, both on the Registration website and at the Onsite Registration Desk, for a registrant who cannot attend but has paid the registration fee in advance. Onsite substitutes must bring authorization of their substitution in writing from the original registrant.

The conference registration desks will be located in the Convention Level Lobby of the Convention Centre East, and will be open during the following hours:

Monday, May 7th	4:00 PM – 8:00 PM
Tuesday, May 8th	7:00 AM - 4:00 PM
Wednesday, May 9th	7:00 AM - 4:00 PM
Thursday, May 10th	8:00 AM - 2:30 PM
Friday, May 11th	8:00 AM – 12:00 Noon

TUTORIAL

Quantum Information Processing has received considerable attention in both the popular press and professional journals. But what does "Quantum Information Processing" mean, and why should we care about it? This tutorial session will explain the motivation and technical requirements for quantum information processing and introduce three experimental platforms for a quantum computer. The first speaker will present methods that allow electrical control of spin. The second speaker will show how light can be used to control spin interactions. The third speaker will introduce the world's first commercially-available quantum computer. The tutorial will be accessible to those with no background in the subject, but will also present new results that will be of interest to specialists. The tutorial session is organized by the Education Committee of the IEEE Magnetics Society.

Session Chair: Mingzhong Wu, Colorado State University
Date: May 7, 2012
Time: 7:00 PM - 9:00 PM
Room: Ballroom A of the Vancouver Convention Centre East.

Electrical control of single spin coherence in semiconductors, Jason Petta, Princeton University, USA.

Engineering the properties and interactions of single spins confined in InGaAs quantum dot molecules, Matthew Doty, University of Delaware, USA.

Code in Quantum: Start programming quantum computers in less than 10 minutes, Geordie Rose, D-Wave Systems Inc., Canada

CONFERENCE SYMPOSIA

AA - Information processing with spin-magnet interactions: memory, logic and beyond

BA - Recent Advances in Magnetic Random Access Memory

CA - Biomedical applications of magnetic nanoparticles and nanostructures

CB - Superconducting Spintronics

DD - $Fe_{16}N_2$: a 40-year mystery in magnetism and magnetic materials

EA - Spintronics with Insulators

FA - Spin transport in hybrid organic-inorganic structures

GA - Effect of Electric Field on Magnetism

HA - Emerging Sensor Technologies for Recording beyond 2 Tb/in^2

PLENARY SESSION

4:00 pm Wednesday May 9: Ballrooms A/B/C
Session Chair: Jan-Ulrich Thiele
Awards: Bruce Gurney

IEEE DONALD G. FINK PRIZE
Prof. Kannan Krishnan, University of Washington
For the most outstanding survey, review or tutorial paper published by the IEEE in 2011.

IEEE DAVID SARNOFF AWARD
Dr. Hideo Ohno, Tohoku University
For seminal contributions and leadership in bridging semiconductor electronics with magnetism and spintronics.

IEEE MAGNETICS SOCIETY AWARDS

The Magnetics Society Achievement Award
Dr. John Slonczewski,
"For contributions to magnetic devices and storage, including prediction of the spin transfer torque effect in magnetic thin films, theory of magnetotransport and interpretation of magnetic reversal"

Newly Elected Fellows of the IEEE
Thomas Weiland, Technische Universität Darmstadt, Germany
"For development of the finite integration technique and impact of the associated software on electromagnetic engineering"

Donald Gardner, Intel Corporation, USA
"For contributions to integrated circuit interconnects and integrated inductor technology"

Eric Fullerton, University of California, San Diego, USA
"For contributions to the synthesis and characterization of magnetic exchange coupled films, superlattices and recording media"

Andrei Slavin, Oakland University, USA
"For contributions to magnetic excitations and magnetization dynamics induced by spin transfer"

Reinhard Lerch, University Erlangen-Nuremberg, Germany
"For contributions to ultrasonic transducer technology and computer modeling of sensors and actuators"

Chunting (Chris) Mi, University of Michigan-Dearborn, USA
"For contributions to hybrid electric vehicle modeling and power control"

David Davidson, Stellenbosch University, South Africa
"For contributions to computational electromagnetics"

2012 Magnetics Society Distinguished Lecturers
George Hadjipanayis
University of Delaware
"Science and Technology of Modern Permanent Magnets"

Shinji Yuasa
National Institute of Advanced Industrial Science and Technology, Japan
"Magnetoresistance and Spin-Transfer Torque in Magnetic Tunnel Junctions"

Gerrit Bauer,
Tohoku University and Kavli Institute of Nano Science
"Spin Caloritronics"

Masahiro Yamaguchi
Tohoku University
"Soft Magnetic Thin Films Applications at Radio Frequencies"

PLENARY LECTURE

Following the awards ceremony
the Intermag Plenary lecture will be presented.

The speaker will be
Dr. Joachim Stöhr
Linac Coherent Light Source
SLAC National Accelerator Laboratory,
Stanford, California, USA

Title:
Exploring the Ultrafast Magnetic Nanoworld with X-Rays

Abstract:
Over the last 25 years, the revolution in magnetism based on the use of spin engineered nanostructures has been accompanied by the increased use of x-rays for their investigation. In this talk I will present an overview of the power of x-rays to address forefront problems in magnetism. X-ray techniques offer high magnetic sensitivity, are element and chemical state specific, and can provide nanoscale magnetic maps of buried layers inside devices. In addition to imaging magnetic structure, x-ray can record ultrafast movies of device function. The first x-ray laser in the world, LCLS, can produce a nanoscale magnetic image in a single 50 fs shot and through optical pump – x-ray probe techniques can probe magnetization dynamics on this time scale. My talk will cover the exploration of phenomena such as interfacial effects, spin torque switching and all optical manipulation of the magnetization.

Biography:
Joachim Stöhr received his undergraduate degree at Bonn University, Germany, in 1968 and his Ph.D. at the Technical University in Munich in 1974. Following a postdoctoral position at Lawrence Berkeley National Laboratory he became a staff scientist at the Stanford Synchrotron Radiation Laboratory (SSRL) in 1977, where he focused on the development of soft x-ray techniques such as SEXAFS and NEXAFS for the study of chemisorbed atoms and molecules. In 1981 he joined Exxon Corporate Research Laboratory as Senior Staff Scientist and continued his work in surface science. In 1985 he moved to the IBM Almaden Research Center, where he was a Research Staff Member for 15 years and managed several departments including "Condensed Matter Science" and "Magnetic Materials and Phenomena". At IBM he developed both

soft x-ray spectroscopy and microscopy methods for the study of thin polymer films on surfaces and magnetic thin films. In 2000 he joined Stanford University as Professor in Photon Science and Deputy Director of SSRL. He became SSRL Director and Associate Director of the Stanford Linear Accelerator Center (SLAC) in 2005 and in 2009 he became Director of the Linac Coherent Light Source (LCLS), the world's first free electron x-ray laser. At Stanford, his research has concentrated on the study of magnetic thin films and nanostructures by means of advanced soft x-ray techniques. He has developed time-resolved x-ray spectro-microscopy methods that combine element, chemical, and magnetic state specificity with nanoscale spatial resolution and temporal resolution down to the femtosecond regime.

PLENARY RECEPTION

Invitation from Jan-Ulrich Thiele
General Chair - Intermag 2012

Following the Plenary lecture a Conference Reception will be held for all participants of Intermag 2012. This reception is partially supported by special funding from the IEEE Magnetics Society. The reception will be held in Exhibition Hall B and the surrounding Foyers. All registered participants are cordially invited to attend to celebrate the achievements of our award winners and to network with your colleagues.

IEEE MAGNETICS SOCIETY ANNUAL GENERAL MEETING

Come to learn what the Magnetics Society is doing for you and the benefits of joining this vibrant Society. The annual meeting is open to all 2012 Intermag Conference participants. It will be held during the Bierstube on Thursday, May 10th, beginning at 5:15 PM in Parkview 2/3 on the second floor of the Convention Centre. Beer and soft drinks from the Bierstube will be available, or you are welcome to bring your own with you.

IEEE MAGNETICS SOCIETY MEMBERSHIP BOOTH AT INTERMAG 2012

Have you thought of joining the IEEE Magnetics Society? By doing so, you become a part of the world's best-known magnetics organization.

- You gain access to local Chapter events, technical activities and can sponsor students for conference travel grants.
- You will be recognized as being a part of the established and vibrant IEEE technical community.
- And you will receive a large discount at conferences, such as this upcoming Intermag.

Joining is easy: You can either go online via the Society website at: www.ieeemagnetics.org and follow the links, or you can come to our Membership Booth onsite at the 2012 INTERMAG Conference in Vancouver, BC prior to registering for the conference.

Whether you are a member or not, we cordially invite you to stop by and share with us your experiences and to learn about all the advantages that the IEEE Magnetics Society offers to its members.

We are looking forward to meeting you at the 2012 INTERMAG Conference.

WOMEN'S NETWORKING RECEPTION

The annual Networking Reception, sponsored by the Magnetics Society for women in the magnetism community will be on Tuesday, May 8, from 5:30–7:30 p.m. in Meeting Room 9 on the 2nd floor of the Convention Centre East. This is a great opportunity to get to know other women in the profession and to discuss a range of topics including leadership, work-life balance, and professional development. There will also be the opportunity to form dinner groups in order to build new friendships and expand your professional network. All graduate students, researchers and retirees are encouraged to attend. For questions, contact Liesl Folks (Liesl.Folks@hitachigst.com).

BIERSTUBE AND COFFEE

Coffee service will be available on Tuesday through Friday mornings from 7:45 AM–9:15 AM in Exhibition Hall A among the Exhibits and Poster Sessions.

Join your colleagues at the **Bierstube** on Tuesday and Thursday evenings. It's a great place to socialize and enjoy samplings of the local microbrews. The Bierstube will be open from 5:00 PM-6:30 PM in the Exhibit Hall. Materion Corp will again be sponsoring this event and distributing their souvenir beer mugs.

WIRELESS ACCESS

The Cyber Lounge will again be sponsored by the IEEE Magnetics Society, and will be located in the 2nd floor Atrium of the Centre East. Complimentary wireless internet service will be available there on Tuesday through Friday on a first-come-first-served basis. The Access Code and relevant instructions will be posted on signs in the area.

SPEAKER PRACTICE ROOM

Speakers are reminded that the Intermag Conference is planning an all-electronic presentation format. Prior to making their oral presentation, authors will attach their own laptop computers to digital projection equipment supplied by the Conference. Please take the time to test your computer with the in-house equipment provided in the Speaker Practice Room well before the day and time of your individual presentation. **The Speaker Practice Room is located in Meeting Room 14 on the 2nd floor.** Audio-visual equipment (LCD projector and screen) will be available there for authors to use from 8:00 a.m. on Tuesday; and from 8:00 AM until 5:00 PM on Wednesday through Thursday; and until 2:00 PM on Friday. Speakers are urged to use this facility to practice their presentation, either alone or with colleagues.

PUBLICATIONS (EDITORS) ROOM

The Publications Room, where the authors can check the status of their manuscripts, will be located in the Vancouver Convention Centre East - in Meeting Room 17 on the second floor. The status of all papers will be displayed and authors may check on their individual papers. However, the most up-to-date information is usually available electronically on Manuscript Central (http://mc.manuscriptcentral.com/magconf-ieee). Authors may leave messages for their Editors. Each Editor will post a notice of the time(s) at which he/she can be found in the Publications Room. Editors will respond to messages and questions as promptly as possible. The room will be open as follows:

Tuesday, May 8th – Thursday, May 10th: 9:00AM–5:00PM
Friday, May 11th: 9:00AM–2:00PM

Session Chairs are requested to visit the Editor for their session to ensure the completion of the reviewing process for all papers in their session.

ORAL PRESENTATION AND LCD PROJECTORS

Invited talks are allowed 25 minutes for presentation and 5 minutes for discussion. Contributed talks are 12 minutes in length with 3 minutes for discussion. Session Chairs will keep all sessions strictly on time to allow conference participants to move easily between sessions of interest to them.

Authors are expected to bring their presentations on their own laptop computer, and to have it powered on and ready to connect to the projector. Only standard PC-style VGA connections to the LCD projector will be supplied, therefore you must supply any required adaptor to connect up your computer. Macintosh users must make sure that “mirroring” is activated. There will also be a switchbox so that a speaker can set up his/her laptop prior to their presentation, at the very latest during the question period of the previous speaker. Instructions regarding the use of the switchbox will be provided by the Session Chair at the beginning of the ses-

sion. Each speaker will be solely responsible for promptly connecting to the projector. The presentation timer will begin immediately after the introduction by the Session Chair, and there will not be time to reboot your computer. You are therefore STRONGLY ENCOURAGED to test your laptop connections and screen resolution settings with the projectors in the Speaker Practice Room. There will be no technical support provided. In case of laptop failure, it would be prudent to bring a copy of your presentation on flash memory.

POSTER SESSIONS

Poster presentations will consist of visual materials about the work presented on a designated board. The board size is 4' tall by 6' long. Note that this is a landscape format. Posters should be displayed at 8:00 AM-12:00 Noon for morning sessions, and 1:30 PM-5:30 PM for afternoon sessions. An author should set up the poster at least 15 minutes before the session starts, and MUST be present at the poster for at least 1 hour for the first and last hour of your Poster Session. The conference provides a small sign for each paper to be posted on the board designating the paper number. Pushpins will be provided for each board. Authors must remove their posters promptly at the end of their session. Posters not removed will be discarded.

Poster session authors who cannot attend the conference and thus are not available to discuss their work will not be published. If a paper is posted but none of the authors is present, the Session Chairs will count that paper as a "No-Show."

EXHIBITS

Suppliers of instrumentation, materials, process tools, and other products and services will exhibit their latest offerings for professionals in magnetism and associated technologies in the East Exhibit Hall A during the Conference. The Exhibit Hall will also be the site of the Poster Sessions, coffee service and the Bierstubes.

Companies interested in purchasing booth space should contact Wendy Walker, Exhibits Coordinator (wendyw@widerkehr.com). Intermag 2012 places your company in direct contact with the scientific, physics and engineering community that needs your products and services to stay at the forefront of research and technology. This conference will provide direct access to nearly 1,300 professional attendees consisting of engineers and researchers with wide ranging interests in magnetism and magnetic materials; from magnetic recording phenomena to biomagnetism. Our current exhibitors include Princeton Measurements, SmartTip, Lakeshore Cryotronics, Cryogenics, Aichi Steel Co., NanoScan, Quantum Design, GMW Associates, MicroSense and Singulus Technologies. Additional details are available on our web site: http://intermagconference.com/2012/.

BEST POSTER PRESENTATIONS

Eligibility: All posters will be eligible for nomination for this award provided that they meet the requirements and guidelines for Intermag poster presentations and sessions, as described on the website. The poster presentations should consist of well-prepared visual materials about the work, posted on a designated board. It is required that an author be registered for the Conference and available in person to present poster details and answer attendee questions during the designated session time. Since the award will be made at the session itself, it is recommended that the authors be present for the majority of the session. All posters should include a full contact mailing address in case the authors are not present when the award is made.

Award: The best-poster award consists of $50 cash and an award certificate. The awards will be made in the last hour of each poster session. A ribbon will also be attached to the successful posters. Winning posters will be prominently displayed during the remainder of the conference.

Selection Process: Each Session Chair will nominate one poster from his or her session to be considered for the award. Posters are ineligible if one of the Session chairs judging the posters is a co-author. Selections will be based on the level of the research, quality of the poster materials, and clarity of the in-person presentation.

IEEE MAGNETICS SOCIETY BEST STUDENT PAPER AWARD

Following the establishment of this prestigious prize by the IEEE Magnetics Society in 2008, the selection of the six finalists for Intermag 2012 has been made after a full review of all students entering the competition. This selection has been based on the likely quality and impact of the work, with preference given to students who are members of the Magnetics Society, or whose advisors are members. The six finalists will receive a cash award from the Magnetics Society as well as recognition for their achievement. The eventual winner of the award will be selected by a transnational panel of scientists who will visit each presentation to assess the papers according to the following criteria:

1. The quality/impact of the work
2. The student contribution and involvement in the work
3. The quality of the presentation by the student.

Each of the criteria will make an equal contribution to the assessment. The assessment of the panel will be overseen by the Chairman of the IEEE Magnetics Society Education Committee and the Chairman of the Honors and Awards Committee. The award will be made to the student achieving the highest overall ranking in the three criteria. Please note that students associated in any way with any persons involved in the selection of the finalists or the eventual winners have been declared ineligible in the competition

Hao Wu, Paper GH-02
Peng Li, Paper HF-05
Michael Korner, Paper HF-07
Nikita Gaur, Paper AC-10
Satoru Emori, Paper EF-01
David Ball,Paper AB-08

IEEE MAGNETICS SOCIETY STUDENT TRAVEL GRANTS

The IEEE Magnetics Society awards travel grants of up to $1000 each to a limited number of students wishing to attend Intermag 2012. These grants are intended to partially offset travel costs. Support is for current graduate students only. Post-doctoral workers and undergraduate students are ineligible. Students who have previously received travel support from the Magnetics Society are also ineligible.

Preference is given to Student Members of the Magnetics Society. Preference is also given to students nearing completion of their studies and presenting conference papers. The student's supervisor must also be a member of the Magnetics Society. The student's supervisor must write a brief letter of endorsement for the applicant. A second letter of endorsement from a full member of the Magnetics Society is also required.

Shortly after the conference, grant recipients must submit a short account of their experience for possible inclusion in the IEEE Magnetics Society newsletter. Forms and Instructions for applicants are available at:

www.intermagconference.com/2012. Applications and all letters of endorsement must be submitted before 5:00pm eastern standard time on February 24, 2012. Inquiries can be sent to the Student Travel Grant Coordinator Mathew J. Carey and committee members Erol Girt and Petru Andrei.

ADDITIONAL INFORMATION

If you would like to receive more information about Intermag 2012 or to be placed on the Intermag Conference Mailing List, please contact Widerkehr & Associates at Intermag2012@widerkehr.com.

You may also access complete conference information through the Web at the Intermag home page at www.intermagconference.com/2012.

IEEE MAGNETICS SOCIETY

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Vice President . . . . . .Liesl Folks
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ELECTED IEEE MAGNETICS SOCIETY ADMINISTRATIVE COMMITTEE MEMBERS

Terms expiring December 31, 2012:
C-R Chang; B. Dieny; C, Felser; R. Goldfarb ; S. Parkin; M. Takahashi; P. Dhagat; M. Vazquez

Terms expiring December 31, 2013:
E. Cardelli; O. Gutfleisch; K. Krishnan; D. Litvinov; J. Moreland; A. Stancu; Y. Suzuki; K. Takahashi

Terms expiring December 31, 2014:
R. Cowburn; L. Heyderman; A. Hirohata; A. Jander; D. Jiles; K. Liu; J. Snyder; L. Spinu

Appointed Committee Chairs: P. Fischer K. Gao; R. Goldfarb; M. Pasquale; B. Gurney; C-H Lai; H. Muraoka; T. Thomson; R. Victora; M. Wu

Council Representatives: A. Edelstein (Sensors); D. Litvinov (Nanotechnology); R. Goldfarb (Superconductivity); S. Hernandez (IEEE GOLD); K. Barmac (Women in Engineering)

CONFERENCE MANAGEMENT COMMITTTEE

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Exhibits Coordinator	Wendy Walker
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Alina Deac; David Dorrell; Oliver Gutfleisch; Min Fu Hsieh; Ronnie Jansen; Johannes Paulides; S N (Prem) Piramanayagam; Ciro Visone; Dan Wei; Jong-Ching Wu.

FUTURE CONFERENCES

12th Joint MMM/Intermag Conference
January 14-18, 2013, Chicago, Illinois

58th Conference on Magnetism and Magnetic Materials
November 4-8, 2013, Denver, Colorado

2014 Intermag Conference
May 4-8, 2014, Dresden, Germany

59th Conference on Magnetism and Magnetic Materials
November 3-7, 2014, Honolulu, Hawaii

13th Joint MMM-Intermag Conference
January 11-15, 2016, San Diego, California

60th Conference on Magnetism and Magnetic Materials
October 31-November 4, 2016, New Orleans, Louisiana

PROGRAM AT A GLANCE

Monday

7:00 PM	XA	Quantum Information Processing Using Spins: What, Why, and How	Ballroom A

Tuesday

8:00 AM	AP	Magnetic tunnel junctions and spin valves	Exhibition Hall A
	AQ	Biomedical Diagnostics and Imaging I	Exhibition Hall A
	AR	Exchange Bias I	Exhibition Hall A
	AS	Soft Magnetic Materials, meta Materials, and multiferroics	Exhibition Hall A
	AT	Wind Generators and Axial Flux Machines	Exhibition Hall A
	AU	Motors and Actuators I	Exhibition Hall A
	AV	Motors and Actuators II	Exhibition Hall A
	AW	Motors and Actuators III	Exhibition Hall A

Tuesday

9:00 AM	AA	Information processing with spin-magnet interactions: memory logic and beyond	Ballroom A
	AB	Magnetization Dynamics I	Ballroom B
	AC	Future Magnetic Media	Ballroom C
	AD	Spin injection into semiconductors and spin pumping	Meeting Rm 11/12
	AE	Soft magnetic materials I	Parkview 1
	AF	Magnetic microscopy, measurements and instrumentation	Parkview 2/3
	AG	Micromagnetic Methods and Applications	Meeting Rm 8/15
	AH	Rare earth transition metal borides I	Meeting Rm 13

Tuesday

1:30 PM	BP	Rare earth transition metal borides II	Exhibition Hall A
	BQ	Intermetallic & other hard magnets I	Exhibition Hall A
	BR	Perpendicular & advanced media	Exhibition Hall A
	BS	Anisotropy and surface effect in ultrathin films	Exhibition Hall A
	BT	MRAM and Magnetic Logic Devices I	Exhibition Hall A
	BU	Electrical Machines I	Exhibition Hall A
	BV	Micromagnetic Methods	Exhibition Hall A
	BW	Novel biomedical therapies & nanomedicine I	Exhibition Hall A

Tuesday

2:00 PM	BA	Recent Advances in Magnetic Random Access Memory	Ballroom A
	BB	Fundamental properties and interdisciplinary topics	Ballroom B
	BC	Magnetic Semiconductors and Spin Transport in Organic Materials	Ballroom C
	BD	Spin transport in metallic systems	Meeting Rm 11/12
	BE	Soft magnet applications I	Parkview 1
	BF	Functional materials: magnetoelastics	Parkview 2/3
	BG	Motors, Generators & Actuators I	Meeting Rm 8/15
	BH	Nanowires I	Meeting Rm 13

Wednesday

8:00 AM	CP	Field and Hysteresis Modeling	Exhibition Hall A
	CQ	Magnetization Dynamics II	Exhibition Hall A
	CR	Spin Electronics	Exhibition Hall A
	CS	Patterned Media	Exhibition Hall A
	CT	Spintronics: Multiferroic and Organic Materials and Magnetic Semiconductors	Exhibition Hall A
	CU	Multilayer films and superlattices II	Exhibition Hall A
	CV	Soft magnetic composites and energy loss	Exhibition Hall A
	CW	Soft magnet applications II	Exhibition Hall A

Wednesday

9:00 AM	CA	Biomedical applications of magnetic nanoparticles and nanostructures	Ballroom A
	CB	Superconducting Spintronics	Ballroom B
	CC	Energy-Assisted Recording	Ballroom C
	CD	Spin Transfer Torque I	Meeting Rm 11/12
	CE	Multilayer films and superlattices I	Parkview 1
	CF	Nanoparticles I	Parkview 2/3
	CG	Motors, Generators & Actuators II	Meeting Rm 8/15
	CH	Permanent Magnet Applications	Meeting Rm 13

Wednesday

2:00 PM	DD	$Fe_{16}N_2$: a 40-year mystery in magnetism and magnetic materials	Meeting Rm 11/12
	DE	Bio/Chemical magnetism and instrumentation	Parkview 1
	DF	Magnetic fluids and separation I	Parkview 2/3

Wednesday

4:00 PM	YA	Exploring the Ultrafast Magnetic Nanoworld with X-Rays Speaker: Joachim Stöhr SLAC National Accelerator Laboratory	Ballroom A/B/C

Thursday

8:00 AM	EP	Ferrites and garnets	Exhibition Hall A
	EQ	Domain structure and magnetization reversal	Exhibition Hall A
	ER	Patterned films and elements (non-recording)	Exhibition Hall A
	ES	Magnetic microscopy and characterization	Exhibition Hall A
	ET	Magnetic Field Sensing and Control Magnetics	Exhibition Hall A
	EU	Recording Physics I	Exhibition Hall A
	EV	Functional materials: magnetocalorics I	Exhibition Hall A
	EW	Magnetic fluids and separation II	Exhibition Hall A

Thursday

9:00 AM	EA	Spintronics with Insulators	Ballroom A
	EB	Multiferroic and Half-metallic Materials	Ballroom B
	EC	Magnetic heads and materials	Ballroom C
	ED	Spin Transfer Torque II	Meeting Rm 11/12
	EE	Multilayer films and superlattices III	Parkview 1
	EF	Magnetic domain wall	Parkview 2/3
	EG	Motors, Generators and Actuators III	Meeting Rm 8/15
	EH	Intermetallic & other hard magnets II	Meeting Rm 13

Thursday

1:30 PM	FP	Nanowires II	Exhibition Hall A
	FQ	Nanoparticles II	Exhibition Hall A
	FR	Spin Transfer Torque IV	Exhibition Hall A
	FS	Power and Control Magnetics I	Exhibition Hall A
	FT	Functional material: magnetoelastics and magnetocalorics	Exhibition Hall A
	FU	Magnetoresistive and Half-metallic Materials	Exhibition Hall A
	FV	Fundamental properties and applications	Exhibition Hall A
	FW	HEV and Automotive Applications	Exhibition Hall A

Thursday

2:00 PM	FA	Spin transport in hybrid organic-inorganic structures	Ballroom A
	FB	Biomedical diagnostics and imaging II	Ballroom B
	FC	Soft Magnetic Materials & Applications	Ballroom C
	FD	Spin transfer torque III	Meeting Rm 11/12
	FE	Magnetic tunnel junctions	Parkview 1
	FF	Magnetic Field Sensors I	Parkview 2/3
	FG	Motors, Generators & Actuators IV	Meeting Rm 8/15
	FH	Recording Physics II	Meeting Rm 13

Thursday

5:15 PM	ZA	The IEEE Magnetics Society Annual Meeting	Parkview 2/3

Friday

8:00 AM	GP	Linear Motors and Actuators	Exhibition Hall A
	GQ	Motors and Actuators IV	Exhibition Hall A
	GR	Motors and Actuators V	Exhibition Hall A
	GS	Motors and Actuators VI	Exhibition Hall A
	GT	Superconductivity and emerging topics	Exhibition Hall A
	GU	Head disk interface and tribology I	Exhibition Hall A
	GV	Soft Nano-Crystalline and Magnetic Dielectric Materials	Exhibition Hall A
	GW	Microwave and millimeter wave materials & devices I	Exhibition Hall A

Friday

9:00 AM	GA	Effect of Electric Field on Magnetism	Ballroom A
	GB	Novel biomedical therapies and nanomedicine II	Ballroom B
	GC	Functional materials: magnetocalorics II	Ballroom C
	GD	Spin Transfer Torque V	Meeting Rm 11/12
	GF	Anisotropy and domain motion in ultrathin films	Parkview 2/3
	GG	Magnetic Field Sensors and Fluxgates	Meeting Rm 8/15
	GH	Power Devices, Inductors and Transformers	Parkview 1

Friday

1:30 PM	HP	Electrical Machines II	Exhibition Hall A
	HQ	Transformer Design, Analysis and Measurement	Exhibition Hall A
	HR	Shielding, Levitation and Motors	Exhibition Hall A
	HS	Spin Transfer Torque and Complex Oxides II	Exhibition Hall A
	HT	Servo and Channel	Exhibition Hall A
	HU	Motors and Actuators VII	Exhibition Hall A
	HV	Motors and Actuators VIII	Exhibition Hall A
	HW	Motors and Actuators IX	Exhibition Hall A

Friday

2:00 PM	HA	Emerging Sensor Technologies for Recording beyond 2 Tb/in^2	Ballroom A
	HB	MRAM and Magnetic Logic Devices II	Ballroom B
	HC	Exchange Bias II	Ballroom C
	HD	Spin Transfer Torque and Complex Oxides I	Meeting Rm 11/12
	HE	Microwave and millimeter wave materials & devices II	Parkview 1
	HF	Magnonics, antidots, and domain structure	Parkview 2/3
	HG	Power and Control Magnetics II	Meeting Rm 8/15
	HH	Head Disk interface and tribology II	Meeting Rm 13

MONDAY AFTERNOON 7:00

BALLROOM A

Session XA
QUANTUM INFORMATION PROCESSING USING SPINS: WHAT, WHY, AND HOW

Mingzhong Wu, Session Chair
Colorado State University

7:00 **XA-01. Electrical control of single spin coherence in semiconductors.** ***(Invited)*** *J. Petta* [1] *1. Princeton University, Princeton, NJ*

7:40 **XA-02. Engineering the properties and interactions of single spins confined in InGaAs quantum dot molecules.** ***(Invited)*** *M. Doty* [1] *1. Materials Science and Engineering, University of Delaware, Newark, DE*

8:20 **XA-03. Code in Quantum: Start programming quantum computers in less than 10 minutes,.** ***(Invited)*** *G. Rose* [1] *1. D-Wave Systems Inc., Burnaby, BC, Canada*

TUESDAY MORNING 9:00 BALLROOM A

Session AA
INFORMATION PROCESSING WITH SPIN-MAGNET INTERACTIONS: MEMORY LOGIC AND BEYOND

Behtash Behin-Aein, Session Chair
Global Foundries

9:00 **AA-01. All Spin Logic: Computing with Spins and Magnets.** ***(Invited)*** S. Srinivasan[1], A. Sarkar[1], B. Behin-Aein[1] and *S. Datta* [1] *1. Electrical and Computer Engineering, Purdue University, West Lafayette, IN*

9:30 **AA-02. Spin Transfer Torque and Current-Induced Switching in Magnetic Tunnel Junctions and Spin Hall Devices.** ***(Invited)*** *D.C. Ralph* [1] *1. Physics Department, Cornell University, Ithaca, NY*

10:00 **AA-03. Coherency in collective spin precession in lateral spin valves.** ***(Invited)*** *Y. Otani* [1,2], Y. Fukuma[2,3] and H. Idzuchi[1] *1. Institute for Solid State Physics, Univ Tokyo, Kasiwa, Japan; 2. Advanced Science Institute, RIKEN, Wako, Japan; 3. Department of Computer Science and Electronics,, Kyushu Institute of Technolog, Iizuka, Japan*

10:30 **AA-04. Spin-based MOSFETs for logic and memory applications and spin accumulation signals in CoFe/tunnel barrier/SOI devices.** ***(Invited)*** *Y. Saito* [1], M. Ishikawa[1], T. Inokuchi[1], H. Sugiyama[1], T. Tanamoto[1], K. Hamaya[2] and N. Tezuka[3] *1. Corporate R&D Center, Toshiba Corp., Kawasaki, Kanagawa, Japan; 2. Department of Electronics, Kyushu University, Motooka, Fukuoka, Japan; 3. Department of Materials Science, Tohoku University, Sendai, Miyagi, Japan*

11:00 **AA-05. Spin dependent Seebeck and spin Peltier effects in metallic spintronic devices.** ***(Invited)*** *B. Van Wees* [1] *1. Zernike Institute of Advanced Materials, University of Groningen, Groningen, Netherlands*

TUESDAY
MORNING
9:00

BALLROOM B

Session AB
MAGNETIZATION DYNAMICS I

Roy Chantrell, Session Chair
University of York

9:00 **AB-01. Spin wave dynamics in nanocontact spin-torque oscillators.** ***(Invited)*** *S. Bonetti* [1,2], M. Madami[3], G. Consolo[4], S. Tacchi[3], G. Gubbiotti[5], G. Carlotti[3], V. Tiberkevich[6], A.N. Slavin[6] and J. Åkerman[7,1] *1. Materials Physics, Royal Institute of Technology (KTH), Kista-Stockholm, Sweden; 2. SLAC-SIMES, Stanford University, Menlo Park, CA; 3. Dipartimento di Fisica, Univerisità di Perugia, Perugia, Italy; 4. Dipartimento di Scienze per l'Ingegneria e l'Architettura, Univerisità di Messina, Messina, Italy; 5. Istituto Officina dei Materiali (CNR-IOM), Perugia, Italy; 6. Department of Physics, Oakland University, Rochester, MI; 7. Department of Physics, University of Gothenburg, Gothenburg, Sweden*

9:30 **AB-02. Detection of domain wall position and magnetization reversal in nanostructures using the magnon contribution to the resistivity.** ***(Invited)*** *V. Nguyen* [1,2], L. Vila[1,2], A. Marty[1,2], C. Naylor[1,2], P. Laczkowski[1,2], C. Beigné[1,2], L. Notin[1,2], M. Jamet[1,2] and J. Attané[1,2] *1. SP2M/INAC/CEA, Grenoble, France; 2. University of Joseph Fourier, Grenoble, France*

10:00 **AB-03. Static and dynamic magnonic crystals.** ***(Invited)*** *A.V. Chumak* [1], A.A. Serga[1], A.D. Karenowska[2], A. Jander[3] and B. Hillebrands[1] *1. Fachbereich Physik, TU Kaiserslautern University, Kaiserslautern, Germany; 2. Department of Physics, Clarendon Laboratory, University of Oxford, Oxford, United Kingdom; 3. School of Electrical Engineering and Computer Science, Oregon State University, Corvallis, OR*

10:30 **AB-04. Characterization and control of the dynamic dipolar coupling between magnetic nanodisks by MRFM.** ***(Invited)*** *B. Pigeau* [1], G. de Loubens[1], V. Naletov[1], O. Klein[1], K. Mitsuzuka[2], D. Lacour[2], M. Hehn[2], S. Andrieu[2] and F. Montaigne[2] *1. Service de Physique de l'Etat Condensé, CEA Saclay, Gif-sur-Yvette, France; 2. Institut Jean Lamour, UMR CNRS 7198, Université H. Poincaré, Nancy, France*

11:00 **AB-05. Probing the timescale of the exchange interaction in a ferromagnetic alloy.** *S. Mathias* [1,2], C. La-o-vorakiat[2], P. Grychtol[3], P. Granitzka[1], E. Turgut[2], J.M. Shaw[4], R. Adam[3], H.T. Nembach[4], M.E. Siemens[2], S. Eich[1], C.M. Schneider[3], T.J. Silva[4], M. Aeschlimann[1], M.M. Murnane[2] and H.C. Kapteyn[2] *1. Department of Physics and Research Center OPTIMAS, University of Kaiserslautern, Kaiserslautern, Germany; 2. Department of Physics and JILA, University of Colorado, Boulder, CO; 3. Peter Grünberg Institute, Research Center Jülich, Jülich, Germany; 4. Electromagnetics Division, NIST, Boulder, CO*

11:15 **AB-06. Spin-wave propagation and transformation in a thermal gradient.** *B. Obry* [1], V.I. Vasyuchka[1], A.V. Chumak[1], A.A. Serga[1] and B. Hillebrands[1] *1. Department of Physics and Landesforschungszentrum OPTIMAS, TU Kaiserslautern, Kaiserslautern, Germany*

11:30 **AB-07. Scattering of surface spin waves in one-dimension photo-induced dynamic coupled-resonators.** *C.L. Ordóñez-Romero* [1], O. Kolokoltsev[2], N. Qureshi[2], A. Drozdovskii[3], B. Kalinikos[3] and G. Monsivais[1] *1. Solid State, Physics Institute, UNAM., Mexico City, D.F., Mexico; 2. Optica y Microondas, CCADET, UNAM., Mexico City, DF, Mexico; 3. Saint Petersburg Electrotechnical University, Saint Petersburg, Russian Federation*

11:45 **AB-08. Tailoring the magnetic damping and anisotropy of Permalloy deposited on GaSb nanocones.** *D.K. Ball* [1], M. Fritzsche[1], J. Osten[1], K. Lenz[1], S. Facsko[1], A. Mücklich[1] and J. Fassbender[1] *1. Institute of Ion-Beam Physics and Materials Research, Helmholtz-Zentrum Dresden – Rossendorf, Dresden, Saxony, Germany*

TUESDAY MORNING 9:00

BALLROOM C

Session AC
FUTURE MAGNETIC MEDIA

Hans Juergen Richter, Session Chair
Hitachi GST

9:00 **AC-01. Investigation of lattice dynamics and nanoscale thermal transport in FePt/Ag heat assisted magnetic recording (HAMR) media films using psec time-resolved x-ray diffraction.** ***(Invited)*** D. Xu[1,2], *C. Sun* [1], D.L. Brewe[1], S. Han[3], P. Ho[2], J. Chen[2], S.M. Heald[1], X. Zhang[1] and G. Chow[2] *1. Advanced Photon Source, Argonne National Laboratory, Argonne, IL; 2. Department of Materials Science and Engineering, National University of Singapore, Singapore, Singapore; 3. Department of Physics Education and Institute of Fusion Science, Chonbuk National University, Jeonju, Republic of Korea*

9:30 **AC-02. $L1_0$ ordered FePt based double-layered perpendicular recording media for heat assisted magnetic recording.** *B.S. Varaprasad* [1], M. Chen[2,1], W. Cui[1], Y.K. Takahashi[1] and K. Hono[1,2] *1. MMU, NIMS, Tsukuba, Ibaraki, Japan; 2. Graduate School of Pure and Applied Sciences, University of Tsukuba, Tsukuba, Ibaraki, Japan*

9:45 **AC-03. Effects of high working pressure on the microstructure of $L1_0$ FePt with C addition.** *W. Wen* [1] and C. Lai[1] *1. Materials Science and Engineering, National Tsing-Hua University, HsinChu, Taiwan*

10:00 **AC-04. Effects of FePt-C media microstructure on its magnetic properties.** *S. Pisana* [1], O. Mosendz[1], J.W. Reiner[1], G.J. Parker[1], A.T. McCallum[1], H.J. Richter[1] and D. Weller[1] *1. San Jose Research Center, Hitachi GST, San Jose, CA*

10:15 **AC-05. Intergranular exchange coupling in FePt:X:FePt (X = B, C, SiO_2, Cr and Ta_2O_5) thin films for heat assisted magnetic recording.** *S.D. Granz* [1,2] and M.H. Kryder[1,2] *1. ECE, Carnegie Mellon University, Pittsburgh, PA; 2. DSSC, Carnegie Mellon University, Pittsburgh, PA*

10:30 **AC-06. An XRD-based method for evaluating inhomogeneous ordering at grain level for $L1_0$-FePt media.** *H. Ho* [1], D.E. Laughlin[1] and J. Zhu[1] *1. Data Storage Systems Center, Carnegie Mellon University, Pittsburgh, PA*

10:45 AC-07. Study the reversal mechanism of FePt/Fe exchange-coupled composite nanodots using Anomalous Hall measurement. *L. Huang* [1,2], J. Hu[1], B. Zong[1], S. Zeng[3] and J. Chen[2] *1. Data Storage Institute, Singapore, Singapore; 2. Materials Science and Engineering, National University of Singapore, Singapore, Singapore; 3. Physics, National University of Singapore, Singapore, Singapore*

11:00 AC-08. Thermally induced switching field distribution of sub-micron CoPt alloy and Co/Pt multilayer islands. *J. de Vries* [1], T. Bolhuis[1], H. van Wolferen[1], M. Siekman[1] and L. Abelmann[1] *1. MESA+ Institute for Nanotechnology, Enschede, Netherlands*

11:15 AC-09. L10 FePtCu bit patterned media. *M. Albrecht* [1], C. Brombacher[1], J. Lee[2], J. Fidler[2], M. Grobis[3] and T. Eriksson[4] *1. Institut of Physics, Chemnitz University of Technology, Chemnitz, Germany; 2. Institute of Solid State Physics, Vienna University of Technology, Vienna, Austria; 3. San Jose Research Center, Hitachi GST, San Jose, CA; 4. Obducat Technologies AB, Malmo, Sweden*

11:30 AC-10. Effect of ion implantation in magnetic media studied by first order reversal curves. *N. Gaur* [1,2], S.N. Piramanayagam[2], S.L. Maurer[3], S.E. Steen[3] and C.S. Bhatia[1] *1. Electrical and Computer Engineering Department, National University of Singapore, Singapore, Singapore; 2. Data Storage Institute (DSI), (A*STAR) Agency for Science Technology and Research, Singapore, Singapore; 3. IBM Thomas J. Watson Research Center, Yorktown Heights, NY*

11:45 AC-11. Imprint template servo integration issues for high bit aspect ratio bit patterned media (BPM). *J. Lille* [1], R. Ruiz[1], L. Wan[1], H. Gao[1], A. Dhanda[1], G. Zeltzer[1], T. Arnoldussen[1], K. Patel[1], Y. Tang[1], V. Ayanoor-Vitikkate[1] and T.R. Albrecht[1] *1. Hitachi San Jose Research Center, San Jose, CA*

TUESDAY MORNING 9:00

MEETING RM 11/12

Session AD
SPIN INJECTION INTO SEMICONDUCTORS AND SPIN PUMPING

Xiaohong Xu, Session Chair
Shanxi Normal University

9:00 **AD-01. Spin Injection into Silicon at Room Temperature.** ***(Invited)*** *S.P. Dash* [1], S. Sharma[2], A. Dankert[1] and R. Jansen[2] *1. Microtechnology and Nanoscience, Chalmers University of Technology, Göteborg, Sweden; 2. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan*

9:30 **AD-02. Spin injection across abrupt Fe/GaAs(001) interfaces.** L.R. Fleet[1], K. Yoshida[2,3], H. Kobayashi[4], Y. Kaneko[4], S. Matsuzaka[4], Y. Ohno[4], H. Ohno[4], S. Honda[5], J. Inoue[6] and *A. Hirohata* [1,7] *1. Physics, The University of York, York, North Yorkshire, United Kingdom; 2. Department of Crystalline Materials Science and Ecotopia Science Institute, Nagoya University, Nagoya, Japan; 3. Nanostructures Research Laboratory, Japan Fine Ceramics Center, Nagoya, Japan; 4. Research Institute of Electronic Communication, Tohoku University, Sendai, Japan; 5. Institue of Applied Physics, University of Tsukuba, Tsukuba, Japan; 6. Department of applied Physics, Nagoya University, Nagoya, Japan; 7. PRESTO, Japan Science and Technology Agency, Kawaguchi, Japan*

9:45 **AD-03. Electrical spin injection from Co_2MnSi Heusler alloy into GaAs and electrical detection of dynamic nuclear polarization.** *T. Akiho* [1], T. Uemura[1], K. Matsuda[1] and M. Yamamoto[1] *1. Division of Electronics for Informatics, Hokkaido Uinv., Sapporo, Japan*

10:00 **AD-04. Spin accumulation and decoherence at Ferromagnet/Tunnel barrier/Semiconductor interfaces.** *J. Le Breton* [1], J. Peiro[1], C. Deranlot[1], A. Lemaître[2], A. Jain[3], C. Vergnaud[3], M. Jamet[3], H. Jaffres[1] and J. George[1] *1. Unité Mixte de Physique CNRS/Thales, Palaiseau, France; 2. Laboratoire de Photonique et Nanostructures, Marcoussis, France; 3. INAC/SP2M, CEA-Université Joseph Fourier, Grenoble, France*

10:15 **AD-05. Thermal creation of spin polarization in silicon using a ferromagnetic tunnel contact.** *A. Dankert* [1] and S.P. Dash[1] *1. Microtechnology and Nanoscience, Chalmers University of Technology, Göteborg, Sweden*

10:30 AD-06. MgO thickness dependence of spin accumulation signal in $Co_{50}Fe_{50}$/MgO/Si. *T. Uemura* [1], J. Fujisawa[1], K. Matsuda[1] and M. Yamamoto[1] *1. Hokkaido University, Sapporo, Japan*

10:45 AD-07. Effect of the interface resistance on spin accumulation signals detected by three-terminal Hanle effect measurements in CoFe/MgO/SOI devices. *M. Ishikawa* [1], H. Sugiyama[1], T. Inokuchi[1], K. Hamaya[2] and Y. Saito[1] *1. Corporate Research & Development Center, Toshiba Corporation, Kawasaki, Japan; 2. Department of Electronics, Kyushu University, Fukuoka, Japan*

11:00 AD-08. Generation of spin polarized currents in a Rashba 2DEG with an off-centered potential. *Z. Siu* [1,3], M. Jalil[3,2] and S. Tan[3] *1. NUS Graduate School for Integrative Sciences and Engineering, National University of Singapore, Singapore, Singapore; 2. Electrical and Computer Engineering Department, National University of Singapore, Singapore, Singapore; 3. Data Storage Institute, Singapore, Singapore*

11:15 AD-09. Gate control of Rashba spin-orbit interaction in a *p*-type quantum well. *Y. Park* [1,2], H. Koo[1], S. Shin[1], J. Song[1], H. Kim[1], J. Chang[1], S. Han[1] and H. Choi[2] *1. Spin Device Research Center, Korea Institute of Science and Technology, Seoul, Republic of Korea; 2. Department of Materials Science and Engineering, Yonsei University, Seoul, Republic of Korea*

11:30 AD-10. Effect of Device Geometry on Output Circular Polarization in a Spin-LED. *D. Banerjee* [1,2], S. Ganguly[1] and D. Saha[1,2] *1. Electrical Engineering, IITB-Monash Research Academy, Mumbai, Maharashtra, India; 2. Electrical Engineering, IIT Bombay, Mumbai, Maharashtra, India*

11:45 AD-11. Spin-current emission in hybrid YIG/Pt system actuated by broadband ferromagnetic resonance. *V. Castel* [1], J. Ben Youssef[2], D. Dekadjevi[2], N. Vlietstra[1] and B. van Wees[1] *1. Department of Physics, Zernike Institute for Advanced Materials, Groningen, Netherlands; 2. Department of Physics, Universite de Bretagne Occidentale, Laboratoire de Magnétisme de Bretagne EA4522-CNRS, Brest, France*

TUESDAY MORNING 9:00

PARKVIEW 1

Session AE
SOFT MAGNETIC MATERIALS I

Dan Allwood, Session Chair
University of Sheffield

9:00 **AE-01. Playing with Photonics and Plasmonics: a way to Shape Magneto-Optical Spectra.** ***(Invited)*** *G. Herranz* [1], J. Caicedo[1], O. Pascu[1], M. Rubio-Roy[1], O. Vlasin[1], M. López-García[2], V. Canalejas[2], √. Blanco[2], C. López[2], N. Tognalli[3], A. Fainstein[3], M. Schmidt[1], A. Goñi[1,4], J. Fontcuberta[1] and A. Roig[1] *1. Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Bellaterra, Spain; 2. Instituto de Ciencia de Materiales de Madrid (ICMM-CSIC), Madrid, Spain; 3. Centro Atómico Bariloche, Instituto Balseiro, Comisión Nacional de Energía Atómica, Bariloche, Argentina; 4. Institució Catalana de Recerca i Estudis Avançats (ICREA), Barcelona, Spain*

9:30 **AE-02. Large-scale synthesis and characterization of Fe_3O_4 particles with anisotropic shapes via chemical reduction from prepared α-Fe_2O_3.** *Y. Yang* [1], H. Fan[2], X. Liu[2], W. Li[1] and J. Ding[1] *1. National University of Singapore, Singapore, Singapore; 2. Shaanxi Key Laboratory of Degradable Biomedical Materials, Xi'an, China*

9:45 **AE-03. Morphotropic phase boundary in cobalt ferrites - Fe3O4-xCoFe2O4 system.** *C. Zhou* [2,1], H. Bao[1], S. Yang[3], X. Ren[1,4] and Y. Matsushita[5] *1. Multidisciplinary Materials Research Center, Frontier Institute of Science and Technology, Xi'an Jiaotong University, Xi'an City, Shaanxi, China; 2. School of Electrical Engineering, Xi'an Jiaotong University, Xi'an City, Shaanxi, China; 3. MOE Key Laboratory for Nonequilibrium Synthesis and Modulation of Condensed Matter, Xi'an Jiaotong University, Xi'an City, Shaanxi, China; 4. Ferroic Physics Group, National Institute for Materials Science, Tsukuba, Ibaraki, Japan; 5. Beamline BL15XU, Spring-8, National Institute for Materials Science, Sayo-cho, Hyogo, Japan*

10:00 **AE-04. Structural and magnetic characterization of magnetic cores based in Finemet with induced magnetic anisotropy.** *J.E. González* [1], M. Osinalde[2], P. Infante[2], L. Dominguez[3], J. Blanco[3] and J. Del Val[1] *1. Materials Physics, University of the Basque Country, San Sebastián, Gipuzkoa, Spain; 2. I+D+i, TRANSFORMADORES S.A., Zarauz, Gipuzkoa, Spain; 3. Applied Physics I, University of the Basque Country, San Sebastián, Gipuzkoa, Spain*

10:15 AE-05. Transition from GMR to AMR at the percolation threshold in ferrite – magnetic alloy composites. *R.J. Gambino* [1], S. Liang[1], K. Shinoda[1], J. Colmenares-Angulo[1] and S. Sampath[1] *1. Materials Science and Engineering, Stony Brook University, Stony Brook, NY*

10:30 AE-06. Novel C-band tunable bandpass filter with low bias magnetic fields using partially magnetized ferrites. *X. Yang* [1], J. Wu[1], S. Beguhn[1], Z. Zhou[1], J. Lou[1] and N. Sun[1] *1. Electrical and Computer Engineering, Northeastern University, Boston, MA*

10:45 AE-07. Measurements of Complex Magnetic Permeability of Nano-size ε-AlxFe2-xO3 Powder Materials at Microwave and Millimeter Wavelengths. *M.N. Afsar* [1], K.A. Korolev[1], A. Namai[2] and S. Ohkoshi[2] *1. ECE, Tufts University, Medford, MA; 2. Department of Chemistry, Tokyo University, Tokyo, Japan*

11:00 AE-08. Microwave and Millimeter Wave Ferromagnetic Absorption of Nanoferrites. *L. Chao* [1], A. Sharma[1] and M.N. Afsar[1] *1. ECE Department, Tufts University, Medford, MA*

11:15 AE-09. Reconfigurable helical antenna based on soft Co/Ti-doped barium hexaferrite for very high frequency applications. *J. Lee* [1], Y. Hong[1], W. Lee[1], G.S. Abo[1], J. Park[1], W. Seong[2], S. Park[2], W. Ahn[2] and C. Choi[3] *1. Electrical and Computer Engineering and MINT Center, The University of Alabama, Tuscaloosa, AL; 2. Research and Development Center, EMW Company Ltd., Seoul, Republic of Korea; 3. Korea Institute of Materials Science, Changwon, Republic of Korea*

11:30 AE-10. Eddy current losses in Mn-Zn ferrites. *F. Fiorillo* [1], C. Beatrice[1], O. Bottauscio[1] and E. Carmi[1] *1. Istituto Nazionale di Ricerca Metrologica, Torino, Italy*

11:45 AE-11. MnZn ferrite-silicone composite for 3G/4G and Bluetooth/W-LAN antenna applications. *S. Bae* [1], Y. Hong[2], S. Lee[1], J. Lee[2] and J. Park[2] *1. LG Components R&D Institute, LG Innotek, Ansan, Gyeonggi-do, Republic of Korea; 2. Electrical and Computer Engineering and MINT Center, The University of Alabama, Tuscaloosa, AL*

TUESDAY MORNING 9:00

PARKVIEW 2/3

Session AF
MAGNETIC MICROSCOPY, MEASUREMENTS AND INSTRUMENTATION

Manfred Albrecht, Session Chair
Chemnitz University of Technology

9:00 **AF-01. Symmetry breaking in the formation process of magnetic vortex states.** M. Im[1], *P. Fischer* [1], Y. Keisuke[2], T. Sato[3], S. Kasai[4], Y. Nakatani[3] and T. Ono[2] *1. CXRO, LBNL, Berkeley, CA; 2. Institute for Chemical Research, Kyoto University, Kyoto, Japan; 3. Graduate School of Informatics and Engineering, University of Electro-Communications, Chofu, Japan; 4. Spintronics Group, Magnetic Materials Center, NIMS, Tsukuba, Japan*

9:15 **AF-02. High resolution magnetic field imaging by near-field magnetic force microscopy (NF-MFM) for high-density magnetic recording media.** *H. Saito* [1], R. Ito[1], Z. Li[2], G. Egawa[1] and S. Yoshimura[1] *1. Graduate School of Engineering and Resource Science, Akita University, Akita, Akita, Japan; 2. Venture Business Laboratory, Akita University, Akita, Akita, Japan*

9:30 **AF-03. Holographic Imaging of magnetic nanostructures using extended references.** T. Duckworth[1], *F.Y. Ogrin* [1], S.S. Dhesi[2], G. van der Laan[2], S. Langridge[3], A. Whiteside[4], T. Moore[4] and G. Beutier[5] *1. University of Exeter, Exeter, United Kingdom; 2. Diamond Light Source, Didcot, United Kingdom; 3. ISIS, Ratherford Appleton Laboratory, Didcot, United Kingdom; 4. University of Leeds, Leeds, United Kingdom; 5. SIMaP, CNRS, Grenoble, France*

9:45 AF-04. Off-Axis Electron Holography of Ferromagnetic Mulitilayer Nanowire Arrays. *A. Akhtari Zavareh* [1], L.P. Carignan[2,3], A. Yelon[2], D. Ménard[2], T. Kasama[4], R. Herring[5], R.D. Dunin-Borkowski[6], M.R. McCartney[7] and K.L. Kavanagh[1] *1. Physics Department, Simon Fraser University, Burnaby, BC, Canada; 2. Department of Engineering Physics, École Polytechnique de Montréal, Montréal, QC, Canada; 3. Department of Electrical Engineering, École Polytechnique de Montréal, Montréal, QC, Canada; 4. Center for Electron Nanoscopy, Technical University of Denmark, Lyngby, Denmark; 5. Department of Mechanical Engineering, University of Victoria, Victoria, BC, Canada; 6. Ernst Ruska-Centre for Microscopy and Spectroscopy, Electrons Institute for Microstructure Research, Jülich, Germany; 7. Department of Engineering Physics, Arizonia State University, Tempe, AZ*

10:00 AF-05. Low magnetic signals measured by a combination of MFM and KPFM. *A. Asenjo* [1], M. Jaafar[2], O. Iglesias-Freire[1], D. Martínez-Martin[2], R. Perez[3], J. Gómez-Herrero[2], L. Serrano-Ramón[4,5], M. Ibarra[5,6] and J. de Teresa[4,6] *1. MIT, ICMM-CSIC, Madrid, Spain; 2. Dpto. Física de la Materia Condensada, UAM, Madrid, Spain; 3. Dpto. Física Teórica de la Materia Condensada, UAM, Madrid, Spain; 4. ICMA-CSIC, Zaragoza, Spain; 5. Dpto. Física de la Materia Condensada, Universidad de Zaragoza, Zaragoza, Spain; 6. Laboratorio de Microscopías avanzadas, Instituto de Nanociencia de Aragón, Zaragoza, Spain*

10:15 AF-06. Dissipation in Magnetic Force Microscopy: a source of new information. *M. Jaafar* [1,2], O. Iglesias Freire[2], D. Martínez- Martín[1], P.G. Mochales[1], E. Sahagún[1], J. Sáenz[1], J. Gómez - Herrero[1] and A. Asenjo[2] *1. Física de la Materia Condensada, Autonomous University Madrid, Madrid, Spain; 2. Instituto de Ciencia de Materiales de Madrid, Madrid, Spain*

10:30 AF-07. Unique magnetic domain structure in iron meteorite induced by the presence of $L1_0$-FeNi studied by Photoemission Electron Microscope (PEEM). *M. Kotsugi* [1] and C. Mitsumata[2] *1. Japan Synchrotron Radiation Research Institute, Hyogo, Japan; 2. Tohoku University, Sendai, Japan*

10:45 AF-08. Magnetic neutron scattering on nanocomposites: decrypting cross-section images using micromagnetic simulations. *A. Michels* [1], S. Erokhin[2], D. Berkov[2] and N. Gorn[2] *1. Laboratory for the Physics of Advanced Materials, University of Luxembourg, Luxembourg, Luxembourg; 2. INNOVENT Technology Development, Jena, Germany*

11:00 **AF-09. Phase-sensitive frequency mixing for sensing magnetic hysteresis.** *C. Thede* [1], I. Teliban[1], S. Chemnitz[1], C. Bechtold[1], C. Klever[2], M. Stüber[2] and E. Quandt[1] *1. Institute for Materials Science, Kiel University, Kiel, Germany; 2. Institute for Applied Materials, Karlsruhe Institute of Technology, Karlsruhe, Germany*

11:15 **AF-10. Design of Superconducting MRI Magnet with Open Imaging Region using Adaptive Optimization Strategy.** *Y. Zhang* [1], W. Huang[1], D. Xie[1] and C. Koh[2] *1. Shenyang University of Technology, Shenyang, Liaoning, China; 2. Chungbuk National University, Chungbuk, Republic of Korea*

11:30 **AF-11. Characterization of organic thin films on ferromagnetic substrates by spectroscopic ellipsometry and magneto-optical Kerr effect spectroscopy.** *M. Fronk* [1], C. Schubert[1], F. Haidu[1], K. Dörr[2], M. Albrecht[1], D. Zahn[1] and G. Salvan[1] *1. Institute of Physics, Chemnitz University of Technology, Chemnitz, Saxony, Germany; 2. Leibniz Institute for Solid State and Materials Research Dresden, Dresden, Saxony, Germany*

11:45 **AF-12. A novel and fast numerical technique for large-scale electromagnetic imaging systems.** *H. Huang* [1] and Y. Deng[1,2] *1. Electrical Engineering, University of Colorado Denver, Denver, CO; 2. Bioengineering, University of Colorado Denver, Denver, CO*

TUESDAY MORNING 9:00

MEETING RM 8/15

Session AG
MICROMAGNETIC METHODS AND APPLICATIONS

Laurentiu Stoleriu, Session Chair
Al. I. Cuza University

9:00 **AG-01. Fast, accurate computation of the demagnetization tensor for periodic boundaries.** *M.J. Donahue* [1] *1. NIST, Gaithersburg, MD*

9:15 **AG-02. Jacobian-enhanced nudged elastic band solver for micromagnetics.** *M.A. Escobar* [1,2] and V. Lomakin[1,2] *1. CMRR, La Jolla, CA; 2. ECE, UCSD, La Jolla, CA*

9:30 AG-03. Micromagnetic simulations including inhomogeneous current densities. *B. Krueger* [1], S. Bohlens[1], G. Selke[2], A. Drews[2] and D. Pfannkuche[1] *1. I. Institute for Theoretical Physics, University of Hamburg, Hamburg, Germany; 2. Workgroup Technical Informatic Systems, University of Hamburg, Hamburg, Germany*

9:45 AG-04. Interactions between magnetic layers that lie between soft boundary layers. *R. Wood* [1] *1. MS C4/50-3, Hitachi GST, San Jose, CA*

10:00 AG-05. Atomistic simulation of magnetic reversal processes for heat assisted magnetic recording. *W. Fan* [1], R.F. Evans[1] and R.W. Chantrell[1] *1. Physics, York University, York, United Kingdom*

10:15 AG-06. A micromagnetic solver for large-scale patterned media based on non-structured meshing. *A. Manzin* [1] and O. Bottauscio[1] *1. Istituto Nazionale di Ricerca Metrologica (INRIM), Torino, Italy*

10:30 AG-07. Spin-torque-induced toggle switching of dual vortex magnetization in $Ni_{80}Fe_{20}$/Cu/Co nanopillar element. J. Kolthammer[1], R. Gardner[1], J. Rudge[1], Y. Hong[2], Q. Liu[3] and *B. Choi* [1] *1. Dept. of Physics & Astronomy, Univ of Victoria, Victoria, BC, Canada; 2. Department of Electrical and Computer Engineering and MINT, University of Alabama, Tuscaloosa, AL; 3. School of Physical Science and Technology, Key Lab for Magnetism and Magnetic Materials of the Ministry of Education, Lanzhou University, Lanzhou, Gansu Province, China*

10:45 AG-08. Fast micromagnetics on massively parallel computing systems. *S. Li* [1] and V. Lomakin[1] *1. University of California, San Diego, La Jolla, CA*

11:00 AG-09. Spin precession of the NiO antiferromagnetic magnons. *J. Milano* [1,2] and M.H. Grimsditch[3] *1. Comisión Nacional de Energía Atómica, San Carlos de Bariloche, Río Negro, Argentina; 2. Instituto Balseiro, Universidad Nacional de Cuyo, San Carlos de Bariloche, Río Negro, Argentina; 3. Materials Science Division, Argonne National Laboratory, Argonne, IL*

11:15 AG-10. Understanding the Magnetization Reversal in Six-fold Anisotropic Hexagonal Networks. *V. Dasari* [1], P. Mohanan[1], R.S. Joshi[1] and P. Kumar[1] *1. Physics, Indian Institute of Science, Bangalore, Karnataka, India*

11:30 AG-11. Adaptive hybrid algorithm for fast computation of the 3D demagnetizing field in micromagnetic simulations. *A. Kazmi* [1] *1. National University of Computer & Emerging Sciences, Lahore, Pakistan*

TUESDAY MORNING 9:00

MEETING RM 13

Session AH
RARE EARTH TRANSITION METAL BORIDES I

Christina Chen, Session Chair
General Electric

9:00 **AH-01. Inducement of High Coercivity in Anisotropic Dy-Free Nd-Fe-B Powders by Conventional HDDR Process.** *K. Morimoto* [1], N. Katayama[1], T. Akamine[2] and M. Itakura[2] *1. R & D Division, Toda Kogyo Corp., Otake, Hiroshima, Japan; 2. Department of Applied Science for Electronics and Materials, Kyushu University, Kasuga, Fukuoka, Japan*

9:15 **AH-02. Reducing Dy content by Y substitution for nanocomposite NdDyFeB alloys with improved magnetic properties and thermal stability.** *Z. Liu* [1], D. Qian[1], D. Zeng[1], H. Yu[1] and X. Zhong[1] *1. School of Materials Scuence and Engineering, South China University of Technology, Guangzhou, Guangdong, China*

9:30 **AH-03. Factor analysis for coercivity of hot-deformed Nd-Fe-B magnet.** *K. Hioki* [1], Y. Kojima[1], T. Morita[1] and A. Hattori[1] *1. Daido Corporate Research & Development Center, Daido Steel Co., Ltd., Nagoya-shi, Aichi-ken, Japan*

9:45 **AH-04. Electron energy-loss spectroscopy investigation of Nd-Fe-B-based Tb-doped core-shell magnets.** *M. Soderznik* [1], P. McGuiness[1,2], K. Zagar[1] and S. Kobe[1] *1. Department for nanostructured materials, Jozef Stefan Institute, Ljubljana, Slovenia; 2. Centre of Excellence NAMASTE, Ljubljana, Slovenia*

10:00 **AH-05. The effect of annealing in hot-compacted NdFeB magnets with Dy-fluoride additions.** *S. Sawatzki* [1], M. Moore[1], H. Wendrock[1], L. Schultz[1] and O. Gutfleisch[1,2] *1. IFW Dresden, Dresden, Germany; 2. TU Darmstadt, Damstadt, Germany*

10:15 **AH-06. Anisotropic Nd2Fe14B submicron flakes by non-surfactant-assisted high energy ball milling.** *B. Cui* [1], M. Marinescu[1] and J. Liu[1] *1. Electron Energy Corporation, Landisville, PA*

10:30 AH-07. Characterisation and modelling of grain junctions in Nd-Fe-B sintered magnets. *T.G. Woodcock* [1], G. Hrkac[2], T. Schrefl[2,3] and O. Gutfleisch[1,4] *1. IFW Dresden, Dresden, Germany; 2. University of Sheffield, Sheffield, United Kingdom; 3. St. Pölten University of Applied Sciences, St Pölten, Austria; 4. TU Darmstadt, Darmstadt, Germany*

10:45 AH-08. Microstructure and coercivity of Nd-Fe-B anisotropic magnets with nonmagnetic grain boundary phase. *H. Sepehri-Amin* [1], M. Yano[2], T. Shoji[2], T. Ohkubo[1] and K. Hono[1] *1. National Institute for Materials Science (NIMS), Tsukuba, Ibaraki, Japan; 2. Toyota Motor Corporation, Advanced Material Engineering Div., Susono 410-1193, Japan*

11:00 AH-09. Microstructure and magnetization reversal mechanism in Nd-Fe-B thin films with perpendicular magnetic anisotropy. *X. Liu* [1], Y. Ota[1] and A. Morisako[1] *1. Department of Information Engineering, Shinshu University, Nagano, Japan*

11:15 AH-10. High coercivity and remanence of weakly exchange-coupled Nd-Fe-B/Fe2Co nanocomposite thin films. *W. Cui* [1], Y. Takahashi[1] and K. Hono[1] *1. National Institue for Materials Sciences, Tsukuba, Japan*

11:30 AH-11. Magnetic reversal observation in nano-crystalline Nd-Fe-B magnet by SANS. *M. Yano* [1], K. Ono[2], A. Manabe[1], N. Miyamoto[1], T. Shoji[1], A. Kato[1], Y. Kaneko[3], M. Harada[3], H. Nozaki[3] and J. Kohlbrecher[4] *1. Toyota Motor Corporation, Susono 410-1193, Shizuoka, Japan; 2. High Energy Accelerator Research Organization (KEK), Tsukuba 305-0801, Japan; 3. Toyota Central R&D Labs. Inc., Aichi 480-1192, Japan; 4. Laboratory for Neutron Scattering, Paul Scherrer Institut, 5232 Villigen PSI, Switzerland*

11:45 AH-12. Domain-wall energies in (Nd,Dy)-Fe-B sintered magnets. *K. Ono* [1], M. Yano[2], T. Araki[3], M. Kubota[1], A. Manabe[2], N. Miyamoto[2], T. Shoji[2], A. Kato[2], H. Nozaki[3], M. Harada[3], Y. Kaneko[3], J. Raabe[4] and J. Kohlbrecher[4] *1. KEK, Tsukuba, Japan; 2. Toyota Motor Corporation, Toyota, Japan; 3. Toyota Central R&D Labs. Inc., Aichi, Japan; 4. Paul Scherrer Institut (PSI), Villigen, Switzerland*

TUESDAY MORNING 8:00

EXHIBITION HALL A

Session AP
MAGNETIC TUNNEL JUNCTIONS AND SPIN VALVES
(Poster Session)

Masafumi Yamamoto, Session Chair
Hokkaido University

AP-01. Inverse magnetoresistance effect in L10-MnGa/MgO/CoFeB perpendicular magnetic tunnel junctions with Co insertion. *Q. Ma* [1], S. Mizukami[1], T. Kubota[1], X. Zhang[1], H. Naganuma[2], M. Oogane[2], Y. Ando[2] and T. Miyazaki[1] *1. WPI Advanced Institute for Materials Research, Tohoku University, Sendai, Japan; 2. Department of Applied Physics, Graduate School of Engineering, Tohoku University, Sendai, Japan*

AP-02. Electrode band structure effects in thin MgO magnetic tunnel junctions. *J.M. Teixeira* [1], J. Ventura[1], M.P. Fernandez-Garcia[1], J.P. Araujo[1], J.B. Sousa[1], P. Wisniowski[2,3] and P.P. Freitas[3] *1. Physics and Astronomy, IFIMUP and IN-Institute of Nanoscience and Nanotechnology, 4169-007 Oporto, Portugal; 2. Electronics, AGH University of Science and Technology, 30-059 Krakow, Poland; 3. INESC-MN and IN-Institute of Nanoscience and Nanotechnology, 1000-029 Lisbon, Portugal*

AP-03. Magnetic tunnel junctions based on zinc ferrite and cobalt. *M. Bonholzer* [1], K. Brachwitz[1], J. Zippel[1], M. Lorenz[1] and M. Grundmann[1] *1. Institut für Experimentelle Physik II, Universität Leipzig, Leipzig, Saxony, Germany*

AP-04. Magnetic properties and magnetic domain structures evolution modulated by CoFeB layer thickness in [Co/Pd]/CoFeB/MgO/CoFeB/[Co/Pd] perpendicular MTJ films. *T. Yu* [1], H. Naganuma[2], D. Shi[1], Y. Ando[2] and X. Han[1] *1. Institute of Physics, Chinese Academy of Sciences, Beijing, China; 2. Department of Applied Physics, Tohoku University, Sendai, Japan*

AP-05. Spin torque diode spectroscopy of quantized spin wave excited in a magnetic tunnel junction. *A. Yamaguchi* [1], A. Fukushima[1], H. Kubota[1] and S. Yuasa[1] *1. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan*

AP-06. The effects of electrode and annealing on TbFeCo/MgO/CoFeB perpendicular magnetic tunnel junctions. L. Ye[1], C. Lee[1,2], J. Lee[1], W. Tseng[1,2] and *T. Wu* [2,3] *1. Taiwan SPIN Research Center, National Yunlin University of Science and Technology, Douliou, Taiwan; 2. Graduate School of Materials Science, National Yunlin University of Science and Technology, Douliu, Taiwan; 3. Graduate School of Information Technology, Overseas Chinese University, Taichung, Taiwan*

AP-07. Magnetic tunnel junction current sensor for industrial applications. *J. Sánchez* [1], D. Ramirez[1], S. Ravelo[1], A. Lopes[2], S. Cardoso[2], R. Ferreira[2] and P. Freitas[2] *1. Dep. Electronics Engineering, University of Valencia, Burjassot, Valencia, Spain; 2. Instituto de Sistemas e Computadores-Microsistemas e Nanotecnologias, Lisbon, Portugal*

AP-08. Total Ionizing Dose Effects on Magnetic Tunnel Junctions. *C. Yoshida* [1], M. Aoki[1], Y. Iba[1], A. Hatada[1], M. Nakabayashi[1], H. Noshiro[1], T. Ochiai[1], A. Takahashi[1], K. Tsunoda[1], Y. Yamazaki[1] and T. Sugii[1] *1. Low-power Electronics Association & Project, Tsukuba, Ibabaraki, Japan*

AP-09. Crystallinity of CoFeB in Magnetic Tunnel Junctions with Perpendicular Magnetic Anisotropy. *T. Tahmasebi* [1,2], S. Piramanayagam[1] and T. Chong[1,2] *1. Data Storage Institute, Singapore, Singapore; 2. Electrical and Computer Engineering Deprtment, National University of Singapore, Singapore, Singapore*

AP-10. Effects of the interlayer magnetostatic coupling on the thermal stability of nanostructured synthetic ferrimagnets. *J. Lee* [1] and S. Lim[1] *1. Department of Materials Science and Engineering, Korea University, Seoul, Republic of Korea*

AP-11. In situ characterization of growth and crystalline process of spinel MgAl2O4 tunnel barriers on Fe(100). *S. Mitani* [1,2], H. Sukegawa[1] and J. Koo[1,2] *1. NIMS, Tsukuba, Japan; 2. Univ of Tsukuba, Tsukuba, Japan*

AP-12. MgO-based double barrier magnetic tunnel junctions with CoFeB/Ru/CoFeB free layer. *D. Li* [1,2], J. Feng[1], G. Yu[2], H. Wei[2], X. Han[2] and M. Coey[1] *1. CRANN and School of Physics, Trinity College, Dublin, Ireland; 2. Institute of Physics, Chinese Academy of Sciences, Beijing, China*

AP-13. Theoretical study of Point-contact Andreev reflection spectroscopy for ferromagnetic metal / insulator / d-wave superconductor junctions. *H. Ohtori* [1,2] and H. Imamura[2] *1. Univ. of Tsukuba, Tsukuba, Japan; 2. Nanosystem Research Institute, National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan*

AP-14. Edge effect on thermally excited mag-noise in magnetic tunnel junction sensors. *T. Zeng* [1], Y. Zhou[2], K. Lin[3], P. Lai[1] and P. Pong[1] *1. Department of Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong, Hong Kong; 2. Department of Physics, The University of Hong Kong, Hong Kong, Hong Kong; 3. Department of Materials Science and Engineering, National Chung Hsing University, Tai Chung, Taiwan*

AP-15. Giant magnetoresistance effect and magnetization reversal in nano-sized spin valve GMRs. *C. Yin* [1], Z. Jia[1], W. Ma[1] and T. Ren[1] *1. Institute of Microelectronics, Tsinghua National Laboratory for Information Science and Technology, Tsinghua University, Beijing, China*

TUESDAY MORNING 8:00 EXHIBITION HALL A

Session AQ
BIOMEDICAL DIAGNOSTICS AND IMAGING I
(Poster Session)

Jauyn Grace Lin, Session Chair
National Taiwan University

AQ-01. Detection of nanometer magnetic labels by magnetically induced frictional forces with micrometer superparamagnetic beads. *T. Takamura* [2], P.J. Ko[2], I. Ishikawa[2] and A. Sandhu[1,2] *1. Electronics-Inspired Interdisciplinary Research Institute, Toyohashi University of Technology, Toyohashi, Japan; 2. Department of Electrical and Electronic Engineering, Tokyo Institute of Technology, Tokyo, Japan*

AQ-02. Characterization of Magnetic Markers and Sensors for Liquid Phase Immunoassays using Brownian Relaxation. K. Enpuku[1], *A.K. Bhuiya* [1], M. Asai[1], H. Watanabe[1], T. Hirata[1], Y. Higuchi[1] and T. Yoshida[1] *1. Kyushu University, Fukuoka, Japan*

AQ-03. Adaptive control of excitation coil arrays for targeted magnetic nanoparticle reconstruction using magnetorelaxometry. *A. Coene* [1], G. Crevecoeur[1] and L. Dupré[1] *1. Electrical Energy, Systems and Automation, Ghent University, Ghent, Belgium*

AQ-04. Neuroactive associated with a gambling task. *S. Huang* [1,4], M. Liou[2], A. Tsai[2], S. Liao[3], C. Wang[1,4] and T. Lai[5] *1. Department of Electronic Engineering, Oriental Institute of Technology, New Taipei City, Taiwan; 2. Institute of Statistical Science, Academia Sinica, Taipei, Taiwan; 3. Institute of Electro-optical Science and Technology, National Taiwan Normal University, Taipei, Taiwan; 4. Health Care Technology and Research Center, Oriental Institute of Technology, New Taipei City, Taiwan; 5. Division of Neurology, Department of Internal Medicine, Far Eastern Memorial Hospital, New Taipei City, Taiwan*

AQ-05. Porous silicon based protocol for the rapid and real-time monitoring of biorecognition between human IgG and protein A using functionalized superparamagnetic beads. *P.J. Ko* [2], R. Ishikawa[2], T. Takamura[2], H. Sohn[3] and A. Sandhu[1,2] *1. Electronics-Inspired Interdisciplinary Research Institute, Toyohashi University of Technology, Toyohashi, Japan; 2. Department of Electrical and Electronic Engineering, Tokyo Institute of Technology, Tokyo, Japan; 3. Department of Chemistry, Chosun University, Gwangju, Republic of Korea*

AQ-06. The application of magnetic resonance perfusion imaging in the estimation of cerebral blood flow using SVD method. *Y. Li* [1], D. Ma[1], R. He[2], L. Rao[3], L. Guo[1], J. Chen[1] and G. Xu[1] *1. Province-Ministry Joint Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability, Hebei University of Technology, Tianjin, China; 2. Department of Diagnostic and Interventional Imaging, University of Texas at Houston, Houston, TX; 3. Department of Cardiology, The Methodist Hospital Research Institute, Houston, TX*

AQ-07. A magnetic method to concentrate and trap biological targets. *F. Li* [1] and J. Kosel[1] *1. Physical Sciences and Engineering Division, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia*

AQ-08. Characteristics of neuronal excitement by transcranial magnetic stimulation using a cerebral cortex model. *Y. Katayama* [1], F. Matsusaki[2] and K. Iramina[1,2] *1. Informatics, Kyushu University, Fukuoka, Japan; 2. Systems Life Sciences, Kyushu University, Fukuoka, Japan*

AQ-09. EEG Characteristics under Magnetic Stimulation at Acupuncture Point and at Mock Point. H. Yu[1], *G. Xu* [1], Q. Zhou[1], S. Yang[1], Y. Geng[1] and X. Xie[1] *1. Province-Ministry Joint Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability, Hebei University of Technology, Tianjin, China*

AQ-10. Detection of radiation-induced effect on the protein tagged by magnetic nano particle by cyclic voltammeter measurement. *D. Park* [1], H. Song[1] and C. Angani[1] *1. Korea Atomic Energy Research Institute, Daejeon, Republic of Korea*

AQ-11. Stochastic resonance in evoked magnetoencephalogram investigated by analysis of coherences. *K. Tanaka* [1], I. Nemoto[2], M. Kawakatsu[2] and Y. Uchikawa[1] *1. Science and Engineering, Tokyo Denki Universtiy, Hikigun, Saitama, Japan; 2. Information Environment, Tokyo Denki University, Inzai, Chiba, Japan*

AQ-12. Frequency Dependence of P300 Latency by Low-Frequency Repetitive Transcranial Magnetic Stimulation. *T. Torii* [1], A. Sato[1], M. Iwahashi[1] and K. Iramina[2] *1. Department of Medical Engineering, Junshin Gakuen University, Fukuoka, Japan; 2. Graduate School of Systems Life Sciences, Kyushu University, Fukuoka, Japan*

AQ-13. Effect of ELF magnetic fields on anticancer drugs potency. *M. Kakikawa* [1] and S. Yamada[1] *1. Institute of Nature and Environmental Technology, Kanazawa University, Kanazawa, Japan*

AQ-14. Transition of after Effect on P300 by Short-Term rTMS to Prefrontal Cortex. *T. Torii* [1], A. Sato[1], M. Iwahashi[1] and K. Iramina[2] *1. Department of Medical Engineering, Junshin Gakuen University, Fukuoka, Japan; 2. Graduate School of Systems Life Sciences, Kyushu University, Fukuoka, Japan*

AQ-15. Size and anisotropic effects on (Mn, Ni)-Zn ferrites for hyperthermia applications. *S. Hyun* [1], W. Kwon[1], K. Joo[2] and C. Kim[1] *1. Physics, Kookmin University, Seoul, Republic of Korea; 2. Physics, Myongji University, Yongin, Kyungki, Republic of Korea*

AQ-16. Direct detection of magnetic resonance signals in ultra-low field MRI using optically pumped atomic magnetometer with ferrite shields: A simulation study. *T. Oida* [1], M. Tsuchida[1] and T. Kobayashi[1] *1. Graduate School of Engineering, Kyoto University, Kyoto, Kyoto, Japan*

TUESDAY MORNING 8:00

EXHIBITION HALL A

Session AR
EXCHANGE BIAS I (Poster Session)

Dieter Weller, Session Chair
Hitachi GST

AR-01. Characterisation of Interface Spin Clusters in Exchange Bias Systems. *N.C. Cramp* [1], R. Carpenter[1], . Chureemar[1] and K. O'Grady[1] *1. Physics, York University, York, North Yorkshire, United Kingdom*

AR-02. Microscopic origin of uncompensated antiferromagnetic moments in Mn-Ir / Fe-Co-Ni bilayers. *H. Takahashi* [1], Y. Kota[2], M. Tsunoda[1], T. Nakamura[3], K. Kodama[3], A. Sakuma[2] and M. Takahashi[1] *1. Department of Electronic Engineering, Tohoku University, Sendai, Miyagi, Japan; 2. Department of Applied Physics, Tohoku University, Sendai, Miyagi, Japan; 3. Japan Synchrotron Radiation Research Institute / SPring-8, Sayo, Hyogo, Japan*

AR-03. Influence of ferromagnetic layer composition on perpendicular exchange bias in Pt/$Co_{1-x}Ni_x$/α-Cr_2O_3 thin films. *Y. Shiratsuchi* [1], H. Oikawa[1], H. Noutomi[1], Y. Takechi[1] and R. Nakatani[1] *1. Osaka Univ Grad Schl Eng, Osaka, Japan*

AR-04. Perpendicular exchange bias in Pt/Co/α-Cr_2O_3 thin film system in the vicinity of the Néel temperature. Y. Shiratsuchi[1], K. Toyoki[1], *K. Wakatsu* [1], Y. Takechi[1], H. Oikawa[1], H. Noutomi[1] and R. Nakatani[1] *1. Materials Science and Engineering, Osaka university, Minoh-shi, Osaka, Japan*

AR-05. Possibility for ferromagnetic resonance control using exchange-coupled NiFe/FeMn film. *S. Hu* [1], S. Yakata[1,2], K. Kiseki[1] and T. Kimura[1,2] *1. INAMORI Frontier Research Center, Kyushu University, Fukuoka, Japan; 2. CREST, JST, Tokyo, Japan*

AR-06. Tuning exchange bias by single crystalline substrates and ion-beam bombardment in NiO/NiFe bilayers. C. Shueh[1], B. Lai[1], T. Wu[2], J. van Lierop[3] and *K. Lin* [1] *1. Department of Materials Science and Engineering, National Chung Hsing University, Taichung, Taiwan; 2. Taiwan Spin Center, National Yunlin Univ of Science and Technology, Douliu, Taiwan; 3. Department of Physics and Astronomy, Univ of Manitoba, Winnipeg, MB, Canada*

AR-07. Modulating the magnetocrystalline anisotropy and the exchange bias field in CoFe/(Co,Fe)O bilayers using ion-beam bombardment and single crystalline substrates. C. Shueh[1], H. Hsu[1], J. van Lierop[2] and *K. Lin* [1] *1. Department of Materials Science and Engineering, National Chung Hsing University, Taichung, Taiwan; 2. Department of Physics and Astronomy, University of Manitoba, Winnipeg, MB, Canada*

AR-08. Effect of Interface Structure on Exchange Biased Heusler Alloy Films. *H. Endo* [1], A. Hirohata[2,3], T. Nakayama[4] and K. O'Grady[5] *1. Nihon University, Koriyama, Fukushima, Japan; 2. Department of Electronics, The University of York, York, United Kingdom; 3. PRESTO, Japan Science and Technology Agency, Kawaguchi, Saitama, Japan; 4. Nagaoka University of Technology, Nagaoka, Niigata, Japan; 5. Department of Physics, The University of York, York, United Kingdom*

AR-09. The influence of annealing on the bimodal distribution of blocking temperatures of exchange biased bilayers. *J. Ventura* [1], J.M. Teixeira[1], E. Paz[2], J.S. Amaral[1,3], J.D. Costa[1], J.P. Araujo[1], S. Cardoso[4,5], R. Ferreira[2] and P.P. Freitas[4,5] *1. IFIMUP, Porto, Portugal; 2. International Iberian Nanotechnology Laboratory, Braga, Portugal; 3. CICECO, Aveiro, Portugal; 4. INESC-MN, Lisbon, Portugal; 5. Instituto Superior Tecnico, Lisboa, Portugal*

AR-10. Influence of morphology on nanoscale magnetism of Co nanoparticles: Experimental and theoretical aspects of exchange bias. *O. Iglesias* [1,6], K. Simeonidis[2], C. Martinez-Boubeta[3,6], A. Cabot[3,4], M. Angelakeris[2], S. Mourdikoudis[2], I. Tsiaoussis[2], A. Delimitis[5], C. Dendrinou-Samara[2] and O. Kalogirou[2] *1. Física Fonamental, University of Barcelona, Barcelona, Spain; 2. Aristotle University of Thessaloniki, Thessaloniki, Greece; 3. Dpt. d'Electronica, Universitat de Barcelona, Barcelona, Spain; 4. Catalonia Institute for Energy Research IREC, Barcelona, Spain; 5. Centre for Research & Technology—Hellas (CERTH), Thessaloniki, Greece; 6. Institute of Nanoscience and Nanotechnology of the UB(IN2UB), Barcelona, Spain*

AR-11. Exchange bias and spin wave resonance in NiFe/FeMn/Co trilayers. *F. Pelegrini* [1], L.J. Santos[1], M. Tafur[2], W. Alayo[2] and E. Baggio-Saitovitch[2] *1. Instituto de Física, Universidade Federal de Goiás, Goiânia, Goiás, Brazil; 2. Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Rio de Janeiro, Brazil*

TUESDAY MORNING 8:00

EXHIBITION HALL A

Session AS
SOFT MAGNETIC MATERIALS, META MATERIALS, AND MULTIFERROICS (Poster Session)

Sybille Flohrer, Session Chair
Siemens AG

AS-01. Investigation of domain wall propagation in sub-micron glass covered wires by combining magneto-optical kerr effect and Sixtus-Tonks effect. *T. Mihai* [1], L. Mihaela[1], T. Adrian[1] and C. Horia[1] *1. Magnetic Materials and Devices, National Institute of Research and Development Iasi, Iasi, Romania*

AS-02. As cast nanocrystaline glass coated microwires obtained by rapid quenching from the melt. S. Corodeanu[1], *H. Chiriac* [1] and T. Ovari[1] *1. National Institute of Research & Development for Technical Physics, Iasi, Romania*

AS-03. Anomalous magnetization behavior of Fe-N films deposited by pulsed laser deposition. *J. Li* [1], Y. Jiang[1], T. Ma[1] and M. Yan[1] *1. Department of Materials Science & Engineering, Zhejiang University, Hangzhou, China*

AS-04. Fabrication of (CoxFe1-x)-B amorphous particles with magnetic softness. *Y. Shimada* [1], Y. Endo[1], M. Yamaguchi[1], S. Okamoto[2] and O. Kitakami[2] *1. Electrical and Comminication Engineering, Tohoku University, Sendai, Miyagi, Japan; 2. IMRAM, Tohoku University, Sendai, Miyagi, Japan*

AS-05. Investigation of electrodeposited FeNi film prepared from citric acid based bath. *T. Shimokawa* [1], Y. Takeshi[1], K. Takahashi[1], M. Nakano[1] and H. Fukunaga[1] *1. Nagasaki University, Nagasaki, Japan*

AS-06. High frequency soft magnetic performance on magnetically isotropic Co-Al-N films in external bias field. *H. Kijima* [1], Y. Zhang[1], N. Kobayashi[2], S. Ohnuma[1,2] and H. Masumoto[1] *1. Center for interdisciplinary research, Tohoku University, Sendai, Japan; 2. Research Institute for Electromagnetic Materials, Sendai, Japan*

AS-07. Improvement of microwave magnetic properties by insert non-magnetic layer. C. Jiang[1], C. Dong[1], G. Wang[1] and *D. Xue* [1] *1. Key Laboratory for Magnetism and Magnetic Materials of MOE, Lanzhou, China*

AS-08. Experimental data for locating VSM pickup coils and minimizing the image effect. *B.E. Lorenz* [1] and C.D. Graham[2] *1. Electrical Engineering, Widener University, Chester, PA; 2. Materials Science, University of Pennsylvania, Philadelphia, PA*

AS-09. The Influence of a stray magnetic field and NiFe samples of varying thickness on its magnetic properties in confocal sputtering. *B. Li* [1] and J. Kosel[1] *1. Physical Science and Engineering Division, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia*

AS-10. Size Effect in Microwave Characristics of Fe_3O_4 Nanoparticles Prepared under Different Concentration of Sodium Alginate. *R. Yang* [1], W. Liang[1], W. Chen[3], J. Liu[3] and C. Lin[2] *1. Aerospace and Systems Engineering, Feng Chia University, Taichung, Taiwan; 2. Department of Materials Science and Engineering, Feng Chia University, Taichung, Taiwan; 3. Department of Chemical and Materials Engineering, National Yunlin University of Science and Technology, Yunlin, Taiwan*

AS-11. The Role of Magneto-Elastic Field Related to Underlayers on Magnetic Properties of FeCo Thin Films. H. Xie[1], J. Bai[1], *F. Wei* [1] and D. Wei[2] *1. Key Laboratory for Magnetism and Magnetic Materials of the Ministry of Education, Research Institute of Magnetic Materials, Lanzhou University, Lanzhou, Gansu, China; 2. Materials Science and Engineering, Tsinghua University, BeiJing, China*

AS-12. Influence of stress on two-dimensional magnetostriction of a non-oriented electrical steel sheet. Y. Kai[1,2], Y. Tsuchida[2], T. Todaka[2] and *M. Enokizono* [2] *1. Oita Prefectural Organization for Industry Creation, Oita, Japan; 2. Oita University, Oita, Japan*

AS-13. EPR and susceptibility measurements of doped $LAMn_{1-x}A_xO_3$ (A=Co,Ni) samples synthesized by nitrate–citrate sol–gel process. *J.A. Olarte* [1] and M.C. Cifuentes[2] *1. Facultad Tecnológica, Universidad Distrital "Francisco José de Caldas", Bogotá, Cundinamarca, Colombia; 2. Departamento de Física, Universidad Pedagógica Nacional, Bogotá, Cundinamarca, Colombia*

AS-14. Electric-field-controlled magnetic responses in Metglas and lead zirconate titanate laminated composite. *H. Xuan* [1], D. Wang[1] and Y. Du[1] *1. Department of Physics, Nanjing University, Nanjing, Jiangsu, China*

AS-15. Effect of D03 ordered phase on iron loss of 6.5 wt% grain-oriented silicon steel. *H. Jung* [1], M. Na[1], S. Kim[2] and J. Kim[1] *1. Metallurgy and Material Science, HanYang University, Ansan, Republic of Korea; 2. Green growth laboratory, Korea Electric Power Research Institute, Daejeon, Republic of Korea*

AS-16. The enhancement of microwave permeability in composites with flake-shaped submicron carbonyl iron particles. *M. Abshinova* [1], S. Matitsine[1] and L. Liu[1] *1. Temasek Laboratories, National University of Singapore, Singapore, Singapore*

TUESDAY MORNING 8:00

EXHIBITION HALL A

Session AT
WIND GENERATORS AND AXIAL FLUX MACHINES
(Poster Session)

Guy Lemarquand, Session Chair
Universite du Main

AT-01. Combination and optimization of NdFeB magnet arrays fixed with carbon fiber materials for improvement of Lorentz force velocimetry on electrolytes. *M. Werner* [1] and B. Halbedel[1] *1. Department of Inorganic-Nonmetallic Materials, University of Technology Ilmenau, Ilmenau, Germany*

AT-02. 3D analytical modeling of no-load magnetic field of ironless axial flux permanent magnet machine. *B. Ge* [1,2], Y. Huang[1,2], J. Dong[1,2], H. Lin[1,2], J. Zhu[3] and Y. Guo[3] *1. School of Electrical Engineering, Southeast University, Nanjing, Jiangsu, China; 2. Engineering Research Center for Motion Control of Ministry of Education, Southeast University, Nanjing, Jiangsu, China; 3. School of Electrical, Mechanical and Mechatronic Systems, University of Technology Sydney, Sydney, NSW, Australia*

AT-03. Design and Electromagnetic Field Characteristic Analysis of 1.5kw Small Scale Wind Power PM Generator for Substitution of Rare-Earth to Rare-Earth-Free magnet. S. Jang[1], *H. Seo* [1], Y. Park[1], H. Park[1] and J. Choi[1] *1. Electrical Engineering, Chungnam Nat'l Univ, Daejeon, Republic of Korea*

AT-04. Magnetic Field Analysis of Polar Anisotropic Ferrite Bonded Considering Magnetizing Process. *S. Lee* [1], S. Kim[2], J. Lee[3] and J. Hong[1] *1. Department of Automotive Engineering, hanyang university, Seoul, Republic of Korea; 2. Material & Device Research Center, Samsung Advanced Institute of Technology, Gyeonggi, Republic of Korea; 3. Intelligent Mechatronics Research Center, KETI, Gyeonggi, Republic of Korea*

AT-05. Current Harmonics Loss Analysis of Permanent Magnet Synchronous Motor through Co-analysis of Current-Control and Finite Element Method. *T. Jeong* [1], K. Kim[2], I. Jang[1], K. Lee[1], J. Han[1] and J. Lee[1] *1. Electrical Engineering, Hanyang University, Seoul, Republic of Korea; 2. Electrical Engineering, Hanbat University, Daejeon, Republic of Korea*

AT-06. Characteristic Analysis on Axial Flux Permanent Magnet Generator considering Turbine Characteristic according to Wind Speed for 500W Scale Application. *Y. Park* [1], S. Jang[1], J. Choi[1], J. Choi[1] and D. You[2] *1. Chungnam National University, Daejoen, Republic of Korea; 2. Cheongyang Provincial College, cheongyang, Republic of Korea*

AT-07. Characteristic Analysis on the Influence of Misaligned Rotor Position of Double-Sided Axial Flux Permanent Magnet Machine and Experimental Verification. S. Jang[1], *M. Koo* [1], Y. Park[1], J. Choi[1] and S. Lee[2] *1. Electrical Engineering, Chungnam National University, Daejeon, Republic of Korea; 2. Materials & Components, Korea Institute of Industrial Technology, Kwangju, Republic of Korea*

AT-08. Design Criteria of Axial Flux Machine with Double Side Permanent Magnet Rotor and Slotless Stator Based on Analytical Method. S. Jang[1], *J. Jeong* [1], Y. Park[1], J. Choi[1] and K. Lee[1] *1. Electrical Engineering, Chungnam National University, Daejeon, Republic of Korea*

AT-09. Temperature Estimation of IPMSM using Thermal Equivalent Circuit. *B. Lee* [1], K. Kim[1] and J. Hong[1] *1. Department of Automotive Engineering, Hanyang University, Seoul, Republic of Korea*

AT-10. Study on Acoustic Emission Technique Induced by Electromagnetic Exciting at Different Exciting Current. *L. Jin* [1] *1. School of Electrical Engineering & Automation, Tianjin Polytechnic University, Tianjin, China*

AT-11. Flux Absorbing Structure in Permanent-Magnet Motor for Field Control Using Axial-directional Mechanical Movement. *Y. Pyo* [1], H. Choi[2] and I. Park[1] *1. School of Information and Communication Engineering, Sungkyunkwan University, Suwon, Republic of Korea; 2. School of Electrical Engineering, Kyungpook National University, Sangju, Republic of Korea*

AT-12. Design study of dual stator axial field permanent magnet generator for small wind turbine. *G. Lee* [1] and T. Jung[1] *1. Electrical Engineering, Kyungnam university, Chang Won, Republic of Korea*

AT-13. Investigation on magnetization of a new anisotropic bonded NdFeB PM by combining finite-element method and scalar J-A hysteresis model. *Z. Dianhai* [1] and K. Chang-Seop[1] *1. Chungbuk National university, Cheongju, Republic of Korea*

AT-14. Non-linear modeling of magnetization loss in permanent magnets. R. Fratila[1,2], *A. Benabou* [1], T. Abdelmounaim[1] and J. Mipo[2] *1. L2EP, Université Lille 1, Villeneuve d'Ascq, France; 2. Valeo, Créteil, France*

AT-15. Improved Control Parameter Estimation of Axial Flux Permanent Magnet Synchronous Machine with Ring-wound Type Slotless Stator based on Electromagnetic Field Theory. *H. Park* [1], S. Jang[1], K. Kim[1], J. Choi[1] and I. Kim[2] *1. Department of Electrical Engineering, Chungnam National University, Daejeon, Republic of Korea; 2. Department of Mechanical Engineering, Hoseo University, Cheonan, Republic of Korea*

TUESDAY
MORNING
8:00

EXHIBITION HALL A

Session AU
MOTORS AND ACTUATORS I
(Poster Session)

Andy Knight, Session Chair
University of Alberta

AU-01. Combined Coupled Circuit-Field-Electromechanical Analysis of Rotor-Wound Induction Motors. *W. Wang* [1], K. Cheng[1] and K. Ding[1] *1. The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

AU-02. Finite Element Analysis of a 1.0MW Doubly Excited Brushless Machine for Wind Power Generation System. *H. Liu* [1], L. Xu[2] and W. Fu[3] *1. School of Electrical Engineering, Beijing Jiaotong University, Beijing, China; 2. Department of Electrical & Computer Engineering, The Ohio State University, Columbus, OH; 3. Department of Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, China*

AU-03. A Ferrite PM In-Wheel Motor without Rare Earth Materials for Electric City Commuters. *K. Sone* [1], M. Takemoto[1], S. Ogasawara[1], K. Takezaki[2] and H. Akiyama[2] *1. Hokkaido University, Sapporo, Hokkaido, Japan; 2. Dynax Corporation, Chitose, Hokkaido, Japan*

AU-04. Analysis of Operation Characteristics Using Behavior Model in an IPM-type Axial Gap Motor for HEVs. *T. Arakawa* [1], M. Takemoto[1], S. Ogasawara[1], K. Inoue[2], O. Ozaki[2], H. Hojo[2] and H. Mitani[2] *1. Graduate School of Information Science and Technology, Hokkaido University, Kita-ku, Sapporo, Hokkaido, Japan; 2. Electronics Research Laboratory, KOBE STEEL., LTD., Kobe, Hyogo, Japan*

AU-05. Fractional Slot Concentrated Winding Permanent Magnet Synchronous Machine with Consequent Pole Rotor for Low Speed Direct Drive. *S. Chung* [1], Y. Chun[1], D. Koo[1], B. Woo[1], D. Hong[1] and J. Lee[1] *1. Electric Motor Research Center, KERI, Changwon, Republic of Korea*

AU-06. Design and Analysis of a Novel Hybrid Excited Linear Flux Switching PM Motor. *C. Hwang* [1], P. Li[2] and C. Liu[3] *1. Electrical Engineering, Feng Chia University, Taichung, Taiwan; 2. Ph.D. Program in ECE, Feng Chia University, Taichung, Taiwan; 3. Electrical Engineering, National Sun Yat-sen University, Kaohsiung, Taiwan*

AU-07. Optimal Suspension Winding Configuration in a Homo-polar Bearingless Motor. *J. Asama* [1], H. Fukuhara[1], R. Natsume[1], T. Oiwa[1] and A. Chiba[2] *1. Mechanical Engineering, Shizuoka University, Hamamatsu, Japan; 2. Electrical Engineering, Tokyo Institute of Technology, Tokyo, Japan*

AU-08. New line-starting method of a class of synchronous motors. *H. Tiegna* [1], Y. Amara[1] and G. Barakat[1] *1. University of Le Havre, Le Havre, France*

AU-09. A new approach for magnetic arc optimization to reduce cogging torque in surface mounted permanent magnet motors. D. Lin[1], S. Ho[2], *W. Fu* [2] and X. Lin[3] *1. Ansys Inc., Pittsburgh, PA; 2. 2Electrical Engineering Department, Hong Kong Polytechnic University, Hong Kong, Hong Kong; 3. 3Electrical and Computer Engineering Department, Carnegie Mellon University, Pittsburgh, PA*

AU-10. A linear vernier permanent magnet generator for Archimedes-wave-swing based wave farm. W. Li[1], K. Chau[1], C. Liu[1] and *Z. Zhang* [1] *1. Department of Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong, Hong Kong*

AU-11. Robust Multiobjective Optimization of PM Transverse Flux Machine Based on Design for Six Sigma. *G. Lei* [1,3], Y. Guo[1], J. Zhu[1], Z. Lin[1], W. Xu[2] and K. Shao[3] *1. University of Technology, Sydney, Sydney, NSW, Australia; 2. Huazhong University of Science and Technology, Wuhan, China; 3. RMIT University, Melbourne, QLD, Australia*

AU-12. Hybrid Mechanism of Magnetic inchworm-like robot based on looping motion for active locomotion. *S. Kim* [1], S. Hashi[1] and K. Ishiyama[1] *1. Tohoku university, RIEC, Sendai, Japan*

TUESDAY
MORNING
8:00

EXHIBITION HALL A

Session AV
MOTORS AND ACTUATORS II
(Poster Session)

Kazushi Ishiyama, Session Chair
Tohoku

AV-01. Cogging Torque Analysis and Reduction in Surface-mounted Permanent Magnet Synchronous Motor with Different Permanent Magnet Widths and Numerical Optimization. D. Wang[1,2], X. Wang[2] and *S. Jung* [1] *1. Sungkyunkwan University, Suwon, Republic of Korea; 2. Shandong University, Jinan, Shandong, China*

AV-02. Design of the high speed slotless PMBLDC motor for the application of dental handpiece. *G. Yan* [1], R. Lin[1], M. Jian[1] and C. Huang[2] *1. Micro/Meso Mechanical Manufacturing R&D Section, Metal Industries Research & Development Centre, Kaohsiung, Taiwan; 2. Codent Tech Co. Ltd, Kaohsiung, Taiwan*

AV-03. Design of Axial Flux Permanent Magnet Generator for Portable Hand Crank Generating System. *J. Lee* [1], D. Koo[1] and C. Han[2] *1. Korea Electrotechnology Research Institute, Changwon, Republic of Korea; 2. Agency for Defense Development, Daejeon, Republic of Korea*

AV-04. Forced vibration analysis of an IPM motor for electrical vehicles due to magnetic force. *K. Yim* [1], G. Jang[1], J. Jang[1] and M. Kim[2] *1. Dept. of Mechanical Engineering, PREM Lab., Hanyang University, Seoul, Republic of Korea; 2. Automotive Research and Development Division, Hyundai Motor Group, Kyeonggi-do, Republic of Korea*

AV-05. Dynamic Characteristics of Novel Two-DOF Resonant Actuator Driven by Vector Control. *T. Yoshimoto* [1], Y. Asai[1], K. Hirata[1] and T. Ota[2] *1. Osaka University, Suita-city, Osaka, Japan; 2. Panasonic Electric Works, Co., Ltd.,, Kadoma-city, Osaka, Japan*

AV-06. Loss & Efficiency Evaluations of SynRM According to Windings Type by Coupled Preisach Models & FEM and Experiment. J. Lee[1], *H. Song* [1] and Y. Rha[1] *1. Electrical Engineering, Hanbat National University, Daejeon, Republic of Korea*

AV-07. Fuzzy control for field weakening of HESM based on particle swarm optimization algorithm. *M. Huang* [1,2], H. Lin[1], P. Jin[1], J. Yan[1] and Z. Jia[1] *1. Southeast University, Nanjing, Jiangshu, China; 2. Henan Institute of Engineering, Zhengzhou, Henan, China*

AV-08. A rational iron loss assessment scheme for electromagnetic steel products. *C. Liu* [1], H. Lin[1] and C. Hwang[2] *1. Electrical Engineering, National Sun Yat-Sen University, Kaohsuing, Taiwan; 2. Electrical Engineering, Feng Chia University, Taichung, Taiwan*

AV-09. A novel Ohmic-Loss reduction control strategy for planar motor based on coil-switching method. *G. Zhou* [1], X. Huang[1] and H. Jiang[1] *1. School of Electrical Engineering, Southeast University, Nanjing, Jiangsu, China*

AV-10. Experimental measurement and simulation of the axial magnetic force in BLDC motors due to axial asymmetry of PM and stator. *J. Kim* [1], S. Sung[1] and G. Jang[1] *1. Dept. of Mechanical Engineering, PREM Lab., Hanyang University, Seoul, Republic of Korea*

AV-11. A Mapping Technique in Finite Element Method of Magnetic Field Computation for Reduction of Optimization Computation Time. S. Ho[1], N. CHEN[1] and *W. Fu* [1] *1. The Electrical Engineering Department, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

AV-12. Design and electromagnetic characteristic analysis according to pole shoe shape in salient-pole synchronous machine using 2-d finite element method. *C. Han* [1], J. Choi[1], H. Cho[2] and S. Jang[1] *1. Electrical Engineering, Chungnam national university, Daejeon, Republic of Korea; 2. Electric, Electronic & Communication Engineering Education, Chungnam national university, Daejeon, Republic of Korea*

TUESDAY
MORNING
8:00

EXHIBITION HALL A

Session AW
MOTORS AND ACTUATORS III (Poster Session)

Ping Zheng, Session Chair
Harbin Institute of Technology

AW-01. Static and transient analysis of a novel motor integrated permanent magnet gear. Y. Zhang[1], *K. Lu* [2] and P.O. Rasmussen[2] *1. Zhejiang University, Hangzhou, China; 2. Department of energy technology, Aalborg University, Aalborg, Denmark*

AW-02. Study on Reduction Cogging Torque of Interior Permanent Magnet Synchronous Motor Considering Tapping the Rotor and Barrier Flux Angle Using Response surface method. *C. Jin* [1], S. Kim[1], S. Lee[1] and K. Ju[1] *1. Samsung Techwin, Seongnam, Republic of Korea*

AW-03. Iron loss and inductance analysis considering magnetic nonlinearity in multi-segmented plate permanent magnet linear motor. *M. Mingna* [1], . Liyi[1] and C. Qingquan[1] *1. Harbin Institute of Technology, Harbin, China*

AW-04. An Advanced Low-speed High-torque Permanent Magnet Vernier In-Wheel Motor for Electric Vehicle. *J. Li* [1,2], K. Chau[1] and C. Liu[1] *1. Department of Electrical & Electronic Engineering, The University of Hong Kong, Hong Kong, Hong Kong; 2. College of Electrical and Computer Science, University of Michigan, Dearborn, MI*

AW-05. Optimal Design of Interior Permanent Magnet Brushless DC Motor. *Y. Li* [1], L. Hexiang[2], Z. Wei[1], C. Yongjuan[1], C. Weifeng[1] and L. Yujuan[1] *1. Department of Information Science and Engineering, Nanjing University of Information Science & Technology, Nanjing, China; 2. Electrical Engineering Department, Southeast University, Nanjing, China*

AW-06. Expectation of Performance of Permanent Magnet Spherical Motor by Analytical Method. *H. Park* [1] and J. Lee[1] *1. Hanyang University, Seoul, Republic of Korea*

AW-07. Design of Brushless Doubly-Fed Machines Based on Magnetic Circuit Modeling. *I. Lin* [1], M. Hsieh[1,2], Y. Hsu[1] and R.A. McMahon[2] *1. Systems and Naval Mechatronic Eng., National Cheng Kung University, Tainan, Taiwan; 2. Engineering, University of Cambridge, Cambridge, United Kingdom*

AW-08. Development of an IPMSM With Low Cogging Torque. *C. Wang* [1], Y. Yao[3], W. Yu[2], C. Chu[2] and Y. Chang[1] *1. Industrial Technology Research Institute, Hsinchu, Taiwan; 2. Department of Electrical R&D, Rechi Precision Co., LTD, Taoyuan, Taiwan; 3. Institute of Physics, Academia Sinica, Taipei, Taiwan*

AW-09. Optimum Shape Design of Interior-PM Motor Using Developed Relative Permeance Method With Considering Unique Magnetic Field Distortion Effect. *L. Fang* [1], B. Kang[2] and J. Hong[3] *1. EV Motor, HYOSUNG Corporation, Changwon, Gyeongsangnam-Do, Republic of Korea; 2. Rotating machinery, HYOSUNG Corporation, Changwon, Gyeongsangnam-Do, Republic of Korea; 3. Automotive Engineering, Hanyang University, Seoul, Republic of Korea*

AW-10. Phase Compensated Microstepping for Permanent Magnet Stepper Motors. *D. Shin* [1], W. Kim[1], Y. Lee[1] and C. Chung[1] *1. Electrical Engineering, Hanyang University, Seoul, Republic of Korea*

AW-11. Microstepping with Feedforward Current Filters for Permanent Magnet Stepper Motors. *Y. Lee* [1], D. Shin[1], W. Kim[1] and C. Chung[1] *1. Electrical Engineering, Hanyang University, Seoul, Republic of Korea*

AW-12. A novel stator surface-mounted permanent magnet motor for brushless DC drives. *H. Wei* [1], Z. Yilian[1], Z. Gan[1] and C. Ming[1] *1. School of Electrical Engineering, Southeast University, Nanjing, 210096, China*

AW-13. Advanced iron-loss estimation for nonlinear material behavior. *D. Eggers* [1], S. Steentjes[1] and K. Hameyer[1] *1. Institute of Electrical Machines, RWTH Aachen University, Aachen, Germany*

AW-14. Design and Analysis of 200kW Doubly Fed Brushless Machine for Variable-Speed Constant-Frequency Generating System. *H. Liu* [1], L. Xu[2] and W. Fu[3] *1. School of Electrical Engineering, Beijing Jiaotong University, Beijing, China; 2. Department of Electrical & Computer Engineering, The Ohio State University, Columbus, OH; 3. Department of Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, China*

AW-15. Magnetic signature of a three phase 4-pole induction machine. *C. Tol* [1] *1. Electric Power Technology, The Netherlands Organization of Applied Scientific Research, Delft, Zuid-Holland, Netherlands*

AW-16. Three Dimensional Analytic Modeling of the Field Distribution in a Conductive Region Due to a Moving Magnetic Rotor. *S. Paul* [1], D. Bobba[1] and J.Z. Bird[1] *1. Electrical and Computer Engineering, University of North Carolina at Charlotte, Charlotte, NC*

TUESDAY AFTERNOON 2:00 — BALLROOM A

Session BA
RECENT ADVANCES IN MAGNETIC RANDOM ACCESS MEMORY

Atsufumi Hirohata, Session Chair
University of York

2:00 BA-01. Progress and Prospects of Spin Transfer Torque Random Access Memory. ***(Invited)*** *E. Chen* [1], D. Apalkov[1], A. Driskill-Smith[1], A. Khvalkovskiy[1], D. Lottis[1], K. Moon[1], V. Nikitin[1], A. Ong[1], X. Tang[1], S. Watts[1], M. Krounbi[1], S.A. Wolf[2], J. Lu[2], S.J. Poon[2], A.W. Ghosh[2], M. Stan[2], W. Butler[3], T. Mewes[3], S. Gupta[3], C. Mewes[3], P. Visscher[3] and R.A. Lukaszew[4] *1. Grandis, Inc., Milpitas, CA; 2. University of Virginia, Charlottesville, VA; 3. University of Alabama, Tuscaloosa, AL; 4. College of William and Mary, Williamsburg, VA*

2:30 BA-02. Ultimate downsize scalability of perpendicular STT MRAM thanks to thermal assistance. ***(Invited)*** *S. Bandiera* [1,2], R.C. Sousa[1], M. Marins de Castro Souza[1], C. Ducruet[2], C. Portemont[2], S. Auffret[1], L. Vila[3], L. Prejbeanu[2] and B. Dieny[1] *1. SPINTEC, Grenoble, France; 2. Crocus Technology, Grenoble, France; 3. CEA SP2M/NM, Grenoble, France*

3:00 BA-03. Status of ST-MRAM Development at Everspin Technologies. ***(Invited)*** *J. Slaughter* [1], N.D. Rizzo[1], D. Houssameddine[1], F.B. Mancoff[1], R. Whig[1], J.J. Sun[1], J. Janesky[1], S. Aggarwal[1], K. Nagel[1] and S. Deshpande[1] *1. 220, Everspin Technologies, Inc., Chandler, AZ*

3:30 **BA-04. Spin Torque MRAM Using Perpendicular Magnetic Tunnel Junctions.** ***(Invited)*** *D. Worledge* [1], D.W. Abraham[1], S. Brown[1], M.C. Gaidis[1], M. Gajek[1], G. Hu[1], K. Kita[1,2], J. Nowak[1], E.J. O'Sullivan[1], R.P. Robertazzi[1], J.Z. Sun[1], P.L. Trouilloud[1] and W.J. Gallagher[1] *1. IBM-MagIC MRAM Alliance, IBM TJ Watson Research Center, Yorktown Heights, NY; 2. Department of Materials Engineering, The University of Tokyo, Tokyo, Japan*

4:00 **BA-05. Scaling of Switching and Data Retention Distributions in CoFeB-based Perpendicular STT-MRAM Arrays.** ***(Invited)*** *R. Beach* [1], G. Jan[1], Y. Wang[1], Y. Chin[1], C. Torng[1] and P. Wang[1] *1. Headway/TDK-IBM MRAM Alliance, Milpitas, CA*

4:30 **BA-06. FABRICATION TECHNIQUES FOR RAPID EVALUATION OF POTENTIAL SPINTRONIC MEMORY TECHNOLOGIES.** ***(Invited)*** *J. Katine* [1] *1. SJ Research, Hitachi GST, San Jose, CA*

TUESDAY AFTERNOON 2:00 — BALLROOM B

Session BB
FUNDAMENTAL PROPERTIES AND INTERDISCIPLINARY TOPICS

Yongbing Xu, Session Chair
The University of York

2:00 **BB-01. Giant Magneto-Thermal Conductivity in Magnetic Multilayers.** T. Jeong[1], M.T. Moneck[1] and *J. Zhu* [1] *1. Data Storage Systems Center, Carnegie Mellon University, Pittsburgh, PA*

2:30 **BB-02. Low T_C Fe-Cr-Nb-B glassy alloys with variable Cr content for high sensitive temperature sensors.** *N. Lupu* [1], C. Hlenschi[1], F. Borza[1] and H. Chiriac[1] *1. Magnetic Materials and Devices, National Institute of Research and Development for Technical Physics, Iasi, Romania*

2:45 **BB-03. The Prospect of STT-RAM Scaling from Read ability Perspective.** *Y. Zhang* [1], W. Wen[1] and Y. Chen[1] *1. ECE, University of Pittsburgh, Pittsburgh, PA*

3:00 **BB-04.** **Magnetic transition driven by Antiferromagnetic ordering in NiO/$Co_{0.10}Ni_{0.90}$/Cu(001) ultrathin films.** *Y. Shih* [1], W. Shen[1], K. Lee[1] and W. Pan[1] *1. Physics, National Chung Cheng University, Chia-Yi, Taiwan*

3:15 **BB-05.** **Femtosecond demagnetization in Ni: Electron-phonon spin flip scattering from first principles.** *K. Carva* [1,2], M. Battiato[2] and P.M. Oppeneer[2] *1. Department of Condensed Matter Physics, Charles University in Prague, Prague, Czech Republic; 2. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden*

3:30 **BB-06.** **Geometrical Enhancement of Low-Field Magnetoresistance in Silicon.** ***(Invited)*** *X. Zhang* [1,2] *1. Laboratory of Advanced Materials, Department of Materials Science and Engineering, Tsinghua University, Beijing, China; 2. Beijing National Center for Electron Microscopy, Beijing, China*

4:00 **BB-07.** **Analysis of cationic impurity impact on hyperfine interactions in magnetite.** *R. Reznicek* [1], H. Stepankova[1], V. Chlan[1], P. Novak[2] and A. Kozlowski[3] *1. Faculty of Mathematics and Physics, Charles University in Prague, Praha 8, Czech Republic; 2. Institute of Physics AS CR, Prague 6, Czech Republic; 3. Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, Krakow, Poland*

4:15 **BB-08.** **Polymeric composite foams with properties controlled by the magnetic field.** D. Davino[1], P. Mei[1], L. Sorrentino[2] and *C. Visone* [1] *1. Engineering Department, University of Sannio, Benevento, Italy; 2. Institute for Composite and Biomedical Materials, National Research Council, Portici, NA, Italy*

4:30 **BB-09.** **Ab initio study of magnetism of clean and impurity-decorated grain boundaries in nickel.** M. Vsianska[1,2] and *M. Sob* [1,3] *1. Central European Institute of Technology, CEITEC MU,Masaryk University, Brno, Czech Republic; 2. Dept. of Chemistry, Masaryk University, Brno, Czech Republic; 3. Institute of Physics of Materials, Academy of Sciences of the Czech Republic, Brno, Czech Republic*

4:45 **BB-10.** **Site-preferential design of new itinerant magnetic borides with Th7Fe3 type structure: Experimental and theoretical investigations.** *B.P. Fokwa* [1] *1. RWTH Aachen University, Aachen, Germany*

TUESDAY AFTERNOON 2:00 BALLROOM C

Session BC
MAGNETIC SEMICONDUCTORS AND SPIN TRANSPORT IN ORGANIC MATERIALS

Daichi Chiba, Session Chair
Kyoto University

2:00 BC-01. Magnetic properties of $Ga_{1-x}Mn_xAs$/Ge heterojunctions. *J.C. Leiner* [1], X. Liu[1], J. Furdyna[1] and M. Dobrowolska[1] *1. Physics, University of Notre Dame, Notre Dame, IN*

2:15 BC-02. Impact of current paths on measurement of tunneling magneto-resistance and critical current densities in GaMnAs-based magnetic tunnel junctions. *A. Ben Hamida* [1], F. Bergmann[1], K. Pierz[1] and H. Schumacher[1] *1. Physikalisch-Technische Bundesanstalt, 38116 Braunschweig, Germany*

2:30 BC-03. Joule Heating and Current-Induced Domain Wall Motion in (Ga,Mn)(As,P). J. Curiale[1,2], *V. Jeudy* [1,3], A. Lemaître[2] and G. Faini[2] *1. Université Paris Sud Orsay, Orsay, France; 2. LPN-CNRS, Marcoussis, France; 3. Université Cergy Pontoise, Cergy Pontoise, France*

2:45 BC-04. Electric field control of domain wall motion in Ferromagnet/Semiconductor heterostructure with inhomogeneous carriers distribution. *V. Stephanovich* [1], X. Duan[2], E. Kirichenko[3], Y.G. Semenov[2] and K. Kim[2] *1. Institute of Physics, Opole University, Opole, Poland; 2. Electrical and Computer Engineering, North Carolina State University, Raleigh, NC; 3. Institute of Mathematics and Informatics, Opole University, Opole, Poland*

3:00 BC-05. Experimental observation of the optical spin transfer torque. *P. Nemec* [1], E. Rozkotova[1], N. Tesarova[1], F. Trojanek[1], P. Maly[1], V. Novak[2], K. Olejnik[2], M. Cukr[2] and T. Jungwirth[2] *1. Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic; 2. Institute of Physics ASCR, v.v.i., Prague, Czech Republic*

3:15 BC-06. Electrical switching of the magnetic phase in Mn-doped ZnO. X. Wang[1], C. Leung[2], R. Lortz[3] and *A. Ruotolo* [1] *1. Department of Physics and Materials Science, City University of Hong Kong, Kowloon, Hong Kong; 2. Department of Applied Physics and Materials Research Centre, Hong Kong Polytechnic University, Kowloon, Hong Kong; 3. Department of Physics, Hong Kong University of Science and Technology, Kowloon, Hong Kong*

3:30 BC-07. Room-temperature ferromagnetism induced by defects in pure and zinc-doped SnO2 thin films. *Y. Jiang* [1], Y. Li[1] and M. Yan[1] *1. Department of Materials Science and Engineering, Zhejiang University, Hangzhou, Zhejiang, China*

3:45 BC-08. Electron spin resonance study of GdN/GaN superlattice. K. Tivakornsasithorn[1], *X. Liu* [1], M. Dobrowolska[1], J.K. Furdyna[1], T.F. Kent[2], J. Yang[2] and R.C. Myers[2] *1. Physics, University of Notre Dame, Notre Dame, IN; 2. Materials Science and Engineering, Ohio State University, Columbus, OH*

4:00 BC-09. Molecular spintronics using Self-Assembled Monolayers. C. Barraud[1], S. Tatay[1], M. Galbiati[1], *R. Mattana* [1], P. Seneor[1], E. Jacquet[1], C. Deranlot[1], A. Fert[1] and F. Petroff[1] *1. Unité Mixte de Physique CNRS/Thales, Palaiseau, France*

4:15 BC-10. Characterization of the spin-dependent properties of hybrid ferromagnetic metal-organic interfaces for advanced organic spintronics. *M. Cinchetti* [1], T. Methfessel[2], S. Steil[1], N. Baadji[3], N. Grossmann[1], S. Sanvito[3], H. Elmers[2] and M. Aeschlimann[1] *1. Department of Physics, University of Kaiserslautern, Kaiserslautern, Germany; 2. Institute of Physics, University of Mainz, Mainz, Germany; 3. School of Physics and CRANN, Trinity College Dublin, Dublin, Ireland*

4:30 BC-11. Magnetotransport and exchange bias in hybrid C_{60} devices and nanocontacts. *M.C. Wheeler* [1], B.J. Hickey[1] and O. Céspedes[1] *1. School of Physics and Astronomy, University of Leeds, Leeds, West Yorkshire, United Kingdom*

4:45 BC-12. Room-Temperature tunnel magnetoresistance in self-assembled chemically-prepared nanoparticles superlattices. *J. Dugay* [1], R.P. Tan[1], A. Meffre[1], T. Blond[1], L.M. Lacroix[1], J. Carrey[1], P.F. Fazzini[1], S. Lachaize[1], B. Chaudret[1] and M. Respaud[1] *1. LPCNO, Toulouse, France*

TUESDAY
AFTERNOON
2:00

MEETING RM 11/12

Session BD
SPIN TRANSPORT IN METALLIC SYSTEMS

Takashi Kimura, Session Chair
Kyushu University

2:00 **BD-01.** **CPP-GMR devices using half-metallic $Co_2Fe_xMn_{1-x}Si$ electrodes : The effect of Fe substitution in Co_2MnSi on MR properties.** *M. Ueda* [1], Y. Sakuraba[1] and K. Takanashi[1] *1. Tohoku University, Institute for Materials Research, Aoba-ku, Sendai, Miyagi, Japan*

2:15 **BD-02.** **Large magnetoresistance in CPP-GMR pseudo spin valves using $Co_2MnGa_{0.25}Ge_{0.75}$ Heusler alloy.** *N. Hase* [1,2], B. Varaprasad[2], Y.K. Takahashi[2] and K. Hono[2,1] *1. University of Tsukuba, Tsukuba, Ibaraki, Japan; 2. National Institute for Materials Science, Tsukuba, Ibaraki, Japan*

2:30 **BD-03.** **Double signal in 3 terminal non-local spin valves.** X. Wang[1], N. Smith[1], P. Braganca[1], K. Pi[1] and *B. Gurney* [1] *1. Hitachi Global Storage Tech, San Jose, CA*

2:45 **BD-04.** **Spin shot noise in non-local spin valve devices.** *K. Pi* [1], N. Smith[1], S. Garzon[1] and B. Gurney[1] *1. Hitachi Global Storage Technologies, San Jose, CA*

3:00 **BD-05.** **Hanle effect with in-plane magnetic fields in metallic lateral spin valves.** *J.C. Rojas Sánchez* [1,2], P. Laczkowski[1,2], M. Cubukcu[1,2], W. Savero Torres[1,2], L. Vila[1,2], A. Marty[1,2], M. Jamet[1,2] and J. Attané[1,2] *1. NM,SP2M, INAC, CEA Grenoble, Grenoble, France; 2. Université Joseph Fourier, Grenoble, France*

3:15 **BD-06.** **A field-tuned, non-volatile, variable resistor.** *Y. Fang* [1], N.T. Anh[2], S.M. Mohensi[2], S. Chung[2], R.K. Dumas[1] and J. Åkerman[1,2] *1. Department of Physics, University of Gothenburg, Gothenburg, Sweden; 2. Materials Physics, Royal Institute of Technology (KTH), Stockholm, Sweden*

3:30 **BD-07.** **Spin dependent Seebeck coefficients of Permalloy (Ni80Fe20) and Cobalt (Co).** *F.K. Dejene* [1], J. Flipse[1], F.L. Bakker[1] and B.J. van Wees[1] *1. Physics of Nanodevices, Zernike Institute of Advanced Materials, University of Groningen, Groningen, Netherlands*

3:45 **BD-08.** **Anomalous Nernst and Hall effects in perpendicularly magnetized epitaxial FePt thin films.** *M. Mizuguchi* [1], K. Hasegawa[1], K. Uchida[1], E. Saitoh[1] and K. Takanashi[1] *1. Institute for Materials Research, Tohoku University, Sendai, Japan*

4:00 **BD-09.** **Temperature dependence of spin pumping at Bi1Y2Fe5O12/Pt interface.** *R. Iguchi* [1], K. Ando[2], T. Ando[2], E. Saitoh[2] and T. Sato[1] *1. Keio University, Yokohama, Japan; 2. IMR, Tohoku University, Sendai, Japan*

4:15 **BD-10.** **Tunable resistivity of individual magnetic DWs.** *J. Franken* [1], M. Hoeijmakers[1], H. Swagten[1] and B. Koopmans[1] *1. Applied Physics, Eindhoven University of Technology, Eindhoven, Netherlands*

4:30 **BD-11.** **Spin transfer effect in FePt nanowires: controlling the stochasticity of domain wall depinning using constrictions.** *V. Nguyen* [1,2], L. Vila[1,2], A. Marty[1,2], L. Notin[1,2], C. Beigné[1,2], S. Pizzini[2,3] and J. Attane[1,2] *1. SP2M/INAC/CEA, Grenoble, France; 2. University of Joseph Fourier, Grenoble, France; 3. Institut Néel, CNRS, Grenoble, France*

4:45 **BD-12.** **Optical measurement of magnon temperature in a magnetic insulator.** *V.I. Vasyuchka* [1], M. Agrawal[1], A.A. Serga[1], A.V. Chumak[1] and B. Hillebrands[1] *1. Fachbereich Physik and Landesforschungszentrum OPTIMAS, TU Kaiserslautern, Kaiserslautern, Germany*

TUESDAY AFTERNOON 2:00 PARKVIEW 1

Session BE
SOFT MAGNET APPLICATIONS I

Akimitsu Morisako, Session Chair
Shinshu University

2:00 **BE-01.** **Vector Magnetic Characteristic Technology for Development of Super Premium Efficiency (IE4 Level) Motor.** ***(Invited)*** *M. Enokizono* [1] *1. Oita University, Oita, Japan*

2:30 BE-02. A New High Flux Density Non-Oriented Electrical Steel Sheet and Its Motor Performance. *H. Toda* [1], Y. Oda[1], M. Kohno[2], M. Ishida[1] and Y. Zaizen[1] *1. Steel Research Lab, JFE Steel Corporation, Kurashiki, Okayama, Japan; 2. West Japan Works, JFE Steel Corporation, Kurashiki, Okayama, Japan*

2:45 BE-03. An improved force distribution function for linear switched reluctance motor on force ripple minimization with nonlinear inductance modeling. J. Pan[1], *N.C. Cheung* [2] and Y. Zou[1] *1. Department of Automation Science, College of Mechatronics and Control Engineering, Shenzhen University, Shenzhen, Guangdong, China; 2. Electrical Engineering, Hong Kong Polytechnic University, Hong Kong, China*

3:00 BE-04. Design of a DC motor made of soft magnetic composite core by the experimental design method. *T. Ishikawa* [1], S. Sato[2], S. Takeguchi[2] and A. Matsuo[2] *1. Electronic Engineering, Gunma University, Kiryu, Japan; 2. Nippon Piston Ring Co., Ltd., Shimotsuga-gun, Japan*

3:15 BE-05. Effect of the Frequency and Voltage Variation on the Force of an Inductor Planar Actuator. A.F. Flores Filho[1] and *N.F. Baggio Filho* [1] *1. Federal University of Rio Grande do Sul, Porto Alegre, Brazil*

3:30 BE-06. Integrated power micro-inductor design incorporating shape-dependent permeability effects. *B. Jamieson* [1,2], N. Wang[2] and S. Roy[2] *1. ABB Corporate Research, Krakow, Poland; 2. Tyndall National Institute, Cork, Ireland*

3:45 BE-07. Simultaneous Permittivity and Permeability Characteristics of Magnetically Biased Thin Ferrite Disk Using Rectangular Waveguide. M. Obol[1] and *M. Afsar* [2] *1. biomagnomics, Auburndale, MA; 2. Electrical and Computer Engineering, Tufts University, Medford, MA*

4:00 BE-08. Level set-based topology optimization for the design of a ferromagnetic waveguide. *M. Otomori* [1], T. Yamada[2], K. Izui[1], S. Nishiwaki[1] and N. Kogiso[3] *1. Mechanical Engineering and Science, Kyoto University, Kyoto, Kyoto, Japan; 2. Science and Mechanical Engineering, Nagoya University, Nagoya, Nagoya, Japan; 3. Aerospace Engineering, Osaka Prefecture University, Osaka, Osaka, Japan*

4:15 **BE-09. Synthesis of oleic-acid-coated $CoFe_2O_4$ nanoparticles by co-precipitation and hydrothermal method .** *S. Gyergyek* [1], D. Makovec[1] and M. Drofenik[1,2] *1. Jozef Stefan Institute, Ljubljana, Slovenia; 2. Faculty of Chemistry and Chemical Engineering, University of Maribor, Maribor, Slovenia*

4:30 **BE-10. Controlling the exchange spring nature in the Strontium Ferrite–Cobalt ferrite nanocomposite and its consequence on the magnetization reversal.** *D. Roy* [1], S. Venkata[1] and P. Kumar[1] *1. Physics, Indian Institute of Science, Bangalore, India*

4:45 **BE-11. An eddy current model describing the frequency dependence of the coercivity of soft magnetic materials.** *R. Groessinger* [1], D. Suess[1] and N. Mehboob[1] *1. Institut of Solid State Physics, Vienna, Austria*

TUESDAY **PARKVIEW 2/3**
AFTERNOON
2:00

Session BF
FUNCTIONAL MATERIALS: MAGNETOELASTICS

Ravi Hadimani, Session Chair
Iowa State University

2:00 **BF-01. Epitaxial NiMnGa/MgO(100) thin films with thickness ranging from 10 to 100 nm: a multiscale investigation.** *F. Albertini* [1], P. Ranzieri[1], S. Fabbrici[2,1], L. Nasi[1], L. Righi[3], F. Casoli[1], V. Chernenko[4,5], E. Villa[6] and C. Biffi[6] *1. IMEM-CNR, Parma, Italy; 2. MIST E-R Laboratory, Bologna, Italy; 3. Dipartimento di Chimica GIAF, Università di Parma, Parma, Italy; 4. Departamento Electricidad y Electronica, Universidad del Pais Vasco, Bilbao, Spain; 5. Iberbasque, Basque Foundation for Science, Bilbao, Spain; 6. IENI-CNR, Lecco, Italy*

2:15 **BF-02. Ni-Mn-Sn-Co for potential use as temperature-monitoring sensor materials.** *J. Liu* [1], O. Gutfleisch[1,2], B. Bergmair[3] and D. Suess[3] *1. Institute for Metallic Materials, IFW Dresden, Dresden, Germany; 2. Department of Materials Science, Technische Universität Darmstadt, Darmstadt, Germany; 3. SuessCo Kg, Vienna, Austria*

2:30 BF-03. Effect of magnetic field on martensitic transformation in Ni-Mn-In metamagnetic shape memory alloy. *V.A. Chernenko* [1,2], E. Cesari[3], J. Barandiaran[1], D. Salas[3], J. Gutierrez[1], P. Lazpita[1] and I. Orue[4] *1. University of Basque Country, Bilbao, Spain; 2. Ikerbasque, Basque Foundation for Science, Bilbao, Spain; 3. Universitat de les Illes Balears, Palma de Mallorca, Spain; 4. SGIker, University of the Basque Country, Leioa, Spain*

2:45 BF-04. Magnetostriction of ferromagnetic shape memory alloy $Ni_{2.27}Mn_{0.73}Ga$ studied in magnetic field up to 10 T. *V. Khovaylo* [1], I. Tereshina[2], G. Politova[2], A. Karpenkov[3] and T. Palewski[4] *1. National University of Science and Technology "MISiS", Moscow, Russian Federation; 2. Baikov Institute of Metallurgy and Materials Science RAS, Moscow, Russian Federation; 3. Faculty of Physics, Tver State University, Tver 170002, Russian Federation; 4. International Laboratory for High Magnetic Fields and Low Temperatures, Wroclaw 53-421, Poland*

3:00 BF-05. Dynamic modeling of magneto-rheological elastomer under shear deformation. *S. Eem* [1], H. Jung[1] and J. Koo[2] *1. KAIST, Daejeon, Republic of Korea; 2. Miami University, Oxford, OH*

3:15 BF-06. The effect of magnetic field annealing on polycrystalline Fe-Ga melt-spun ribbons. *N. Lupu* [1], I. Škorvánek[2], M. Grigoras[1], M. Tibu[1], J. Marcin[2] and H. Chiriac[1] *1. Magnetic Materials and Devices, National Institute of Research and Development for Technical Physics, Iasi, Romania; 2. Institute of Experimental Physics, Slovak Academy of Sciences, Kosice, Slovakia*

3:30 BF-07. Magnetostrictive Properties and Anisotropy in Non-Stochiometric Cobalt Ferrite. *C.I. Nlebedim* [1], A.J. Moses[2] and D.C. Jiles[3] *1. Ames Laboratory, US Department of Energy, Iowa State University, Ames, IA; 2. Wolfson Centre for Magnetics, School of Engineering, Cardiff University, Cardiff, Wales, United Kingdom; 3. Electrical and Computer Engineering, Iowa State University, Ames, IA*

3:45 BF-08. Magnetostrictive study of high strength steels with respect to rolling direction. *C. Burgy* [1,2], E. Della Torre[2], J. Restorff[1] and M. Wun-Fogle[1] *1. NSWCCD, West Bethesda, MD; 2. Electrical Engineering, The George Washington University, Washington, DC*

4:00 BF-09. Hysteretic modeling of electrical micro-power generators based on Villari effect. *M. Zucca* [1] and O. Bottauscio[1] *1. INRIM, Torino, Italy*

4:15 **BF-10. Energy harvesting tests with galfenol at variable magnetomechanical conditions.** D. Davino[1], A. Giustiniani[2], *C. Visone* [1] and A.A. Adly[3] *1. Dept. of Engineering, University of Sannio, Benevento, Italy; 2. DIEII, University of Salerno, Fisciano, Italy; 3. Elect. Power and Machines Dept., Cairo University, Giza, Egypt*

TUESDAY AFTERNOON 2:00

MEETING RM 8/15

Session BG
MOTORS, GENERATORS & ACTUATORS I

Jonathan Bird, Session Chair
University of North Carolina CC

2:00 **BG-01. Design and optimization of a novel small-sized linear vernier motor without mover magnets for artificial muscle applications.** *Y. Nakata* [1], T. Fujimoto[2], H. Ishiguro[1] and K. Hirata[2] *1. Systems Innovation, Osaka University, Toyonaka, Japan; 2. Adaptive Machine Systems, Osaka University, Suita, Japan*

2:15 **BG-02. Minimum Ripple Torque Design of Surface-mounted Permanent Magnet Motor Using Level Set Based Topology Optimization.** S. Oh[1], *S. Min* [1] and J. Hong[1] *1. Automotive Engineering, Hanyang University, Seoul, Republic of Korea*

2:30 **BG-03. Coupled 2D and 3D Eddy Current Analyses for Evaluating Eddy Current Loss of a Permanent Magnet in Surface PM Motors.** *T. Okitsu* [1,2], D. Matsuhashi[1], Y. Gao[2] and K. Muramatsu[2] *1. Research & Development Group, Meidensha Corporation, Tokyo, Japan; 2. Department of Electrical and Electronic Engineering, Saga University, Saga, Japan*

2:45 **BG-04. Continuously Variable Speed Vernier Magnetic Gear.** *A. Zaini* [1], N. Niguchi[1] and K. Hirata[1] *1. Department of Adaptive Machine Systems, Osaka University, Suita, Osaka, Japan*

3:00 **BG-05. Consideration of Eddy Current Loss Estimation in SPM Motor Based on Electric and Magnetic Networks.** *Y. Yoshida* [1], K. Nakamura[1] and O. Ichinokura[1] *1. Tohoku University, Sendai, Japan*

3:15 BG-06. Transient Performance Prediction for Selectively Passive Compulsator Based on Field-Circuit Coupling. *J. Li* [1,2], X. Yan[1], L. Lv[1], L. Tan[1], J. Tian[1] and J. Lou[2] *1. Xi'an Jiaotong University, High Voltage and Insulation, School of Electrical Engineering, Xi'an, Shaanxi, China; 2. Xi'an Jiaotong University, State Key Laboratory of Electrical Insulation and Power Equipment, School of Electrical Engineering, Xi'an, Shaanxi, China*

3:30 BG-07. Core loss calculation for soft magnetic composite electrical machines. *Y. Guo* [1], J. Zhu[1], Z. Lin[1] and Y. Li[2] *1. Faculty of Engineering and IT, University of Technology, Sydney, Sydney, NSW, Australia; 2. School of Electrical Engineering, Hebei University of Technology, Tianjin, China*

3:45 BG-08. Force and torque errors in planar actuators due to manufacturing tolerances. *J.M. Rovers* [1], J.W. Jansen[1] and E. Lomonova[1] *1. Eindhoven University of Technology, Eindhoven, Netherlands*

4:00 BG-09. Comparison of high pole number ultra-low speed generator designs using slotted and air-gap windings. *D. Dorrell* [1], S. Ngu[2] and C. Cossar[2] *1. University of Technology Sydney, Sydney, NSW, Australia; 2. Faculty of Engineering, University of Glasgow, Glasgow, United Kingdom*

4:15 BG-10. Transient Electromagnetic Characteristics in Passive Compulsator Based on Analytical Field Solutions. *J. Li* [1], X. Yan[1] and L. Lv[1] *1. Xi'an Jiaotong University, High Voltage and Insulation Institute, School of Electrical Engineering, P.R. China, China*

4:30 BG-11. A New Hybrid Analytical Model for Saturated Permanent Magnet Synchronous Machines. H. Tiegna[1], Y. Amara[1] and *G. Barakat* [1] *1. GREAH, University of Le Havre, Le Havre, France*

4:45 BG-12. Optimal design of a grid-connected to rotor type doubly fed Induction generator for wind turbine system. *Y. You* [1], T.A. Lipo[2] and B. Kwon[1] *1. Hanyang Univ., Ansan, Republic of Korea; 2. Univ. of Wisconsin-Madison, Madison, WI*

TUESDAY
AFTERNOON
2:00

MEETING RM 13

Session BH
NANOWIRES I

Hao Zeng, Session Chair
University at Buffalo, SUNY

2:00 **BH-01. Theory of Structural and Magnetic Property Changes Due to Radiation Effects in Magnetic Nanomaterials.** *J. Sundararajan* [1], M. Kaur[1], T. Schimel[1], W. Jiang[2], J. McCloy[2] and Y. Qiang[1] *1. Physics, University of Idaho, Moscow, ID; 2. EMSL, Pacific Northwest National Laboratory, Richland, WA*

2:15 **BH-02. Magnetization reversal processes in ordered arrays of electrodeposited Ni nanowires and nanotubes.** *M.P. Proenca* [1,2], C.T. Sousa[1], J. Ventura[1], M. Vazquez[2] and J.P. Araujo[1] *1. Dep. Física e Astronomia, IFIMUP and IN - Institute of Nanoscience and Nanotechnology, Porto, Portugal; 2. Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain*

2:30 **BH-03. Magnetization reversal of single epitaxial Co(111) nanowires with step induced anisotropy.** *A.V. Davydenko* [1], Y.P. Ivanov[1,2], E.V. Pustovalov[1], A.V. Ognev[1] and L.A. Chebotkevich[1,2] *1. School of natural science, Far Eastern Federal University, Vladivostok, Russian Federation; 2. Department of surface science, Institute of Automation and Controll Processes, Vladivostok, Russian Federation*

2:45 **BH-04. Magnetic structure of electrodeposited cobalt nanowires.** L.G. Vivas[1], *I.P. Ivanov* [1], O. Iglesias-Freire[1], A. Asenjo[1], O. Chubykalo-Fesenko[1] and M. Vázquez[1] *1. Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain*

3:00 **BH-05. Magnetic anisotropy in textured Co nanowires: analytical calculations and experiments.** L.G. Vivas[1], J. Escrig[2], D.G. Trabada[1], D. Altbir[2], R.P. del Real[1] and *M. Vazquez* [1] *1. Instituto de Ciencia de Materiales de Madrid, Madrid, Spain; 2. Materials for Information Technologies, Instituto de Ciencia de Materiales de Madrid, Madrid, Spain*

3:15 BH-06. Fabrication and magnetism of smooth and high aspect ratio iron nanowires grown by electrodeposition. X. Qin[1], C. Deng[1], Y. Liu[2], X. Meng[1], F. Wang[1] and *X. Xu* [1] *1. School of Chemistry and Materials Science, Shanxi Normal University, Linfen, Shanxi, China; 2. School of Materials Science and Technology, Taiyuan University of Technology, Taiyuan, Shanxi, China*

3:30 BH-07. Magnetic behaviour of Ni nanowire arrays embedded in highly ordered nanoporous alumina templates. *A.S. Samardak* [1], A.V. Ognev[1], E.V. Sukovatitsina[1], E.B. Modin[1], L.A. Chebotkevich[1], R. Mahmoodi[3], M.G. Hosseini[3], S.M. Peighambari[2] and F. Nasirpouri[2] *1. School of Natural Sciences, Far Eastern Federal University, Vladivostok, Russian Federation; 2. Department of Materials Engineering, Sahand University of Technology, Tabriz, Islamic Republic of Iran; 3. Department of Physical Chemistry, University of Tabriz, Tabriz, Islamic Republic of Iran*

3:45 BH-08. Electrically Detected Broadband Ferromagnetic Resonance in Permalloy Wires. *Z. Duan* [1], C. Boone[1], I. Krivorotov[1], N. Reckers[2], S. Stienen[2], J. Lindner[2] and M. Farle[2] *1. UC Irvine, Irvine, CA; 2. University of Duisburg-Essen, Duisburg, Germany*

4:00 BH-09. Breather-Soliton Solution in a Parametrically Driven Magnetic Wire. *D. Laroze* [1,2], D. Urzagasti[2], M.G. Clerc[3], S. Coulibaly[4] and H. Pleiner[1] *1. Max Planck Institute for Polymer Research, Mainz, Germany; 2. Universidad de Tarapaca, Arica, Chile; 3. Universidad de Chile, Santiago, Chile; 4. Universite des Sciences et Technologies de Lille, Lille, France*

4:15 BH-10. Modeling field-induced transformations of domain walls in magnetic stripes. *A. Janutka* [1] *1. Institute of Physics, Wroclaw University of Technology, Wroclaw, Poland*

4:30 BH-11. GMR effects in jelly-like structures. *J. Meyer* [1], M. Schaefers[1], F. Wittbracht[1] and A. Huetten[1] *1. Bielefeld University, Bielefeld, Germany*

4:45 BH-12. Magnetism of cobalt nanoclusters on graphene on iridium. *C. Vo-Van* [1], S. Schumacher[2], J. Coraux[1], V. Sessi[3], O. Fruchart[1], N.B. Brookes[3], P. Ohresser[4] and T. Michely[2] *1. Neel Institute, Grenoble, France; 2. II. Physikalisches Institut, Universität zu Köln, Köln, Germany; 3. European Synchrotron Radiation Facility, Grenoble, France; 4. Synchrotron SOLEIL, Gif-sur-Yvette, France*

TUESDAY AFTERNOON 1:30

EXHIBITION HALL A

Session BP
RARE EARTH TRANSITION METAL BORIDES II (Poster Session)

Hossein Sepehri-Amin, Session Chair
National Institute for Materials Science of Japan (NIMS)

BP-01. Development of Dy free NdFeB anisotropic bonded magnets and their applications. *K. Noguchi* [1], C. Mishima[1], M. Yamazaki[1], H. Doi[1], H. Matsuoka[1], H. Mitarai[1] and Y. Honkura[1] *1. Electro-Magnetic Products, Aichi Steel Corporation, Tokai-shi, Japan*

BP-02. Magnetic properties of NdFeB sintered magnets prepared by mixing small Dy-alloy powder with jet-milled NdFeB powder. *S. Namkung* [1], M. Lee[1], S. Han[1], T. Jang[1], T. Kim[2] and S. Lee[2] *1. Hybrid Engineering, Sunmoon University, Asan, Chungnam, Republic of Korea; 2. Materials Science and Engineering, Korea University, Seoul, Republic of Korea*

BP-03. Optimize the magnetic properties and microstructure of Nd-Fe-Co-Cu-B magnets by blending heavy rare earth metal hydrides. *S. Guo* [1], Y. Liu[1], R. Chen[1], D. Lee[1] and A. Yan[1] *1. Zhejiang province Key Laboratory of Magnetic Materials and Application Technology; Key Laboratory of Magnetic materials and Devices, Ningbo Institute of Materials Technology and Engineering, Chiense Academy of Sciences, Ningbo, Zhejiang, China*

BP-04. Influence of cladless hot isostatic pressing on the magnetic properties and corrosion resistance of sintered NdFeB magnets. Z. Liao[1], W. Yan[1], Q. Huang[1], *F. Xu* [1,2], G. Chen[1] and S. Li[3] *1. School of Materials Science and Engineering, Nanjing University of Science and Technology, Nanjing, Jiangsu, China; 2. National Laboratory of Solid State Microstructure, Nanjing University, Nanjing, China; 3. Physics Department, Fujian Normal University, Fuzhou, China*

BP-05. Sintering behavior of Nd-Fe-B magnets at 970°C. *J. Kim* [1], S. Song[1], T. Jang[2], S. Kim[3] and Y. Kim[1] *1. Division of Materials Science and Engineering, Hanyang University, Seoul, Republic of Korea; 2. Department of Hybrid Engineering, Sunmoon University, Asan, Republic of Korea; 3. Institute of Multidisciplinary Research for Advanced Materials (IMRAM), Tohoku University, Sendai, Japan*

BP-06. Magnetic properties and corrosion resistance of Pr-Nd-Ho-Fe-B sintered magnet. *C. Yan* [1,2], S. Guo[1,2], B. Chen[1,2], Y. Liu[1,2], X. Liu[1,2], D. Lee[1,2] and A. Yan[1,2] *1. Key Laboratory of Magnetic Materials and Devices, Ningbo Institute of Material Technology & Engineering, CAS, NingBo, Zhejiang, China; 2. Zhejiang Province Key Laboratory of Magnetic Materials and Application Technology, Ningbo Institute of Material Technology & Engineering, CAS, NingBo, Zhejiang, China*

BP-07. The role of Cu in sintered NdFeB magnets: *ab initio* study. X. Liu[1] and *Z. Altounian* [1] *1. Physics, McGill University, Montreal, QC, Canada*

BP-08. Anisotropic MRE-Fe-B magnets developed by vacuum hot deformation (MRE=Nd+Y+Dy). *W. Tang* [1], K.W. Dennis[1], N.T. Oster[1], M.J. Kramer[1], R.W. McCallum[1] and I.E. Anderson[1] *1. Ames Lab. of DOE, Iowa State University, Ames, IA*

BP-09. Magnetic properties, phase evolution, and microstructure of directly cast Nd-Fe-Nb-Sn-B bulk magnets. H.W. Chang[1], W.C. Lin[2], C.C. Hsieh[2], C.W. Shih[2], *W.C. Chang* [2] and C.C. Shaw[3] *1. Department of Physics, Tunghai University, Taichung, Taiwan; 2. Department of Physics, National Chung Cheng University, Chia-Yi, Taiwan; 3. Superrite Electronics Co. Ltd, Taipei, Taiwan*

BP-10. The influence of boron content on the microstructure and magnetic properties of Fe-Nd-Y-Nb-B bulk permanent magnet. *J. Hong* [1], M. Tianyu[1], J. Yingzhu[1] and Y. Mi[1] *1. Materials Science and Engineering, Zhejiang University, Hangzhou, Zhejiang, China*

BP-11. The magnetic properties, phase and microstructure of $Nd_{9.5}Fe_{bal.}Co_{10}MB_{15}$ (M= $Ti_{2.5}Zr_{0.5}$, $Ti_{2.5}Nb_{0.5}$, $Zr_{2.5}Nb_{0.5}$, $Nb_{2.5}Zr_{0.5}$) bulk magnets. *Z. Liu* [1,2], C.C. Hsieh[2], R.J. Chen[1], W.C. Lin[2], H.W. Chang[3], W.C. Chang[2] and A.R. Yan[1] *1. Ningbo Institute of Material Technology and Engineering, CAS, Ningbo, China; 2. Department of Physics, National Chung Cheng University, Chiayi, Taiwan; 3. Department of Physics, Tunghai University, Taichung, Taiwan*

BP-12. Characteristics of recoil loops for hot deformed nanocrystalline NdFeB magnets. *Y. Huang* [1], Y. Hou[2], Z. Liu[1], D. Zeng[1], H. Yu[1] and X. Zhong[1] *1. School of Materials Science and Engineering, South China University of Technology, Guangzhou, China; 2. School of Materials Science and Engineering, Nanchang Hangkong University, Nanchang, China*

BP-13. High-coercivity Nd-Fe-B powders obtained by high-temperature milling. *W. Kaszuwara* [1], B. Michalski[1] and P. Orlowski[1] *1. Faculty of Materials Science and Engineering, Warsaw University of Technology, Warsaw, Poland*

BP-14. Effect of Composition and Structure on the Properties of Ti Containing Nd-Fe-B Rapidly Quenched Alloys. *M. Leonowicz* [1], M. Spyra[1], B. Michalski[1], W. Kaszuwara[1] and D. Derewnicka[2] *1. faculty of Materials Science and Engineering, Warsaw University of Technology, Warsaw, Poland; 2. Institute of Precision Mechanics, Warsaw, Poland*

BP-15. Effect of Preparation Condition on Magnetic Properties of Nd-Fe-B/α-Fe Multi-layered Thick film Magnets Prepared by PLD Method. *H. Fukunaga* [1], T. Kamikawatoko[1], A. Tou[1], M. Nakano[1], T. Yanai[1] and F. Yamashita[2] *1. Nagasaki University, Nagasaki, Japan; 2. Rotary Component Technology Development Division, Minebea Co., Ltd., Fukuroi, Japan*

BP-16. Effect of Laser Energy Density on Magnetic Properties of Isotropic Nano-composite Nd-Fe-B/α-Fe Thick-Film Magnets with Dispersion Structure prepared by PLD. *M. Nakano* [1], H. Eto[1], T. Yanai[1], F. Yamashita[2] and H. Fukunaga[1] *1. Nagasaki University, Nagasaki, Japan; 2. Minebea Co. Ltd., Shizuoka, Japan*

TUESDAY AFTERNOON 1:30

EXHIBITION HALL A

Session BQ
INTERMETALLIC & OTHER HARD MAGNETS I
(Poster Session)

Volker Neu, Session Chair
IFW Dresden

BQ-01. Chemical ordering and magnetic properties of Fe-Pt thin films by sputtering control. *S. Hsiao* [1], S. Chen[2] and H. Lee[1] *1. National Synchrotron Radiation Research Center, Hsinchu, Taiwan; 2. Materials science and Engineering, Feng Chia University, Taichung, Taiwan*

BQ-02. Perpendicular magnetization reversal mechanism of ordered epitaxial FePt films. *D. Wei* [1], C.H. Chao[1], Y.D. Yao[2] and Y.C. Yu[3] *1. Institute of Manufacturing Technology/Department of Mechanical Engineering, National Taipei University of Technology, Taipei, Taiwan; 2. Institute of Applied Science and Engineering, Fu Jen University, Taipei, Taiwan; 3. Institute of Physics, Academia Sinica, Taipei, Taiwan*

BQ-03. Magnetic properties and microstructure of exchange coupled Fe/FePt(B-Ag) granular films. *J. Tsai* [1], J. Huang[1] and C. Wu[1] *1. Department of Materials Science and Engineering, National Chung Hsing University, Taichung, Taiwan*

BQ-04. Control of surface morphology and magnetic properties by ion bombardment in FePt thin films. Y. Han[1,2], F. Yuan[1], Y. Lin[4], *J. Hsu* [1,3] and J. Mei[5] *1. Physics, National Taiwan University, Taipei, Taiwan; 2. School of Physics, Hunan University of Science and Technology, Xiangtan, China; 3. Institute of Applied Physics, National Taiwan University, Taipei, Taiwan; 4. Materials Science & Engineering, National Taiwan University, Taipei, Taiwan; 5. Institute of Electrical Engineering, Minghsin University of Science and Techonology, Hsin-Chu, Taiwan*

BQ-05. Control of Defocusing Laser Beam in PLD-fabricated Fe-Pt Thick-Film Magnets. *M. Nakano* [1], D. Urakawa[1], T. Yanai[1] and H. Fukunaga[1] *1. Nagasaki University, Nagasaki, Japan*

BQ-06. Effect of Annealing Process on Magnetic Properties of Co_3W Films. L. Yu[1], L. Lu[1], Q. Zhou[1], Z. Xu[1], X. Xu[1], J. Miao[1], L. Qiao[1] and *Y. Jiang* [1] *1. School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing, China*

BQ-07. Enhancement of Coercivity of A Magnetically Hard Grain due to Anti-ferromagnetically Coupled Thin Surface Layers - Numerical calculation -. H. Fukunaga[1], M. Nakano[1], T. Yanai[1] and *Y. Yokoi* [1] *1. Nagasaki University, Nagasaki, Japan*

BQ-08. Sm2Co17 nanoparticles synthesized by surfactant-assisted high energy ball milling. *L. Zheng* [1,2], B. Cui[2], L. Zhao[1], W. Li[2] and G.C. Hadjipanayis[2] *1. College of Equipment Manufacture, Hebei University of Engineering, Handan, Hebei, China; 2. Deparment of Physics and Astronomy, University of Delaware, Newark, DE*

BQ-09. $SmCo_5$-FeNi magnetically hard-soft composites prepared via mechanical ball milling. *B.K. Rai* [1] and S.R. Mishra[1] *1. Physics, Univ Memphis, Memphis, TN*

BQ-10. Synthesis and Characterization of high Coercivity Rare-Earth ion Doped $Sr_{0.9}RE_{0.1}Fe_{10}Al_2O_{19}$ (RE: Y,La,Ce,Sm,Gd) particles Prepared via auto-combustion Method. *B.K. Rai* [1], S.R. Mishra[1], N.V. Vuong[2] and J.P. Liu[2] *1. Physics, The University of Memphis, Memphis, TN; 2. Physics, The University of Texas, Arlington, TX*

BQ-11. High resistivity permanent magnets with layered structure for advanced motors. *C. Chinnasamy* [1], M. Marinescu-Jasinski[1], D. Patches[1] and J. Liu[1] *1. www.electronenergy.com, Lancaster, PA*

BQ-12. Magnetic properties of melt spun AlnicoV ribbons - effect of precipitation on electrical resistivity and magnetoresistance F.A.Khan1,H.Sultana1.G.C.Hadjipanais2,L.Kolak2,O.Akdogan2,A.Gabay2,K.Baerner3. *M.A. Khan* [1,2], G. Hadjipanais[2,1], H. Sultan[1,2], L. Kolak[2,1], O. Akdogan[2,1], A. Gabay[2,1] and K. Baerner[3,1] *1. Physics, Bangladesh University of Engineering and Technology(BUET), Dhaka, Bangladesh; 2. Physics and Astronomy, University of Delaware, Newark, DE; 3. Department of Physics, University of Goettingen, Goettingen, Germany*

BQ-13. Giant Coercive Field of Nanosized Iron Oxide. *S. Ohkoshi* [1,2] *1. The University of Tokyo, Tokyo, Japan; 2. CREST, JST, Tokyo, Japan*

BQ-14. Magnetic properties of nanocomposite film composed of Co-ferrite nanoparticles and metal Co prepared by combination of electrophoretic deposition and electroplating. Y. Hayashi[1], *S. Hashi* [1] and K. Ishiyama[1] *1. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan*

BQ-15. Microstructures and the corresponding magnetic properties of barium hexaferrite nanopowders. *J. Kim* [1], S. Cho[2], K. Jeon[2], N. Kang[1], K. Choi[1] and J. Kim[2] *1. Materials and Components Laboratory, LG Electronics Advanced Research Institute, Seoul, Republic of Korea; 2. Department of Metallurgy and Materials Engineering, Hanyang University, Ansan, Republic of Korea*

BQ-16. Remarkable influence of terbium cations on the magnetic properties of cobalt ferrite nanoparticles. T. Sodaee[1,3], A. Ghasemi[1,3], E. Paimozd[1,3], A. Paesano Junior[2,3] and *A. Morisako* [3,2] *1. Malek Ashtar university of Technology, Isfahan, Islamic Republic of Iran; 2. Universidade Estadual de Maringa, Brazil, Brazil; 3. Shinshu University, Nagano, Japan*

TUESDAY AFTERNOON 1:30 EXHIBITION HALL A

Session BR
PERPENDICULAR & ADVANCED MEDIA (Poster Session)

Zhou Tiejun, Session Chair
Data Storage Institute, Singapore

BR-01. Evaluation of inter granular / inter layer exchange coupling in stacked perpendicular recording media. *K. Tham* [1], S. Saito[1], D. Hasegawa[2], N. Itagaki[1], S. Ishibashi[1], S. Hinata[1] and T. Migaku[1,3] *1. Electrics Engineering, Graduate School of Engineering, Tohoku University, Sendai, Miyagi, Japan; 2. Waseda Institute for Advanced Study, Waseda University, Shinjuku, Tokyo, Japan; 3. Center for Nanobioengineering and Spintronics, Chungnam National University, Yuseong-Gu, Daejeon, Republic of Korea*

BR-02. Intergranular exchange coupling field under multidomain state for stacked perpendicular recording media evaluated by ferromagnetic resonance. *S. Hinata* [1], S. Saito[1] and M. Takahashi[1] *1. Department of Electronic Engineering, Tohoku univ., Sendai, Miyagi, Japan*

BR-03. Ferro-Magnetic Resonance with Coupling Mode for Perpendicular Magnetic Recording Media.
D. Hasegawa [1], S. Saito[2], S. Hinata[2] and M. Takahashi[2] *1. Waseda Institute for Advanced study, Waseda University, Tokyo, Tokyo, Japan; 2. Department of Electronic Engineering, Graduate School of Engineering, Tohoku University, Sendai, Miyagi-ken, Japan*

BR-04. Effect of applied magnetic field direction on magnetic cluster state of perpendicular recording media.
S. Sato [1], Y. Yamaguchi[1], T. Komine[1] and R. Sugita[1] *1. Media and Telecommunications Engineering, Ibaraki university, Hitachi, Ibaraki, Japan*

BR-05. Magnetic cluster size "knee" analysis for small grain continuous media.
Y. Ikeda [1], S. Florez[1], F.Q. Zhu[1], K. Takano[1], H. Do[1], T. Hennen[1] and B. Terris[1] *1. San Jose Research Center, Hitachi GST, San Jose, CA*

BR-06. Oxide graded media for columnar grain growth in $L1_0$ FePt.
H. Ho [1], E. Yang[1], D.E. Laughlin[1] and J. Zhu[1] *1. Data Storage Systems Center, Carnegie Mellon University, Pittsburgh, PA*

BR-07. Composite media for heat assisted magnetic recording.
P. Huang [1] and R.H. Victora[1] *1. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN*

BR-08. Correction of order parameter calculations for FePt perpendicular thin films.
E. Yang [1,2], J. Zhu[1,2] and D.E. Laughlin[2,3] *1. Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA; 2. Data Storage System Center, Carnegie Mellon University, Pittsburgh, PA; 3. Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, PA*

BR-09. Nanoscale control of ferromagnetic-antiferromagnetic transition in FePtRh film using Fe and Pt ion implantations.
T. Hasegawa [1], H. Kawato[1], T. Tomioka[1], S. Takahashi[1], Y. Kondo[2], H. Yamane[2], S. Nagamachi[3], A. Arakawa[1] and S. Ishio[1] *1. Department of Materials Science and Engineering, Akita University, Akita, Japan; 2. Akita Industrial Technology Center (AIT), Akita, Japan; 3. Ion Technology Center Co. Ltd, Osaka, Japan*

BR-10. Flat Surface Percolated Perpendicular Media with Metal Pinning Sites.
S. Oikawa [1,2], T. Onitsuka[1], A. Takeo[1] and M. Takagishi[2] *1. Storage Products Div., Toshiba Corporation, Kawasaki, Japan; 2. Storage Materials & Devices Laboratory, Toshiba Corporation, Kawasaki, Japan*

BR-11. Unravelling the magnetic compensation in R-Fe intermetallics by means of element specific magnetic hysteresis measurements. *R. Boada* [1,2], C. Piquer[2,3], J. Chaboy[2,3] and M. Laguna-Marco[4] *1. Diamond Light Source, Didcot, United Kingdom; 2. Instituto de Ciencia de Materiales de Aragón, CSIC - Universidad de Zaragoza, Zaragoza, Spain; 3. Departamento de Física de la Materia Condensada, Universidad de Zaragoza, Zaragoza, Spain; 4. Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain*

BR-12. Ion beam applications for next-generation magnetic devices fabrication. *Y. Ohsawa* [1,2], D. Saida[1], K. Yamakawa[2] and H. Muraoka[2] *1. CR&D center, Toshiba corp, Kawasaki, Japan; 2. RIEC, Tohoku Univ., Sendai, Japan*

BR-13. Effects of media stray field on electromigration characteristics in current-perpendicular-to-plane giant magnetoresistance spin-valve read sensors. *D. Zeng* [1], K. Lee[2], K. Chung[2] and S. Bae[1] *1. Biomagnetics Laboratory (BML), Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; 2. Nuri Vista Co. Ltd, Songdo-Dong, Yeonsu-Gu, Incheon, Republic of Korea*

BR-14. Insights on all-optical magnetization recording in GdFeCo by tailoring optical excitation parameters. D. Steil[1], S. Alebrand[1], M. Cinchetti[1] and *M. Aeschlimann* [1] *1. Department of Physics, University of Kaiserslautern, Kaiserslautern, Germany*

BR-15. Structural dependence of ultrafast thermal/magnetic response in layered GdFeCo films. *A. Tsukamoto* [1,2], T. Sato[2], S. Toriumi[2], R. Shimizu[2] and A. Itoh[1,2] *1. College of Science and Technology, Nihon University, Funabashi, Chiba, Japan; 2. Graduate School of Science and Technology, Nihon University, Funabashi, Chiba, Japan*

TUESDAY AFTERNOON 1:30

EXHIBITION HALL A

Session BS
ANISOTROPY AND SURFACE EFFECT IN ULTRATHIN FILMS (Poster Session)

Andrii Chumak, Session Chair
TU Kaiserslautern

BS-01. Investigation of ultrathin Fe films on Ag(001) using linear and nonlinear photoemission. *M. Pazgan* [1], T. Peixoto[1], F. Bisio[1,2], A. Winkelmann[1], M. Dabrowski[1], M. Przybylski[1] and J. Kirschner[1] *1. MPI of Microstructure Physics, Halle-Saale, Germany; 2. CNRSPIN, Genova, Italy*

BS-02. Preparation of CoPt-alloy thin films with perpendicular magnetic anisotropy on MgO(111), $SrTiO_3$(111), and Al_2O_3(0001) single-crystal substrates. *D. Suzuki* [1], M. Ohtake[1], F. Kirino[2] and M. Futamoto[1] *1. Faculty of Science and Engineering, Chuo University, Tokyo, Japan; 2. Graduate School of Fine Arts, Tokyo National University of Fine Arts and Music, Tokyo, Japan*

BS-03. Anomalous coercivity enhancement in oxygen treated $Co_{0.06}Ni_{0.94}$/Cu(001). *Y. Shih* [1], C. Tsai[1] and W. Pan[1] *1. Physics, National Chung Cheng University, Chia-Yi, Taiwan*

BS-04. Polar and longitudinal magneto-optical spectroscopy of $La_{2/3}Sr_{1/3}MnO_3$ ultrathin films grown on (100) $SrTiO_3$ substrates. *M. Veis* [1], M. Zahradnik[1], R. Antos[1], S. Visnovsky[1], P. Lecoeur[2], D. Esteve[2], S. Autier-Laurent[2], J. Renard[2] and P. Beauvillain[2] *1. Institute of Physics, Charles University, Prague, Czech Republic; 2. Institut d'Electronique Fondamentale, Universite Paris-Sud XI, Orsay Cedex, France*

BS-05. Interfacial Magnetic Anisotropy between $L1_0$-FePt and Nonmagnetic Layers. Y. Kikuchi[1], *T. Seki* [1] and K. Takanashi[1] *1. Institute for Materials Research, Tohoku University, Sendai, Japan*

BS-06. K1, K2 and Ku factors of CoxCr1-xthin films computed from AGFM and BLS techniques. *A. Kharmouche* [1] *1. Physics, LESIMS Laboratory, Ferhat Abbas University, Setif, Algeria*

BS-07. Study of perpendicular magnetic anisotropy in MgO/CoFeB/MgO films. *K. Shen* [1], S. Yang[1], . Yen[1], K. Kuo[1], S. Huang[1], D. Wang[1], C. Chien[1], Y. Wang[1] and T. Ku[1] *1. ITRI, Hsinchu, Taiwan*

BS-08. Surface roughness reduction in $L1_0$ ordered FePd-alloy thin films formed on MgO single-crystal substrates with different orientations. *A. Itabashi* [1], M. Ohtake[1], S. Ouchi[1], F. Kirino[2] and M. Futamoto[1] *1. Faculty of Science and Engineering, Chuo University, Tokyo, Japan; 2. Graduate School of Fine Arts, Tokyo National University of Fine Arts and Music, Tokyo, Japan*

BS-09. Magnetic anisotropy of epitaxially Fe/Mn/Fe trilayers. *M.S. Pessoa* [1], F. Pelegrini[1], E. Passamani[2], B. Segatto[2] and A. Vantomme[3] *1. Universidade Federal de Goiás, Goiânia, Goiás, Brazil; 2. Universidade Federal do Espirito Santo, Vitória, Espírito santo, Brazil; 3. Instituut voor Kern- en Stralingsfysica, Leuven, Belgium*

BS-10. Influence of fcc underlayer facet on the nanostructure of Co thin film. *M. Ohtake* [1], K. Kobayashi[1] and M. Futamoto[1] *1. Faculty of Science and Engineering, Chuo University, Tokyo, Japan*

BS-11. Antiferromagnetic Heusler Ru_2MnGe epitaxial thin films showing Néel temperatures up to 353 K. *N. Fukatani* [1], H. Fujita[1], T. Miyawaki[1], K. Ueda[1] and H. Asano[1] *1. Nagoya Univ., Nagoya, Japan*

BS-12. First-order-reversal curves analysis of thermal hysteresis in the antiferro-ferromagnetic transition in FeRh thin films. *H. Kumar* [1] and D.R. Cornejo[1] *1. DFMT, Institute of Physics - University of Sao Paulo, Sao Paulo, Sao Paulo, Brazil*

BS-13. New soft high anisotropy materials for magnetization dynamics of solitonic spin structures. *F. Büttner* [1,2], C. Moutafis[3], C. Günther[2], A. Bisig[1,3], J. Rhensius[3], P. Wohlhüter[4], J. Mohanty[2], M. Schneider[2], J. Geilhufe[5], C. von Korff Schmiesing[2], B. Pfau[2], S. Schaffert[2], M. Riemeier[2], M. Hantschmann[2], M. Weigand[5,8], H. Stoll[8], C. Barton[6], C. Morrison[6], T. Thomson[6], J. Franken[7], R. Lavrijsen[7], H. Swagten[7], M. Kläui[1] and S. Eisebitt[2,5] *1. Institute of Physics, University of Mainz, Mainz, Germany; 2. Institut für Optik und Atomare Physik, Technical University Berlin, Berlin, Germany; 3. Paul Scherrer Institute, Villigen, Switzerland; 4. University of Konstanz, Konstanz, Germany; 5. Helmholtz Zentrum Berlin, Berlin, Germany; 6. School of Computer Science, University of Manchester, Manchester, United Kingdom; 7. Technical University Eindhoven, Eindhoven, Netherlands; 8. Max Planck Institute for Intelligent Systems, Stuttgart, Germany*

BS-14. Magnetic investigation and ferromagnetic resonance study of [Ta/CoFeB/MgO]$_5$ multilayer films. F. Yuan[1], *Y. Lin* [3], J. Hsu[1,2], G.J. Lin[4] and P. Kuo[3] *1. Physics, National Taiwan University, Taipei, Taiwan; 2. Institute of Applied Physics, National Taiwan Unversity, Taipei, Taiwan; 3. Material & Engineering, National Taiwan Unversity, Taipei, Taiwan; 4. Centre for Condensed Matter Sciences, National Taiwan Unversity, Taipei, Taiwan*

BS-15. Ultrathin magnetron sputtered magnetic transition FeRh film. *J. Qiu* [1], Q. Yap[1], P. Luo[1], B. Zong[1] and G. Han[1] *1. Data storage institute, Singapore, Singapore*

TUESDAY AFTERNOON 1:30

EXHIBITION HALL A

Session BT
MRAM AND MAGNETIC LOGIC DEVICES I (Poster Session)

Helen Li, Session Chair
Polytechnic Institute of New York University

BT-01. Study of Multilayer Spintronic Devices for Logic Computation. *S. Rajaram* [1], D. Karunaratne[1] and S. Bhanja[1] *1. university of south florida, Tampa, FL*

BT-02. Nanoscale spin wave valve and phase shifter. Y. Au[1] and *V.V. Kruglyak* [1] *1. School of Physics, University of Exeter, Exeter, United Kingdom*

BT-03. Fabrication of ≥ 1010 bit/cm2 practical crossbar-devices using simple conventional method. *B. Zong* [1], Q. Yap[1], C. Wang[1], M. Zhang[1] and G. Han[1] *1. SMI, Data Storage Institute, Singapore, Singapore*

BT-04. Influence of perpendicular magnetic anisotropy on microwave emissions in magnetic tunnel junction oscillators. *Z. Zeng* [1,2], P. Khalili Amiri[3], K. Wang[3] and H. Jiang[2] *1. Suzhou Institute of Nano-Tech and Nano-Bionics (SINANO), CAS, SuZhou, Jiangsu, China; 2. Department of Physics & Astronomy, University of California, Los Angeles, Los Angeles, CA; 3. Department of Electrical Engineering, University of California, Los Angeles, Los Angeles, CA*

BT-05. Effects of clock field and neighboring dipole fields on STT programming of MQCA. *J.D. Harms* [1], A. Klemm[1], A. Lentsch[1], A. Lyle[1] and J. Wang[1] *1. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN*

BT-06. Novel STT-MTJ device enabling all-metallic logic circuits. *D. Bromberg* [1], D. Morris[1], L. Pileggi[1] and J. Zhu[1] *1. Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA*

BT-07. Computed STT-MRAM cell array characteristics and resistance distributions using spin transport equations. *K. Eason* [1], K. Tan[2] and R. Sbiaa[3] *1. Advanced Concepts and Nanodevices, Data Storage Institute, Singapore, Singapore; 2. Mechatronics and Recording Channel Division, Data Storage Institute, Singpaore, Singapore; 3. Spin, Media, and Interface Division, Data Storage Institute, Singpaore, Singapore*

BT-08. Nanomagnetic Logic and Magnetization Switching Dynamics in Spin Torque Majority Gates. *D.E. Nikonov* [1], G.I. Bourianoff[2], T. Ghani[3] and I.A. Young[1] *1. Components Research, Intel Corp., Hillsboro, OR; 2. Components Research, Intel Corp., Austin, TX; 3. Portland Technology Development, Intel Corp., Hillsboro, OR*

BT-09. Achieving faster and more reliable writing using external field added to spin-transfer torque in magnetic RAM. *K. Munira* [1], A.W. Ghosh[1] and E. Chen[2] *1. Charles L. Brown Department of Electrical and Computer Engineering, University of Virginia, Charlottesville, VA; 2. Grandis Inc, Malpitas, CA*

BT-10. PERPENDICULAR-MAGNETIC-ANISOTROPY RACETRACK MEMORY BASED CONTENT ADDRESSABLE MEMORY. *Y. Zhang* [1,2], W. Zhao[1,2], D. Ravelosona[1,2], J. Klein[1,2] and C. Chappert[1,2] *1. IEF, Univ. Paris Sud, Orsay, France; 2. UMR8622, CNRS, Orsay, France*

BT-11. Fabrication of nanomagnet logic elements using HSQ/Ti/PMMA tri-layer as an etch mask. *F.A. Shah* [1], V.K. Sankar[1] and G.H. Bernstein[1] *1. Department of Electrical Engineering, University of Notre Dame, Notre Dame, IN*

BT-12. Spin transfer torque switching of amorphous GdFeCo with perpendicular magnetic anisotropy for thermally assisted magnetic memories. *B. Dai* [1], T. Kato[1], S. Iwata[1] and S. Tsunashima[2] *1. Department of Quantum Engineering, Nagoya University, Nagoya 464-8603, Japan; 2. Department of Research, NISRI, Yotsuya-dori 1-13, Chikusa-ku, Nagoya 464-0819, Japan*

BT-13. Structural optimization of pinning sites for high density integration of the domain wall based devices. T. Takashima[1], *T. Tanaka* [1] and K. Matsuyama[1] *1. Graduate School of Information Science and Electrical Engineering, Kyushu University, Fukuoka, Fukuoka, Japan*

BT-14. Anisotropy influence on toggle magnetic random access memory switching. *D. Cimpoesu* [1], I. Petrila[1] and A. Stancu[1] *1. Physics, Alexandru Ioan Cuza University of Iasi, Iasi, Romania*

BT-15. Effects of exchange bias on current induced magnetization excitation of synthetic antiferromagnetic pinned layer in magnetic tunnel junction. *W. Kim* [1] and K. Lee[1] *1. Materials Science and Engineering, Korea University, Seoul, Republic of Korea*

BT-16. Combined Hysteresis Modeling: A Study on Perpendicular Toggle-MRAM System for High Capacity. *H. Won* [1], H. Ju[1] and G. Park[1] *1. School of Electrical Engineering, Pusan National Univesity, Busan, Republic of Korea*

TUESDAY AFTERNOON 1:30

EXHIBITION HALL A

Session BU
ELECTRICAL MACHINES I (Poster Session)

Hirotoshi Fukunaga, Session Chair
Nagasaki University

BU-01. A new method for design and optimization of a hybrid excitation synchronous machine by combining analytical and finite element models. *A. Daanoune* [1,2], A. Foggia[2], L. Garbuio[2], J. Mipo[1] and L. Li[1] *1. Valeo Engine and Electrical Systems, Créteil, France; 2. Grenoble Electrical Engineering lab G2Elab, Grenoble, France*

BU-02. A rotor with axially and circumferentially magnetised permanent magnets. *K. Atallah* [1] and J. Wang[1] *1. University of Sheffield, Sheffield, United Kingdom*

BU-03. The study of an integrated injection molding rotor with the Dy-free anisotropic Nd magnetic powder which can replace the Nd sintered magnet. *Y. Hashimoto* [1], M. Kato[1], H. Mitarai[1], H. Matsuoka[1], K. Noguchi[1], C. Mishima[1] and Y. Honkura[1] *1. Electro-Magnetic Products, Development Div., Aichi Steel Corporation, Tokai, Japan*

BU-04. Novel Hybrid Excitation Synchronous Machine with Dual Stator Laminated Cores and Armature Windings. *X. Fu* [1] and M. Lin[1] *1. School of Electrical Engineering, Southeast University, Nanjing, Jiangsu, China*

BU-05. A Stator-separated Axial Flux-switching Hybrid Excitation Synchronous Machine. *X. Liu* [1], A. Zheng[1] and C. Wang[1] *1. School of Electrical Engineering and Automation, Jiangxi University of Science and Technology, Ganzhou, Jiangxi, China*

BU-06. Loss Calculation and Thermal Analysis of a High-speed Motor in FES System. *Y. Li* [1], L. Hexiang[2], J. Hongyun[1], Z. Wei[1] and C. Yongjuan[1] *1. Nanjing University of Information Science & Technology, Nanjing, China; 2. Electrical Engineering Department, Southeast University, Nanjing, China*

BU-07. A novel stator surface-mounted permanent magnet motor for brushless AC drives. *H. Wei* [1], Z. Yilian[1], Z. Gan[1] and C. Ming[1] *1. School of Electrical Engineering, Southeast University, Nanjing, 210096, China*

BU-08. Design principles of permanent magnet dual-memory machines. F. Li[1], K. Chau[1], C. Liu[1] and *Z. Zhang* [1] *1. The University of Hong Kong, Hong Kong, China*

BU-09. Eddy-Current Loss Analysis in High Speed Permanent Magnet Synchronous Motor Using Analytical Method with PWM Carrier Frequency. *J. Ahn* [1], S. Jang[1], J. Choi[1], C. Han[1] and J. Choi[1] *1. Chungnam National uni, Daejun, Republic of Korea*

BU-10. Dynamic Characteristic Analysis of Interior Permanent Magnet Synchronous Motor considering Varied Parameters by Outer Disturbance based on Electromagnetic Field Analysis. S. Sung[1], *Y. Park* [2], K. Kim[2], S. Jang[2] and D. You[3] *1. Korea Ocean Research and Development Institute, Daejeong, Republic of Korea; 2. Chungnam National University, Daejoen, Republic of Korea; 3. Cheongyang Provincial College, Cheongyang, Republic of Korea*

BU-11. A Post-assembly Magnetization method of Direct-start Interior Permanent Magnet Synchronous Motors and its Finite-element Analysis of Transient Magnetic Field. S. Ho[1], H. Li[1] and *W. Fu* [1] *1. The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

BU-12. Loss Analysis by PWM Commutation Method of Permanent Magnet BLDC Motor. *T. Jeong* [1], C. Jin[2], M. Lee[1], J. Lee[1] and J. Lee[1] *1. Electric Machinery, Hanyang University, Seoul, Republic of Korea; 2. Electric Machinery, Samsungtechwin, Seongnam, Republic of Korea*

BU-13. Analysis of a DC Linear Stepper Motor. *N.F. Baggio Filho* [1] *1. Federal University of Rio Grande do Sul, canoas, Brazil*

BU-14. Design of The Flux-Concentration Outer Rotor BLAC Motor for Permanent Magnet Volume Minimization. *D. Lee* [1], J. Jang[1] and B. Kim[1] *1. Kunsan National Univ., Kunsan, Republic of Korea*

BU-15. Simple Coupled Magnetic Circuit Analysis for Hollow-Shaft Torque Motor. *D. Joo* [1], J. Lee[1], D. Hong[1] and B. Woo[1] *1. Electric Motor Research Center, Korea Electrotechnology Research Institute, Changwon-si, 642-120, Republic of Korea*

TUESDAY AFTERNOON 1:30

EXHIBITION HALL A

Session BV
MICROMAGNETIC METHODS (Poster Session)

Pieter Visscher, Session Chair
U of Alabama
Oleg Mryasov, Session Chair
University of Alabama

BV-01. Influence of Low Anisotropy Inclusions on Magnetization Reversal in Bit-Patterned Arrays. *L. Kaganovskiy* [1], D. Litvinov[2] and S. Khizroev[3] *1. Touro College Brooklyn Campus, BROOKLYN, NY; 2. Electrical Engineering, University of Houston, Houston, TX; 3. Electrical Engineering, Florida International University, Miami, FL*

BV-02. Coupled Domain Wall Oscillations in closely spaced Cylindrical Nanowires. C. Murapaka[1], *I. Purnama* [1] and W. Lew[1] *1. Nanyang Technological Uni, Singapore, Singapore*

BV-03. Magnetic properties of elliptical and stadium-shaped nanoparticles: Effect of the shape anisotropy. R. Corona[1,2], D. Altbir[1,2] and *J. Escrig* [1,2] *1. Universidad de Santiago de Chile, Santiago, Chile; 2. Center for the Development of Nanoscience and Nanotechnology, Santiago, Chile*

BV-04. Proper Generalized Decomposition method applied to the magnetic simulation of a SMC microstructure. *T. Henneron* [1], A. Benabou[1] and S. Clénet[2] *1. L2EP, Universite Lille1, Villeneuve d'Ascq, France; 2. L2EP, Arts et Métiers ParisTech, Lille, France*

BV-05. Soliton dynamics in a ferromagnetically coupled nanodot chain. *K. Lee* [1], H. Song[1], C. You[2], S. Parkin[3] and S. Shin[1] *1. Department of Physics and Center for Nanospinics of Spintronic Materials, Korea Advanced Institute of Science and Technology, Daejeon, Republic of Korea; 2. Department of Physics, Inha University, Incheon, Republic of Korea; 3. IBM Research Division, Almaden Research Center, San Jose, CA*

BV-06. Effect of Geometry on Spin Wave Coherence in Ring Structures – A Micromagnetic Study. *R.S. Joshi* [1], G. Venkat[2], V. Dasari[1], M. Franchin[3], H. Fangohr[3], A. Prabhakar[2] and P. Kumar[1] *1. Physics, Indian Institute of Science, Bangalore, Karnataka, India; 2. Electrical Engeneering, Indian Institute of Technology Madras, Chennai, Karnataka, India; 3. Engineering and the Environment, university of Southampton, Southampton, United Kingdom*

BV-07. MicroMagNum: A novel fast GPU-based micromagnetic simulation tool used to study current and Oersted-field induced vortex-domain-wall motion. *A. Drews* [1,3], G. Selke[1,3], B. Krüger[2], T. Gerhardt[3,1], C. Abert[3,1] and D. Möller[1] *1. Computer Engineering, University of Hamburg, Hamburg, Germany; 2. I. Institute of Theoretical Physics, University of Hamburg, Hamburg, Germany; 3. Institute of Applied Physics, University of Hamburg, Hamburg, Germany*

BV-08. The critical curve of single-domain particles with quartic crystalline anisotropy subject to polarized currents. E. Oniciuc[1], L. Stoleriu[1] and *A. Stancu* [1] *1. Faculty of Physics, "Alexandru Ioan Cuza" University of Iasi, Iasi, Iasi, Romania*

BV-09. Micromagnetic model of the thermal effects in microwave assisted switch (MAS) of two coupled macrospins. *D. Cimpoesu* [1] and S. Alexandru[1] *1. Physics, Alexandru Ioan Cuza University of Iasi, Iasi, Romania*

BV-10. Effect of spin-motive force and spin-diffusion on a vortex dynamics. *J. Moon* [1], A. Manchon[2] and K. Lee[1] *1. Department of Materials Science and Engineering, Korea university, Seoul, Republic of Korea; 2. Materials Science and Engineering, Division of Physical Science and Engineering, KAUST, Thuwal, Saudi Arabia*

BV-11. Micromagnetic simulation of the dynamic susceptibility spectra of antidot array films with two sublattices. *W. Qi* [1], J. Lichuan[1], T. Xiaoli[1], Z. Huaiwu[1] and Z. Zhong[1] *1. State Key Laboratory of Electronic Thin Films and Integrated Devices, University of Electronic Science and Technology of China, Chengdu, Sichuan, China*

BV-12. Fast SpinRAM simulation by GPU. *K. Ohmaru* [1] and Y. Nakatani[1] *1. The University of Electro-Communications, Tokyo, Japan*

BV-13. Vortex-to-transverse coupled domain-wall transformation in two-nanowire System. *I. Purnama* [1], C. Murapaka[1] and W. Lew[1] *1. Nanyang Technological Uni, Singapore, Singapore*

BV-14. Fast calculation of the Oersted field for micromagnetic simulations. *B. Krueger* [1], G. Selke[2], C. Abert[2], A. Drews[2] and D. Pfannkuche[1] *1. I. Institute for Theoretical Physics, University of Hamburg, Hamburg, Germany; 2. Workgroup Technical Informatic Systems, University of Hamburg, Hamburg, Germany*

BV-15. MuMax 2.0: a multiphysics framework for coupled magnetic problems running on multiple GPUs. *B. Van de Wiele* [1], A. Vansteenkiste[2], B. Van Waeyenberge[2], L. Dupre[1] and D. De Zutter[3] *1. Department of Electrical Energy, Systems and Automation, Ghent University, Ghent, Belgium; 2. Department of Solid State Physics, Ghent University, Ghent, Belgium; 3. Department of Information Technology, Ghent University, Ghent, Belgium*

BV-16. Spatial reconstruction of exchange field interactions with a finite difference scheme based on unstructured meshes. *O. Bottauscio* [1] and A. Manzin[1] *1. Istituto Nazionale di Ricerca Metrologica, Torino, Italy*

TUESDAY AFTERNOON 1:30

EXHIBITION HALL A

Session BW
NOVEL BIOMEDICAL THERAPIES & NANOMEDICINE I
(Poster Session)

Chao-Ming Fu, Session Chair
National Taiwan University

BW-01. Optimal design of a focused hyperthermia system. S. Ho[1], S. Niu[1] and *W. Fu* [1] *1. the Hong Kong Polytechnic University, Hong Kong, Hong Kong*

BW-02. Magnetically Vectored Delivery of Cancer Drugs using Remotely On-Off Switchable NanoCapsules. *S. Kong* [1], C. Choi[1], J. Khamwannah[1] and S. Jin[1,2] *1. Materials science & Engineering, University of California San Diego, La Jolla, CA; 2. Mechanical & Aerospace Engineering, University of California San Diego, La Jolla, CA*

BW-03. Physical Evaluation of Néel and Brown Relaxation for Interpreting Intracellular Heating Mechanism of Superparamagnetic Fluid Hyperthermia in Nanomedicine. *M. Jeun* [1], S. Lee[1], J. Kang[1], Y. Kim[2], K. Park[2], S. Paek[3], Y. Takemura[4], Y. Kim[5], K. Kang[6], K. Chung[7], J. Kwak[8] and S. Bae[1] *1. Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; 2. Ophthalmology, Seoul National University College of Medicine, Seoul, Republic of Korea; 3. Neurosurgery, Seoul National University College of Medicine, Seoul, Republic of Korea; 4. Electrical and Computer Engineering, Yokohama National University, Yokohama, Japan; 5. Radiology, Seoul National University Hospital, Seoul, Republic of Korea; 6. Nuclear Medicine, Seoul National University College of Medicine, Seoul, Republic of Korea; 7. Nano Business Center, Nano-Bio Division, NURI Vista Co. Ltd., Incheon, Republic of Korea; 8. Physiology and Biophysics, Inha University College of Medicine, Incheon, Republic of Korea*

BW-04. Formation of non-equilibrium magnetic nanoparticle structures in a large alternating magnetic field and their influence on magnetic hyperthermia treatment. *H. Mamiya* [1] and B. Jeyadevan[2] *1. National Institute for Materials Science, Tsukuba, Japan; 2. The University of Shiga Prefecture, Hikone, Japan*

BW-05. Synthesis and characterisation of Iron oxide/iron carbide nanocomposite for hyperthermia application. *M. Sharma* [1], S. Mantri[1] and D. Bahadur[1] *1. Metallurgical engineering and material science, I.I.T. Bombay, Mumbai, Maharastra, India*

BW-06. Design and analysis of a novel targeted magnetic fluid hyperthermia system for tumor treatment. S. Ho[1], *L. Jian* [1], W. Gong[1] and W. Fu[1] *1. Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

BW-07. Magnetic Current Booster as Portable Excitation System for Hyperthermia Implanting Ferromagnetic Materials. *K. Furiya* [1], K. Aoki[1], T. Esaki[1], T. Sato[1], T. Takura[2], F. Sato[2] and H. Matsuki[1] *1. Biomedical Engineering, Tohoku University, Sendai, Miyagi, Japan; 2. Engineering, Tohoku University, Sendai, Miyagi, Japan*

BW-08. Optimal Design of a Focused Hyperthermia Device. W. Fong[1], C. Lau[1], *W. Fu* [1] and K. Lau[1] *1. Department of Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

BW-09. Magnetic Hyperthermia Effect of Magnetite Nanoparticles in a Heat Induction System. *S. Park* [1], H. Kim[1] and S. Jeong[1] *1. DGIST, Daegu, Republic of Korea*

BW-10. Magnetically engineered MgFe2O4 nanoparticles controlled by calcining process during sol-gel synthesis for intra-arterial hyperthermia. *S. Lee* [1], M. Jeun[1], J. Kang[1], Y. Kim[2], K. Chung[3], J. Kwak[4] and S. Bae[1] *1. Biomagnetics Laboratory (BML), Department of Electrical & Computer Engineering, National University of Singapore, Singapore, Singapore; 2. Department of Radiology, Seoul National University Hospital, Seoul 110-744, Republic of Korea; 3. Nuri Vista Co. Ltd., Gasan-dong, Geumcheon-gu, Seoul, Republic of Korea; 4. Department of Physiology and Biophysics, Inha University College of Medicine, Incheon 400-712, Republic of Korea*

BW-11. A Magneto-nanosensor biochip immunoassay for sensitive detection of *Aspergillus fumigatus* allergen Asp f 1. *D. Kim* [1] and S. Wang[1,2] *1. Materials Science and Engineering, Stanford University, Stanford, CA; 2. Electrical Engineering, Stanford University, Stanford, CA*

BW-12. Magnetic field exposure systems for the study of ELF effects. *E. Cardelli* [1], A. Faba[1], M. Pompei[1] and F. Tissi[1] *1. Dept. of Industrial Engineering, University of Perugia, Perugia, Italy*

WEDNESDAY MORNING 9:00

BALLROOM A

Session CA
BIOMEDICAL APPLICATIONS OF MAGNETIC NANOPARTICLES AND NANOSTRUCTURES

Olga Kazakova, Session Chair
NPL, Middlesex, UK

9:00 **CA-01. Functional Magnetic Nanotags for Drug Discovery.** ***(Invited)*** *S.X. Wang [1] 1. Materials Science and Engineering, Stanford, Stanford, CA*

9:30 **CA-02. Fabrication and control of synthetic antiferromagnetic nanoparticles released in solution for biological applications.** ***(Invited)*** *H. Joisten [1,2]*, P. Sabon[1], S. Leulmi[1], T. Dietsch[1], C. Iss[1], J. Faure-Vincent[3], S. Auffret[1] and B. Dieny[1] *1. CEA-Grenoble/INAC, SPINTEC, Grenoble, France; 2. CEA, LETI, MINATEC Campus, Grenoble, France; 3. CEA-Grenoble/INAC, INAC/SPrAM, Grenoble, France*

10:00 **CA-03. FUNCTIONAL MAGNETIC NANOPARTICLES FOR LIFE SCIENCES.** ***(Invited)*** C. Marquina[1,2], A. Perez-Luque[3], G.F. Goya[2,4], R. Fernandez-Pacheco[5], L. Asin[4], J.M. De La Fuente[4], M. Risueño[6] and *M. Ibarra [4,2] 1. Instituto de Ciencia de Materiales, CSIC-Universida de Zaragoza, Zaragoza, Spain; 2. Departamento de Fisica de la Materia Condensada, Universida de Zaragoza, Zaragoza, Spain; 3. Area de mejora y biotecnologia, IFAPA, Cordoba, Spain; 4. Instituto de Nanociencia de Aragón (INA), Universidad de Zaragoza, Zaragoza, Spain; 5. Laboratorio Microscopias Avanzadas (LMA), Universidad de Zaragoza, Zaragoza, Spain; 6. Centro Investigaciones Biológicas, CSIC, Madrid, Spain*

10:30 **CA-04. Recent advances in spintronic microsystems for biomedical applications.** ***(Invited)*** *P.P. Freitas [1,2]*, F. Cardoso[1], S. Cardoso[1,2], J. Amaral[1,2], D. Leitao[1], T. Dias[1,2], V. Romao[3], R. Ferreira[3], J. Gaspar[3], M. Debbs[3], M. Costa[3], A. Sebastiao[4], J. Germano[5], M. Piedade[5] and T. Costa[5] *1. INESC MN, Lisbon, Portugal; 2. Physics, IST, Lisbon, Portugal; 3. INL, Braga, Portugal; 4. IMM, Lisbon, Portugal; 5. INESC ID, Lisbon, Portugal*

11:00 **CA-05. Bio-ferromagnets as Mediators of Cellular Mechanotransduction.** ***(Invited)*** *E.A. Rozhkova [1] 1. Center for Nanoscale Materials, Argonne National Laboratory, Argonne, IL*

11:30 CA-06. New Microfluidic Technologies for the Delivery of Magnetic Nanoparticles to Single Cells and Sensors. ***(Invited)*** *A. Jesorka* [1] *1. Department of Chemical and Biological Engineering, Chalmers University of Technology, Chalmers, Sweden*

WEDNESDAY MORNING 9:00 **BALLROOM B**

Session CB
SUPERCONDUCTING SPINTRONICS

Goran Karapetrov, Session Chair
Drexel University

9:00 CB-01. Coupling between magnetism and superconductivity in S/F/S Josephson junctions. ***(Invited)*** *A. Buzdin* [1,2] *1. University of Bordeaux, Talence, France; 2. Institut Universitaire de France, Paris, France*

9:30 CB-02. Tunable phase diagram and vortex pinning in superconductor/ferromagnet hybrids. ***(Invited)*** *L. Zhu* [1,2], M.Z. Cieplak[1,3] and C. Chien[1] *1. Physics and Astronomy, Johns Hopkins University, Baltimore, MD; 2. Materials Science Division, Argonne National Lab, Argonne, IL; 3. Institute of Physics, Polish Academy of Sciences, Warsaw, Poland*

10:00 CB-03. Vortex Confinement in Planar Superconducting/Ferromagnet Hybrid Structures. ***(Invited)*** *M. Iavarone* [1], A. Scarfato[2], F. Bobba[2], M. Longobardi[2], F. Giubileo[2], G. Karapetrov[3,4], V. Novosad[3], V.G. Yefremenko[3] and A. Cucolo[2] *1. Physics, Temple University, Philadelphia, PA; 2. Physics, University of Salerno, Fisciano, Italy; 3. Materials Science Division, Argonne National Laboratory, Argonne, IL; 4. Physics, Drexel University, Philadelphia, PA*

10:30 CB-04. Hybrid Magnetic-Superconducting Nanostructures. ***(Invited)*** *I.K. Schuller* [1], Y.J. Rosen[1], J.E. Villegas[2], D. Perez de Lara[3], E.M. Gonzalez[3], C. Chiliotte[4], G. Pasquini[4], V. Bekeris[4] and J. Vicent[3] *1. Physics Department, UCSD, La Jolla, CA; 2. Unite Mixte de Physique, CNRS/Thales Associee a l'Universite Paris-Sud, Paris, France; 3. Departamento de Fisica de Materiales, Universidad Complutense and IMDEA Nanociencia, Madrid, Spain; 4. Departamento de Fisica, FCEyN, Universidad de Buenos Aires and IFIBA, CONICET, Buenos Aires, Argentina*

11:00 **CB-05. Superconducting Spintronics and Spin Filters.** ***(Invited)*** *M. Blamire* [1] *1. Materials Science, Cambridge University, Cambridge, United Kingdom*

11:30 **CB-06. Superconductor/ferromagnet proximity effect by tunneling spectroscopy; looking for equal-spin triplet superconductivity.** ***(Invited)*** *K. Char* [1] *1. Dept. of Physics and Astronomy, Seoul National University, Seoul, Republic of Korea*

WEDNESDAY MORNING **BALLROOM C**
9:00

Session CC
ENERGY-ASSISTED RECORDING

Simone Pisana, Session Chair
Hitachi GST

9:00 **CC-01. Ultrafast heating as a sufficient stimulus for magnetization reversal.** T.A. Ostler[1], *J. Barker* [1], R. Evans[1], R.W. Chantrell[1], U. Atxitia[2], O. Chubykalo-Fesenko[2], S. El Moussaoui[3], L. Le Guyader[3], E. Mengotti[3], F. Nolting[3], L.J. Heyderman[3], A. Tsukamoto[4], A. Itoh[4], D. Afanasiev[5], B. Ivanov[5], A.M. Kalashnikova[6], K. Vahaplar[7], J. Mentink[7], A. Kirilyuk[7], T. Rasing[7] and A. Kimel[7] *1. Dept. of Physics, The University of York, York, North Yorkshire, United Kingdom; 2. Instituto de Ciencia de Materiales, Madrid, Cantoblanco, Spain; 3. Paul Scherrer Institut, PSI-Villigen, Switzerland; 4. Ioffe Physical Technical Institute, Russian Academy of Sciences, St. Petersburg, Russian Federation; 5. College of Science and Technology, Nihon University, Funabashi, Japan; 6. Institute of Magnetism, Kiev, Ukraine; 7. Institute for Molecules and Materials, Radboud University, Nijmegen, Netherlands*

9:30 **CC-02. Ultrafast heating and magnetic switching.** *J. Li* [1], B. Xu[1], J. Zhang[1], K. Ye[1] and C. An[1] *1. Data Storage Institute, Agency for Science, Technology and Research, Singapore, Singapore*

9:45 **CC-03. Ultrafast field cooled magnetization for heat assisted magnetic recording.** *R.F. Evans* [1], W.J. Fan[1] and R.W. Chantrell[1] *1. Department of Physics, University Of York, York, England, United Kingdom*

10:00 CC-04. Bulk electronic structure changes across the metamagnetic transition in FeRh via hard x-ray photoemission. *A.X. Gray* [1,2], D.W. Cooke[4], P. Krüger[5], C. Bordel[4,6], A.M. Kaiser[2,3], S. Moyerman[8], E.E. Fullerton[8], S. Ueda[9], Y. Yamashita[9], A. Gloskovskii[10], C.M. Schneider[7], W. Drube[10], K. Kobayashi[9], F. Hellman[4,3] and C.S. Fadley[2,3] *1. Stanford Institute for Materials and Energy Science, SLAC National Accelerator Laboratory, Menlo Park, CA; 2. Department of Physics, University of California, Davis, Davis, CA; 3. Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA; 4. Department of Physics, University of California, Berkeley, Berkeley, CA; 5. ICB, UMR 5209, CNRS–Université de Bourgogne, Dijon Cedex, France; 6. GPM, UMR CNRS 6634, Université de Rouen, St Etienne du Rouvray, France; 7. Peter-Grünberg-Institut PGI-6, Forschungszentrum Jülich GmbH, Jülich, Germany; 8. Center for Magnetic Recording Research, University of California, San Diego, La Jolla, CA; 9. NIMS Beamline Station at SPring-8, National Institute for Materials Science, Sayo, Japan; 10. DESY Photon Science, Deutsches Elektronen-Synchrotron, Hamburg, Germany*

10:15 CC-05. Application of Plasmon Resonances in Metallic Nanostructures to Heat-Assisted Magnetic Recording. *L. Hung* [1], G. Lang[1], P. McAvoy[1], C. Krafft[2] and I. Mayergoyz[3] *1. Electrical and Computer Engineering, University of Maryland, College Park, MD; 2. Laboratory for Physical Sciences, College Park, MD; 3. Electrical and Computer Engineering, UMIACS, and AppEl Center, University of Maryland, College Park, MD*

10:30 CC-06. High efficient near-field antenna with plasmonic waveguide for thermally assisted magnetic recording. *Y. Ashizawa* [1], T. Ota[1] and K. Nakagawa[1] *1. College of Science and Technology, Nihon University, Funabashi, Japan*

10:45 CC-07. Dynamic thermal responses of heat-assisted magnetic recording head caused by optical system in data writing process. *B. Xu* [1], J. Li[1], Y. Toh[1], K. Ye[1] and J. Zhang[1] *1. Data Storage Institute, Singapore, Singapore*

11:00 CC-08. An On-Wafer Diffractive Lens for Energy Assisted Magnetic Recording Technology. *L. Miao* [1,2] and T. Hsiang[1] *1. Electrical and Computer Engineering, University of Rochester, Rochester, NY; 2. Western Digital, Fremont, CA*

11:15 **CC-09. Selective magnetization switching with microwave assistance for 3 dimensional magnetic recording.** *T. Tanaka* [1], Y. Otsuka[1], Y. Furomoto[1], K. Matsuyama[1] and Y. Nozaki[2] *1. Graduate School of Information Science and Electrical Engineering, Kyushu University, Fukuoka, Fukuoka, Japan; 2. Faculty of Science and Technology, Keio University, Yokohama, Kanagawa, Japan*

11:30 **CC-10. Experimental study on microwave-assisted writing of 500 Gbpsi-class perpendicular medium.** N. Ishida[1], Y. Soeno[2], K. Sekiguchi[1] and *Y. Nozaki* [1,3] *1. Dept. of Physics, Keio Univ., Yokohama, Japan; 2. TDK Corporation, Saku, Japan; 3. JST CREST, Tokyo, Japan*

11:45 **CC-11. Reality of Bit Patterned Magnetic Recording with Microwave Assistance over 5 Tbitps.** *M. Igarashi* [1], W. Katsuro[1], H. Yoshiyuki[1] and S. Yoshihiro[1] *1. Hitachi, Ltd., Odawara, Kanagawa, Japan*

WEDNESDAY MORNING 9:00 **MEETING RM 11/12**

Session CD
SPIN TRANSFER TORQUE I
Sebastiaan van Dijken, Session Chair
Helsinki University of Technology

9:00 **CD-01. Synchronization of Spin Torque Nano-Oscillators Through Magnetic Dipolar Interactions in Harizontal Arrangement.** *C. HaoHsuan* [1], C. JuiHang Chang[2], . JongChing[1], . Lance[1] and C. ChingRay[2] *1. Physics, National Changhua University of Education, Changhua, Taiwan; 2. Physics, Department of Physics and Center for Quantum Sciences and Engineering, Taipei, Taiwan*

9:15 **CD-02. Core-core interaction in spin-torque double-vortex oscillators.** *V. Sluka* [1,2], A. Kákay[1], A.M. Deac[2], D.E. Bürgler[1], R. Hertel[3] and C.M. Schneider[1] *1. Peter Grünberg Institute, Electronic Properties (PGI-6), Forschungszentrum Jülich GmbH, Jülich, Germany; 2. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf e. V., Dresden, Germany; 3. Institut de Physique et Chimie des Matériaux de Strasbourg, Université de Strasbourg, CNRS UMR 7504, Strasbourg, France*

9:30 CD-03. Using frequency modulation of an injection-locked spin torque oscillator to resonantly determine its ringing frequency. *E. Iacocca* [1] and J. Åkerman[1,2] *1. Department of Physics, University of Gothenburg, 412 96 Göteborg, Sweden; 2. Material Physics, Royal Institute of Technology (KTH), 164 49, Stockholm, Sweden*

9:45 CD-04. Micromagnetic analysis of frequency discontinuities in planar spin-transfer oscillators. *A. Vaysset* [1], E. Kritsikis[2], J. Toussaint[2], L.D. Buda-Prejbeanu[1], D. Gusakova[1], U. Ebels[1] and B. Dieny[1] *1. SPINTEC, Grenoble, France; 2. Institut Néel, Grenoble, France*

10:00 CD-05. Interplay between free layer modes investigated by parametric synchronization in a magnetic tunnel junction-based spin torque oscillator. *P.K. Muduli* [1], P. Dürrenfeld[1], V. Tiberkevich[2], A. Slavin[2], O.G. Heinonen[3,4] and J. Åkerman[1,5] *1. Physics Department, University of Gothenburg, 41296, Gothenburg, Sweden; 2. Department of Physics, Oakland University, Rochester, MI; 3. Materials Science Division, Argonne National Laboratory, Lemont, IL; 4. Department of Physics and Astronomy, Northwestern University, Evanston, IL; 5. Materials Physics, School of ICT, KTH-Royal Institute of Technology, Electrum 229, 16440, Kista, Sweden*

10:15 CD-06. Effect of shape anisotropy on spectral linewidths in spin torque oscillators. *P.M. Braganca* [1], K. Pi[1], N. Smith[1], J. Katine[1], J. Childress[1] and B. Gurney[1] *1. Hitachi Global Storage Technologies, San Jose, CA*

10:30 CD-07. Non-linear gyrotropic motion and phase locking behavior of a magnetic vortex in a MTJ based spin transfer nano-oscillators. A. Dussaux[1], *V. Cros* [1], P. Bortolotti[1], A.V. Khvalkovskiy[1,2], J. Grollier[1], A. Fukushima[3], H. Kubota[3], K. Yakushiji[3], K.A. Zvezdin[2,4], S. Yuasa[3], K. Ando[3] and A. Fert[1] *1. Unite Mixte de Physique CNRS/Thales, Palaiseau, France; 2. A.M. Prokhorov General Physics, Institute of RAS, Moscow, Russian Federation; 3. National Institute of Advanced Industrial Science and Technology, AIST, Tsukuba, Japan; 4. Istituto P.M., Torino, Italy*

10:45 CD-08. Influence of strong stray field from a fixed layer on spin torque oscillation properties. *Y. Kawada* [1], H. Naganuma[1], M. Oogane[1] and Y. Ando[1] *1. Applied Physics, Tohoku university, Sendai, Miyagi, Japan*

11:00 **CD-09. Origin of variation in the oscillation characteristics of point contact based spin torque oscillators.** *S. Tamaru* [1] and D.S. Ricketts[1] *1. Electrical & Computer Engineering Dept., Carnegie Mellon University, Pittsburgh, PA*

11:15 **CD-10. Reduction of spectral linewidth of NCMR-STO by injecting AC current at multi-domain state.** *Y. Kozono* [1], M. Al-Mahdawi[1], Y. Okutomi[1], K. Miyake[1], E. Suzuki[2], T. Suzuki[2] and M. Sahashi[1] *1. Department of Electronic Engineering Graduate School of Engineering, Tohoku University, Sendai, Miyagi, Japan; 2. Application & Analysis Center, TDK Corporation, Ichikawa, Chiba, Japan*

11:30 **CD-11. Linewidth of higher harmonics in spin torque oscillators.** M. Quinsat[1,2], D. Gusakova[2], V. Tiberkevich[3], *A. Slavin* [3], J.F. Sierra[2], U. Ebels[2], M. Cyrille[1], L. Buda-Prejebeanu[2] and J.A. Katine[4] *1. CEA-LETI, MINATEC-Campus, Grenoble, France; 2. SPINTEC, UMR CEA / CNRS / UJF-Grenoble 1 / Grenoble-INP, INAC, Grenoble, France; 3. Department of Physics,, Oakland University, Rochester, MI; 4. Hitachi Global Storage Technologies, San Jose, CA*

11:45 **CD-12. Size dependent mode hopping rates in nano-contact spin torque oscillators: A consequence of spatially asymmetric spin wave mode profiles.** R.K. Dumas[1], S. Bonetti[3], S.R. Sani[2,3], S.M. Mohseni[2,3], A. Eklund[4], J. Persson[3] and *J. Åkerman* [1,2] *1. Physics Department, Univ Gothenburg, Göteborg, Sweden; 2. Materials Physics, Royal Institute of Technology (KTH), Stockholm, Sweden; 3. NanOsc AB, Kista, Sweden; 4. Devices and Circuits, Royal Institute of Technology (KTH), Stockholm, Sweden*

WEDNESDAY MORNING 9:00 **PARKVIEW 1**

Session CE
MULTILAYER FILMS AND SUPERLATTICES I

Ulrike Wolff, Session Chair
IFW Dresden

9:00 **CE-01. Measurement of orbital asymmetry and strain in CoFe/Ni multilayers by ferromagnetic resonance and x-ray diffraction.** *J.M. Shaw* [1], H.T. Nembach[1] and T.J. Silva[1] *1. NIST, Boulder, CO*

9:15 CE-02. Modulation of resonant frequency of perpendicular standing spin waves in multilayered ferromagnetic wires. *Y. Kasatani* [1], A. Yamaguchi[2], K. Sekiguchi[1] and Y. Nozaki[1,3] *1. Physics, Keio University, Yokohama-shi, Kanagawa-ken, Japan; 2. Spintronics Research Center, AIST, Tsukuba-shi, Ibaraki-ken, Japan; 3. CREST, JST, Chiyoda-ku, Tokyo-to, Japan*

9:30 CE-03. Small Gilbert damping for Ni/Co multilayers with perpendicular magnetic anisotropy. *G. Woltersdorf* [1], M. Härtinger[1], C.H. Back[1], S.P. Parkin[2] and S.H. Yang[2] *1. Physics, University of Regensburg, Regensburg, Germany; 2. IBM Almaden, San Jose, CA*

9:45 CE-04. Structural dependent Gilbert damping in sputtered Co/Pd multilayers. *T. Kato* [1], Y. Matsumoto[1], S. Okamoto[2], N. Kikuchi[2], S. Iwata[1], O. Kitakami[2] and S. Tsunashima[3] *1. Department of Quantum Engineering, Nagoya University, Nagoya, Aichi, Japan; 2. Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Miyagi, Japan; 3. Department of Research, Nagoya Industrial Science Research Institute, Nagoya, Aichi, Japan*

10:00 CE-05. Independent Magnetization Switching and Magnetoresistance in a Bilayer of Two Ferromagnetic Materials without a Non-magnetic Spacer. *R. Tolley* [1], T. Reid[1], X. Liu[2], J.K. Furdyna[2], A. Sokolov[3] and K.F. Eid[1] *1. Physics, Miami University, Oxford, OH; 2. Department of Physics, University of Notre Dame, Notre Dame, IN; 3. Department of Physics & Astronomy, University of Nebraska-Lincoln, Lincoln, NE*

10:15 CE-06. Giant magnetoresistance effects on electromigration characteristics in spin valve read sensors during retrieving operation. *D. Zeng* [1], K. Lee[2], K. Chung[2] and S. Bae[1] *1. Biomagnetics Laboratory (BML), Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; 2. Nuri Vista Co. Ltd, Songdo-Dong, Yeonsu-Gu, Incheon, 406-840,, Republic of Korea*

10:30 CE-07. Growth and characterization of ferromagnetic/ferroelectric multilayers for tunnel junctions. *L. Steren* [1,2], L. Aviles Felix[3,2], G. Alejandro[3,2], S. Carreira[1], E. Kaul[3,2] and M. Sirena[3,2] *1. Centro Atomico Constituyentes, San Martin, Argentina; 2. Consejo Nacional de Investigaciones Científicas y Técnicas, Buenos Aires, Argentina; 3. Centro Atomico Bariloche, Bariloche, Argentina*

10:45 CE-08. Bistable Switching Of Magnetization By Voltage Impulse In FeGaB/PZT Multiferroic Heterostructures. *T. Nan* [1], Z. Zhou[1], J. Lou[1], X. Yang[1], S. Rand[1], Y. Gao[1] and N. Sun[1] *1. ECE, Northeastern University, Boston, MA*

11:00 CE-09. Enhanced damping in ferromagnet/antiferromagnet bilayers due to local mode excitation. *J. Barker* [1], R.W. Chantrell[1] and B. Ivanov[2] *1. Physics, University of York, York, Yorkshire, United Kingdom; 2. Institute of Magnetism, National Academy of Sciences of Ukrane, Kiev, Ukraine*

11:15 CE-10. Magnetization States and Processes in Cobalt Ultrathin Films and Multilayers. *M. Kisielewski* [1], P. Mazalski[1], A. Maziewski[1], F. Stobiecki[2], M. Tekielak[1] and V. Zablotskii[3] *1. Faculty of Physics, University of Bialystok, Bialystok, Poland; 2. Institute of Molecular Physics, Polish Academy of Sciences, Poznan, Poland; 3. Institute of Physics, ASCR, Prague, Czech Republic*

WEDNESDAY MORNING 9:00 — PARKVIEW 2/3

Session CF
NANOPARTICLES I

Balachandran Jeyadevan, Session Chair
The University of Shiga Prefecture

9:00 CF-01. Local and collective state of ordered magnetic nanoparticles in mesoporous systems. *J. Vargas* [1], A. Srivastava[1,2], D. Lenormand[1,2], A. Yourdkhani[1,3], G. Caruntu[1,3] and L. Spinu[1,2] *1. Advance Materials Research Institute, University of New Orleans, New Orleans, LA; 2. Department of Physics, University of New Orleans, New Orleans, LA; 3. Department of Chemistry, University of New Orleans, New Orleans, LA*

9:15 CF-02. Recent advances in magnetic nanoparticles with bulk-like properties suitable for bio-applications. *X. Batlle* [1], A. Labarta[1], N. Perez[1] and C. Moya[1] *1. Department of Fundamental Physics and Institute of Nanoscience and Nanotechnology, University of Barcelona, Barcelona, Spain*

9:30 CF-03. Magnetic interactions between iron oxide nanoparticles dispersed in porous silicon. *K. Rumpf* [1], P. Granitzer[1], P. Morales[2], P. Poelt[3] and M. Reissner[4] *1. Institute of Physics, Karl Franzens University Graz, Graz, Austria; 2. Instituto de Ciencia de Materials de Madrid, CSIC, Madrid, Spain; 3. Institute for Electron Microscopy, University of Technology Graz, Graz, Austria; 4. Institute of Solid State Physics, Vienna University of Technology, Vienna, Austria*

9:45 CF-04. Enhanced Permeability Dielectrics for Power Reduction in NML Circuits. *P. Li* [1], V.K. Sankar[1], G. Csaba[1], F. Shah[1], X.S. Hu[2], M.T. Niemier[2], W. Porod[1] and G.H. Bernstein[1] *1. Dept. of Electrical Engineering, University of Notre Dame, Notre Dame, IN; 2. Dept. of Computer Science and Engineering, University of Notre Dame, Notre Dame, IN*

10:00 CF-05. The magnetic properties of a porous silicon/Ni composite and its change due to magnetic field assisted pore formation. *P. Granitzer* [1], K. Rumpf[1], T. Ohta[2], N. Koshida[2], P. Poelt[3] and M. Reissner[4] *1. Institute of Physics, Karl Franzens University, Graz, Austria; 2. Tokyo University of Agriculture and Technology, Tokyo, Japan; 3. Institute for Electron Microscopy, University of Technology Graz, Graz, Austria; 4. Institute of Solid State Physics, Vienna University of Technology, Vienna, Austria*

10:15 CF-06. Effective of carrier fluid drying on the ac-susceptibility of aqueous magnetite nanoparticles. *S. Yoon* [1], A. Khandhar[2] and K.M. Krishnan[2] *1. Department of physics, Gunsan national university, Gunsan, Republic of Korea; 2. Department of materials science and engineering, University of Washington, Seattle, WA*

10:30 CF-07. Synthesis and characterization of self-assembled monolayer and bilayer carboxyl-group functionalized magnetic nanoparticles for bio-detection. *L. Li* [1], K. Mak[1], C. Leung[2], K. Chan[3], W. Zhong[4] and P. Pong[1] *1. Department of Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong, Hong Kong; 2. Department of Applied Physics, Hong Kong Polytechnic University, Hong Kong, Hong Kong; 3. Department of Chemistry, The University of Hong Kong, Hong Kong, Hong Kong; 4. Department of Physics, Nanjing University, Nanjing, China*

10:45 CF-08. Magneto-plasmonic properties of hybrid Au-Fe oxide heterodimers. *C. de Julian Fernandez* [1,2], F. Pineider[3,2], G. Campo[2], L. Cabrera[2], P. Ghigna[4], D. Cozzoli[5], C. Sangregorio[1,2], A. Caneschi[2] and D. Gatteschi[2] *1. CNR- ISTM, Milano, Italy; 2. INSTM- Univ. Florence, Florence, Italy; 3. CNR- ISTM, Padova, Italy; 4. INSTM- Univ. Pavia, Pavia, Italy; 5. Univ. of the Salento & NNL – CNR, Lecce, Italy*

11:00 CF-09. Formation of columnar structures by the magnetically directed assembly of cobalt ferrite nanoparticles. *D. Lisjak* [1], P. Jenuš[1] and M. Drofenik[1,2] *1. Department for Materials Synthesis, Jozef Stefan Institute, Ljubljana, Slovenia; 2. Faculty for Chemistry and Chemical Technology, University of Maribor, Maribor, Slovenia*

11:15 CF-10. Shape-dependent cation occupancy in Fe_3O_4 nanoparticle based on Mössbauer spectroscopy analysis. *S. Yoon* [1], S. Kim[1], C. Kim[1] and I. Shim[1] *1. Department of Physics, Kookmin University, Seoul, Republic of Korea*

11:30 CF-11. Magnetization drop at high temperature in oleic acid-coated magnetite nanoparticles. C. Rodríguez[1], Y. Kolen'ko[1], M. Bañobre-López[1], B. Rodríguez[1], P. Freitas[1] and *J. Rivas* [1] *1. International Iberian Nanotechnology Laboratory (INL), Braga, Portugal*

11:45 CF-12. Preparation and magnetic properties of porous NiO nanoplates. T. Li[1,2], *H. Bi* [1,2] and S. Li[3] *1. College of Chemistry and Chemical Engineering, Anhui University, Hefei, China; 2. AnHui Province Key Laboratory of Environment-friendly Polymer Materials, Hefei, China; 3. College of Physics Science, Qingdao University, Qingdao, China*

WEDNESDAY MEETING RM 8/15
MORNING
9:00

Session CG
MOTORS, GENERATORS & ACTUATORS II

Johannes Paulides, Session Chair
Eindhoven University of Technology

9:00 **CG-01. 2-DOF Electromagnetic Spherical Actuator with Wide Rotation Angle.** *Y. Sakaidani* [1], K. Hirata[1], N. Niguchi[1], T. Mingyu[1] and S. Maeda[1] *1. Osaka University, Suita city, Osaka, Japan*

9:15 **CG-02. Super-Multipolar Permanent Magnet Reluctance Generator Designed for Small-Scale Wind-Turbine Generation.** *K. Nakamura* [1] and O. Ichinokura[1] *1. Graduate School of Engineering, Tohoku University, Sendai, Japan*

9:30 **CG-03. Application of 2DoF control techniques for the smart actuation of a real plant by a magnetostrictive actuator with hysteresis.** D. Davino[1], A. Giustiniani[2], L. Iannelli[1] and *C. Visone* [1] *1. Dept. of Engineering, University of Sannio, Benevento, Italy; 2. DIEII, University of Salerno, Fisciano, Italy*

9:45 **CG-04. Comparison of two ultra-fast actuator concepts.** *A. Bissal* [1], J. Magnusson[1] and G. Engdahl[1] *1. Department of electromagnetic engineering, KTH, Stockholm, Sweden*

10:00 **CG-05. An Optimum Design Method for Surface Permanent Magnet Magnetic Gear Based on Reluctance Network Analysis.** *M. Fukuoka* [1], K. Nakamura[1] and O. Ichinokura[1] *1. Tohoku Univ, Sendai, Japan*

10:15 **CG-06. Torque ripple and unbalanced magnetic force due to the connecting wire between slot windings.** *S. Sung* [1] and G. Jang[1] *1. Dept. of Mechanical Engineering, PREM Lab., Hanyang University, Seoul, Republic of Korea*

10:30 **CG-07. Optimum structural design for vibration reduction of interior permanent magnet motor using level set method.** *S. Lim* [1], S. Min[1] and J. Hong[1] *1. Automotive Engineering, Hanyang University, Seoul, Republic of Korea*

10:45 CG-08. Analytical Dynamic Stator Vibration Modeling for Switched Reluctance Motor. *L. Shen* [1], J. Wu[1], S. Yang[1], H. Wang[1] and Y. Zhang[1] *1. College of Electrical Engineering, Zhejiang University, Hangzhou, Zhejiang Province, China*

11:00 CG-09. Demagnetization Fault Diagnosis in Surface Mounted Permanent Magnet Synchronous Motors. B. Ebrahimi[1] and *J. Faiz* [1] *1. University of Tehran, Tehran, Islamic Republic of Iran*

11:15 CG-10. Design Optimisation of Pole Arcs for producing maximum torque in Flux Switching Motor. *H. Balaraman* [1] and A. Rengasamy[2] *1. Dept of EEE, College of Engg. Guindy, Anna University, Chennai, Tamilnadu, India; 2. Dept. of EEE, SSN College of Engg,, Chennai, Tamil nadu, India*

11:30 CG-11. A Novel Windings Transposition for Windings Eddy Current Loss Reduction in the 2MW Multi-unit PMSM. *B. Zhao* [1], Y. Xu[1], J. Zou[1], K. Liu[1] and F. Xu[1] *1. Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, Hei-long Jiang, China*

11:45 CG-12. An Advanced Method for Iron loss Calculation in Induction Motors under Bars Breakage Fault. A. Takbash[1], B. Ebrahimi[1] and *J. Faiz* [1] *1. University of Tehran, Tehran, Islamic Republic of Iran*

WEDNESDAY MORNING 9:00

MEETING RM 13

Session CH
PERMANENT MAGNET APPLICATIONS

Kais Attalah, Session Chair
University of Sheffield

9:00 CH-01. Design of a coreless axial flux permanent magnet flywheel motor/generator for pulsed power application. *J. Dong* [1,2], Y. Huang[1,2], B. Ge[1], L. Jin[1,2], J. Zhu[3] and Y. Guo[3] *1. School of Electrical Engineering, Southeast University, Nanjing, China; 2. Engineering Research Centre for Motion Control of Ministry of Education, Southeast University, Nanjing, Jiangsu, China; 3. School of Electrical, Mechanical and Mechatronic Systems, University of Technology Sydney, Sydney, NSW, Australia*

9:15 CH-02. An Analysis of Axial Flux PM brushless dc Wheel Motor. *M. Rahman* [1], D. Rahim[2], D. Ping[3] and M. Tadjuddin[4] *1. Faculty of Engineering and Applied Science, Memorial University of Newfoundland, St. John's, NF, Canada; 2. Electrical Engineering, Univesity of Malaya, Kuala Lumpur, Malaysia; 3. Electrical Engineering, Univesity of Malaya, Kuala Lumpur, Malaysia; 4. Electrical Engineering, Univesity of Malaya, Kuala Lumpur, Malaysia*

9:30 CH-03. Investigation of Locked Rotor Test for Estimation of Magnet Eddy Current Loss in Synchronous Machines. *K. Yamazaki* [1], T. Fukuoka[1], K. Akatsu[2], N. Nakano[2] and A. Ruderman[3] *1. Dept. of Electrical, Electronics and Computer Engineering, Chiba Institute of Technology, Narashino, Chiba, Japan; 2. Dept of Electrical Engineering, Shibaura Institute of Technology, Kotou-ku, Tokyo, Japan; 3. Elmo Motion Control Ltd., Petach-Tikva, Israel*

9:45 CH-04. Magnetostatic Field Analysis of a DC Commutator Motor by1-D and 2-D Equivalent Magnetic Circuit Methods. Y. Wu[1], *G. Chen* [2] and H. Yan[2] *1. Department of Mechanical Engineering, National Yunlin University of Science & Technology, Yunlin, Taiwan; 2. Mechanical Engineering, National Cheng Kung Univiersity, Tainan, Taiwan*

10:00 CH-05. Design and Development of a Three-Phase Permanent Magnet Brushless DC Motor for an Electric Two-Wheeler. *P. Upadhayay* [1,2], M. Fazil[1,2] and K. Rajagopal[2] *1. Global R&D Center, Crompton Greaves Ltd., Mumbai, Maharashtra, India; 2. Department of Electrical Engineering, Indian Institute of Technology Delhi, New Delhi, New Delhi, India*

10:15 CH-06. An alternative system to characterize permanent magnets with strong magneto-crystalline anisotropy without irreversible demagnetization. *A.F. Flores Filho* [1] and H.R. Anocibar[2] *1. Electrical Engineering, Federal University of Rio Grande do Sul, Porto Alegre, Brazil; 2. Electronics, National University of Misiones, Obera, Argentina*

10:30 CH-07. Augmented temperature degrading effect of rare earth magnets arranged in segmented Halbach arrays. *O. Winter* [1], C. Kral[1] and E. Schmidt[2] *1. Mobilty Department - Electric Drive Technologies, AIT Austrian Institute of Technology, Vienna, Austria; 2. Institute of Energy Systems and Electrical Drives, Vienna University of Technology, Vienna, Austria*

10:45 CH-08. Design and analysis of a novel transverse-flux tubular linear machine with gear-shaped teeth structure. J. Pan[1], *N.C. Cheung* [2] and Y. Zou[1] *1. Department of Automation Science, College of Mechatronics and Control Engineering, Shenzhen University, Shenzhen, Guangdong, China; 2. Electrical Engineering, Hong Kong Polytechnic University, Hong Kong, China*

11:00 CH-09. Minimization of Torque Ripple for IPM Machines by Optimizing Rotor Topology Based on the Principle of Mutual Harmonics Exclusion. *A. Wang* [1], J. Zhao[1] and W. Soong[2] *1. North China Electric Power University, Baoding, China; 2. University of Adelaide, Adelaide, SA, Australia*

11:15 CH-10. A Magnetoelectric Generator for Vibration Energy Harvesting from Magnetic Levitation. *Y. Zhu* [1], J. Zu[1] and S. Dhote[1] *1. Mechanical and Industrial Engineering, University of Toronto, Toronto, ON, Canada*

11:30 CH-11. A Sensorless Permanent Magnet Brushless DC Motor with Bifilar Winding for Automotive Engine Cooling Application. *C. Wei* [1], H. Miao[1], M. Xu[1] and Y. Zhang[1] *1. Shanghai University, Shanghai, China*

11:45 CH-12. 3 phase written pole motor design for maximizing the magnetization mmf. *K. Park* [1], K. Yuk[1], M. Choi[1] and B. Kim[1] *1. Kunsan National Univ., Gunsan, Republic of Korea*

WEDNESDAY MORNING
8:00

EXHIBITION HALL A

Session CP
FIELD AND HYSTERESIS MODELING (Poster Session)

Vitaliy Lomakin, Session Chair
CMRR
Dorin Cimpoesu, Session Chair
Alexandru Ioan Cuza University of Iasi

CP-01. Vector Magnetic Characteristic Analysis of a PM Motor considering Residual Stress Distribution with Complex-approximated Material Modeling. S. Zeze[1], Y. Kai[2,1], T. Todaka[1] and *M. Enokizono* [1] *1. Electrical and electronic Engineering, Faculty of Engineering, Oita University, Oita, Japan; 2. Oita Prefectural Organization for Industry Creation, Oita, Japan*

CP-02. Fixed-point Harmonic-balanced Method for dc-biasing Hysteresis Analysis Using the Neural Network and Consuming Function. *X. Zhao* [1], L. Li[1], J. Lu[2], H. Li[1], Z. Cheng[3] and T. Lu[1] *1. North China Electric Power University, Baoding city, Hebei, China; 2. Griffith University, Gold Coast, QLD, Australia; 3. Tianwei Group Co., LTD, Baoding, Hebei, China*

CP-03. A Preisach-type magnetostriction model for materials exhibiting Villari reversal. *H. ElBidweihy* [1], E. Della Torre[1], Y. Jin[1], L.H. Bennett[1] and M. Ghahremani[1] *1. Dept. of Electrical and Computer Engineering, George Washington University, Washington, DC*

CP-04. First order reversal curve (FORC) analysis in one dimensional strongly correlated magnetic chains. *R. Tanasa* [1] and A. Stancu[1] *1. Department of Physics, "Alexandru Ioan Cuza" University, Iasi, Romania*

CP-05. Reduction of Computing Time for Steady-State Solutions of Magnetic Field and Circuit Coupled Problems Using Time-Domain Finite Element Method. *W. Fu* [1], S. Ho[1] and P. Zhou[2] *1. The Hong Kong Polytechnic University, Hong Kong, Hong Kong; 2. Ansys Inc., Pittsburgh, PA*

CP-06. Mathematical Modelling of magnetic hysteresis in exchange-bias spin valves. *E. Cardelli* [1], A. Faba[1], B. Azzerboni[2] and G. Finocchio[2] *1. Dept. of Industrial Engineering, University of Perugia, Perugia, Italy; 2. Dept. of Matter physics and Electronic Engineering, University of Messina, Messina, Italy*

CP-07. Energy and Losses in Vector Thermal Aftereffect Model. *E. Cardelli* [1], E. Della Torre[2], A. Faba[1] and M. Ovichi[2] *1. Dept. of Industrial Engineering, University of Perugia, Perugia, Italy; 2. Dept. of Electrical & Computer Engineering, The George Washington University, Washington DC, DC*

CP-08. Maximum susceptibility of ferromagnetic hysteresis. *C.S. Schneider* [1] *1. Physics, U.S. Naval Academy, Annapolis, MD*

CP-09. Identification of the parameters of Jiles-Sablik magnetoelastic model by neural networks. *M. Trapanese* [1] *1. Dipartimento di Ingegneria Elettrica, Elettronica e delle Telecomunicazioni, Università di Palermo, Palermo, Italy*

CP-10. Negative coercivity in a simple system with two uniaxial anisotropies under various applied magnetic field directions. *Y. Nam* [1] and S. Lim[2,1] *1. Nano Semiconductor Engineering, Korea University, Seoul, Republic of Korea; 2. Materials science and engineering, Korea university, Seoul, Republic of Korea*

CP-11. Magnetic Field Analysis of Ring Core Taking Account of Hysteretic Property Using Play Model. *J. Kitao* [1], K. Hashimoto[1], Y. Takahashi[1], K. Fujiwara[1], Y. Ishihara[1], A. Ahagon[2] and T. Matsuo[3] *1. Doshisha University, Kyoto, Japan; 2. SSIL, Tokyo, Japan; 3. Kyoto University, Kyoto, Japan*

CP-12. Implementation and verification of a dynamic vector-hysteresis model. *S. Steentjes* [1], D. Eggers[1] and K. Hameyer[1] *1. Institute for Electrical Machines, RWTH Aachen University, Aachen, Germany*

CP-13. Three-dimensional mode-matching applied to three-dimensional magnetic field modeling. *J. Smeets* [1], T. Overboom[1], J. Jansen[1] and E. Lomonova[1] *1. Eindhoven University of Technology, Eindhoven, Netherlands*

CP-14. Complex coefficients mesh-less method for nonuniform medium time-harmonic problem. *X. Chen* [1], K. Shao[1], Y. Guo[2] and J. Zhu[2] *1. Huazhong University of Science and Technology, Wuhan, China; 2. University of Technology, Sydney, ACT, Australia*

CP-15. Research on a Permanent Magnet Tubular Linear Generator for Direct-Driver Wave Energy Converter. C. Liu[1], *H. Yu* [1], M. Hu[1], S. Zhou[1] and L. Huang[1] *1. Engineering Research Center of Motion Control of Ministry of Education,School of Electrical Engineering,Southeast University, NanJing, jiangsu, China*

WEDNESDAY MORNING 8:00 EXHIBITION HALL A

Session CQ
MAGNETIZATION DYNAMICS II (Poster Session)

Andrei Slavin, Session Chair
Oakland University

CQ-01. Frequency-tunable magnetic relaxation in periodic nanostructures tailored by ion beam irradiation. *K. Lenz* [1], I. Barsukov[2], M. Körner[1], A. Banholzer[1], F.M. Römer[2], M.O. Liedke[1], J. Grebing[1], J. Lindner[2], M. Farle[2] and J. Fassbender[1] *1. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, P.O.Box 510119, 01314 Dresden, Germany; 2. Fakultät für Physik and Center for Nanointegration (CeNIDE), Universität Duisburg-Essen, 47048 Duisburg, Germany*

CQ-02. Temperature Dependence of All-optical Ultrafast Magnetization Switching in TbFeCo. T. Cheng[1,3], J. Wu[1], M. Willcox[1], T. Liu[2], J. Cai[2], *R.W. Chantrell* [1] and Y. Xu[3] *1. Department of Physics, University of York, York, United Kingdom; 2. Institute of Physics, Chinese Academy of Sciences, Beijing, China; 3. Department of Electronics, University of York, York, United Kingdom*

CQ-03. Spin torque analysis from trajectory of magnetic vortex-core observed using time-resolved photoemission electron microscope technique. *M. Kodama* [1], H. Hata[1], Y. Kasatani[1], K. Sekiguchi[1], A. Yamaguchi[2], T. Ohkochi[3], M. Kotsugi[3], T. Kinoshita[3] and Y. Nozaki[1,4] *1. Dept. of Physics, Keio Univ., Yokohama, Japan; 2. National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan; 3. Synchrotron Radiation Research Unit, Japan Atomic Energy Agency, Sayo, Japan; 4. JST CREST, Tokyo, Japan*

CQ-04. Determination of spin wave k-vectors from time-domain electrical measurements. *S.S. Mukherjee* [1], J.H. Kwon[1], M. Hayashi[2] and H. Yang[1] *1. National University of Singapore, Singapore, Singapore; 2. National Institute of Materials Science, Sengen, Japan*

CQ-05. Microscopic magnetic structuring of spin-wave waveguides by ion implantation in a $Ni_{81}Fe_{19}$ layer. *T. Meyer* [1], B. Obry[1], P. Pirro[1], T. Brächer[1,2], R. Neb[1], J. Osten[3], T. Strache[3], J. Fassbender[3] and B. Hillebrands[1] *1. AG Magnetismus, Department of Physics and Landesforschungszentrum OPTIMAS, TU Kaiserslautern, Kaiserslautern, Rheinland-Pfalz, Germany; 2. Graduate School Materials Science in Mainz, TU Kaiserslautern, Kaiserslautern, Rheinland-Pfalz, Germany; 3. Institut für Ionenstrahlphysik und Materialforschung, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Sachsen, Germany*

CQ-06. Optic acoustic modes excited in a broadband permeability measurement of ferromagnetic thin film by a coaxial line perturbation method. A. Bonneau-Brault[1,2], S. Dubourg[1], *F. Duverger* [1] and J. Le Gallou[1] *1. CEA Le Ripault, Monts, France; 2. GREMAN UMR 7347, Univ. Tours, 37200 Tours, France*

CQ-07. Skyrmion dynamics in perpendicular anisotropy nanostructures. *C. Moutafis* [1,2], A. Bisig[3,1], F. Büttner[3,4], M. Stärk[5], J. Rhensius[1], M. Weigand[6,7], J. Franken[8], R. Lavrijsen[8], H. Swagten[8], C. Barton[9], C. Morrison[9], T. Thomson[9] and M. Kläui[3] *1. Paul Scherrer Institut, Villigen PSI, Switzerland; 2. EPFL, Lausanne, Switzerland; 3. Institute of Physics, University of Mainz, MAINZ, Germany; 4. Institut für Optik und Atomare Physik, Technical University Berlin, Berlin, Germany; 5. University of Konstanz, Konstanz, Germany; 6. Helmholtz Zentrum Berlin, Berlin, Germany; 7. Max Planck Institute for Intelligent Systems, Stuttgart, Germany; 8. Technical University Eindhoven, Eindhoven, Netherlands; 9. School of Computer Science, University of Manchester, Manchester, United Kingdom*

CQ-08. Vortex-Gyration-Mediated Magnonic Crystals. *D. Han* [1], L. Ki-Suk[1], H. Jung[1] and S. Kim[1] *1. National Creative Research Initiative Center for Spin Dynamics and Spin-Wave Devices, Nanospinics Laboratory, and Research Institute of Advanced Materials, Department of Materials Science and Engineering, College of Engineering, Seoul National University, Seoul, Republic of Korea*

CQ-09. Effect of doping elements on the damping constant of $(Ni\text{-}Fe)_{1-x}M_x$ (M=Ga, Ag, Mo, and W) films. *Y. Endo* [1], Y. Mitsuzuka[1], K. Okawa[1], Y. Shimada[1] and M. Yamaguchi[1,2] *1. Department of Electrical and Communication Engineering, Graduate School of Engineering, Tohoku University, Sendai, Miyagi, Japan; 2. New Industry Creation Hatchery Center, Tohoku University, Sendai, Miyagi, Japan*

CQ-10. Generation of bright and dark spin wave envelope soliton trains through self-modulational instability in magnonic crystals. *A.V. Drozdovskii* [1], A.B. Ustinov[1], M.A. Cherkasskii[1] and B.A. Kalinikos[1] *1. Physical Electronics and Technology, Saint Petersburg Electrotechnical University LETI, Saint-Petersburg, Russian Federation*

CQ-11. Microwave behaviour of polymer bonded iron oxide nanoparticles. *A. Caprile* [1,2], M. Pasquale[1], M. Coïsson[1], F. Fiorillo[1], O.M. Manu[3], E.S. Olivetti[1], M.A. Olariu[4] and V.A. Scarlatache[4] *1. INRIM, Torino, Italy; 2. Physics, Politecnico di Torino, Torino, Italy; 3. Universitatea "Stefan cel Mare", Suceava, Romania; 4. Faculty of Electrical Engineering, Gheorghe Asachi Technical University, Iasi, Romania*

CQ-12. Magnon magnetometry of non-linear spin-wave excitations. *G. Woltersdorf* [1], H.G. Bauer[1], P. Majchrak[1], T. Kachel[2] and C.H. Back[1] *1. Physics, University of Regensburg, Regensburg, Germany; 2. Helmhotz Zentrum Berlin, Berlin, Germany*

WEDNESDAY MORNING 8:00

EXHIBITION HALL A

Session CR
SPIN ELECTRONICS (Poster Session)

Jianhua Zhao, Session Chair
Institute of Semiconductors, Chinese Academy of Sciences
Tetsuya Uemura, Session Chair
Hokkaido Universtiy

CR-01. Theoretical study on the vortex-antivortex pair rotation in a magnetic thin-film with multi-contacts. *H. Tsukahara* [1], H. Arai[1] and H. Imamura[1] *1. National Institute of Advanced industrial Science and Technology (AIST), Tsukuba, Japan*

CR-02. Spin-transfer induced microwave oscillation of a magnetic point contact with a confined domain wall. *H. Arai* [1], H. Tsukahara[1] and H. Imamura[1] *1. Nanosystem Research Institute, National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan*

CR-03. Dynamical spin injection into semiconductors. *K. Ando* [1] and E. Saitoh[1] *1. Institute for Materials Research, Tohoku University, Sendai, Japan*

CR-04. Spin accumulation in *n*-Ge detected by three-terminal Hanle-effect measurements through Fe_3Si/n^+-Ge contacts. *S. Yamada* [1], Y. Baba[1], G. Takemoto[1], K. Kasahara[1], Y. Hoshi[2], K. Sawano[2], M. Miyao[1] and K. Hamaya[1] *1. Department of Electronics, Kyushu University, 744 Motooka, Fukuoka, Japan; 2. Advanced Research Laboratories, Tokyo City University, 8-15-1 Todoroki, Tokyo, Japan*

CR-05. Generation of pure spin current using nano-pillar-based lateral spin valve. S. Nonoguchi[1], T. Nomura[1] and *T. Kimura* [1,2] *1. INARMORI Frontier Research Center, Kyushu University, Fukuoka, Japan; 2. CREST, JST, Tokyo, Japan*

CR-06. Spin current generator based on topological insulator. *M. Ma* [1], M. Jalil[1,2] and S. Tan[1,3] *1. Computational Nanoelectronics & Nanodevices Laboratory, National University of Singapo, Singapore, Singapore; 2. Information Storage Materials Laboratory, National University of Singapore, Singapore, Singapore; 3. Data Storage Institute, Singapore, Singapore*

CR-07. Robust spin current in the time-dependent Rashba system. C. Ho[1,2], *M. Jalil* [2] and S. Tan[1] *1. Electrical Engineering, National University of Singapore, Singapore, Singapore; 2. Data Storage Institute, Agency for Science, Technology and Research (A*STAR), Singapore, Singapore*

CR-08. Quantitative evaluation of spin Hall angle by using spin-current induced ferromagnetic resonance. *K. Kondou* [1], H. Sukegawa[1], S. Mitani[1], K. Tsukagoshi[1] and S. Kasai[1] *1. Magnetic Materials Unit, National Institute for Materials Science, Tsukuba, Japan*

CR-09. Geometrical dependence of spin-Hall signal in lateral devices with a perpendicular spin polarizer. *T. Seki* [1], S. Shibata[1] and K. Takanashi[1] *1. Institute for Materials Research, Tohoku University, Sendai, Japan*

CR-10. Detection of pure spin current using a nonlocal loop circuit. *T. Nomura* [1], S. Nonoguchi[1] and T. Kimura[1,2] *1. INAMORI Frontir Research Center, Kyushu University, Fukuoka, Japan; 2. CREST, JST, Tokyo, Japan*

CR-11. Enhancement of a the spin signal in metallic lateral spin valves. P. Laczkowski[1,2], *J.C. Rojas Sánchez* [1,2], L. Vila[1,2], W. Savero Torres[1,2], A. Marty[1,2], M. Jamet[1,2], C. Beigné[1,2], L. Notin[1,2] and J. Attané[1,2] *1. NM,SP2M, INAC, CEA Grenoble, Grenoble, France; 2. Université Joseph Fourier, Grenoble, France*

CR-12. FMR Based Spin Pumping in Lateral Spin Valve Geometry. *S. Lim* [1], T. Wallis[1], A. Imtiaz[1], A. Curtin[1], D. Gu[1] and P. Kabos[1] *1. electromagnetics, national institute of standards and technology, Boulder, CO*

CR-13. Effect of thermal artifact on the spin Seebeck measurement in metallic thin films deposited on MgO substrates. *S. Bosu* [1], Y. Sakuraba[1], K. Uchida[1], K. Saito[1], E. Saitoh[1] and K. Takanashi[1] *1. Institute for Materials Research, Tohoku University, Sendai, Japan*

CR-14. Position-dependent spontaneous magnetic domain wall motion in ferromagnetic nanowire. H. Piao[1,2], J. Shim[2], *S. Lee* [2], D. Djuhana[3,2], S. Yu[2], S. Oh[2] and D. Kim[2] *1. Materials Science and Engineering,,, Tsinghua University, Beijing, China; 2. Physics, Chungbuk National University, Cheongju, Chungcheongbuk-Do, Republic of Korea; 3. Physics, University of Indonesia, Depok, Indonesia*

CR-15. The influence of the anisotropic effect on the spin Hall effect studied using the effective mean-free-path model. *S. Chen* [1] and C. Chang[2] *1. Department of Electrophysics, National Chiayi University, Chia Yi, Taiwan; 2. Department of Physics, National Taiwan University, Taipei, Taiwan*

CR-16. Spin seebeck effect in SiO_2/Py structures. *S. Kim* [1,2], S. Park[2], B. Min[3], Y. Jo[2], K. Lee[1] and K. Shin[3] *1. Department of Materials Science and Engineering, Korea University, Seoul, Republic of Korea; 2. Nano Material Research Team, Korea Basic Science Institute, Daejeon, Republic of Korea; 3. Korea Institute of Science and Technology, Seoul, Republic of Korea*

WEDNESDAY MORNING 8:00

EXHIBITION HALL A

Session CS
PATTERNED MEDIA (Poster Session)

Richard Evans, Session Chair
University of York

CS-01. Sub-μm magnetic and sub-100 nm topological patterning of Co/Pt multi-layers using a He^+ ion beam microscope. *C. Fowley* [1,4], Z. Diao[4,2], C. Faulkner[3], G. Behan[3], J. Kally[4], H. Zhang[3] and M. Coey[4] *1. Helmholtz Zentrum Dresden Rossendorf, Dresden, Germany; 2. Department of Physics, University of Alberta, Edmonton, AB, Canada; 3. CRANN Advanced Microscopy Laboratory, Trinity College Dublin, Dublin, Ireland; 4. CRANN and School of Physics, Trinity College Dublin, Dublin, Ireland*

CS-02. Fabrication and magnetic properties of ion implant patterned magnetic recording media with block copolymer aided Au island masks. *C. Choi* [1,2], K. Noh[1,2], D. Choi[1,2], J. Khamwannah[1,2], C. Liu[1,2], L. Chen[1,2] and S. Jin[1,2] *1. Center for Magnetic Recording Research, University of California at San Diego, La Jolla, CA; 2. Materials science & engineering, University of California at San Diego, La jolla, CA*

CS-03. Bit patterned structure fabricated by Kr^+ ion irradiation onto perpendicular magnetization MnBiCu films. *Q. Xu* [1], R. Kanbara[1], T. Kato[1], S. Iwata[1] and S. Tsunashima[2] *1. Quantum Engineering, Nagoya University, Nagoya, Japan; 2. Nagoya Industrial Science Research Institute, Nagoya, Japan*

CS-04. Control of magnetic properties of MnAl films by Kr^+ ion irradiation for planar bit patterned media. *D. Oshima* [1], K. Takeshi[1], S. Iwata[1] and S. Tsunashima[2] *1. Nagoya University, Nagoya, Japan; 2. Nagoya Industrial Science Research Institute, Nagoya, Japan*

CS-05. Fabrication of dense non-circular nanomagnetic device arrarys using self-limiting low-energy glow-discharge processing. *Z. Zheng* [1], L. Chang[1], P. Ruchhoeft[1], S. Khizroev[3] and D. Litvinov[1,2] *1. Electrical & Computer Engineering, University of Houston, Houston, TX; 2. Chimical & Biomolecular Engineering, University of Houston, Houston, TX; 3. Elecrical Engineering, University of California, Riverside, CA*

CS-06. Continuous films of $L1_0$-ordered Fe-Pt-SiO_2 alloy for bit patterned media. *J. Sayama* [1] and Y. Hirayama[1] *1. Central Research Laboratory, Hitachi, Ltd., Odawara, Kanagawa, Japan*

CS-07. First-order Reversal Curve Investigations on Antiferromagnetically Coupled Antidots of Co/Pd Multilayers. *S.N. Piramanayagam* [1], M. Ranjbar[1,2], R. Sbiaa[1] and T. Chong[2,1] *1. A*STAR (Agency for Science, Technology and Research), Data Storage Institute, Singapore, Singapore; 2. National University of Singapore, Singapore, Singapore*

CS-08. Magnetic properties of exchange coupled magnetic dot arrays for next generation bit patterned media. *J. Ariake* [1], Y. Kondo[1], T. Kiya[1] and N. Honda[2] *1. AIT, Akita Industrial Technology Center, Akita, Japan; 2. Tohoku Institute of Technology, Sendai, Japan*

CS-09. Multi-domain storage in graded bit patterned media. *L.V. Chang* [1], P. Ruchhoeft[1], S. Khizroev[2] and D. Litvinov[1] *1. Electrical and Computer Engineering, University of Houston, Houston, TX; 2. Engineering and Computing, Florida International University, Miami, FL*

CS-10. 5.0 Tbit/inch^2 FePt Bit-patterned Media Fabricated by a Self-assembled Polymer Mask. *Y. Kamata* [1], R. Yamamoto[1], T. Maeda[1], N. Kihara[1] and A. Kikitsu[1] *1. TOSHIBA corporation, Kawasaki, Japan*

CS-11. Fine Pattern Transfer Process of 20 nm-pitch Self-assembled Polymer Mask for CoPt Bit Patterned Media. *A. Watanabe* [1], K. Takizawa[1], K. Kimura[1], T. Onitsuka[1], T. Iwasaki[1], A. Takeo[1] and Y. Kamata[2] *1. Storage Products Div., Toshiba Corporation Semiconductor & Storage Products Company, Kawasaki, Japan; 2. Corporate R&D Center, Toshiba Corporation, Kawasaki, Japan*

CS-12. EFFECT of angstrom-scale surface roughness of magnetic media on the self-assembly of block copolymer polystyrene-b-polydimethylsiloxane. *S. Kundu* [1,2], R. Ganesan[2], N. Gaur[1], M. Saifullah[2], H. Hussain[2], H. Yang[1] and C. Bhatia[1] *1. Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; 2. Institute of Materials Research and Engineering, A*STAR (Agency for Science, Technology and Research), Singapore, Singapore*

CS-13. Switching Field Distribution by Etching Damage of FePt Bit Patterned Media Made with a Self-assembled Polymer Mask with 35nm-pitch. *T. Maeda* [1], H. Hieda[1], Y. Isowaki[1], T. Shimada[1], Y. Kamata[1] and A. Kikitsu[1] *1. Corporate R&D Center, Toshiba Corporation, Kawasaki, Japan*

WEDNESDAY MORNING 8:00

EXHIBITION HALL A

Session CT
SPINTRONICS: MULTIFERROIC AND ORGANIC MATERIALS AND MAGNETIC SEMICONDUCTORS
(Poster Session)

Vincent Jeudy, Session Chair
Université Paris Sud Orsay

CT-01. Electroresistance Effect in Multiferroic heterostrucutres for ultralow power memory devices. *J. Zhao* [1], M. Lewis[1], H. Liu[2], Y. Wang[2], P. Khalili-Amiri[1], X. Han[2] and K.L. Wang[1] *1. Electrical Engineering, University of California, Los Angeles, Los Angeles, CA; 2. State Key Laboratory of Magnetism, Institute of Physics, Chinese Academy of Sciences, Beijing, Beijing, China*

CT-02. Measurement of Energy Loss in Magnetoelectric Composite Materials. *J. Lou* [1], G. Pellegrini[1] and N.X. Sun[1] *1. Electrical and Computer Engineering, Northeastern University, Boston, MA*

CT-03. Site preference for Fe in Zn-doped Y-type barium hexaferrite. *C. Kim* [1], C. Rhee[1] and C. Kim[1] *1. Physics, Kookmin University, Seoul, Republic of Korea*

CT-04. Structural and magnetic properties of multiferroic $BiFe_{1-x}Ni_xO_3$. *Y. Yoo* [1], J. Park[2], J. Kang[3], J. Kim[4], B. Lee[4] and Y. Lee[1] *1. Dept. of Physics, Hanyang Unversity, Seoul, Republic of Korea; 2. Institute of Basic Sciences and Dept. of Physics, Sungkyunkwan Unversity, Suwon, Republic of Korea; 3. Dept. of Nano & Electronic Physics, Kookmin Unversity, Seoul, Republic of Korea; 4. Dept. of Electronic Physics, Hankuk University of Foreign Studies, Yongin, Republic of Korea*

CT-05. Conductivity Across Barriers as Origin of High-temperature Dielectric Response in $BaTiO_3$ Substituted $BiFeO_3$ Multiferroic Ceramics. *T. Wang* [1], C. Tu[1], K. Wu[2], Y. Yao[1] and V. Schmidt[3] *1. The Graduate Institute of Applied Science and Engineering, Fu Jen Catholic University, Taipei, Taiwan; 2. Department of Physics, Fu Jen Catholic University, Taipei, Taiwan; 3. Department of Physics, Montana State University, Bozeman, MT*

CT-06. Enhanced magnetic and dielectric properties of BiFeO3@BaTiO3 core-shell nanostructure. Y. Zhao[1], F. Weng[1], X. Wu[1], J. Miao[1], X. Xu[1], L. Qiao[1] and *Y. Jiang* [1] *1. School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing, China*

CT-07. Enhanced electric and magnetic properties of the epitaxial (Ba0.5Sr0.5)TiO3/BiFeO3 multiferroic heterostructure. Y. Chen[1], J. Miao[1], X. Zhang[1], F. Weng[1], X. Xu[1], L. Qiao[1] and *Y. Jiang* [1] *1. School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing, China*

CT-08. Room temperature ferromagnetism in lithium-doped ZnO. C. Ran[1], H. Yang[1], X. Xu[1], J. Miao[1], L. Qiao[1] and *Y. Jiang* [1] *1. School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing, China*

CT-09. Macrospin model of a stress-mediated magnetoelectric memory element (MELRAM). *Y. Dusch* [1], N. Tiercelin[1], S. Giordano[1], P. Pernod[1] and V. Preobrazhensky[1,2] *1. International Associated Laboratory LEMAC, IEMN UMR CNRS 8520, PRES Lille nord de France, EC Lille, 59651 Villeneuve d'Ascq, France; 2. International Associated Laboratory, Wave Research Center, GPI RAS, 38 Vavilov str., Moscow 119991, Russian Federation*

CT-10. Characterisation of temperature-dependent electronic transport in P3HT. *M. Hodges* [1], A. Drew[2], M. Willis[2] and N. Morley[1] *1. Materials Science and Engineering, University of Sheffield, Sheffield, South Yorkshire, United Kingdom; 2. School of Physics & Astronomy, Queen Mary University of London, London, United Kingdom*

CT-11. Observation of magnetic single-domain motion in ZnCoO. *W. Kim* [1], S. Lee[1], S. Cho[1], Y. Cho[1], H. Koinuma[1,2] and S. Jeong[1] *1. Cogno-Mechatronics Engineering, Pusan National University, Miryang, Republic of Korea; 2. Graduate School of Frontier Sciences, The University of Tokyo, Kashiwa, Japan*

CT-12. First-principles Study for the Ferromagnetism in Cu-doped ZnO with the Carrier Doping. *B. Kang* [1], K. Chae[1], J. Lee[1], K. Kim[2], S. Yu[2] and S. Oh[2] *1. Dept. of Nano science and Mechanical engineering, Konkuk University, Chungju, Republic of Korea; 2. Dept. of Physics and BK21 Physics Program, Chungbuk National University, Cheongju, Republic of Korea*

CT-13. Magnetotransport study of pure and Co doped ZnO thin films. P. Kumar[1] and *S. Ghoshal* [1] *1. Physics, Indian Institute of Science, Bangalore, Karnataka, India*

CT-14. Influence of vacuum annealing on structural, optical, electrical and magnetic properties of $Zn_{0.94}Co_{0.05}Al_{0.01}O$ diluted magnetic semiconductor thin films. *J. Lee* [1], Y. Lee[2], S. Lee[1], T. Chiang[2], C. Su[3] and J. Lee[4] *1. Institute of Physics, Academia Sinica, Taipei, Taiwan; 2. Physics, National Cheng Kung University, Tainan, Taiwan; 3. Electrophysics, National Chiayi University, Chiayi, Taiwan; 4. Applied Physics, National Ping Tung University of Education, Pingtung, Taiwan*

WEDNESDAY MORNING 8:00

EXHIBITION HALL A

Session CU
MULTILAYER FILMS AND SUPERLATTICES II (Poster Session)

Masaki Mizuguchi, Session Chair
Institute for Materials Research, Tohoku University

CU-01. Enhancement of magnetic anisotropy of $L1_0$-FePt film from Compressive substrate of (001) $LaAlO_3$. *A. Zhang* [1,2], L. Huang[2], L. Zheng[2], W. Zhu[1] and X. Wu[2] *1. Lab of Solid State Microstructures and Department of Physics, Nanjing University, Nanjing, Jiangsu, China; 2. College of Science, Hohai University, Nanjing, China*

CU-02. Perpendicular CoFeB/MgO/CoFeB-based magnetic tunnel junctions with $[Co/Pd]_n$ multilayer films. *Y. Chang* [1,2], A. Canizo-Cabrera[1], C. Ciou[3], Y. Huai[4], Y. Zhou[4], Y. Chang[5] and T. Wu[6,7] *1. Graduate School of Engineering Science and Technology, National Yunlin University of Science and Technology, Douliou, Yunlin, Taiwan; 2. Taiwan SPIN Research Center, National Yunlin University of Science and Technology, Douliou, Yunlin, Taiwan; 3. Graduate School of Electronic and Optoelectronic Engineering, National Yunlin University of Science and Technology, Douliou, Yunlin, Taiwan; 4. Avalanche Technology, Fremont, CA; 5. Department and Institute of Electronic Engineering, National Yunlin University of Science and Technology, Douliou, Yunlin, Taiwan; 6. Graduate School of Materials Science, National Yunlin University of Science and Technology, Douliou, Yunlin, Taiwan; 7. Graduate School of Information Technology, Overseas Chinese University, Taichung, Taiwan*

CU-03. Strong Correlation between Crystallography and Magnetic Properties of Perpendicular $SrFe_{12}O_{19}$ Films on Self-assembled Au underlayer. *Y. Yasukawa* [1,2], Y. Ogawa[1], X. Liu[1,2] and A. Morisako[1,2] *1. Information Engineering, Shinshu University, Nagano, Japan; 2. Spin Device Technology Center, Shinshu University, Nagano, Japan*

CU-04. Manipulation of permeability spectrum in $[Ferromagnet/Antiferromagnet]_n$ exchange-biased multilayered thin films for wideband microwave noise filter application. *L. Jin* [1], Q. Wang[1], H. Zhang[1], X. Tang[1], F. Bai[1] and Z. Zhong[1] *1. University of Electronic Science and Technology of China, Chengdu, Sichuan, China*

CU-05. Microstructure and magnetic properties of [CoFe/Os]n multilayer films. *D. Chiang* [1], H. Huang[2], Y. Yao[3], D. Wei[4] and Y. Chen[5] *1. Center of General Education, Minghsin University of Science and Technology, Hsinchu, Taiwan; 2. Department of Materials Science and Engineering, National Chiao Tung University, Hsinchu, Taiwan; 3. Department of Physics, Fu Jen University, Taipei, Taiwan; 4. Dept. of Mechanical Engn, National Taipei University of Technology, Taipei, Taiwan; 5. Institute of Physics, Academia Sinica, Taipei, Taiwan*

CU-06. The Influence of Substrate Bias on the Texture Control and Performance of Cr-V Underlayer for L10 FePt Thin Films. *S. Kim* [1], Y. Cho[1,2], S. Kim[2], S. Kim[3], J. Lee[3], D. Chun[4] and W. Jeung[4] *1. Micro System Packaging Center, Seoul Technopark, Seoul, Republic of Korea; 2. Department of Mechanical System Design Engineering, Seoul National University of Science and Technology, Seoul, Republic of Korea; 3. Department of Materials Science and Engineering, Seoul National University, Seoul, Republic of Korea; 4. Future Convergence Technology Center, Korea Institute of Science and Technology, Seoul, Republic of Korea*

CU-07. Influence of partially inserted oxygen ions on properties of $[Co/Pt]_n$ multi-layered perpendicular magnetic anisotropy materials. *J. Lee* [1], G. An[1], J. Koo[1], J. Park[2] and J. Hong[1] *1. Physics, Hanyang University, Seoul, Republic of Korea; 2. Electrical and Computer Engineering, Hanyang University, Seoul, Republic of Korea*

CU-08. Polarizer Effect in Co/ Pd based-Pseudo Spin Valve Structures with Perpendicular Magnetic Anisotropy. *T. Tahmasebi* [1,2], S.N. Piramanayagam[1] and T. Chong[1,2] *1. Data Storage Institute, Singapore, Singapore; 2. Electrical and Computer Engineering department, National University of Singapore, Singapore, Singapore*

CU-09. Micromagnetic Simulation of Co/Pt Multilayers with Perpendicular Anisotropy. *Y. Wang* [1], D. Wei[1], Y. Wang[2], X. Han[2] and K. Gao[3] *1. Materials Science and Engineering, Tsinghua University, Beijing, China; 2. Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences, Beijing, China; 3. Advance Technology Development, Seagate Technology, Bloomington, MN*

WEDNESDAY MORNING 8:00

EXHIBITION HALL A

Session CV
SOFT MAGNETIC COMPOSITES AND ENERGY LOSS
(Poster Session)

Atsufumi Hirohata, Session Chair
University of York

CV-01. A Magnetostriction Measurement Considering Anisotropy for Powder Magnetic Cores. *Y. Maeda* [1], S. Urata[1], H. Nakai[1], S. Yanase[2] and Y. Okazaki[2] *1. Toyota Central R&D Labs., INC, 41-1 Yokomichi, Nagakute, Aichi, Japan; 2. Gifu University, 1-1 Yanagido, Gifu, Gifu, Japan*

CV-02. Structural, Ferromagnetic Properties and Mossbauer studies of NiFe2O4, NiFe1.925R0.075O4 (R = Sm, Dy, Ho, Gd). *K. Kamala Bharathi* [1], J. Arout Chelvane[2] and G. Markandeyulu[3] *1. Mechanical Engineering, University of Texas, El Paso, Texas, El Paso, TX; 2. DMRL, DMRL, Hyderabad, India; 3. Physics, IIT Madras, Chennai, India*

CV-03. Effect of medium oil on magnetorheology of soft magnetic carbonyl iron particles. J. Kim[1], J. Ko[1], Y. Liu[1], I. Kim[1] and *H. Choi* [1] *1. Department of Polymer Science and Engineering, Inha Univ, Incheon, Republic of Korea*

CV-04. Polyamide coated soft magnetic microspheres and their magnetorheology. *I. Kim* [1], J. Kim[1], Y. Liu[1] and H. Choi[1] *1. Polymer Eng. and Sci., Inha University, Incheon, Republic of Korea*

CV-05. Mössbauer studies of cation distribution in $Zn_xCo_{0.5-x}Fe_{2.5}O_4$ microspheres. *Y. Li* [1] and C. Kim[1] *1. Department of Physics, Kookmin University, Seoul, Republic of Korea*

CV-06. Accuracy in measuring iron loss of electrical steel sheets with a thermographic camera. H. Shimoji[1,2], *B. Borkowski* [1,2], T. Todaka[2] and M. Enokizono[2] *1. Oita Prefectural Organization for Industry Creation, Oita, Japan; 2. Oita University, Oita, Japan*

CV-07. Iron loss under rotating flux in electromagnetic steel sheets with high flux density by using iron loss visualization system. H. Shimoji[1,2], *B. Borkowski* [1,2], T. Todaka[2] and M. Enokizono[2] *1. Oita Prefectural Organization for Industry Creation, Oita, Japan; 2. Oita University, Oita, Japan*

CV-08. Effect of Carrier Frequency and Circuit Resistance on Iron Loss of Electrical Steel Sheet under Single-phase Full-bridge PWM Inverter Excitation. *H. Kaihara* [1], N. Takahashi[1], M. Nakano[1], M. Kawabe[2], T. Nomiyama[1], A. Shiozaki[2] and D. Miyagi[3] *1. Dept. Electrical and Electronic Eng., Okayama University, Okayama, Japan; 2. Sinfonia Technology Co., Ltd., Ise, Japan; 3. Electrical Enginnering, Tohoku University, Sendai, Japan*

CV-09. Behavior of Minor Loop and Iron Loss under Constant Voltage Type PWM Inverter Excitation. M. Kawabe[1], T. Nomiyama[1], A. Shiozaki[1], *H. Kaihara* [2], N. Takahashi[2] and M. Nakano[2] *1. Sinfonia Technology Co., Ltd., Ise, Japan; 2. Dept. Electrical and Electronic Eng., OkayamaUniversity, Okayama, Japan*

CV-10. Magnetic Properties of Particular Shape Specimen of Non-oriented Electrical Steel Sheet under Compressive Stress in Thickness Direction. M. Kawabe[1], T. Nomiyama[1], A. Shiozaki[1], *M. Mimura* [2], N. Takahashi[2] and M. Nakano[2] *1. Sinfonia Technology Co., Ltd, Ise, Japan; 2. Electrical and Electronic Eng., Okayama Univ., Okayama, Japan*

CV-11. Calculation and Analysis of Iron Loss in Homopolar Inductor Alternator. *X. Fu* [1] and J. Zou[2] *1. School of Electrical Engineering, Southeast University, Nanjing, Jiangsu, China; 2. School of Electrical Engineering and Automation, Harbin Institute of Technology, harbin, Heilongjiang, China*

CV-12. Influence of External Compressive Stress on Circumferential Iron Loss Distribution in an Induction Motor Stator Core. *M. Oka* [1], K. Shimada[1], M. Shimada[1] and M. Enokizono[2] *1. Oita National College of Technology, Oita, Japan; 2. Oita University, Oita, Japan*

CV-13. A new method for the computation of eddy current losses in Soft Magnetic Composites (SMC). *O. de la Barrière* [1], C. Appino[1], O. Bottauscio[1], M. Chiampi[1], F. Fiorillo[1], A. Manzin[1] and C. Ragusa[2] *1. INRIM, Torino, Italy; 2. DELETE, Politecnico, Torino, Italy*

CV-14. Structural, microwave and magnetic properties of self-assembled substituted strontium ferrite dot array on multiwalled carbon nanotubes. A. Ghasemi[1,3], V. Sepelak[2,3], *A. Morisako* [3,2] and X. Liu[3,2] *1. Karlsruhe Institute of Technology, Karlsruhe, Germany; 2. Malek Ashtar University of Technology, Shahin Shahr, Islamic Republic of Iran; 3. shinshu university, Nagano, Japan*

WEDNESDAY MORNING 8:00

EXHIBITION HALL A

Session CW
SOFT MAGNET APPLICATIONS II (Poster Session)

Rajasekaran Swaminathan, Session Chair
Intel Corporation

CW-01. Investigation of applicability of electromagnetic energy harvesting system to inclined stay cable under wind load. J. Park[1], I. Kim[1] and *H. Jung* [1] *1. KAIST, Daejeon, Republic of Korea*

CW-02. Proof-of-Concept Prototype of a Magnetostrictive Motor. *J. Park* [1], O. Oh[1] and Y. Park[1] *1. Department of Mechatronics Engineering, Chungnam National University, Daejeon, Republic of Korea*

CW-03. Comparison of Performance for YBCO Superconducting Tapes and High-efficiency Silicon Steel Sheets Used in Electric Vehicle Motors. *R. Pei* [1], Z. Zhang[2] and L. Zeng[3] *1. Silicon Steel Department, Baoshan Iron&Steel Co., Ltd., Shanghai, China; 2. Shanghai Edrive Co., Ltd., Shanghai, China; 3. Pan Asia Technical Automotive Center, Shanghai, China*

CW-04. Lumped Modeling of Magentostrictive Sound Transducer with a flat panel. H. Park[1] and *Y. Park* [1] *1. Department of Mechatronics Engineering, Chungnam National University, Daejeon, Republic of Korea*

CW-05. Differential evolution based parameter identification of static and dynamic J-A models and its application to inrush current study in power converters. D. Zhang[1], S. Huang[1] and *Y. Liu* [1] *1. School of EEE, Nanyang Techmological University, Singapore, Singapore*

CW-06. Shielding effect of high frequency coaxial transformers used in bi-directional DC-DC converter for energy storage system. W. Water[1], J. Lu[1] and *F. Dawson* [2] *1. Griffith University, South Brisbane, QLD, Australia; 2. University of Toronto, Toronto, ON, Canada*

CW-07. Site specific geometrical optimization of 5MW direct drive permanent magnet synchronous generator for different steel grades. *D. Kowal* [1], P. Sergeant[1,2], L. Dupré[1] and L. Vandenbossche[3] *1. Department Electrical Energy, Systems and Automation (EESA), Ghent University, Ghent, Belgium; 2. Department Electrotechnology, Faculty of Applied Engineering Sciences, University College Ghent, Ghent, Belgium; 3. ArcelorMittal Global R&D Gent, Ghent, Belgium*

CW-08. Micro Pump Using Orthogonal Force of Paired Magnetic Plates. *M. Baek* [1], H. Choi[2] and I. Park[1] *1. School of Information and Communication Engineering, Sungkyunkwan University, Suwon, Republic of Korea; 2. School of Electrical Engineering, Kyungpook National University, Sangju, Republic of Korea*

CW-09. Modeling of two-dimensional magnetic properties based on one-dimensional magnetic measurements. *S. Higuchi* [1], T. Nakao[1], Y. Takahashi[1], T. Tokumasu[2], K. Fujiwara[1] and Y. Ishihara[1] *1. Doshisha University, Kyoto, Japan; 2. Toshiba Corporation, Tokyo, Japan*

CW-10. Numerical Analysis on Power Absorption by Fe_3O_4 Thin Films for Conduction Noise in Microstrip Line. S. Kim[1] and *S. Kim* [1] *1. Department of Advanced Materials Engineering, Chungbuk National University, Cheongju, Republic of Korea*

CW-11. Electroless Plating of Co Thin Film on Hollow Glass Microspheres and the Effect of Film Thickness on Microwave Absorbance. S. Kim[1] and *S. Kim* [1] *1. Department of Advanced Materials Engineering, Chungbuk National University, Cheongju, Republic of Korea*

CW-12. Electromagnetic wave absorption characteristics adjustment method of recycled powder-type magnetic wood for use as a building material. *H. Oka* [1], M. Terui[1], H. Osada[1], Y. Namizaki[2], N. Sekino[3] and F.P. Dawson[4] *1. Department of Electric and Electronic Engineering, Iwate University, Morioka, Japan; 2. Iwate Industrial Research Institute, Morioka, Japan; 3. Faculty of Agriculture Environmental Sciences, Iwate University, Morioka, Japan; 4. Faculty of Applied Science and Engineering, University of Toronto, Toronto, ON, Canada*

CW-13. Growth and Damping Properties of Yttrium Iron Garnet Nano Films. *Y. Sun* [1], Y. Song[1], Z. Wang[1], L. Lu[1], M. Kabatek[1], M. Wu[1], E. Montoya[2], B. Kardasz[2], B. Heinrich[2], H. Schultheiβ[3], J.E. Pearson[3] and A. Hoffmann[3] *1. Department of Physics, Colorado State University, Fort Collins, CO; 2. Physics Department, Simon Fraser University, Burnaby, BC, Canada; 3. Materials Science Division, Argonne National Laboratory, Argonne, IL*

WEDNESDAY AFTERNOON 2:00

MEETING RM 11/12

Session DD

$FE_{16}N_2$: A 40-YEAR MYSTERY IN MAGNETISM AND MAGNETIC MATERIALS

George Hadjipanayis, Session Chair
University of Delaware

2:00 DD-01. New Excitements of $Fe_{16}N_2$ Research: a 40-year Mystery, Promises and Challenges. ***(Invited)*** *J. Wang* [1], N. Ji[1], V. Lauter[2], C. Sun[3], M. Osofsky,[4], L.F. Allard[5], E. Lara-Curzio[5], M. Yang[1] and X. Zhang[1] *1. MINT Center & Electrical and Computer Engineering Department, University of Minnesota, Minneapolis, MN; 2. Spallation Neutron Source, Oak Ridge National Laboratory, Oak Ridge, TN; 3. . Advanced Photon Source, Argonne National Laboratory, Argonne, IL; 4. Naval Research Laboratory, Washington DC,, DC; 5. Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN*

2:30 DD-02. Theoretical Investigation of the Possibility of Very Large Magnetic Moments in $Fe_{16}N_2$. ***(Invited)*** *H. Sims* [1], W.H. Butler[1], M. Richter[2] and K. Koepernik[2] *1. MINT Center and Department of Physics, University of Alabama, Tuscaloosa, AL; 2. IFW Dresden e.V., P.O. Box 270116, D-01171, Dresden, Germany*

3:00 DD-03. Direct Evidences of Giant Saturation Magnetization in $Fe_{16}N_2$ revealed by Polarized Neutron Reflectometry. ***(Invited)*** *V. Lauter* [1], N. Ji[2,3], H. Ambaye[4] and J. Wang[2,3] *1. QCMD, Oak Ridge National Laboratory, Oak Ridge, TN; 2. MINT, University of Minnesota, Minneapolis, MN; 3. School of Physics and Astronomy, University of Minnesota, Minneapolis, MN; 4. RAD, Oak Ridge National Laboratory, Oak Ridge, TN*

3:30 DD-04. Synthesis and magnetic characterization of α"-$Fe_{16}N_2$ Interstitial Compound - New Candidate for Permanent Magnetic Material with Rare Earth Element Free -. *(Invited)* *M. Takahashi* [1,2] and T. Ogawa[1] *1. Department of Electronic Engineering, Tohoku University, Sendai, Japan; 2. Center for Nanobioengineering and Spintronics, Chungnam National University, Daejeon, Republic of Korea*

WEDNESDAY AFTERNOON 2:00 PARKVIEW 1

Session DE
BIO/CHEMICAL MAGNETISM AND INSTRUMENTATION

Manuel Villalabeitia, Session Chair
Institute de Ciencia de Materials

2:00 DE-01. Brownian relaxation in iron oxide nanoparticles of 10 and 20 nm size and its aggregation effects. A. Espinosa[1], M. García-Hernández[1], *M. Vázquez* [1], L. Phuoc[2], M. Kueny-Stotz[2], D. Felder-Flesch[2], S. Bégin-Colin[2] and G. Pourroy[2] *1. Instituto de Ciencia de Materiales de Madrid, Consejo Superior de Investigaciones Científicas, Cantoblanco, Madrid, Spain; 2. Institut de Physique et Chimie des Matériaux, CNRS-ECPM-Université de Strasbourg, Strasbourg, France*

2:15 DE-02. GMR-based sensors arrays for biomagnetic source imaging applications. *P. Campiglio* [1], L. Caruso[1], A. Demonti[1], L. Azizi-Rogeau[1], M. Pannetier-Lecoeur[1], C. Fermon[1] and L. Parkkonen[2] *1. CEA, Gif-sur-Yvette, France; 2. Elekta Oy, Helsinki, Finland*

2:30 DE-03. Microwave imaging of inhomogeneous media for breast cancer detection. *X. Chen* [1] and Y. Deng[1] *1. University of Colorado at Denver, Aurora, CO*

2:45 DE-04. Physiological Magnetic Stimulation for Arousal of Elder Person Drivers Evaluated with Electro-encephalogram. *K. Mohri* [1], M. Yamada[2], K. Endo[2], T. Suzuki[2], Y. Mohri[3] and T. Uchiyama[4] *1. Department of Research, Nagoya Industrial Science Research Institute (NISRI), Nagoya, Japan; 2. Faculty of Science and Technology, Meijo University, Nagoya, Japan; 3. YAMAZAKI MAZAK Co., Oguchi, Aichi, Japan; 4. Graduate School, Eng.,, Nagoya University, Nagoya, Japan*

3:00 DE-05. Characteristics of a New Designed Transcranial Magnetic Stimulation Coil with Improved Focality. *J. Li* [1], Z. Liang[1], Q. Ai[2] and X. Yan[1] *1. Xi'an Jiaotong University, High Voltage and Insulation Institute, School of Electrical Engineering, P.R. China, China; 2. China South Power Grid, Zhongshan Power Supply Bureau, Zhongshan, Guangdong, China*

3:15 DE-06. Decreasing Interference between Mounted Exciting Coils for Direct Feeding Functional Electrical Stimulation. *K. Iwasaki* [1], K. Kato[1], N. Tamura[2], K. Koike[1], T. Sato[1], T. Takura[2], F. Sato[2] and H. Matsuki[1] *1. Graduate School of Biomedical Engineering, Tohoku University, Sendai, Japan; 2. Guraduate School of Engineering, Tohoku University, Sendai, Japan*

3:30 DE-07. Conductivity estimation of the human brain in the low frequency domain using IC-MREIT with multi gradient echo sequences. *N. De Geeter* [1], G. Crevecoeur[1] and L. Dupré[1] *1. Department Electrical Energy, Systems and Automation (EESA), University of Ghent, Ghent, Belgium*

3:45 DE-08. Measurement of Brownian relaxation of magnetic nanoparticle by multi-tone mixing-frequency method. *L. Tu* [1] and J. Wang[1] *1. Electrical Engineering, University of Minnesota, Minneapolis, MN*

WEDNESDAY AFTERNOON 2:00

PARKVIEW 2/3

Session DF
MAGNETIC FLUIDS AND SEPARATION I

Kevin O'Grady, Session Chair
University of York

2:00 DF-01. Parallel simulation of transient magnetorheological direct shear flows using millions of particles. *S. Sherman* [1] and N.M. Wereley[1] *1. Aerospace Engineering, University of Maryland, College Park, MD*

2:15 DF-02. Separation of Magnetic Nano Beads by Using Soft Magnetic Flux Concentrators. M. Kaiser[1], J. Chen[1] and *L. Rissing* [1] *1. Institute for Micro Production Technology, Leibniz Universitaet Hannover, Garbsen, Germany*

2:30 DF-03. Power-saving magnetization for magneto-rheological fluid control using a combination of permanent magnet and electromagnet. *Y. Sato* [1] and S. Umebara[1] *1. Mechanical Engineering, Yokohama National University, Yokohama, Japan*

2:45 DF-04. Influence of colloidal concentration on specific absorption rate of oleic acid coated $CoFe_2O_4$ ferrofluid for magnetic hyperthermia applications. *K.S. Muvvala* [1], R. Mamidanna S.[1] and R. Dutta[1] *1. Department of Physics, Indian Institute of Technology Madras, Chennai, Tamil Nadu, India*

3:00 DF-05. Biopolymer coated carbonyl iron core-shell structured magnetic particles and their polishing characteristics. H. Sim[1], J. Lee[2], K. Hong[2], M. Cho[2] and *H. Choi* [1] *1. Department of Polymer Science and Engineering, Inha Univ, Incheon, Republic of Korea; 2. Department of Mechanical Engineering, Inha Univ, Incheon, Republic of Korea*

3:15 DF-06. Simulation of magnetic fluid flow with plural kinds of magnetic particles for magnetic particle separation. *S. Noguchi* [1] and S. Kim[2] *1. Hokkaido University, Sapporo, Hokkaido, Japan; 2. Okayama University, Okayama, Okayama, Japan*

3:30 DF-07. Measurement of magnetorheological fluid properties at shear rates of up to 25,000 s^{-1}. *A. Becnel* [1], W. Hu[1] and N.M. Wereley[1] *1. Aerospace Engineering, University of Maryland, College Park, MD*

3:45 DF-08. Full-Scale Experiments on Application of Magneto-rheological Fluid Dampers to Cable Vibration Control. Y. Duan[1], Y. Ni[2], J. Ko[2], Z. Chen[3] and *R. Zhang* [1] *1. College of Civil Engineering and Architecture, Zhejiang University, Hangzhou, China; 2. Department of Civil and Structural Engineering, The Hong Kong Polytechnic University, Kowloon, Hong Kong; 3. Wind Engineering Research Center, Hunan University, Changsha, China*

WEDNESDAY AFTERNOON 4:00 — BALLROOM A/B/C

Session YA
EXPLORING THE ULTRAFAST MAGNETIC NANOWORLD WITH X-RAYS

SPEAKER: JOACHIM STöHR
SLAC NATIONAL ACCELERATOR LABORATORY

Jan-Ulrich Thiele, Session Chair
Seagate Technology

THURSDAY MORNING 9:00 — BALLROOM A

Session EA
SPINTRONICS WITH INSULATORS

Minn-Tsong Lin, Session Chair
National Taiwan University

9:00 **EA-01. Spintronic effects in insulators.** ***(Invited)*** *E. Saitoh* [1,2] *1. Institute for Materials Research, Tohoku University, Sendai, Miyagi, Japan; 2. The Advanced Science Research Center, Japan Atomic Energy Agency, Tokai, Ibaraki, Japan*

9:30 **EA-02. Interplay between spin waves and spin currents generated by spin Hall and spin Seebeck effects.** ***(Invited)*** *A. Azevedo* [1], E. Padron-Hernandez[1], G.L. da Silva[1], L.H. Vilela-Leão[1] and S.M. Rezende[1] *1. Departamento de Fisica, UFPE, Recife, PE, Brazil*

10:00 **EA-03. Inverse spin Hall effect from spin waves over a large wavevector range.** ***(Invited)*** *B. Hillebrands* [1], A.V. Chumak[1], A.A. Serga[1] and M.B. Jungfleisch[1] *1. Fachbereich Physik, TU Kaiserslautern, Kaiserslautern, Germany*

10:30 **EA-04. Amplification of Spin Current by Three-Magnon Splitting.** ***(Invited)*** H. Kurebayashi[1], O. Dzyapko[2], V.E. Demidov[2], D. Fang[1], A.J. Ferguson[1] and *S.O. Demokritov* [2] *1. University of Cambridge, Cambridge, United Kingdom; 2. University of Muenster, Muenster, Germany*

11:00 EA-05. Spin Pumping with Magnetic Insulators.
(Invited) *B.V. Heinrich* [1], C. Burrowes[1], E. Montoya[1], B. Kardasz[1], E. Girt[1], Y. Sun[2], Y. Song[2] and M. Wu[2] *1. Physics, Simon Fraser University, Burnaby, BC, Canada; 2. Physics, Colorado State University, Fort Collins, CO*

THURSDAY MORNING 9:00 — BALLROOM B

Session EB
MULTIFERROIC AND HALF-METALLIC MATERIALS

John Burton, Session Chair
University of Nebraska Lincoln

9:00 EB-01. Hybrid spintronics-straintronics: low power electronics with multiferroic materials. ***(Invited)***
J. Atulasimha [1] and S. Bandyopadhyay[2] *1. Mechanical and Nuclear Engineering, Virginia Commonwealth Univ., Richmond, VA; 2. Electrical and Computer Engineering, Virginia Commonwealth Univ., Richmond, VA*

9:30 EB-02. Electric-field-induced Domain Wall Transitions in Thin Film Ni/PMN-PT (001) Heterostructure. *C. Hsu* [1], J.L. Hockel[1] and G.P. Carman[1,2] *1. Mechanical and Aerospace Engineering, UCLA, Los Angeles, CA; 2. California NanoSystems Institute, UCLA, Los Angeles, CA*

9:45 EB-03. Electric-field control of magnetic domain wall motion and local magnetization reversal in multiferroic heterostructures. T. Lahtinen[1], K. Franke[1] and *S. van Dijken* [1] *1. Department of Applied Physics, Aalto University, Espoo, Finland*

10:00 EB-04. A study of charge- and strain-mediated interfacial magnetoelectric coupling in PZT-LSMO thin film heterostructures using transmission electron microscopy and polarized neutron reflectometry.
S. Spurgeon [1], J.D. Sloppy[1], C.R. Winkler[1], M. Jablonski[1], S.E. Lofland[2], Q. Ramasse[3], V. Lauter[4], L. Martin[5] and M.L. Taheri[1] *1. Department of Materials Science & Engineering, Drexel University, Philadelphia, PA; 2. Department of Physics & Astronomy, Rowan University, Glassboro, NJ; 3. SuperSTEM, STFC Daresbury Laboratories, Warrington, United Kingdom; 4. Spallation Neutron Source, Oak Ridge National Laboratory, Oak Ridge, TN; 5. Department of Materials Science & Engineering, University of Illinois—Urbana Champaign, Urbana, IL*

10:15 EB-05. Electronic phase separation in multiferroic $Ba_3NbFe_3Si_2O_{14}$. *S.S. Rathore* [1] and S. Vitta[1] *1. Metallurgical Engineering and Materials Science, Indian Institute of Technology Bombay, Mumbai, Maharashtra, India*

10:30 EB-06. Formation of a Heusler type structure in CoFe-Al CPP-GMR spin valves. *S. Wurmehl* [1], P.J. Jacobs[1], J.T. Kohlhepp[2], H. Swagten[2], B. Koopmans[2], S. Maat[3], M.J. Carey[3] and J.R. Childress[3] *1. Leibniz Institute for Solid State and Materials Research IFW, Dresden, Germany; 2. Eindhoven University of Technology, Eindhoven, Netherlands; 3. Hitachi GST, San Jose, CA*

10:45 EB-07. First-principles calculations of magneto-crystalline anisotropy in Co_2FeAl/MgO junctions. D. Mori[1], M. Tsujikawa[2], Y. Miura[1,2], K. Abe[1,2] and *M. Shirai* [1,2] *1. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 2. Center for Spintronics Integrated Systems, Tohoku University, Sendai, Japan*

11:00 EB-08. Magnetizing Processes in Heusler Alloys. *V. Provenzano* [1], E. Della Torre[2], L.H. Bennett[2], Y. Jin[2] and R.D. Shull[1] *1. Metallurgy Division, National Institute of Standards and Technology, Gaithersburg, MD; 2. Dept. of Electrical and Computer Engineering, George Washington University, Washington, DC*

11:15 EB-09. Low temperature in-situ crystallisation of Co_2FeSi Heusler alloy thin films. L.R. Fleet[1], M.J. Walsh[1], J. Sagar[1], T. Nakayama[2] and *A. Hirohata* [3,4] *1. Physics, The University of York, York, North Yorkshire, United Kingdom; 2. Extreme Energy-Density Research Institute, Nagaoka University of Technology, Nagaoka, Japan; 3. Electronics, The University of York, York, United Kingdom; 4. PRESTO, Japan Science and Technology Agency, Kawaguchi, Japan*

11:30 EB-10. Temperature dependence of spin-dependent tunneling conductances of fully epitaxial Co_2MnSi-based magnetic tunnel junctions. *H. Liu* [1], Y. Honda[1], K. Matsuda[1], T. Uemura[1] and M. Yamamoto[1] *1. Hokkaido Univ., Sapporo, Japan*

11:45 EB-11. Kondo effect and magnetotransport properties in Co-Cu microwires. M. Ilyn[1], V. Zhukova[1], C. Garcia[2], J. del Val[1], M. Ipatov[1], A. Granovsky[3] and *A. Zhukov* [1,4] *1. Dept. Material Physics, Basque Country University, San Sebastian, Spain; 2. Department of Physics, Bogazici Univ,, Istanbul, Turkey; 3. Physics Dept., Moscow State University,, Moscow, Russian Federation; 4. IKERBASQUE, Basque Foundation for Science, Bilbao, Spain*

THURSDAY MORNING 9:00 BALLROOM C

Session EC
MAGNETIC HEADS AND MATERIALS

Pierre-Olivier Jubert, Session Chair
IBM Research

9:00 EC-01. Performance of U-pole Writers with Straighter Field Contours. *H. Edelman* [1], A. Wong[2], M. Mooney[2], R. Lopusnik[1], C. Tseng[1] and J. Gadbois[1] *1. Recording Head Operations, Seagate Technology, Minneapolis, MN; 2. Recording Head Operations, Seagate Technology, Derry, Northern Ireland, United Kingdom*

9:15 EC-02. Unusual 360° domain wall nesting in magnetic tunnel junctions: A Lorentz TEM investigation. *K. O'Shea* [1], D.A. MacLaren[1], D. McGrouther[1], J.N. Chapman[1], H. Kurt[2] and K. Rode[2] *1. School of Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom; 2. CRANN and School of Physics, Trinity College Dublin, Dublin, Ireland*

9:30 EC-03. Large spin signal of all-metallic lateral spin valves using Co2Fe(Ge0.5Ga0.5) Heusler alloy. *Y. Takahashi* [1], S. Kasai[1], S. Hirayama[2], S. Mitani[1,2] and K. Hono[1,2] *1. National Institute for Matreials Science, Tsukuba, Japan; 2. National Institute for Materials Science, Tsukuba, Japan*

9:45 EC-04. AC magnetic field imaging without image distortion for current perpendicular magnetic writing head by using frequency-modulated magnetic force microscopy (FM-MFM) with cone shaped FePt tip. *S. Yoshimura* [1], G. Egawa[1], K. Hatakeyama[1] and H. Saito[1] *1. Center for Geo-environmental Science, Graduate School of Engineering & Resource Science, Akita University, Akita, Akita, Japan*

10:00 EC-05. A planar thin-film servo write head for magnetic tape recording. *J. Engelen* [1], S. Furrer[1], H.E. Rothuizen[1], R.G. Biskeborn[2], P. Herget[2] and M.A. Lantz[1] *1. IBM Research Zürich, Rüschlikon, Switzerland; 2. IBM Systems & Technology Group, San Jose, CA*

10:15 EC-06. A stepped-pole writer geometry to minimize side erasure on barium ferrite tape. *P. Jubert* [1], E. Delenia[1], J. Frommer[1], H.E. Rothuizen[2] and M.A. Lantz[2] *1. IBM Research - Almaden, San Jose, CA; 2. IBM Research - Zurich, Rüchlikon, Switzerland*

10:30 EC-07. Time resolved scanning Kerr microscopy of hard disk writer structures with a synthetic antiferromagnet yoke. *W. Yu* [1], P. Gangmei[1], P. Keatley[1], R. Hicken[1], M. Gubbins[2], P. Czoschke[3] and R. Lopusnik[3] *1. School of Physics, University of Exeter, Exeter, United Kingdom; 2. Research & Development, Seagate Technology, Derry, United Kingdom; 3. Recording Heads Operation, Seagate Technology, Bloomington, MN*

10:45 EC-08. Design of a Dual Free Layer Sensor with Side Shields. *A. Tuggle* [1,2], S. Gider[1], D. Mauri[1] and M. Ho[1] *1. Magnetic Head Operations, Western Digital, Fremont, CA; 2. Department of Physics and Astronomy, University of Alabama, Tuscaloosa, AL*

11:00 EC-09. The high sensitivity potential of nanocontact MR. *M. Takagishi* [1], H. Iwasaki[1] and S. Hashimoto[1] *1. Storage Material Laboratory, Research & Development Center, Toshiba Corporation, Kawasaki, Japan*

11:15 EC-10. Finite Element Modeling of Writer Head Design for Shingled Recording. *L. Wang* [1], J. Wang[1] and D. Bai[1] *1. Western Digital, Fremont, CA*

11:30 EC-11. How Does Electrostatic Discharge Event Not Cause Polarity Flip in TMR Read Heads?. C. Sangiamsak[1] and *K. Marongmued* [1] *1. Electrical Engineering, Khon Kaen University, Khon Kaen, Khon Kaen, Thailand*

11:45 EC-12. Micromagnetic model analysis of write head field responses on pole tip, return yoke and shield structures. *Y. Kanai* [1], H. Tamura[1], H. Hosokai[1], K. Yamakawa[2], K. Yoshida[3], S.J. Greaves[4] and H. Muraoka[4] *1. IEE, Niigata Institute of Technology, Kashiwazaki, Japan; 2. AIT, Akita Industrial Technology Center, Akita, Japan; 3. ICE, Kogakuin University, Tokyo, Japan; 4. RIEC, Tohoku University, Sendai, Japan*

THURSDAY MORNING 9:00 MEETING RM 11/12

Session ED
SPIN TRANSFER TORQUE II

Dongping Liu, Session Chair
Chinese Academy of Sciences

9:00 ED-01. Current Spin Polarization and Current-driven Domain Wall Motion in (Ga,Mn)(As,P). *V. Jeudy* [1,3], J. Curiale[1,2], A. Lemaître[2], C. Ulysse[2] and G. Faini[2] *1. Laboratoire de physique des solides, Université Paris Sud Orsay, Orsay, France; 2. Laboratoire de Photonique et de Nanostructures, CNRS, Marcoussis, France; 3. Université Cergy Pontoise, Cergy Pontoise, France*

9:15 ED-02. Temperature dependence of spin polarization of current in Co/Ni nanowire estimated from current - induced domain wall motion. *K. Ueda* [1], T. Koyama[1], R. Hiramatsu[1], D. Chiba[1,2], S. Fukami[3], H. Tanigawa[4], T. Suzuki[4], N. Ohshima[5], N. Ishiwata[3], Y. Nakatani[6] and T. Ono[1] *1. Institute for Chemical Research, Kyoto Univ., Uji, Japan; 2. PRESTO, Japan Science and Technology Agency, Kawaguchi, Japan; 3. Green Innovation Research Laboratories, Tsukuba, Japan; 4. RENESAS Electronics Corporation, Sagamihara, Japan; 5. NEC Energy Devices Ltd., Sagamihara, Japan; 6. University of Electro-Communications, Chofu, Japan*

9:30 ED-03. Piezoelectric control of domain wall velocity in GaMnAsP with perpendicular magnetic anisotropy. *E. De Ranieri* [1], P.E. Roy[1], D. Fang[1,2], E.K. Vehstedt[3], A.C. Irvine[2], D. Heiss[2], R.P. Campion[4] and J. Wunderlich[1,3] *1. Hitachi Cambridge Laboratory, Cambridge, United Kingdom; 2. Microelectronics Group, Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom; 3. Institute of Physics ASCR, Prague, Czech Republic; 4. School of Physics and Astronomy, University of Nottingham, Nottingham, United Kingdom*

9:45 ED-04. Current-driven domain wall motion and wall mobility in TbFeCo wires with perpendicular magnetic anisotropy. *X. Liu* [1], L. Gao[1], N. Kato[1] and A. Morisako[1] *1. Department of Information Engineering, Shinshu Univ Fac Sci, Nagano, Japan*

10:00 **ED-05. Efficient current-induced Domain Wall Dynamics in high Anisotropy Materials.** J. Heinen[1,2], T. Schulz[1], C. Ulysee[5], B. Ocker[6], J. Wrona[6], O. Boulle[3], B. Koopmans[4], H. Swagten[4] and *M. Kläui* [1,2] *1. Physics, University of Mainz, Mainz, Germany; 2. Fachbereich Physik, Universitaet Konstanz, Konstanz, Germany; 3. Spintec,, UMR CEA / CNRS / UJF-Grenoble 1 / Grenoble-INP, Grenoble, France; 4. Department of Applied Physics, Eindhoven University of Technology, Eindhoven, Netherlands; 5. CNRS, Phynano team, Laboratoire de Photonique et de Nanostructures, Marcoussis, France; 6. Singulus Technologies, Singulus AG, Kahl am Main, Germany*

10:15 **ED-06. Spin Orbit torque assisted domain wall depinning in Pt/Co/Pt.** *E. Murè* [1], J.H. Franken[1], P.P. Haazen[1], H.J. Swagten[1] and B. Koopmans[1] *1. Applied Physics, Technical University Eindhoven, Eindhoven, Netherlands*

10:30 **ED-07. High speed, perpendicular current-induced domain wall motion in magnetic tunnel junctions at low current density.** *J. Sampaio* [1], P.J. Metaxas[1,2], R. Matsumoto[1], S. Boyn[1], A. Chanthbouala[1], V. Cros[1], A. Anane[1], J. Grollier[1], A. Fert[1], K.A. Zvezdin[3], A. Fukushima[4] and S. Yuasa[4] *1. Unite Mixte de Physique CNRS / Thales, Palaiseau, France; 2. School of Physics, University of Western Australia, Crawley, WA, Australia; 3. Istituto P.M. s.r.l., Turin, Italy; 4. National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan*

10:45 **ED-08. Currrent induced domain wall dynamics in the presence of Rashba spin orbit coupling.** *O. Boulle* [1], L. Buda-Prejbeanu[1], E. Jue[1], M. Miron[1] and G. Gaudin[1] *1. Spintec, Grenoble, France*

11:00 **ED-09. XMCD-PEEM Study of Current-induced Domain Wall Depining in well- shaped FeNi Nanowires.** X. Hu[1], J. Wu[2], D. Niu[1], S. Morton[3], A. Scholl[3], Z. Huang[5], I. Will[1], W. Zhang[1], *Y. Xu* [1] and L. Chen[4] *1. Department of Electronics, University of York, York, United Kingdom; 2. Department of Physics, University of York, York, United Kingdom; 3. Lawrence Berkeley National Laboratory, Berkeley, CA; 4. Department of Electronics, University of Leeds, Leeds, United Kingdom; 5. Department of Physics, Southeast University, Nanjing, China*

11:15 ED-10. Domain wall injection and spin-transfer torques in synthetic-antiferromagnetic structures. *S. Lepadatu* [1], R. Beacham[2], M.B. Romero[2], A. Whiteside[1], T. Moore[1], D. McGrouther[2], S. McVitie[2], R. Stamps[2], J. Miguel[3], S.S. Dhesi[3] and C.H. Marrows[1] *1. The University of Leeds, Leeds, United Kingdom; 2. The University of Glasgow, Glasgow, United Kingdom; 3. Diamond Light Source, Didcot, United Kingdom*

11:30 ED-11. Switching voltages of MgO magnetic tunnel junctions including the field-like spin transfer torque. *K. Bernert* [1], V. Sluka[1], C.J. Fowley[1], A.M. Deac[1] and J. Fassbender[1] *1. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany*

11:45 ED-12. Current-induced magnetization switching in epitaxial full-Heusler Co_2FeAl-based magnetic tunnel junctions. *H. Sukegawa* [1], Z. Wen[1], K. Kondou[1], S. Kasai[1], S. Mitani[1] and K. Inomata[1] *1. Magnetic Material Unit, National Institute for Materials Science (NIMS), Tsukuba, Ibaraki, Japan*

THURSDAY MORNING 9:00 PARKVIEW 1

Session EE
MULTILAYER FILMS AND SUPERLATTICES III

Georg Woltersdorf, Session Chair
University of Regensburg

9:00 EE-01. Single perpendicularly magnetized CoFeB layers for 3D spintronics. *R. Lavrijsen* [1], A. Fernández-Pacheco[1], D. Petit[1], J. Lee[1], R. Mansell[1] and R. Cowburn[1] *1. Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom*

9:15 EE-02. Existence range of metastable tiger tail domains in an antiferromagnetically coupled Co/Pt/Ru multilayer. *U. Wolff* [1], N.S. Kiselev[1,2], A.N. Bogdanov[1], O. Hellwig[3], V. Neu[1] and L. Schultz[1] *1. IFW Dresden, Dresden, Germany; 2. Institute for Advanced Simulation, Forschungszentrum Jülich, Jülich, Germany; 3. Hitachi Global Storage Technologies, San Jose Research Center, San Jose, CA*

9:30 EE-03. Tunable spin configuration in [Co/Ni]-NiFe exchange spring structures. *S. Chung* [1], S. Mohseni[1,2], T. Nguyen[1], N. Benatmane[1], R. Dumas[3] and J. Åkerman[1,2] *1. Materials Physics, School of ICT, KTH – Royal Institute of Technology, Electrum 229, 164 40, Kista, Sweden; 2. NanOsc AB, Electrum 205, 164 40 Kista, Sweden; 3. Department of Physics, University of Gothenburg, 412 96 Gothenburg, Sweden*

9:45 EE-04. Perpendicular exchange bias and abnormal spin re-orientation in Co/Pd and IrMn systems. *H. Meng* [1], V. Naik[1] and R. Sbiaa[1] *1. Data Storage Institute, Singapore, Singapore*

10:00 EE-05. Tuning Perpendicular Anisotropy Gradients in Co/Pd Multilayers by Ar Ion Irradiation. *P.K. Greene* [1], J. Osten[2], J. Fassbender[2], T. Endo[3], N. Iwata[4] and K. Liu[1] *1. Physics, UC Davis, Davis, CA; 2. Helmholtz-Zentrum Dresden-Rossendorf e. V, Institute of Ion Beam Physics and Materials Research, Dresden, Germany; 3. Graduate School of Engineering, Mie University, Tsu, Mie, Japan; 4. Department of Electronics & Computer Science, Nihon University, Chiba, Japan*

10:15 EE-06. Origin of strong magnetic anisotropy of $L1_0$-type ordered FeNi studied by Magnetic Circular Dichroism. *M. Kotsugi* [1], M. Mizuguchi[2], S. Sekiya[2], M. Mizumaki[1], T. Kojima[2], T. Nakamura[1], K. Kodama[1], K. Takanashi[2] and Y. Watanabe[1] *1. Japan Synchrotron Radiation Research Institute, Hyogo, Japan; 2. Tohoku University, Sendai, Japan*

10:30 EE-07. Relation between perpendicular magnetic anisotropy and lattice constant in $L1_0$ ordered FeNi thin films. *M. Mizuguchi* [1], T. Kojima[1], S. Ozaki[2], Y. Miura[2], M. Shirai[2] and K. Takanashi[1] *1. Institute for Materials Research, Tohoku University, Sendai, Japan; 2. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan*

10:45 EE-08. Energy barrier in nanostructured FePt-TiO2 thin films with graded anisotropy and optimized exchange coupling. *T. Zhou* [1], K. Cher[1], J. Hu[1] and P. Lwin[1] *1. Data Storage Institute, Singapore, Singapore*

11:00 EE-09. ELECTRODEPOSITED FeCo/Cu-Al2O3 multilayers for novel inductor design. *S. Rand* [1], S. Sun[2], N. Sun[1] and E. Podlaha-Murphy[2] *1. Electrical and Computer Engineering, Northeastern University, Boston, MA; 2. Chemical Engineering, Northeastern University, Boston, MA*

11:15 EE-10. Magnetic properties of [SnO2/Cu-Zn ferrite]n multilayers. S. Saipriya[1] and *R. Singh* [1] *1. School of Physics, University of Hyderabad, Hyderabad, Andhra Pradesh, India*

THURSDAY MORNING 9:00

PARKVIEW 2/3

Session EF
MAGNETIC DOMAIN WALL

Randy Dumas, Session Chair
University of Gothenburg

9:00 EF-01. Activation energy barrier for micron-scale domain wall motion in Co/Pt multilayer nanostrips. *S. Emori* [1], D.C. Bono[1] and G.S. Beach[1] *1. Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA*

9:15 EF-02. Numerical study on magnetostatic modes of magnetic nanodisks under in-plane magnetic fields. *H. Imamura* [1,2], T. Kaneko[1], S. Noh[2], K. Miyake[2] and M. Sahashi[2] *1. NRI, AIST, Tsukuba, Ibaraki, Japan; 2. Department of Electronic Engineering, Tohoku University, Sendai, Miyagi, Japan*

9:30 EF-03. Multi-level of magneto-resistance in sputtered TbFeCo nanowires. *B. Do* [1] and H. Awano[1] *1. Toyoya Technological Institute, Nagoya, Japan*

9:45 EF-04. Role of the thermal magnetization fluctuation in depinning of domain wall from the notch in the ferromagnetic nanowire. *S. Ahn* [1,2], K. Moon[1] and S. Choe[1] *1. Physics, Seoul National University, Seoul, Republic of Korea; 2. Material science and engineering, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, MA*

10:00 EF-05. Striped Cylindrical Nanowire as a Magnetic Domain Wall Nanobarcode. C. Murapaka[1], H. Liew[1], *I. Purnama* [1] and W. Lew[1] *1. Nanyang Technological Uni, Singapore, Singapore*

10:15 EF-06. Domain-Wall Assisted Switching of Single-Domain Nanomagnets. *E. Varga* [1], G. Csaba[1], G.H. Bernstein[1] and W. Porod[1] *1. Center for Nano Science and Technology, Department of Electrical Engineering, University of Notre Dame, Notre Dame, IN*

10:30 EF-07. Direct imaging of precessional domain wall propagation and inertia beyond the Walker breakdown.
A. Bisig [1,2], M. Stärk[1,3], C. Moutafis[1,3], J. Rhensius[1,3], J. Heidler[1,4], F. Büttner[1,5], M. Curcic[2], E. Prabu[2], M. Noske[2], M. Weigand[2], T. Tyliszczak[6], B. Van Waeyenberge[7], H. Stoll[2], G. Schütz[2] and M. Kläui[1,8] *1. Paul Scherrer Institute, Villigen PSI, Switzerland; 2. Max Planck Institute for Intelligent Systems, Stuttgart, Germany; 3. University of Konstanz, Konstanz, Germany; 4. Ecole Polytechnique fédérale de Lausanne, Lausanne, Switzerland; 5. Technische Universität Berlin, Berlin, Germany; 6. Advanced Light Source, LBNL, Berkeley, CA; 7. Ghent University, Ghent, Belgium; 8. Johannes Gutenberg University Mainz, Mainz, Germany*

10:45 EF-08. Magnetic vortex state and multidomain pattern in electrodeposited nanogranular nickel films.
E.V. Sukovatitsina [1], A.S. Samardak[1], A.V. Ognev[1,2], K.S. Diga[1], L.A. Chebotkevich[1,2], S.M. Janjan[3] and F. Nasirpouri[3] *1. School of Natural Sciences, Far Eastern Federal University, Vladivostok, Russian Federation; 2. Institute of Automation and Control Processes, Vladivostok, Russian Federation; 3. Department of Materials Engineering, Sahand University of Technology, Tabriz, Islamic Republic of Iran*

11:00 EF-09. Magnetization reversal behaviour in ferromagnetic Co-Pt-based nanotubes studied using MFM and angular-dependence measurements.
K. Zuzek Rozman [1], D. Pecko[1], M. Arshad[1], U. Wolff[2], V. Neu[2] and S. Kobe[1] *1. Department for Nanostructured Materials, Jozef Stefan Institute, Ljubljana, Slovenia; 2. IFW Dresden, Leibniz Institute for Solid State and Materials Research, Dresden, Germany*

11:15 EF-10. Intrinsic switching field distribution of arrays of Ni80Fe20 nanowire arrays using in situ magnetic force microscopy.
M.R. Tabasum [1], F. Zighem[1,2], J. De La Torre Medina[3], L. Piraux[1] and B. Nysten[1] *1. Institut de la Matière Condensée et des Nanosciences (IMCN), Université Catholique de Louvain, Louvain la neuve, Belgium; 2. Laboratoire des Sciences des Procédés et des Matériaux, Université Paris 13, Villetaneuse, France; 3. Instituto de Fisica, Universidad Autonoma de San Luis Potosi, San Luis Potosi, Mexico*

11:30 **EF-11. Magnetization dynamics in arrays of magnetic nanowires with high packing density.** O. Dmytriiev[1], *U. Al-Jarah* [1], P. Gangmei[1], M. Dvornik[1], V.V. Kruglyak[1], R.J. Hicken[1], B.K. Mahato[2], B. Rana[2], M. Agrawal[2], A. Barman[2], S. Matefi-Tempfli[3] and L. Piraux[3] *1. School of Physics, University of Exeter, Exeter, United Kingdom; 2. Department of Condensed Matter Physics and Material Sciences, S.N. Bose National Centre for Basic Science, Kolkata, India; 3. Institute of Condensed Matter and Nanosciences, Universite Catholique de Louvain, Louvain-la-Neuve, Belgium*

11:45 **EF-12. Magnetization dynamics under a quasi-periodic magnetic field.** *D. Laroze* [1,2], D. Becerra-Alonso[3], J. Gallas[4] and H. Pleiner[1] *1. Max Planck Institute for Polymer Research, Mainz, Germany; 2. Universidad de Tarapaca, Arica, Chile; 3. Universidad Loyola Andalucia, Cordoba, Spain; 4. Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil*

THURSDAY MORNING 9:00

MEETING RM 8/15

Session EG
MOTORS, GENERATORS AND ACTUATORS III

Sheng-Ming Yang, Session Chair
National Taipei University of Technology

9:00 **EG-01. Direct-drive linear induction motor conveyer system.** H.D. He[1], *J.J. Paulides* [1], T.T. Overboom[1], B. Gysen[1] and E.A. Lomonova[1] *1. Electrical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands*

9:15 **EG-02. Nonlinear performance characteristics of Flux-Switching PM motors.** *E. Ilhan* [1], M.T. Motoasca[1], J.J. Paulides[1] and E.A. Lomonova[1] *1. Electrical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands*

9:30 **EG-03. Analysis and Study of a Gearless AC Motor type Divided Winding, Based on a Conventional Squirrel Cage Induction Motor.** *F.O. Quintaes* [3], V.F. Valci[4], A.S. Lock[1], A.O. Salazar[1], J.A. Diaz-Amado[2,1] and J.S. Lopes[3] *1. DCA, UFRN, Natal, RN, Brazil; 2. COEEL, IFBA, Vitoria da Conquista, Bahia, Brazil; 3. IFRN, Natal, Rio grande do Norte, Brazil; 4. IFTO, Palmas, Tocantins, Brazil*

9:45 EG-04. AN OPTIMUM GEOMETRY FOR A THERMOMAGNETIC GENERATOR. *V. Franzitta* [1], A. Viola[1] and M. Trapanese[2] *1. Dipartimento di Ricerche energetiche e Ambientali, Palermo University, Palermo, Italy; 2. Dipartimento di Ingegneria Elettrica, Elettronica e delle Telecomunicazioni, Palermo University, Palermo, Italy*

10:00 EG-05. A 10W thermomagnetic motor. *V. Franzitta* [1], A. Viola[1] and M. Trapanese[2] *1. Dipartimento di Ricerche Energetiche e Ambientali, Palermo University, Palermo, Italy; 2. Dipartimento di Ingegneria Elettrica, Elettronica e delle Telecomunicazioni, Palermo University, Palermo, Italy*

10:15 EG-06. Semi-analytical calculation of the torque in a linear permanent magnet motor with finite stator length. *T. Overboom* [1], J. Smeets[1], J. Jansen[1] and E. Lomonova[1] *1. Eindhoven University of Eindhoven, Eindhoven, Netherlands*

10:30 EG-07. Multi-material optimization of electric machines using an Allen-Cahn equation. *J. Choi* [1], K. Izui[1] and S. Nishiwaki[1] *1. Department of Mechanical Engineering and Science, Kyoto University, Kyoto, Japan*

10:45 EG-08. Flux-Switching Machine with DC Excitation. Y. Tang[1], *J.J. Paulides* [1], T.E. Motoasca[1] and E.A. Lomonova[1] *1. Electrical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands*

11:00 EG-09. Research on an axial-axial flux compound-structure PMSM with varying air gap to fulfill field-weakening control. *J. Zhao* [1,2], P. Zheng[3], Z. Chen[1,2] and X. Liu[1,2] *1. School of Automation, Beijing Institute of Technology, Beijing, China; 2. Key laboratory for Intelligent Control & Decision of Complex Systems, Beijing Institute of Technology, Beijing, China; 3. Department of Electrical Engineering, Harbin Institute of Technology, Harbin, China*

11:15 EG-10. Design of a Thrust Actuator for Magnetic Bearings with Low Radial Attraction Force. *S. Yang* [1] and Y. Tsai[1] *1. National Taipei University of Technology, Taipei, Taiwan*

11:30 EG-11. An Improved PMSM Rotor Position Sensor Based On Linear Hall Sensors. *J. Hu* [1], J. Zou[1], Y. Li[1], Y. Fu[1], F. Xu[1], B. Zhao[1] and K. Liu[1] *1. Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, China*

11:45 EG-12. Analysis on Dynamic Characteristic of Orbital Friction Vibration Head in Orbital Vibration Welding. *F. Xu* [1], J. Hu[1], J. Zou[1], Y. Li[1], K. Liu[1] and B. Zhao[1] *1. Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, Heilongjiang, China*

THURSDAY MORNING 9:00

MEETING RM 13

Session EH
INTERMETALLIC & OTHER HARD MAGNETS II

Xiaobin Zhu, Session Chair
Seagate Technology

9:00 EH-01. Structure and magnetic properties of CoPt, CoPd, FePt, and FePd alloy thin films formed on MgO(111) substrates. *M. Ohtake* [1], S. Ouchi[1], F. Kirino[2] and M. Futamoto[1] *1. Faculty of Science and Engineering, Chuo University, Tokyo, Japan; 2. Graduate School of Fine Arts, Tokyo National University of Fine Arts and Music, Tokyo, Japan*

9:15 EH-02. Mn-Bi powders with high coercivity and magnetization at room temperature. C. Chinnasamy[1], M. Marinescu-Jasinski[1] and *J. Liu* [1] *1. www.electronenergy.com, Lancaster, PA*

9:30 EH-03. Mechanism of MnBi magnetic anisotropy and its anomalous temperature dependence. *O.N. Mryasov* [1], J. Park[2], Y. Hong[2], S. Faleev[1] and G. Mankey[1] *1. Physics and MINT, University of Alabama, Tuscaloosa, AL; 2. Electrical and Computer Engineering and MINT Center, University of Alabama, Tuscaloosa, AL*

9:45 EH-04. Highly coercive rapidly solidified $SmCo_{4-x}Fe_xB$(x=0, 2) alloys. *X. Jiang* [1], B. Balamurugan[2] and J.E. Shield[1,2] *1. Mechanical & Materials Engineering, University of Nebraska-Lincoln, Lincoln, NE; 2. Nebraska Center for Materials and Nanoscience, University of Nebraska-Lincoln, Lincoln, NE*

10:00 EH-05. Fully epitaxial, exchange coupled $SmCo_5$/Fe multilayers with energy densities above 400 kJ/m^3. *V. Neu* [1], S. Sawatzki[1], M. Kopte[1], C. Mickel[1] and S. Ludwig[1] *1. IFW Dresden, Dresden, Germany*

10:15 EH-06. Coercivity enhancement of nanocrystalline ZrCo5.1-based magnets. *W. Zhang* [1,2], R. Skomski[1,2], J. Shield[2,3] and D. Sellmyer[1,2] *1. Physics and astronomy, University of Nebraska-Lincoln, Licoln, NE; 2. Nebraska Center for Materials and Nanoscience, University of Nebraska-Lincoln, Licoln, NE; 3. Department of Mechanical and materials Engineering, University of Nebraska-Lincoln, Licoln, NE*

10:30 EH-07. The drive towards higher energy magnets. ***(Invited)*** *G.C. Hadjipanayis* [1], N.G. Akdogan[1] and B. Cui[2] *1. University of Delaware, Newark, DE; 2. Electron Energy Corporation, Landisville, PA*

11:00 EH-08. Preparation of bulk nanocomposite SmCo5/α-Fe permanent magnet from a bottom up approach. *M. Yue* [1], D. Hu[1], J. Zuo[1], D. Zhang[1], W. Liu[1], J. Zhang[1], Z. Guo[2] and W. Li[2] *1. College of Materials Science and Engineering, Beijing University of Technology, Beijing, China; 2. Division of Functional Materials, Central Iron and Steel Research Institute, Beijing, China*

11:15 EH-09. Crystallinity and the degree of anisotropy of SmCo5 nanoflakes. *C.H. Chen* [1], W.M. Zhang[1], P.J. Bonitatibus[1], B. Kandapallil[1], R.E. Colborn[1], M. Zou[1] and F. Johnson[1] *1. GE Global Research, Niskayuna, NY*

11:30 EH-10. Effect of milling parameters on the preparation of textured $SmCo_5$ nanoflakes by surfactant assisted high energy ball milling. *S.K. Pal* [1], L. Schultz[1] and O. Gutfleisch[1,2] *1. IFW Dresden, P.O. Box. 270116, D-01171, Dresden, Germany; 2. T U Darmstadt, Petersenstr. 23, 64287, Darmstadt, Germany*

11:45 EH-11. Assessment of laser-induced damage in laser-micromachined rare-earth permanent magnets at the sub-millimeter scale. *B.A. Peterson* [1], F. Herrault[1], O.D. Oniku[2], Z.A. Kaufman[2], D.P. Arnold[2] and M.G. Allen[1] *1. Georgia Institute of Technology, Atlanta, GA; 2. University of Florida, Gainesville, FL*

THURSDAY MORNING 8:00

EXHIBITION HALL A

Session EP
FERRITES AND GARNETS (Poster Session)

Ji Cheng, Session Chair
Seagate Technology

EP-01. Improvement in giant magnetoimpedance effect by high ion dose. *H. Song* [1], D. Park[1], B. Kishore[1] and C. Angani[1] *1. Korea Atomic Energy Research Institute, Daejeon, Republic of Korea*

EP-02. Examination of Precise Measurement of DC Magnetic Properties of Permalloy under Low Flux Density More Than a Few mT. *M. Mimura* [1], N. Takahashi[1], M. Nakano[1], S. Ujigawa[2], T. Shinnoh[2] and D. Miyagi[3] *1. Dept. Electrical and Electronic Eng., Okayama Univ., Okayama, Japan; 2. Kajima Corp., Chofu, Japan; 3. Dept.Electrical Eng., Tohoku Univ., Sendai, Japan*

EP-03. Zinc ferrite - Magnetic thin films with highly tunable electrical conductivity. *K. Brachwitz* [1], M. Bonholzer[1], M. Lorenz[1], M. Ziese[1], P. Esquinazi[1] and M. Grundmann[1] *1. Institut für Experimentelle Physik II, Universität Leipzig, Leipzig, Germany*

EP-04. Strong magnetoelectric coupling in low-temperature synthesized Fe3O4/ZnO thin film multiferroic heterostructures. O. Obi[1], *Z. Zhou* [1], S. Beguhn[1], S. Rand[1], M. Liu[2] and N. Sun[1] *1. ECE, Northeastern University, Boston, MA; 2. Center for Microwave Materials, Argonne National Laboratory, Argonne, IL*

EP-05. Introduction of NiZn-ferrite into Co2Z-ferrite and effect on the magnetic and dielectric properties. *Z. Zheng* [1], H. Zhang[1], J. Xiao[2] and F. Bai[1] *1. State Key Laboratory of Electronic Thin Films and Integrated Devices, University of Electronic Science and Technology of China, Chengdu, China; 2. Department of Physics and Astronomy, University of Delaware, Newark, DE*

EP-06. Discussion on Microscopic Physical Structures and Macroscopic Physical Properties in $BiFeO_3$ Films Prepared on Hexaferrite. *Y. Yasukawa* [1,2], X. Liu[1,2] and A. Morisako[1,2] *1. Information Engineering, Shinshu University, Nagano, Japan; 2. Spin Device Technology Center, Shinshu University, Nagano, Japan*

EP-07. High frequency magnetic properties of MnZn ferrite single crystalline slab. *S. Takeda* [1], K. Yanagi[2] and H. Suzuki[3] *1. Magnontech, Ltd., Kumagaya, Japan; 2. Toei Sci. Ind. Co., Natori, Japan; 3. KEYCOM Corp., Tokyo, Japan*

EP-08. Permeability dispersion and magnetic loss of Fe/NixZn1-xFe2O4 soft magnetic composites. T. Longxu[1], W. Qi[1], J. Lichuan[1], T. Xiaoli[1], Z. Huaiwu[1] and *Z. Zhong* [1] *1. State Key Laboratory of Electronic Thin Films and Integrated Devices, University of Electronic Science and Technology of China, Chengdu, Sichuan, China*

EP-09. A study on structure and magnetic properties of Mg–Cu–Zn ferrite synthesized by co-precipitation method. *Z. Wang* [1], H. Zhou[1] and L. Ni[1] *1. Tianjin University, Tianjin, Tianjin, China*

EP-10. Magnetic properties of zinc ferrite nanoparticles. *G. Thirupathi* [1] and R. Singh[1] *1. School of Physics, University of Hyderabad, Hyderabad, Andhra Pradesh, India*

EP-11. The Investigation of High Saturation Magnetization Multi-Component Ferrite System. *C. Chen* [1] *1. Industrial Technology Research Institute, Hsinchu, Taiwan*

EP-12. Structure, magnetism and magnetoresistance effect of $Cd_{1-x}Cu_xCr_2S_4$ (x=0.01, 0.04, 0.1, 0.2). L. Yan[1], F. Wang[1], *Y. Sun* [1] and J. Shen[2] *1. Insititute of Physics, Chinese Academy of Sciences, Beijing, China; 2. Key Laboratory of Cryogenics, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing, China*

EP-13. High-temperature magnetic properties of dysprosium iron garnet in strong magnetic fields. R. Chen[1], *W. Wang* [1] and K. Wang[2] *1. Department of Physics and Electronics, school of science, beijing university of chemical technology, Beijing, China; 2. State key laboratory of organic-inorganic composites, Institute of plastics machinery and engineering, Beijing university of Chemical Technology, Beijing, China*

THURSDAY MORNING 8:00

EXHIBITION HALL A

Session EQ
DOMAIN STRUCTURE AND MAGNETIZATION REVERSAL (Poster Session)

Baogen Shen, Session Chair
Institute of Physics, Chinese Academy of Sciences

EQ-01. Interlayer coupled magnetic vortex pairs in trilayer disks. *S. Wintz* [1], A. Banholzer[1], J. Raabe[2], C. Quitmann[2], A. Erbe[1] and J. Fassbender[1] *1. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. Swiss Light Source, Paul Scherrer Institut, Villigen, Switzerland*

EQ-02. Magnetization reversal of ferromagnetic elements surrounded by a synthetic antiferromagnet. M. Langer[1], *A. Neudert* [1], J. Osten[1], M. Körner[1], I. Mönch[2], R. Mattheis[3], J. Fassbender[1] and J. McCord[1,4] *1. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. Institute for Integrative Nanosciences, IFW Dresden, Dresden, Germany; 3. Applied Plasmonics, IPHT Jena, Jena, Germany; 4. Institute for Materials Science, University of Kiel, Kiel, Germany*

EQ-03. Sensing and storage of transverse domain wall chirality in nanowire logic systems. *S. Bowden* [1], R.D. McMichael[1] and J. Unguris[1] *1. Center for Nanoscale Science and Technology, NIST, Gaithersburg, MD*

EQ-04. Generation of standing spin wave excitations using ladder- and comb-type electrodes. *K. Kiseki* [1], M. Miyata[1], S. Yakata[1,2] and T. Kimura[1,2] *1. INAMORI Frontier Research Center, Kyushu Univercity, Fukuoka, Japan; 2. CREST, JST, Tokyo, Japan*

EQ-05. Imaging the magnetization processes in epitaxial exchange coupled $SmCo_5$/Fe/$SmCo_5$ trilayers. *V. Neu* [1], S. Zimmermann[1], S. Sawatzki[1], I. Mönch[1] and L. Schultz[1] *1. IFW Dresden, Dresden, Germany*

EQ-06. Magnetization reversal in Fe100-xTbx thin films and nanodots. *C. Schubert* [1], P.K. Arekapudi[1], B. Hebler[1], H. Schletter[1], A. Liebig[1], F. Radu[2] and M. Albrecht[1] *1. Institute of Physics, TU Chemnitz, Chemnitz, Germany; 2. Institut für Komplexe Magnetische Materialien, Helmholtz Zentrum Berlin für Materialien und Energie, Berlin, Germany*

EQ-07. Complete wave vector mapping of a two-dimensional Magnonic Crystal consiting of square array of NiFe disks. *S. Tacchi* [1], F. Montoncello[2], M. Madami[1], G. Gubbiotti[3], G. Carlotti[1], L. Giovannini[2], R. Zivieri[2], F. Nizzoli[2], S. Jain[4], A. Adeyeye[4] and N. Singh[4] *1. CNISM-Dipartimento di Fisica, Università di Perugia, Perugia, Italy; 2. CNISM-Dipartimento di Fisica, Università di Ferrara, Ferrara, Italy; 3. Istituto Officina dei Materiali (CNR-IOM), Dipartimento di Fisica di Perugia, Perugia, Italy; 4. Department of Electrical and Computer Engineering, National University, Singapore, Singapore, Singapore*

EQ-08. Magnetization reversal modes in narrow FePt nanowires with high perpendicular anisotropy. *V. Nguyen* [1,2], L. Vila[1,2], A. Marty[1,2], P. Jean-Christophe[1,2], C. Beigné[1,2], L. Notin[1,2], S. Pizzini[2,3] and J. Attane[1,2] *1. SP2M/INAC/CEA, Grenoble, France; 2. University of Joseph Fourier, Grenoble, France; 3. Institut Néel, CNRS, Grenoble, France*

EQ-09. Confinement effects on the magnetic domain structures of MnAs nanoribbons: experiments and simulations. *F.J. Fernandez Baldis* [1,2], M. Tortarolo[4], M. Sirena[1,2], L.B. Steren[3,2], V.H. Etgens[4,5] and M. Eddrief[4] *1. Centro Atómico Bariloche, CNEA, San Carlos de Bariloche, Argentina; 2. Consejo Nacional de Investigaciones Científicas y Tecnicas, Buenos Aires, Argentina; 3. Centro Atómico Constituyentes, CNEA, San Martín, Argentina; 4. Institut des NanoSciences de Paris, UPMC, CNRS-UMR, Paris, France; 5. Federation Lavoisier Franklin, UVSQ, Versailles Cedex, France*

EQ-10. Thermally-induced ground states in two-dimensional square spin ices. *S. Greaves* [1] and H. Muraoka[1] *1. RIEC, Tohoku University, Sendai, Japan*

EQ-11. Ordered nanoscale Fe20Ni80 antidot arrays: affect of pore diameter on magnetic properties and magnetic domain formation. *J. Palma* [1], C. Gallardo[1], J. Escrig[1,2] and J. Denardin[1,2] *1. Physics Department, Universidad de Santiago de Chile, Santiago, Metropolitana, Chile; 2. CEDENNA, Center for the Develpment of nanoscience and Nanotechnology, Santiago, Metropolitana, Chile*

EQ-12. Study of magnetization configuration and switching behavior in submicro-scaled asymmetric Permalloy ring. *C. Huang* [1], L. Horng[1], N. Cheng[2] and J. Wu[1] *1. Department of Physics and Taiwan SPIN Research Center, National Changhua University of Education, Changhua, Taiwan; 2. Institute of photonics, National Changhua University of Education, Changhua, Taiwan*

EQ-13. An influence of boundary effects and spatial symmetry on magnetization reversal of nanodisk arrays. *A.V. Ognev* [1,2], M.E. Stebliy[1], A.S. Samardak[1] and L.A. Chebotkevich[1,2] *1. School of Natural Sciences, Far Eastern Federal University, Vladivostok, Russian Federation; 2. Institute of Automation and Control Processes, Vladivostok, Russian Federation*

EQ-14. High-Frequency Properties and Thickness-dependent Damping Factor of FeCo-SiO_2 Thin Films. *G. Lu* [1], H. Zhang[1], X. Tang[1], F. Bai[1] and Z. Zhong[1] *1. State Key Laboratory of Electronic Thin films and Integrated Devices, University of Electronic Science and Technology of China, Chengdu, China*

EQ-15. Domain Wall Pinning Sites Introduced by Focused Ion Beam in TbFeCo Film. S. Li[1], L. Gao[1], T. Amagai[1], *X. Liu* [1,2] and A. Morisako[1,2] *1. Faculty of Engneering, Shinshu University, Nagano, Japan; 2. Spin Device Technology Center, Shinshu University, Nagano, Japan*

EQ-16. Direct observation of self-organized FeCo/AlO_x and FeCo/$AlSiO_x$ ferromagnetic nano-contacts with *In-Situ* Conductive-AFM. *K. Kishi* [1], Y. Shiokawa[1], H. Watanabe[1], Z. Zheng[1] and M. Sahashi[1] *1. Tohoku University, Sendai, Japan*

THURSDAY MORNING 8:00

EXHIBITION HALL A

Session ER
PATTERNED FILMS AND ELEMENTS (NON-RECORDING) (Poster Session)

Joe Davies, Session Chair
NVE Corp.

ER-01. FIB assisted sub-μm shaping of linear GMR sensors. *B. Riedmüller* [1] and U. Herr[1] *1. Institut für Mikro- und Nanomaterialien, Universität Ulm, Ulm, Baden-Württemberg, Germany*

ER-02. Magneto-transport studies on bilayered Co/Ni micro-patterned anti-dot arrays. M.S. Seo[1], *N.G. Deshpande* [1], J.S. Hwang[1], S.J. Lee[1], Y.P. Lee[1], J.Y. Rhee[2] and K.W. Kim[3] *1. Physics, Hanyang University, Seoul, Republic of Korea; 2. Physics, Sungkyunkwan University, Suwon, Republic of Korea; 3. Information Display, Sunmoon University, Asan, Republic of Korea*

ER-03. Domain structure and magnetization reversal in permalloy antidot lattices with defects. *X. Hu* [1,2], S. Sievers[1] and H.W. Schumacher[1] *1. Physikalisch-Technische Bundesanstalt, Braunschweig, Germany; 2. College of Materials Science and Engineering, China Jiliang University, Hangzhou, China*

ER-04. Parametric resonances in microscopic permalloy ellipses. *H. Ulrichs* [1], V.E. Demidov[1], S.O. Demokritov[1] and S. Urazhdin[2] *1. University of Muenster, Muenster, Germany; 2. Emory University, Atlanta, GA*

ER-05. Domain and domain wall structures in epitaxial Co(111) nanowires on vicinal Si(111). *I.P. Ivanov* [1,2], O. Iglesias-Freire[1], E.V. Pustovalov[2], M. Vázquez[1], A. Asenjo[1] and O. Chubykalo-Fesenko[1] *1. Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain; 2. School of Natural Science, Far Eastern Federal University, Vladivostok, Russian Federation*

ER-06. Magnetization and coercivity of Co antidots with different pore diameters. *J. Denardin* [1], S. Michea[1], J. Palma[1], C. Gallardo[1], R. Lavin[2] and J. Escrig[1] *1. Departamento de Fisica, Universidad de Santiago, Santiago, Chile; 2. Facultad de Ingeniería, Universidad Diego Portales, Santiago, Chile*

ER-07. Optimization of On-chip Magnets for Directional Control in Biomoleculer Carriers Translocation. *X. Hu* [1], B. Lim[1], I. Jeong[1] and C. Kim[1] *1. Chungnam National University, Daejeon, Republic of Korea*

ER-08. Ferromagnetic resonance of a magnetic nanostripe array using a micron-sized coplanar probe. C.S. Chang[1], *M. Kostylev* [1], A. Adeyeye[2], M. Bailleul[3] and S. Samarin[1] *1. School of Physics, The University of Western Australia, Perth, WA, Australia; 2. Department of Electrical and Computer Engineering, The University of Western Australia, Singapore, Singapore; 3. Institut de Physique et Chimie des Matériaux de Strasbourg, Université de Strasbourg, Strasbourg, Alsace, France*

ER-09. Magnetic dot arrays using an antidot template. *T. Wen* [1], R.A. Booth[1] and S.A. Majetich[1] *1. Physics, Carnegie Mellon University, Pittsburgh, PA*

ER-10. Asymmetric switching of GMR elements due to interaction with a planar nanowire. M.T. Bryan[1], N.A. Porter[2], J.S. Claydon[2], M.A. Bashir[2], G. Burnell[2], T. Schrefl[3], C.H. Marrows[2] and *D.A. Allwood* [1] *1. Dept Materials Science and Engineering, University of Sheffield, Sheffield, United Kingdom; 2. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 3. St Poelten University of Applied Sciences, St Poelten, Austria*

ER-11. Localized defect modes in a 2D array of magnetic nano-dots. *R.V. Verba* [1], G.A. Melkov[1], V.S. Tiberkevich[2] and A.N. Slavin[2] *1. Faculty of Radiophysics, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine; 2. Department of Physics, Oakland University, Rochester, MI*

ER-12. Magnetization reversal of composite patterned media (CPM) with different structures. L. Sha[1], Y. Wu[1], X. Xu[1], J. Miao[1], L. Qiao[1] and *Y. Jiang* [1] *1. School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing, China*

ER-13. Ultrafast transfer of energy and spin in magnetic structures. *K.C. Kuiper* [1], A.J. Schellekens[1] and B. Koopmans[1] *1. Applied Physics, Eindhoven University of Technology, Eindhoven, Netherlands*

ER-14. Nanopillars local influence on antidot arrays magnetic behavior. *F. Béron* [1] and K.R. Pirota[1] *1. Instituto de Fisica Gleb Wataghin, Universidade Estadual de Campinas, Campinas, Brazil*

THURSDAY
MORNING
8:00

EXHIBITION HALL A

Session ES
MAGNETIC MICROSCOPY AND CHARACTERIZATION (Poster Session)

Juergen Fassbender, Session Chair
Helmholtz-Zentrum Dresden-Rossendorf

ES-01. RF Magnetic Near Field Measurement of CPW Simulated Power/Ground Lines in RFIC using a MFM Tip. Y. Endo[1], *M. Fukushima* [1], K. Arai[1], Y. Shimada[1] and M. Yamaguchi[1,2] *1. Department of Electrical and Communication Engineering, Graduate School of Engineering, Tohoku University, Sendai, Japan; 2. New Industry Creation Hatchery Center, Tohoku University, Sendai, Japan*

ES-02. Development of Apertureless Reflection-mode Magneto-optical Scanning Near-Field Optical Microscopy. *M. Aoyagi* [1], S. Niratisairak[1], T. Sioda[1] and T. Ishibashi[1] *1. Nagaoka University of Technology, Niigata, Japan*

ES-03. Studies on magnetic properties of single crystalline $Mn_{0.25}Fe_{2.75}O_4$ microspheres. *Y. Li* [1] and C. Kim[1] *1. Department of Physics, Kookmin University, Seoul, Republic of Korea*

ES-04. Magnetic force microscope probes with high resolution by soft magnetic vortex. *X. Liu* [1], S. Isomura[1] and A. Morisako[1] *1. Department of Information Engineering, Shinshu University, Nagano, Japan*

ES-05. Study on domain structure of the FeCoAlON films from MFM image by calculating the surface stray field. G. Yin[1], Y. Lou[1], F. Zheng[1], Z. Li[1], D. Wu[1], *J. Bai* [1], F. Wei[1] and D. Wei[2] *1. Key Laboratory for Magnetism and Magnetic Materials of the Ministry of Education, Research Institute of Magnetic Materials, Lanzhou University, Lanzhou, Gansu, China; 2. Materials Science and Engineering, Tsinghua University, Beijing, Beijing, China*

ES-06. Characterization and control of the dynamic dipolar coupling between magnetic nanodisks by MRFM. *B. Pigeau* [1], G. de Loubens[1], V. Naletov[1], O. Klein[1], K. Mitsuzuka[2], D. Lacour[2], M. Hehn[2], S. Andrieu[2] and F. Montaigne[2] *1. Service de Physique de l'Etat Condense, CEA Saclay, Gif Sur Yvette, France; 2. Institut Jean Lamour, UMR CNRS 7198, Université H. Poincaré, Nancy, France*

ES-07. Synthesis and Characterization of Cobalt-Platinum Nanocrystalline Magnetic Films Electrodeposited from Tartrate-alkaline Electrolyte Solutions. *S. Teh* [1], I. Idris Yaacob[2] and M. Johan[1] *1. Mechanical Engineering, University of Malaya, Lembah Pantai, Kuala Lumpur, Malaysia; 2. Manufacturing and Materials Engineering, International Islamic University Malaysia, Gombak, Kuala Lumpur, Malaysia*

ES-08. Magnetic field induced strain in polycrystalline Ni-Mn-Ga alloy. *C. Hürrich* [1], S. Roth[1], B. Rellinghaus[1] and L. Schultz[1] *1. IFW Dresden, Dresden, Germany*

ES-09. Correlation between the magnetic imaging of cobalt nanoconstrictions and their magnetoresistance response. *A. Fernandez-Pacheco* [1], L.E. Serrano-Ramon[2], T. Tyliszczak[4], K.W. Chou[4], R. Cordoba[3], A. Szkudlarek[5], L. O' Brien[1], C. Kapusta[5] and J.M. De Teresa[2,3] *1. Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom; 2. Instituto de Ciencia de Materiales de Aragón (ICMA), Zaragoza, Spain; 3. Laboratorio de Microscopías Avanzadas (LMA), Instituto de Nanociencia de Aragón (INA), Zaragoza, Spain; 4. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA; 5. Faculty of Physics and Applied Computer Science, University of Science and Technology, Krakow, Poland*

ES-10. Ferrite scanning microscope based on magnetic tunnel junction sensor. *G. Jaramillo* [1], M. Chan[2] and D.A. Horsley[2] *1. ECE, University of California, Davis, Davis, CA; 2. MAE, University of California Davis, Davis, CA*

THURSDAY MORNING 8:00

EXHIBITION HALL A

Session ET
MAGNETIC FIELD SENSING AND CONTROL MAGNETICS (Poster Session)

Yang-Ki Hong, Session Chair
University of Alabama

ET-01. Shape effect of magnetic nanoparticles as biomolecular labels for magnetic biosensors. *T. Bowerbank* [1], A. Ding[1], Y. Xu[1] and C. Lu[1] *1. York Laboratory of Spintronics and Nanodevice, York University, York, United Kingdom*

ET-02. Electrodynamic MEMS: application to mobile phone loudspeakers. *G. Lemarquand* [1], E. Lefeuvre[3], I. Shahosseini[3], V. Lemarquand[2], J. Moulin[3], M. Woytasik[3], E. Martincic[3] and G. Pillonnet[4] *1. LAUM UMR 6613, Universite du Maine, Le Mans, France; 2. LAPLACE UMR 5213, Universite de Toulouse, Figeac, France; 3. IEF UMR 8622, Universite de Paris Sud, Orsay, France; 4. INL UMR 5270, Universite de Lyon, Lyon, France*

ET-03. Position sensorless control of interleaved CSI fed PMSM drive with extended kalman filter. *Z. Wang* [1], B. Yuwen[2] and M. Cheng[1] *1. School of Electrical Engineering, Southeast University, Nanjing, China; 2. Goldwind Science & Technology Company, Beijing, China*

ET-04. Label-free protein biosensor based on giant magnetoimpedance effect. *H. Song* [1], D. Park[1] and C. Angani[1] *1. Korea Atomic Energy Research Institute, Daejeon, Republic of Korea*

ET-05. Analysis of Wireless Energy Transfer System Based on 3-D Finite Element Method Including Displacement Current. *X. Zhang* [1], Y. Zhao[1], S. Ho[1] and W. Fu[1] *1. The HongKong Polytechnic University, HongKong, China*

ET-06. Amplification of planar Hall effect sensor profile by using NiCo. *B. Sinha* [1], T.S. Ramulu[1], V. Reddy[1], K. Kim[1], N. Islam[1], S. Oh[1], D.Y. Kim[2] and C. Kim[1] *1. Materials Engineering, Chungnam National University, Deajeon, Republic of Korea; 2. Physics, Andong National University, Andong, Republic of Korea*

ET-07. Enhancement in Responsivity Using Multiple Harmonics for Miniature Fluxgates. *J. Jeng* [1], J. Chen[1] and C. Lu[2] *1. Institute of Mechanical and Precision Engineering, National Kaohsiung University of Applied Sciences, Kaohsiung, Taiwan; 2. Institute of Mechatronic Engineering, National Taipei University of Technology, Taipei, Taiwan*

ET-08. Fluxgate and search coil hybrid: a low-noise wide-band magnetometer. *F. Hang* [1], S. Harada[1] and I. Sasada[1] *1. Kyushu University, Kasuga, Japan*

ET-09. Solid-State Bobbin-Type Hall Sensor Arrays with High Spatial Resolution for Inspecting Cracks in a Small-Bore Piping System. *J. Lee* [1], J. Jun[1], J. Kim[1] and H. Choi[1] *1. Research Center for Real Time NDT, Chosun University, Gwangju, Republic of Korea*

ET-10. Real Time Visualization of Magnetic Field Vectors on 2-D Planes using Integrated Hall and GMR Sensor Arrays. *J. Kim* [1], J. Lee[1], J. Jun[1] and M. Le[1] *1. Research Center for Real Time NDT, Chosun University, Gwangju, Republic of Korea*

ET-11. Angular dependence of low-frequency noise in magnetic tunnel junction sensors with Conetic alloy. *Z. Lei* [1], G. Feng[2], P. Chen[2], P. Lai[1] and P. Pong[1] *1. Department of Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong, Hong Kong; 2. Magnetic Materials Group, Metallurgy Division, National Institute of Standards and Technology, Gaithersburg, MD*

ET-12. High sensitivity magnetic tunnel junction sensors for biomedical applications. *S. Cardoso* [1,2], L. Gameiro[1,2], F.A. Cardoso[1], R. Ferreira[3], R. Chaves[1,2] and P.P. Freitas[1,2] *1. INESC Microsistemas e Nanotecnologias (INESC MN), Lisboa, Portugal; 2. IST - Instituto Superior Técnico, Lisboa, Portugal; 3. INL – International Iberian Nanotechnology Laboratory, Braga, Portugal*

ET-13. Effect of spatial homogeneity of spin polarization on magnetic field response of an optically pumped atomic magnetometer using a hybrid cell of K and Rb atoms. *Y. Ito* [1,2], H. Ohnishi[1], K. Kamada[1] and T. Kobayashi[1] *1. Department of Electrical Engineering, Kyoto University, Kyoto, Kyoto, Japan; 2. Advanced Biomedical Engineering Research Unit, Kyoto University, Kyoto, Kyoto, Japan*

ET-14. Large Area and Low Aspect Ratio Linear Magnetic Tunnel Junctions with an Orthogonally Soft-Pinned Sensing Layer. *R. Ferreira* [1], E. Paz[1], P.P. Freitas[1], J. Wang[2] and S. Xue[2] *1. INL, Braga, Portugal; 2. DoWayTech LLC, San Jose, CA*

THURSDAY
MORNING
8:00

EXHIBITION HALL A

Session EU
RECORDING PHYSICS I
(Poster Session)

Davide Guarisco, Session Chair
Western Digital Corp.

EU-01. READ-HEAD conditions with bit patterned media for areal recording density more than 5 Tb/in^2. *F. Akagi* [1], J. Ushiyama[1], H. Miyamoto[1] and S. Mita[2] *1. Hitachi, Tokyo, Japan; 2. Toyota Technological Institute, Nagoya, Japan*

EU-02. Effect of Time-Dependent Head Fields on Recording Performance. *S. Greaves* [1], Y. Kanai[2] and H. Muraoka[1] *1. RIEC, Tohoku University, Sendai, Japan; 2. IEE, Niigata Institute of Technology, Kashiwazaki, Japan*

EU-03. Write margin measurement of bit patterned media with 20 nm dots. *H. Saga* [1,2], K. Shirahata[2], R. Terashima[2], T. Shimatsu[2], H. Aoi[2] and H. Muraoka[2] *1. Central Research Laboratory, Hitachi, Ltd., Kokubunji, Tokyo, Japan; 2. Research Institute of Electrical Communication, Tohoku University, Sendai, Miyagi, Japan*

EU-04. The effect of the tails of distributions upon write errors in Bit Patterned Media. *J.E. Talbot* [1], J. Miles[1] and J. Kalezhi[2] *1. Computer Science, University of Manchester, Manchester, United Kingdom; 2. Copperbelt University, Kitwe, Zambia*

EU-05. Bi-mode Hard Disk Drive for Large Capacity and High Data Rate Output. *Y. Tang* [1], L. Guan[1], S. Song[1], Y. Wei[1], B. Chu[1] and D. Hu[1] *1. Headway Technologies, Inc., Milpitas, CA*

EU-06. Write pole jitter at a material level. *J. Barker* [1], R.W. Chantrell[1] and M. Gubbins[2] *1. Physics, University of York, York, Yorkshire, United Kingdom; 2. Seagate Technology, Londonderry, United Kingdom*

EU-07. The respective effects of the free layer thickness and width on the downtrack and crosstrack responses. *L. Wang* [1] and G. Han[1] *1. Data Storage Institute, Singapore, Singapore*

EU-08. Grain size dependence of the Curie temperature in magnetic recording media. S. Devos[1], Q. Coopman[1], W.J. Fan[1], C. Aas[1], O. Hovorka[1], *R.F. Evans* [1] and R.W. Chantrell[1] *1. Department of Physics, University Of York, York, England, United Kingdom*

EU-09. High-performance micro magnetic simulator for particulate magnetic media. J.E. Martin[1], M. Lubarda[1], S. Li[1], M. Escobar[1], R. Chang[1], P. Jubert[2] and *V. Lomakin* [1] *1. ECE, UCSD, La Jolla, CA; 2. ECE, IBM Research - Almaden, San Jose, CA*

EU-10. Switching dynamics of Two-phase media at finite temperature. *L. Saharan* [1], C. Morrison[2], J. Miles[2], T. Thomson[2], T. Schrefl[3] and G. Hrkac[1] *1. Department of Materials Science and Engineering, Sheffield University, Sheffield, South Yorkshire, United Kingdom; 2. School of computer science, Manchester University, Manchester, United Kingdom; 3. St. Pölten University of Applied Sciences, St. Pölten, Austria*

EU-11. Micro magnetic exchange tensor and magnetization switching of hcp Co alloy based thin film nano-structures. *A. Singh* [1,2], O. Mryasov[1,2], S. Gupta[3], X. Wang[4] and E. Girt[5] *1. MINT, University of Alabama, Tuscaloosa, AL; 2. Physics and Astronomy, University of Alabama, Tuscaloosa, AL; 3. Metallurgical and Material Engineering, University of Alabama, Tuscaloosa, AL; 4. Seagate Technology, Bloomington, MN; 5. Physics Department, Simon Fraser University, Burnaby, BC, Canada*

EU-12. Calculations of Phonon Spectrum and Frequency Distribution in $L1_0$-FePt. *M. Zhang* [1], L. Wang[1], D. Wei[1] and K. Gao[2] *1. Materials Science and Engineering, Tsinghua University, Beijing, China; 2. Advance Technology Development, Seagate Technology, Bloomington, MN*

THURSDAY
MORNING
8:00

EXHIBITION HALL A

Session EV
FUNCTIONAL MATERIALS: MAGNETOCALORICS I (Poster Session)

Oliver Gutfleisch, Session Chair
IFW Dresden

EV-01. The Adiabatic Temperature Changes in the Vicinity of the First Order Paramagnetic-Ferromagnetic Transition of the Ni-In-Mn-B System. *I. Dubenko* [1], T. Samanta[1], A. Quetz[1], A. Kazakov[2], I. Rodionov[2], D. Mettus[2], V. Prudnikov[2], S. Stadler[3], P. Adams[3], J. Prestigiacomo[3], A. Granovsky[2,4], A. Zhukov[4,5] and N. Ali[1] *1. Physics, Southern Illinois University at Carbondale, Carbondale, IL; 2. Faculty of Physics, Moscow State University, Moscow, Russian Federation; 3. Physics & Astronomy, Louisiana State University, Baton Rouge, LA; 4. IKERBASQUE, The Basque Foundation for Science, Bilbao, Spain; 5. de Física de Materiales, Facultad de Química, Universidad del País Vasco, San Sebastián, Spain*

EV-02. Neutron diffraction and Mössbauer studies of $Mn_{0.997}{}^{57}Fe_{0.003}As$. *H. Cho* [1], T. Kouh[1], S. Kim[1] and C. Kim[1] *1. Department of Physics, Kookmin University, Seoul, Republic of Korea*

EV-03. Effect of B doping on the martensitic transitions, magnetocaloric and magnetic properties in Ni48Mn39In13-xBx ribbons. X.G. Zhao[2,1], B. Li[1], C.C. Hsieh[2], *W.C. Chang* [2], W. Liu[1] and Z.D. Zhang[1] *1. Institute of Metal Research,Chinese Academy of Sciences, Shenyang, China; 2. Department of Physics, National Chung Cheng University, Chia-Yi, Taiwan*

EV-04. An Ashby map as a guide in the search for new magnetocaloric systems. *K.G. Sandeman* [1] *1. Department of Physics, Imperial College London, London, United Kingdom*

EV-05. Magnetocaloric Properties and Universal Behavior in Electron-doped Manganite $Ca_{0.88}Dy_{0.12}MnO_3$. Y. Su[1], *Y. Sui* [1,2], X. Wang[1], Y. Wang[1] and X. Liu[3] *1. Center for Condensed Matter Science and Technology, Department of Physics, Harbin Institute of Technology, Harbin 150001, China; 2. International Center for Materials Physics, Academia Sinica, Shenyang 110015, China; 3. State Key Laboratory of Inorganic Synthesis and Preparative Chemistry, College of Chemistry, Jilin University, Changchun 130012, China*

EV-06. Homogeneity of Curie temperature in La (Fe, Si)13 compounds by Co and C doping. S. Wei[1], *L. Yi* [1], F. Song[1] and N. Yuki[2] *1. Materials Science and Engineering, University of Science and Technology Beijing, Beijing, China; 2. Materials Science and Engineering, Hokkaido University, Hokkaido, Japan*

EV-07. What kind of measurements describes the magnetic entropy changes better?. Y. Hu[1], *S. Li* [1,2], L. Wang[1], J. Lin[1], J. Lou[3], S. Beguhn[3], F. Xu[4], N. Sun[3] and J. Duh[5] *1. Physics, Fujian Normal University, Fuzhou, Fujian, China; 2. College of Physics Science, Qingdao University, Qingdao, Shandong, China; 3. Electrical and Computer Engineering, Northeastern University, Boston, MA; 4. Materials Science and Technology, Nanjing University of Science and Technology, Nanjing, Jiangsu, China; 5. Materials Science and Engineering, National Tsing Hua University, Hsinchu, Taiwan*

EV-08. Magnetism of Gd5Si4 compound: from fundamentals to magnetocaloric effect. J.H. Belo[1], A.M. Pereira[1], *J. Ventura* [1], C. Magen[2], L. Morellon[2], P.A. Algarabel[3], M.R. Ibarra[2] and J.P. Araújo[1] *1. IFIMUP-IN, Porto, Portugal; 2. Instituto de Nanociencia de Aragón, Zaragoza, Spain; 3. Instituto de Ciencia de Materiales de Aragón, Zaragoza, Spain*

EV-09. Magnetocaloric effect and glass formability of melt spun Fe-M-B ribbons (M = Nb, and Ta). S. Chih-Wei[1], W. Zhe-Ming[1], C. Huang-Wei[2], H. Chih-Chieh[1] and *C. Wen-Cheng* [1] *1. Physics, National Chung-Cheng university, Chia-Yi, Taiwan; 2. Physics, Tung-Hai University, Tai-Chung, Taiwan*

EV-10. Martensitic transformation in bulk and ribbon $Ni_{50}Mn_{50-x}Sn_x$ and $Ni_{49}Mn_{51-x}Sn_x$ alloys. M. Nazmunnahar[1], L. Gonzalez[3], *J.J. del Val* [1,2], B. Hernando[3] and J. Gonzalez[1] *1. Fisica de Materiales, Universidad del Pais Vasco, San Sebastian, Spain; 2. Centro de Física de Materiales (CSIC-UPV/EHU), San Sebastian, Spain; 3. Fisica, Universidad de Oviedo, Oviedo, Spain*

EV-11. Solid state magnetic refrigerator. D.J. da Silva[1], B. Bordalo[1], *J. Ventura* [1], A. Pereira[1] and J.P. Araújo[1] *1. Departamento de fisica e astronomia, Faculdade de ciências da Universidade do Porto, Porto, Portugal*

EV-12. Magnetocaloric and critical behaviours of $Ni_{0.5}Mn_{0.5-x}Sn_x$ (x = 0.14, 0.15) Heusler alloys. *P. Zhang* [1], T. Phan[1] and S. Yu[1] *1. Physics, Chungbuk National University, Cheongju, Republic of Korea*

EV-13. The formation of 1:13 phase in La(Fe,Si)13-based compounds by diffusion of LaFeSi/α-Fe(Si) couple. S. Fu[1], *Y. Long* [1], C. Wang[1], M. Zhang[1] and S. Ohnuki[2] *1. School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing, China; 2. Division of Materials Science and Engineering, Hokkaido University, Hokkaido, Japan*

EV-14. The effect of the thermal decomposition reaction on the mechanical and magnetocaloric properties of $La(Fe,Si,Co)_{13}$. *K. Löwe* [1], J. Liu[1], K. Skokov[1], J.D. Moore[1], H. Sepehri-Amin[2], K. Hono[2], M. Katter[3] and O. Gutfleisch[1,4] *1. IFW Dresden, Institute for metallic materials, Dresden, Germany; 2. NIMS, Tsukuba, Japan; 3. Vacuumschmelze GmbH & Co. KG, Hanau, Germany; 4. Department of materials science, TU Darmstadt, Darmstadt, Germany*

EV-15. Magnetocaloric effect of Pr2Fe17-xMnx alloys. *X. Zhong* [1,2], Z. Liu[1], D. Zeng[1], K. Gschneidner[2] and V. Pecharsky[2] *1. School of Materials Science and Engineering, South China University of Technology, Guangzhou, Guangdong, China; 2. U.S. Department of Energy, Ames Laboratory, Ames, IA*

EV-16. Study on novel rare-earth nitride chlorides GdNCl and Gd2N2Cl. N. Chen[1], X. Liu[1], Y. Liu[1], *Y. Li* [2,3], J. Lu[3], K. Lu[3] and J. Garcia[3] *1. School of Material Science and Engineering, University of Science and Technology Beijing, Beijing, China; 2. Department of Physics, University of Science and Technology Beijing, Beijing, China; 3. Department of General Engineering, University of Puerto Rico, Mayaguez Campus, Mayaguez*

THURSDAY MORNING 8:00

EXHIBITION HALL A

Session EW
MAGNETIC FLUIDS AND SEPARATION II (Poster Session)

Ramachandra Rao, Session Chair
Indian Institute of Technology, Madras

EW-01. Digital/analog hybrid magnetizing of magneto-rheological fluid for expansion of its controllable viscosity range. *Y. Sato* [1] and S. Umebara[1] *1. Mechanical Engineering, Yokohama National University, Yokohama, Japan*

EW-02. The relaxation behavior of transmittance in ferrofluid under an AC magnetic field. *M. Chung* [1] and C. Fu[1] *1. Department of Physics, Taipei, Taiwan*

EW-03. Effect of the AC-applied field strength on cluster disruption in magnetic fluids. *P.C. De Morais* [1], J. Zhong[2,3] and W. Liu[2,3] *1. Institute of Physics, University of Brasilia, Brasilia, DF, Brazil; 2. Department of Control Science and Engineering, Huazhong University of Science and Technology, Wuhan, China; 3. Key Laboratory of Image Processing and Intelligent Control, Huazhong University of Science and Technology, Wuhan, China*

EW-04. Adjustment method for the indoor electromagnetic wave absorber using magnetic fluid based magnetic wood. *H. Oka* [1], A. Ito[1], K. Kubota[1], N. Sekino[2], H. Osada[1], Y. Namizaki[3] and F.P. Dawson[4] *1. Department of Electric and Electronic Engineering, Iwate University, Morioka, Japan; 2. Faculty of Agriculture Environmental Sciences, Iwate University, Morioka, Japan; 3. Iwate Industrial Research Institute, Morioka, Japan; 4. Faculty of Applied Science and Engineering, University of Toronto, Toronto, ON, Canada*

EW-05. Magnetorheological fluids employing substitution of nonmagnetic for magnetic particles to increase yield stress. L.A. Powell[1], *N.M. Wereley* [1] and J. Ulicny[2] *1. Aerospace Engineering, University of Maryland, College Park, MD; 2. General Motors R&D Center, Warren, MI*

EW-06. Novel magnetorheological fluids for vibration control. G. Stoian[1] and *H. Chiriac* [1] *1. National Institute of Research & Development for Technical Physics, Iasi, Romania*

EW-07. 2D Vector Magnetic Hysteresis Property Measurement of Magneto-Rheological Fluid Material. *J. Zeng* [1,2], Y. Guo[2], J. Zhu[2] and Z. Lin[2] *1. SEE, Shenyang University of Technology, Shenyang, Liaoning, China; 2. FEIT, University of Technology, Sydney, Sydney, NSW, Australia*

EW-08. Magnetic Separation for Contaminants in Wastewater Using Magnetic Micro Bead. *M. Baek* [1], T. Sung[1], E. Cho[2] and I. Park[1] *1. School of Information and Communication Engineering, Sungkyunkwan University, Suwon, Republic of Korea; 2. Bead & Micro Inc., Yongin, Republic of Korea*

EW-09. Accurate Computations of Magnetic Field for Magnetic Fluid Seal. *J. Zou* [1], M. Zhao[1], B. Zhao[1], F. Xu[1] and K. Liu[1] *1. Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, China*

EW-10. Iron oxide nanoparticles embedded in polymer-composite nanospheres and nanocomposite films. *C. Lin* [1], Y. Siao[1], M. Chen[2], C. Wang[3], G. Chen[1] and G. Jhang[1] *1. Institute of Nanotechnology and Department of Mechanical Engineering, Southern Taiwan University, Tainan, Taiwan; 2. Department of Electro-optical Engineering, Southern Taiwan University, Tainan, Taiwan; 3. Department of Chemical and Materials Engineering, Southern Taiwan University, Tainan, Taiwan*

EW-11. Percolation transition of Fe-based spherical microparticle magnetorheological elastomeric composites. *S. Symon* [1], N.M. Wereley[1] and R. Bell[2] *1. Aerospace Engineering, University of Maryland, College Park, MD; 2. Chemistry, Penn State University, Altoona, PA*

EW-12. Magneto-optic effect in nanoparticle monolayer arrays. *R.A. Booth* [1], T. Wen[1] and S.A. Majetich[1] *1. Physics, Carnegie Mellon, Pittsburgh, PA*

EW-13. Enhanced Driver Circuit for Magneto-Optic Switching Technologies. *J.W. Pritchard* [1], M. Mina[1] and R.J. Weber[1] *1. Iowa State University, Ames, IA*

EW-14. Magneto-optic Spatial Light Modulator with Submicron-size Magnetic Pixels for 3D Holographic Displays. T. Yonezawa[1], *H. Takagi* [1], Y. Eto[1], K. Nakamura[1] and M. Inoue[1] *1. Toyohashi university of technology, Toyohashi, Japan*

EW-15. A resonant-tunneling optoelectronic device. *D. Guo* [1] *1. Electronic Engineering, Air Force Academy, Kaohsiung, Taiwan*

THURSDAY AFTERNOON 2:00 BALLROOM A

Session FA
SPIN TRANSPORT IN HYBRID ORGANIC-INORGANIC STRUCTURES

Xiufeng Han, Session Chair
Institute of Physics

2:00 FA-01. Tunable coupling of single molecule magnets to ferromagnetic metal films. ***(Invited)*** *P. Gambardella* [1,2], A. Lodi Rizzini[1], C. Krull[1], T. Balashov[1], J. Kavich[1], A. Mugarza[1], S. Stepanow[3], P. Thakur[4], V. Sessi[4], S. Klyatskaya[5] and M. Ruben[5] *1. Catalan Institute of Nanotechnology, Barcelona, Spain; 2. ICREA and Universitat Autonoma de Barcelona, Barcelona, Spain; 3. Max-Plank-Institut für Festkörperforschung, Stuttgart, Germany; 4. European Synchrotron Radiation Facility, Grenoble, France; 5. Karlsruhe Institute of Technology (KIT), Leopoldshafen, Germany*

2:30 FA-02. Hot electron spin transport in C_{60} fullerene. ***(Invited)*** *L.E. Hueso* [1,2], M. Gobbi[1], A. Bedoya-Pinto[1], F. Golmar[1], R. Llopis[1] and F. Casanova[1,2] *1. CIC nanoGUNE, San Sebastian, Spain; 2. IKERBASQUE, Bilbao, Spain*

3:00 FA-03. *Ab Initio* Tuning of the Magnetic Properties at Hybrid Organic-Ferromagnetic Interfaces. ***(Invited)*** *N. Atodiresei* [1], V. Caciuc[1], P. Lazić[2] **and S. Blügel[1]** *1. Peter Grünberg Institut and Institute for Advanced Simulation, Forschungszentrum Jülich, Jülich, NRW, Germany; 2. Massachusetts Institute of Technology, Cambridge, MA*

3:30 FA-04. The role of interfaces in organic spin valves. ***(Invited)*** *A. Drew* [1,2], L. Schulz[2], H. Zhang[1], P. Desai[1], L. Nuccio[1,2], T. Kreouzis[1], W. Gillin[1], C. Bernhard[2], F. Pratt[3], T. Prokscha[4] and E. Morenzoni[4] *1. School of Physics & Astronomy, Queen Mary University of London, London, United Kingdom; 2. Physics Department, University of Fribourg, Fribourg, Switzerland; 3. ISIS Pulsed Muon Source, Rutherford Appleton Laboratory, Didcot, United Kingdom; 4. Laboratory for Muon Spin Spectroscopy, Paul Scherrer Institute, Villigen, Switzerland*

4:00 FA-05. Magnetically Enhanced Memristor. ***(Invited)*** *V.A. Dediu* [1], M. Prezioso[1], A. Riminucci[1], I. Bergenti[1], P. Graziosi[1] and R. Cecchini[1] *1. ISMN-CNR, Bologna, Italy*

THURSDAY
AFTERNOON
2:00

BALLROOM B

Session FB
BIOMEDICAL DIAGNOSTICS AND IMAGING II

Hélène Joisten, Session Chair
SPINTEC

2:00 **FB-01. Hollow Manganese Phosphate Nanoparticles as a Bifunctional Agent for Cancer Cell Targeted Magnetic Resonance Imaging and Drug Delivery.** J. Yu[1], R. Hao[1] and *Y. Hou* [1] *1. Department of Materials Science and Engineering, Peking University, Beijing, China*

2:15 **FB-02. Magneto-mechanical resonant detection of superparamagnetic microbeads using magnetic domain walls.** *E.A. Rapoport* [1], D. Montana[1], D. Bono[1] and G.S. Beach[1] *1. Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA*

2:30 **FB-03. Magnetic nanoparticle imaging using harmonic signals.** *N.B. Othman* [1], T. Tsubaki[1], T. Yoshida[1], K. Enpuku[1] and A. Kandori[2] *1. Department of Electrical and Electronic Engineering, Kyushu University, Fukuoka, Japan; 2. Central Research Laboratory, Hitachi Ltd., Tokyo, Japan*

2:45 **FB-04. Optimization of magnetic nanoparticles for magnetic particle imaging.** *F. Ludwig* [1], T. Wawrzik[1], T. Yoshida[2], N. Gehrke[3], A. Briel[3], D. Eberbeck[4] and M. Schilling[1] *1. Institute of Electrical Measurement and Fundamental Electrical Engineering, TU Braunschweig, Braunschweig, Germany; 2. Department of Electrical Engineering, Kyushu University, Nishi-ku Fukuoka, Japan; 3. nanoPET Pharma GmbH, Berlin, Germany; 4. Physikalisch-Technische Bundesanstalt, Berlin, Germany*

3:00 **FB-05. Integration of Magnetoresistive Biochips on a CMOS circuit.** *F.A. Cardoso* [1], T. Costa[2,3], S. Cardoso[1,3], J. Borme[4], J. Gaspar[4], J.R. Fernandes[2,3], M.S. Piedade[2,3] and P.P. Freitas[1,3] *1. INESC-MN, Lisboa, Portugal; 2. INESC-ID, Lisbon, Portugal; 3. IST, Lisbon, Portugal; 4. INL, Lisbon, Portugal*

3:15 **FB-06. Dendronized iron oxide nanoparticles for multimodal imaging.** *F. Delphine* [1], B. Sylvie[1], B. Claire[2], G. Cynthia[1], P. Gabriela[1] and B. Aurélie[2] *1. IPCMS, CNRS, Strasbourg, France; 2. LPCML-UCBL, Hôpital Edouard Herriot, Lyon, France*

3:30 FB-07. Evaluation of Harmonic Signals for the Detection of Magnetic Nanoparticles. *T. Yoshida* [1], N. Othman[1], T. Tsubaki[1], J. Takamiya[1] and K. Enpuku[1] *1. Electrical and Electronic Engineering, Kyushu University, Fukuoka, Japan*

3:45 FB-08. Ferrite nanoparticles for biomedical applications. *H. Nguyen* [1], A.T. Raghavender[1], K. Stojak[2], M. Phan[2], O. Ciftja[3] and Y. Zhang[4] *1. Physics and Astronomy, Seoul National University, Seoul, Republic of Korea; 2. Physics, University of South Florida, Tampa, FL; 3. Physics, Prairie View A&M University, Prairie View, TX; 4. Physiology, Seoul National University, Seoul, Republic of Korea*

4:00 FB-09. Homogeneous bioassays based on the manipulation of magnetic nanoparticles by rotating and alternating magnetic fields – a comparison. *J. Dieckhoff* [1], T. Yoshida[2], K. Enpuku[2], M. Schilling[1] and F. Ludwig[1] *1. Institute of Electrical Measurement and Fundamental Electrical Engineering, TU Braunschweig, Braunschweig, Germany; 2. Department of Electrical Engineering, Kyushu University, Fukuoka, Japan*

THURSDAY AFTERNOON 2:00 — BALLROOM C

Session FC
SOFT MAGNETIC MATERIALS & APPLICATIONS

Xiaoshan Wu, Session Chair
Nanjing University

2:00 FC-01. Magnetic Nanoparticle-solder Composites and their Novel Applications in Semiconductor Packaging. ***(Invited)*** *R. Swaminathan* [1] and M. McHenry[2] *1. Intel Corporation, Chandler, AZ; 2. Carnegie Mellon University, Pittsburgh, PA*

2:30 FC-02. Magnetic stripe domains in magnetostriction free films - the role of structure. *J. McCord* [1], O. Roshchupkin[2], B. Erkartal[1], J. Grenzer[2], L. Kienle[1] and E. Quandt[1] *1. Institute for Materials Science, CAU Kiel, Kiel, Germany; 2. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany*

2:45 FC-03. Micromagnetic analysis of mechanical stress effect on magnetic domain structure of amorphous wires. *L. Stoleriu* [1], C. Pinzaru[1] and A. Stancu[1] *1. Department of Physics, Alexandru Ioan Cuza University, Iasi, Romania*

3:00 FC-04. Control of single-domain wall velocity in magnetic microwire by local field. *R. Perez* [1], G. Basheed[1] and M. Vazquez[1] *1. ICMM-CSIC, Madrid, Madrid, Spain*

3:15 FC-05. Fast domain wall propagation in micrometric wires: effect of magnetoelastic anisotropy and role of defects. *A. Zhukov* [1,2], J. Blanco[3], V. Rodionova[4,5], M. Ipatov[1] and V. Zhukova[1] *1. Dept. Material Physics, Basque Country University, San Sebastian, Spain; 2. IKERBASQUE, Basque Foundation for Science, Bilbao, Spain; 3. Dpto. de Física Aplicada,, EUPDS, UPV/EHU,, San Sebastian, Spain; 4. Faculty of Physics,, Moscow State University, Moscow, Russian Federation; 5. 5Immanuel Kant Baltic Federal University, Kaliningrad, Russian Federation*

3:30 FC-06. Temperature dependence of magnetic properties of Co-P films from 5 K to 1073 K. N. Lu[1], J. Cai[2] and *L. Li* [1] *1. Materials Science and Engineering, Tsinghua University, Beijing, China; 2. Institute of Microelectronics, Tsinghua University, Beijing, China*

3:45 FC-07. Magnetic and Microstructural Characterizations of Fe/CoFe Nanostructures. *C. Rizal* [1], R.K. Pokharel[2] and Y. Ueda[3] *1. Electrical and Computer Engineering, University of British Columbia, Vancouver, BC, Canada; 2. Electrical and Communication Engineering, Kyushu University, Motooka, Fukuoka, Japan; 3. Electrical and Electronic Engieneering, Muroran Institute of Technology, Muroran, Hokkaido, Japan*

4:00 FC-08. Domain wall processes, rotations, and high-frequency losses in thin laminations. *A. Magni* [1], F. Fiorillo[1], E. Ferrara[1], A. Caprile[1,2], C. Beatrice[1] and O. Bottauscio[1] *1. INRIM, Torino, Italy; 2. Physics, Politecnico di Torino, Torino, Italy*

4:15 FC-09. Magnetic properties of current-annealed thin films. *M. Coisson* [1], G. Barrera[1], F. Celegato[1], L. Martino[1], P. Tiberto[1], F. Vinai[1] and P. Allia[2] *1. Electromagnetics, INRIM, Torino, TO, Italy; 2. DISMIC, Politecnico di Torino, Torino, TO, Italy*

4:30 FC-10. Effect of grain size, temperature,time and texture on polygonization in polycrystalline Fe-3% Si alloys. *S. Ramanathan* [1], J.P. Hall[1], S.L. Evans[2], K. Jenkins[3] and A. Green[3] *1. Wolfson Centre for Magnetics, Cardiff University, Cardiff, South Glamorgan, United Kingdom; 2. Institute of Medical Engineering and Physics, Cardiff University, Cardiff, South Glamorgan, United Kingdom; 3. Cogent Power Ltd., Tata Steel Europe, Newport, South Glamorgan, United Kingdom*

4:45 FC-11. High frequency electric current influence on magnetization reversal and domain structure in Co-rich amorphous microwires. *A. Chizhik* [1], A. Zhukov[1], A. Stupakiewicz[2], A. Maziewski[2] and J. Gonzalez[1] *1. Dpto. Fisica de Materiales, Facultad de Quimica, San Sebastian, Giupuzcoa, Spain; 2. Laboratory of Magnetism, University of Bialystok, Bialystok, Poland*

THURSDAY AFTERNOON 2:00 — MEETING RM 11/12

Session FD
SPIN TRANSFER TORQUE III

Stéphane Mangin, Session Chair
CNRS - Nancy-Université

2:00 FD-01. Spinmotive force due to a gyrating magnetic vortex. *K. Tanabe* [1], D. Chiba[1,2], J. Ohe[3,4], S. Kasai[5], H. Kohno[6], S.E. Barnes[7], S. Maekawa[4,8], K. Kobayashi[1] and T. Ono[1] *1. Institute for Chemical Research, nanospintronics, Kyoto Univ., Uji, Japan; 2. PRESTO, Japan Science and Technology Agency, Kawaguchi, Japan; 3. Department of Physics, Toho Univ., Funabashi, Japan; 4. CREST, Japan Science and Technology Agency, Tokyo, Japan; 5. National Institute for Material Science, Tsukuba, Japan; 6. Graduate School of Engineering Science, Osaka Univ., Toyonaka, Japan; 7. Physics Department, Univ. of Miami, Coral Gables, FL; 8. The Advanced Science Research Center, The Japan Atomic Energy Agency, Tokai, Japan*

2:15 FD-02. Theory of spin torque assisted thermal switching of single free layer. *T. Taniguchi* [1] and H. Imamura[1] *1. Nanosystem Research Institute, AIST, Tsukuba, Ibaraki, Japan*

2:30 FD-03. Wide-range control of ferromagnetic resonance by spin Hall effect. *V.E. Demidov* [1], S. Urazhdin[2], E. Edwards[1] and S.O. Demokritov[1] *1. University of Muenster, Muenster, Germany; 2. Emory University, Atlanta, GA*

2:45 FD-04. Film Thickness Dependence of the Current Induced Spin Wave Doppler Shift in Permalloy Thin Films. *M. Haidar* [1] and M. Bailleul[1] *1. UMR 7504 CNRS-Université de Strasbourg, Institut de Physique et Chimie des Matériaux de Strasbourg (IPCMS), Strasbourg, France*

3:00 FD-05. Atomistic modelling of magnetization dynamics with spin accumulation. *P. Chureemart* [1], R. Evans[1], I. D'Amico[1] and R. Chantrell[1] *1. Department of Physics, University of York, York, United Kingdom*

3:15 FD-06. Control of Ferromagnetic Relaxation in Magnetic Thin Films through Thermally Induced Interfacial Spin Transfer. *L. Lu* [1], Y. Sun[1], M. Jantz[1] and M. Wu[1] *1. Physics, Colorado State University, Fort Collins, CO*

3:30 FD-07. Influence of temperature on the performance of a spin-torque microwave detector. *O. Prokopenko* [1], V. Tiberkevich[2] and A. Slavin[2] *1. Faculty of Radiophysics, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine; 2. Department of Physics, Oakland University, Rochester, MI*

3:45 FD-08. Magnetic Vortex Core Oscillations in Multi Point Contact Spin Valve Stacks. *G. Hrkac* [1], D. Hahn[2], L. Saharan[1], J. Kim[3], C. Chappert[3], T. Devolder[3] and T. Schrefl[2] *1. Department of Engineering Materials, University of Sheffield, Sheffield, South Yorkshire, United Kingdom; 2. University of Applied Science, St Poelten, Austria; 3. Université Paris-Sud, Paris, France*

4:00 FD-09. FMR mode variation in nano-sized circular magnetic nano-dots under large out-of-plane magnetic field. *K. Miyake* [1], S. Noh[1], T. Kaneko[2], H. Imamura[1,2] and M. Sahashi[1] *1. Department of Electronic engineering, Tohoku University, Sendai, Japan; 2. Nanosystem Research Institute (NRI), AIST, Tsukuba, Japan*

4:15 FD-10. The dependence of frequency on small in-plane magnetic fields in spin-valve nanocontacts. *M. Eggeling* [1], T. Dimopoulos[1], R. Heer[1] and B. Hubert[1] *1. Austrian Institute of Technology - AIT, Health & Enviroment, Vienna, Austria*

4:30 FD-11. The Asymmetry of STT Switching Probability Density Function and Its Dependence on Time. *H. Zhao* [1], Y. Zhang[1], P. Khalili Amiri[2], J.A. Katine[3], J. Langer[4], H. Jiang[5], I.N. Krivorotov[6], K.L. Wang[2] and J. Wang[1] *1. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN; 2. Electrical Engineering, University of California, Los Angeles, Los Angeles, CA; 3. Hitachi Global Storage Technologies, San Jose, CA; 4. Singulus Technologiesnologies, 63796 Kahl am Main, Germany; 5. Physics and Astronomy, University of California, Los Angeles, Los Angeles, CA; 6. Physics and Astronomy, University of California, Irvine, Irvine, CA*

4:45 FD-12. STT-RAM Design Considering Temperature Impact. *X. Bi* [1], H. Li[1] and X. Wang[2] *1. ECE, Polytechnic Institute of New York University, Brooklyn, NY; 2. Seagate Technology, Bloomington, MN*

THURSDAY AFTERNOON 2:00 — PARKVIEW 1

Session FE
MAGNETIC TUNNEL JUNCTIONS

Weigang Wang, Session Chair
Johns Hopkins University

2:00 FE-01. First-principles study of magnetic anisotropy of MgO/FeCo interfaces and its electric-field effect. *M. Tsujikawa* [1], Y. Miura[2,1] and M. Shirai[2,1] *1. Center for Spintronics Integrated Systems, Tohoku Univ, Sendai, Japan; 2. Research Institute of Electrical Communication, Tohoku Univ, Sendai, Japan*

2:15 FE-02. Model of current-in-plane tunnelling in double magnetic tunnel junctions. *P. Clement* [1], C. Ducruet[2], C. Baraduc[1], M. Chshiev[1] and B. Diény[1] *1. Spintec, Grenoble, France; 2. Crocus-Technology, Grenoble, France*

2:30 FE-03. Magnetic tunnel junctions based on $La_{0.66}Sr_{0.33}MnO_3$. *R. Guerrero* [1], A. Solignac[1], G. Agnus[2], C. Fermon[1], M. Pannetier-Lecoeur[1] and P. Lecoeur[2] *1. DSM/IRAMIS/SPEC, CEA, Gif sur Yvette, France; 2. Université Paris 11, CNRS, Inst. Elect. Fondamentale, Orsay, France*

2:45 FE-04. Giant thermoelectric effect in Al2O3 magnetic tunnel junctions. *S. Mangin* [1], W. Lin[2], L. Chaput[1], B. Negulescu[1], S. Andrieu[1], M. Hehn[1] and F. Montaigne[1] *1. Institut Jean Lamour, Université de Lorraine, Vandoeuvre, France; 2. Institut D'electronique Fondamental, Universite Paris Sud, Orsay, France*

3:00 FE-05. Thickness dependence of thermal stability factor in CoFeB/MgO perpendicular magnetic tunnel junctions. *H. Sato* [1], M. Yamanouchi[1], K. Miura[1,3], S. Ikeda[1,2], R. Koizumi[2], F. Matsukura[1,2] and H. Ohno[1,2] *1. Center for Spintronics Integrated Systems, Sendai, Miyagi, Japan; 2. Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Sendai, Miyagi, Japan; 3. Central Research Laboratory, Hitachi, Ltd., Kokubunji, Tokyo, Japan*

3:15 FE-06. Ultrathin free layer optimization for perpendicular magnetic tunnel junctions. *S. Gupta* [1,3], A. Natarajarathinam[1,2], S. Schafer[1,4], A. Singh[1,4], T. Mewes[1,4], W.H. Butler[1,4] and E. Chen[5] *1. Center for Materials for Information Technology (MINT Center), The University of Alabama, Tuscaloosa, AL; 2. Department of Electrical and Computer Engineering, The University of Alabama, Tuscaloosa, AL; 3. Department of Metallurgical and Materials Engineering, The University of Alabama, Tuscaloosa, AL; 4. Department of Physics, The University of Alabama, Tuscaloosa, AL; 5. Grandis Inc, Milpitas, CA*

3:30 FE-07. Contribution of spin and symmetry resolved photoemission on transport in magnetic tunnel junctions. F. Bonell[1], *T. Hauet* [1], F. Bertran[2], L. Calmels[3], P. Le Fevre[2], F. Montaigne[1], G. Langaigne[1], A. Taleb[2] and S. Andrieu[1] *1. IJL, Université de Lorraine, Vandoeuvre les Nancy, France; 2. Synchrotron SOLEIL, Gif-sur-Yvette, France; 3. CEMES-CNRS, University of Toulouse, Toulouse, France*

3:45 FE-08. Co_2FeSi based Magnetic Tunnel Junctions with BaO Barrier. *J. Rogge* [1], P. Hedwig[1] and A. Hütten[1] *1. Thin Films and Physics of Nanostructures, Bielefeld University, Bielefeld, Germany*

4:00 FE-09. CoFeB composition dependence of magnetic anisotropy and tunnel magnetoresistance in CoFeB/MgO stack structures. *S. Ikeda* [1,2], R. Koizumi[1], H. Sato[2], M. Yamanouchi[2], K. Miura[2,3], K. Mizunuma[1], H. Gan[2], F. Matsukura[1,2] and H. Ohno[1,2] *1. RIEC, Tohoku University, Sendai, Miyagi, Japan; 2. CSIS, Tohoku University, Sendai, Miyagi, Japan; 3. CRL, Hitachi. Ltd., Kokubunji, Tokyo, Japan*

4:15 FE-10. Zero field spin transfer induced large amplitude vortex oscillations in MgO magnetic tunnel junction with perpendicular polarizer. E. Grimaldi[1], A. Dussaux[1], *V. Cros* [1], B. Salles[2], A.V. Khvalkovskiy[1], J. Grollier[1], K. Yakushiji[2], M. Konoto[2], H. Kubota[2], A. Fukushima[2], S. Yuasa[2] and A. Fert[1] *1. Unite Mixte de Physique CNRS/Thales, Palaiseau, France; 2. National Institute of Advanced Industrial Science and Technology, AIST, Tsukuba, Japan*

4:30 FE-11. Perpendicular magnetic properties of MgO/CoFeB interfaces depending on the MgO process. *S. Park* [1], W. Kim[1], K. Kim[1], Y. Park[1], J. Kim[1], W. Lim[1], J. Park[1], J. Jeong[1], H. Shin[1], K. Kim[1], S. Oh[1], J. Lee[1], S. Park[1], S. Jeong[1], S. Choi[1] and C. Chung[1] *1. Samsung Electronics, Hwasung, Republic of Korea*

4:45 FE-12. Bias voltage dependent switching in low RA CoFeB-MgO MTJ with perpendicular anisotropy. *H. Meng* [1], R. Sbiaa[1], M. Akhtar[1], R. Liu[1] and V. Naik[1] *1. Data Storage Institute, Singapore, Singapore*

THURSDAY AFTERNOON 2:00 PARKVIEW 2/3

Session FF
MAGNETIC FIELD SENSORS I

Dmitri Nikonov, Session Chair
Intel

2:00 FF-01. Recent Advances of pico-Tesla Resolution Micro Magnetic Sensors Based on Amorphous Wire and CMOS IC MI Sensor. ***(Invited)*** *T. Uchiyama* [1], K. Mohri[2], Y. Honkura[3] and L. Panina[4] *1. Graduate School of Eng., Nagoya University, Nagoya, Japan; 2. Nagoya Industrial Science Research Institute, Nagoya, Japan; 3. Aichi Steel Corp., Tokai, Japan; 4. Plymouth University, Plymouth, United Kingdom*

2:30 FF-02. An extraordinary magnetoresistance sensor with novel geometry for enhanced low-field sensitivity. *J. Sun* [1] and J. Kosel[1] *1. Physical Sciences and Engineering, King Abdullah University of Science and Technology, Thuwal, Makkah, Saudi Arabia*

2:45 FF-03. Platform magnetic noise reduction approach to enhance magnetic field sensing capability. *W. Wang* [1] *1. University of Wisconsin - Milwaukee, Milwaukee, WI*

3:00 **FF-04. Magnetic tunnel junctions based on out-of-plane anisotropy free and in-plane pinned layer structures for magnetic field sensors.** *P. Wisniowski* [1], J. Wrona[1], T. Stobiecki[1], S. Cardoso[2] and P. Freitas[2] *1. Department of Electronics, AGH University of Science and Technology, Krakow, Poland; 2. INESC-MN and IN-Institute of Nanoscience and Nanotechnology, Lisbon, Portugal*

3:15 **FF-05. Pico Tesla sensitive magnetic field sensor using ferromagnet-piezoelectric bilayer.** *D. Bhowmik* [1] and S. Salahuddin[1] *1. Electrical Engineering and Computer Sciences, University of California Berkeley, Berkeley, CA*

3:30 **FF-06. Design, fabrication, and testing of a modular magnetic field micro sensor on a flexible polymer foil.** T. Griesbach[1], M. Wurz[1] and *L. Rissing* [1] *1. Institute for Micro Production Technology, Leibniz Universitaet Hannover, Center for Production Technology, Garbsen, Germany*

3:45 **FF-07. Magnetic Bead Detection with Epitaxial Graphene μ-Sensors.** *O. Kazakova* [1], V. Panchal[1,2] and D. Cox[1,3] *1. NPL, Teddington, Middlesex, United Kingdom; 2. RHUL, Egham, United Kingdom; 3. University of Surrey, Guildford, United Kingdom*

4:00 **FF-08. Field Detection in Spin Valve Sensors using Synthetic-Antiferromagnetic Multilayers as Magnetic Flux Concentrators.** *D.C. Leitao* [1], L. Gameiro[1,2], S. Cardoso[1,2] and P.P. Freitas[1,2] *1. INESC-MN, Rua Alves Redol 9, 1000-029 Lisbon, Lisboa, Portugal; 2. Physics Dep., Instituto Superior Tecnico, Av. Rovisco Pais, 1000 Lisbon, Lisboa, Portugal*

4:15 **FF-09. HIV disease immunoassay with magnetic nanoparticles and MgO-based magnetic tunnel junction sensors.** *L. Li* [1], Z. Lei[1], K. Mak[1], C. Leung[2], J. Shi[3], C. Wong[4,5], W. Chan[6], K. Lin[7], N. Chan[8], . Leung[1], E. Wu[1] and P. Pong[1] *1. Department of Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong, Hong Kong; 2. Department of Physics, Hong Kong Polytechnic University, Hong Kong, Hong Kong; 3. Department of Physics, Hong Kong Baptist University, Hong Kong, Hong Kong; 4. Department of Pathology, The University of Hong Kong, Hong Kong, Hong Kong; 5. State Key Laboratory for Liver Research, The University of Hong Kong, Hong Kong, Hong Kong; 6. Department of Chemistry, The University of Hong Kong, Hong Kong, Hong Kong; 7. Department of Materials Science and Engineering, National Chung Hsing University, Taiwan, Taiwan; 8. Department of Surgery, University of Cambridge, Cambridge, United Kingdom*

4:30 FF-10. Circular MAGFET Biosensor Design for Magnetic Particle Detection. *B. Zhang* [1], C. Korman[1] and M. Zaghloul[1] *1. Electrical&Computer Engineering, George Washington University, Washington, DC*

THURSDAY AFTERNOON 2:00

MEETING RM 8/15

Session FG
MOTORS, GENERATORS & ACTUATORS IV

Thomas Wu, Session Chair
University of Central Florida

2:00 FG-01. A Novel Switched Reluctance Motor with the Auxiliary Windings and Permanent Magnets. *Y. Hasegawa* [1], K. Nakamura[1] and O. Ichinokura[1] *1. Tohoku university, Sendai, Japan*

2:15 FG-02. Temperature Analysis of Power Switches Arrangement on Power Converter for Switched Reluctance Motor Drive. *H. Chen* [1,2], Y. Xu[1] and H. Iu[2] *1. School of Information and Electrical Engineering, China University of Mining & Technology, Xuzhou, Jiangsu, China; 2. School of Electrical, Electronic and Computer Engineering, The University of Western Australia, Perth, WA, Australia*

2:30 FG-03. Novel method to minimize force ripple of multi-modular linear switched reluctance actuators/motors. *X. Xue* [1], K. Cheng[1], Z. Zhang[1], J. Lin[1] and N. Cheung[1] *1. Department of Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, China*

2:45 FG-04. Switched reluctance generators with hybrid magnetic paths for wind power generation. *X. Xue* [1], K. Cheng[1], Y. Bao[1] and J. Leung[1] *1. Department of Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, China*

3:00 FG-05. Multi-objective optimal design of a linear switched reluctance actuator in active suspension system. *Z. Zhang* [1], N.C. Cheung[1], E. Cheng[1], X. Xue[1] and J. Lin[1] *1. Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

3:15 **FG-06. Analysis of a novel magnetization pattern for 2-DoF rotary-linear actuators.** *K.J. Meessen* [1], J.H. Paulides[1] and E.A. Lomonova[1] *1. Eindhoven University of Technology, Eindhoven, Netherlands*

3:30 **FG-07. Static Characteristic Analysis of a Short-Stroke DC Planar Motor.** *H. Zhang* [1], B. Kou[1], C. Zhang[1], G. Yang[1] and L. Li[1] *1. Harbin Institute of Technology, Harbin, Heilongjiang, China*

3:45 **FG-08. Proposal and design of short armature core double-sided transverse flux type linear synchronous motor.** *J. Shin* [1], T. Koseki[1] and H. Kim[2] *1. The University of Tokyo, Tokyo, Japan; 2. Sung-Jin Royal Motion Co. Ltd, Suwon, Gyeonggi-do, Republic of Korea*

4:00 **FG-09. Pulsed Power Regulation in Selective Passively Compensated Pulsed Alternator.** *J. Li* [1,2], X. Yan[2], L. Lv[2], L. Tan[2], J. Tian[2] and J. Lou[1] *1. Xi'an Jiaotong University, State Key Laboratory of Electrical Insulation and Power Equipment, School of Electrical Engineering, Xi'an, Shaanxi, China; 2. Xi'an Jiaotong University, High Voltage and Insulation Institute, School of Electrical Engineering, Xi'an, Shaanxi, China*

4:15 **FG-10. Three Dimensional Magnetic Charge Modeling of Permanent Magnet Rotors.** *S. Paul* [1], D. Bobba[1] and J.Z. Bird[1] *1. Electrical and Computer Engineering, University of North Carolina at Charlotte, Charlotte, NC*

4:30 **FG-11. Structural optimization of a multi-physics problem considering thermal and magnetic effects.** S. Park[2] and *J. Yoo* [1] *1. Mechanical Engineering, Yonsei University, Seoul, Republic of Korea; 2. Graduate School of Mechanical Engineering, Yonsei University, Seoul, Republic of Korea*

4:45 **FG-12. A high temperature superconducting axial flux generator.** *M. Trapanese* [1] *1. Dipartimento di Ingegneria Elettrica, Elettronica e delle Telecomunicazioni, Università di Palermo, Palermo, Italy*

THURSDAY
AFTERNOON
2:00

MEETING RM 13

Session FH
RECORDING PHYSICS II

Jim Miles, Session Chair
University of Manchester

2:00 FH-01. Magnetic recording near the grain size limit. *H. Richter* [1], N. Supper[1], B. Wilson[1] and B. Terris[1] *1. Research, Hitachi GST, San Jose, CA*

2:15 FH-02. The quadrilemma of magnetic recording. *R.F. Evans* [1], R.W. Chantrell[1], U. Nowak[2], A. Lyberatos[3] and H.J. Richter[4] *1. Department of Physics, University Of York, York, England, United Kingdom; 2. Fachbereich Physik, Universitat Konstanz, Konstanz, Germany; 3. Department of Materials Science, University of Crete, Heraklion, Greece; 4. Hitachi Global Storage Technologies, San Jose, CA*

2:30 FH-03. Shingled Writer Design for Achieving 10 Tb/in^2 Patterned Media Recording. *S. Xu* [1], G. Zhou[1], J. Chen[1] and B. Liu[2] *1. Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, 430074, China; 2. Data Storage Institute, 5 Engineering Drive, Singapore, 117608, Singapore*

2:45 FH-04. Characterization and Application of SMR at high skew angle. *D. Guarisco* [1], M. Alex[1], D. Bai[2], D. Fang[2], P. Shang[1] and K. Stoev[1] *1. ARTS, Western Digital Corp., San Jose, CA; 2. Magnetic Heads Operation, Western Digital Corp., Fremont, CA*

3:00 FH-05. Recording Density Limitation Explored by Head/Media Co-optimization Using Genetic Algorithm and GPU-Accelerated LLG. *H. Fukuda* [1] and Y. Nakatani[2] *1. Central Research Laboratory, Hitachi, Ltd., Tokyo, Japan; 2. University of Electro-Communications, Tokyo, Japan*

3:15 FH-06. From Component SNR to System SFR. *N. Yeh* [1], Z. Zhang[1] and P. Steiner[1] *1. Seagate Technology, Fremont, CA*

3:30 FH-07. Correlation of ATI and SNR decay in perpendicular magnetic recording. *Z. Shi* [1], J. Zhang[1], A. Yang[1], S. Duan[1] and K. Johnson[1] *1. Hitachi GST, San Jose, CA*

3:45 **FH-08. Transition Noise Analysis of Recording Media with a Soft-Underlayer (SUL) and an Antiferromagnetic Soft-Underlayer (AF-SUL).** *H. Sohn* [1] and R.H. Victora[1] *1. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN*

4:00 **FH-09. Writing process induced media noise measurement.** *A. Shiming* [1], O. Chun Lian[1] and Y. Zhimin[1] *1. SMI, DSI, Singapore, Singapore*

4:15 **FH-10. Method for analysis of on-track and off-track shielded magnetic write head recording performance based on write current waveform shaping.** *B. Livshitz* [1] and J.S. Goldberg[1] *1. Storage Peripheral Division, LSI Corporation, Mendota Heights, MN*

4:30 **FH-11. Temporal and spatial field dynamics in shielded writer: a micromagnetic modeling study.** *Z. Li* [1] and D.Z. Bai[1] *1. Western Digital, Fremont, CA*

4:45 **FH-12. Dynamic field gradient and erasure after write for high data rate recording.** *M. Asif Bashir* [1], E. Meloche[2], M.A. Gubbins[1], S. Basu[1], A. Wong[1], B.R. McConnell[1] and R.W. Lamborton[1] *1. Research & Development, Seagate Technology, Londonderry, United Kingdom; 2. Research & Development, Seagate Technology, Bloomington, MN*

THURSDAY AFTERNOON 1:30

EXHIBITION HALL A

Session FP
NANOWIRES II (Poster Session)

Seiji Mitani, Session Chair
NIMS

FP-01. Interaction between spin wave packet and domain wall with various propagation modes and wall structures. Y. Urazuka[1], Y. Cao[1], K. Nagai[1], *T. Tanaka* [1] and K. Matsuyama[1] *1. Graduate School of Information Science and Electrical Engineering, Kyushu University, Fukuoka, Fukuoka, Japan*

FP-02. Mapping the magnetic dipolar interaction in complex arrays of Ni nanowires. *A. Srivastava* [1,2], D. Lenormand[1,2], J. Vargas[1], J.B. Wiley[1,3] and L. Spinu[1,2] *1. Advance Materials Research Institute, New Orleans, LA; 2. Department of Physics, University of New Orleans, New Orleans, LA; 3. Department of Chemistry, University of New Orleans, New Orleans, LA*

FP-03. Synthesis and magnetic anisotropy analysis of Co/Au multilayered nanowires. *Y. Li* [1] and L. Li[1] *1. Materials Science and Engineering, Tsinghua University, Beijing, China*

FP-04. Dimensional dependence of magnetic properties in arrays of CoFe/Au barcode nanowires. *B. Kim* [1], S. Yoon[1], I. Jeon[2], S. Kim[1] and Y.K. Kim[1,2] *1. Department of Materials Science and Engineering, Korea University, Seoul, Republic of Korea; 2. Pioneer Research Center for Biomedical Nanocrystals, Korea University, Seoul, Republic of Korea*

FP-05. Hard magnetic $Fe_{50}Pd_{50}$ nanowires synthesised with the electrodeposition method. *D. Pečko* [1], K. Zuzek Rozman[1], Z. Samardzija[1], B. Pihlar[2] and S. Kobe[1] *1. Department for Nanostructured Materials, Jozef Stefan Institute, Ljubljana, Slovenia; 2. Faculty of Chemistry and Chemical Technology, University of Ljubljana, Ljubljana, Slovenia*

FP-06. Magnetic properties and FMR study of the Ni-La multiphase core-shell nanowires. *S. Dawei* [1], J. Chen[1], N. Hiroshi[2], A. Yasuo[2], J. Shen[3] and X. Han[1] *1. Chinese Academy of Sciences, Institute of Physics, Beijing, China; 2. Department of Applied Physics, Graduate School of Engineering, Tohoku University, Sendai, Japan; 3. Chinese Academy of Sciences, Key Lab of Cryogenics, Technical Institute of Physics and Chemistry, Beijing, China*

FP-07. Enhanced controllability of domain wall pinning by magnetic stray field. *S. Ahn* [1,2], K. Moon[1], C. Cho[1], S. Yoo[1] and S. Choe[1] *1. Physics, Seoul National University, Seoul, Republic of Korea; 2. Material science and engineering, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, MA*

FP-08. Synthesis, structural and magnetic characterization of highly ordered ferromagnetic BiFeO3 nanowires by AAO template method. *L.A. de Oliveira* [1] and K.R. Pirota[1] *1. Universidade Estadual de Campinas, Campinas, Sao Paulo, Brazil*

FP-09. Angular dependent ferromagnetic resonance in nano-structured CoFe2O4-BiFeO3 film. *H. Guo* [1], J. Lin[1] and Y. Chu[2] *1. Center for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan; 2. Department of Materials Science and Engineering, National Chiao Tung University, Hsinchu, Taiwan*

FP-10. Magneto-optical properties of Ni: ZnO nanorods. *S. Chiu* [1], W. Su[1] and J. Huang[1] *1. NCKU, Tainan, Taiwan*

FP-11. Angular dependence of the coercivity and remanence of Ni and Co nanowire arrays. *R.O. Lavín* [1,3], C. Gallardo[2], J. Escrig[2,3], J. Palma[2] and J. Denardin[2,3] *1. Instituto de Ciencias Básicas, Universidad Diego Portales, Santiago, Chile; 2. Departamento de Física, Universidad de Santiago de Chile, Santiago, Chile; 3. Núcleo Milenio de Magnetismo Básico y Aplicado, Universidad de Santiago de Chile, Santiago, Chile*

FP-12. Magnetization Dynamics in Highly Oriented Ferromagnetic Multilayered Nanowires Arrays. S. Pathak[1] and *M. Sharma* [1] *1. Centre for Applied Research in Electronics, Indian Institute of Technology Delhi, New Delhi, Delhi, India*

FP-13. Field and current driven domain wall depinning at the notch and anti-notch in cylindrical nanowires. C. Murapaka[1], *I. Purnama* [1] and W. Lew[1] *1. Nanyang Technological Uni, Singapore, Singapore*

FP-14. Vortex Domain Wall Formation in FeNi Nanowires with Twin Pinning Sites. A. Ding[1], I. Will[1], C. Lu[1] and *Y. Xu* [1] *1. Electronics, The University of York, York, United Kingdom*

FP-15. Co thickness effect on the dielectric permittivity of SiO2/Co/SiO2 films. *Y. Ding* [1,2], Y. Yao[1], K. Wu[1,3], J. Hsu[3], D. Hong[4], D. Wei[5] and S. Lee[6] *1. Graduate Institute of Applied Science and Engineering, Fu Jen Catholic University, New Taipei City, Taiwan; 2. The Teaching Center of Natural Sciences, Minghsin University of Science and Technology, Hsinchu, Taiwan; 3. Department of Physics, Fu Jen Catholic University, New Taipei City, Taiwan; 4. Department of Informations and Telecommunication Engineering, Ming Chuan University, Taipei, Taiwan; 5. Department of Mechanical Engineering, National Taipei University of Technology, Taipei, Taiwan; 6. Institute of Physics, Academia Sinica, Taipei, Taiwan*

THURSDAY AFTERNOON 1:30 EXHIBITION HALL A

Session FQ
NANOPARTICLES II (Poster Session)

Hiroaki Mamiya, Session Chair
National Institute for Materials Science

FQ-01. Low temperature magnetization relaxation in electron doped $La_{0.23}Ca_{0.77}MnO_3$ nanoparticles in constant high magnetic field. *G. Jung* [1], V. Markovich[1], A. Wisniewski[2], D. Mogilyansky[3], R. Puzniak[2] and G. Gorodetsky[1] *1. Department of Physics, Ben Gurion University of the Negev, Beer-Sheva 84105, Please Select, Israel; 2. Institute of Physics, Polish Academy of Sciences, Warszawa, Poland; 3. The Ilse Katz Institute for Nanoscale Science and Technology, Ben-Gurion University of the Negev, Beer Sheva, Israel*

FQ-02. Magnetic oscillatory properties in the Fe3O4-polyaniline nanocomposite. A. Vaz de Araújo[1], *A.R. Rodrigues* [2], W. Mendes de Azevedo[3] and F. de Araujo Machado[2] *1. Unidade Acadêmica de Garanhuns, Universidade Federal Rural de Pernambuco, Recife, Pernambuco/Brazil, Brazil; 2. Departamento de Física, Universidade Federal de Pernambuco, Recife, Pernambuco/Brazil, Brazil; 3. Departamento de Química Fundamental, Universidade Federal de Pernambuco, Recife, Pernambuco/Brazil, Brazil*

FQ-03. Magnetic properties of greigite and pyrrhotite nanoparticles synthesized via thermal decomposition of iron nitrate with sulfur in octadecylamine. *C. Lin* [1], S. Lu[1], Y. Siao[1], M. Chen[2], G. Jhang[1], G. Chen[1], C. Wang[3], C. Chiang[3] and S. Wang[1] *1. Institute of Nanotechnology and Department of Mechanical Engineering, Southern Taiwan University, Tainan, Taiwan; 2. Department of Electro-optical Engineering, Southern Taiwan University, Tainan, Taiwan; 3. Department of Chemical and Materials Engineering, Southern Taiwan University, Tainan, Taiwan*

FQ-04. Magnetic properties of iron oxides nanoparticles dispersed in ordered mesoporous silica MCM-41. I. Ursachi[1], A. Vasile[2], R. Tanasa[1], O. Chiscan[1] and *A. Stancu* [1] *1. Faculty of Physics, "Alexandru Ioan Cuza" University of Iasi, Iasi, Iasi, Romania; 2. Department of Chemistry, "Alexandru Ioan Cuza" University of Iasi, Iasi, Romania*

FQ-05. Asymmetric stochastic resonance in magnetic nanoparticles. *A.G. Isavnin* [1] and I.I. Mirgazov[1] *1. Kazan University, Naberezhnye Chelny, Tatarstan, Russian Federation*

FQ-06. Vortex core switching on notched circular disks. *T. Sato* [1] and Y. Nakatani[1] *1. Graduate School of Informatics and Engineering, University of Electro-Communications, Tokyo, Japan*

FQ-07. Electrodeposition of cobalt nanoparticles on thin niobium films. *H. Ho* [1], W. Lin[1], S. Chen[1], H. Cheng[1] and Y. Liou[2] *1. Department of Science Education, National Taipei University of Education, Taipei, Taiwan; 2. Institute of Physics, Academia Sinica, Taipei, Taiwan*

FQ-08. Seed mediated growth of CoFe2O4 and CoFe2O4-Ag nanoparticles: synthesis and magnetic characterizations. *S.K. Sharma* [1,3], J.M. Vargas[2], K.R. Pirota[3], M. Knobel[3] and S. Ammar[1] *1. Universite Paris Diderot, ITODYS, Paris, France; 2. Advanced Materials Research Institute (AMRI), University of New Orleans, NewOrlean, LA; 3. Instituto de Fisica Gleb Wataghin, Universidade Estadual de Campinas, Campinas, Sao Paulo, Brazil*

FQ-09. Hematite nanoparticles dispersed in polymeric matrices: from ideal superparamagnetism to spin-glass-like order. A. Longo[1], G. Carotenuto[1], L. Ambrosio[1], N. Wang[2], X. Wang[2], R. Lortz[3] and *A. Ruotolo* [2] *1. Institute for Composite and Biomedical Materials, National Research Council (IMCB-CNR), Naples, Italy; 2. Department of Physics and Materials Science, City University of Hong Kong, Kowloon, Hong Kong; 3. Department of Physics, Hong Kong University of Science and Technology, Kowloon, Hong Kong*

FQ-10. Direct synthesis of single crystalline α-Fe nanoparticles with high saturation magnetization by mixed surfactant. *M. Kamata* [1], H. Kura[2], M. Takahashi[3], T. Ogawa[2] and T. Tanaka[1] *1. Graduate school of Science and Engineering, Ehime University, Matsuyama, Ehime, Japan; 2. Graduate school of Engineering, Tohoku University, Sendai, Miyagi, Japan; 3. Centre for Nano-bio engineering and Spintronics, Chungnane National University, Daejeon, Republic of Korea*

FQ-11. Magnetic properties of polymeric matrix nanocomposites containing magnetite nanoparticles for ink-jet printing technology. P. Allia[1], P. Martino[2], A. Chiolerio[1,2], F. Celegato[3], G. Barrera[3], M. Coisson[3] and *P. Tiberto* [3] *1. DISMIC, Politecnico di Torino, Torino, Italy; 2. Politronica s.r.l, Torino, Italy; 3. INRIM, Torino, Italy*

FQ-12. Magnetization fluctuations in magnetic granular systems by electric field induced oxygen migration. *A. Sahadevan* [1], A. Kalitsov[1], K. Gopinadhan[1], C.S. Bhatia[1] and H. Yang[1] *1. Department of Electrical and Computer Engineering, NUSNNI-Nanocore, National University of Singapore, Singapore, Singapore*

FQ-13. Sonochemical synthesis and silica encapsulation of iron oxide nanoparticles. *M.N. Islam* [1], B. Sinha[1], J.R. Joeng[1], M. Takahashi[2] and C. Kim[1] *1. Materials Science and Engineering, Chungnam National University, Daejeon, Republic of Korea; 2. Electronics Engineering, Tohoku University, Sendai, Japan*

FQ-14. Confinement effects on the A1 to $L1_0$ phase transformation in FePt nanoparticles. A. Gallagher[1], *O. Akdogan* [1] and G.C. Hadjipanayis[1] *1. Physics and Astronomy, University of Delaware, Newark, DE*

FQ-15. Anodic Aluminum Oxide Guided Patterning of Graphene with Ni Islands. *D. Choi* [1], C. Kuru[1], K. Noh[2], C. Choi[1], L. Chen[1] and S. Jin[1] *1. University of California, San Diego, La Jolla, CA; 2. Cheil Industries Uiwang R&D Center, Gyeonggi-do, Republic of Korea*

FQ-16. Physicochemical properties and electrochemical applications of pH sensitive Fe3O4–reduced graphene oxide hybrids. *A. Prakash* [1], S. Chandra[1] and D. Bahadur[1] *1. metallurgical Engineering and Materials Sciences, Indian Institute of Technology Bombay, Mumbai, maharashtra, India*

THURSDAY AFTERNOON 1:30

EXHIBITION HALL A

Session FR
SPIN TRANSFER TORQUE IV (Poster Session)

Zhongming Zeng, Session Chair
University of California at LA

FR-01. Influence of interlayer coupling on domain wall motion in multilayered nanowires for achieving high density bit. *A. Ooba* [1], T. Komine[1] and R. Sugita[1] *1. Media and Telecommunications Engineering, Ibaraki univercity, Hitachi, Japan*

FR-02. Effect of spin torque to magnetization switching speed having nonuniform spin distribution. *K. Hyodo* [1], C. Mitsumata[1] and A. Sakuma[1] *1. Applied Physics, Tohoku University, Sendai-shi, Miyagi, Japan*

FR-03. Simple Analysis for Frequency Enhancement in Spin Transfer Oscillation. *C. Mitsumata* [1], S. Tomita[2], M. Mizuguchi[1] and T. Seki[1] *1. Tohoku Univ., Sendai, Japan; 2. NAIST, Nara, Japan*

FR-04. Analytical investigation of modulated spin torque oscillators in the framework of coupled differential equations with variable coefficients. *E. Iacocca* [1] and J. Åkerman[1,2] *1. Department of Physics, University of Gothenburg, 412 96 Göteborg, Sweden; 2. Material Physics, Royal Institute of Technology (KTH), 164 49 Stockholm, Sweden*

FR-05. Current-induced motion of a transverse magnetic domain wall in the presence of spin-Hall spin transfer torque. *S. Seo* [1], K. Kim[2], J. Ryu[2], H. Lee[2] and K. Lee[1,3] *1. Materials Science and Engineering, Korea university, Seoul, Republic of Korea; 2. Physics, Pohang University of Science and Technology, Pohang, Republic of Korea; 3. Electron Physics Group, National Institute of Standards and Technology, Gaithersburg, MD*

FR-06. Suppression and enhancement of magnetic fluctuations in a Permalloy micro-disk using spin Hall effect. V.E. Demidov[1], S. Urazhdin[2], E. Edwards[1], M.D. Stiles[3], R.D. McMichael[3] and *S.O. Demokritov* [1] *1. University of Muenster, Muenster, Germany; 2. Emory University, Atlanta, GA; 3. National Institute of Standards and Technology, Gaithersburg, MD*

FR-07. Mutual spin transfer torque in vortex nano-oscillators. N. Wang[1], X. Wang[1] and *A. Ruotolo* [1] *1. Department of Physics and Materials Science, City University of Hong Kong, Kowloon, Hong Kong*

FR-08. Initial magnetisation angle dependence for microwave oscillation in a metallic spin valve. *C. Fowley* [1], K. Bernert[1], V. Sluka[1], A.M. Deac[1], J. Fassbender[1], W.H. Rippard[2], M.R. Pufall[2] and S.E. Russek[2] *1. Helmholtz Zentrum Dresden Rossendorf, Dresden, Germany; 2. National Institute of Standards and Technology, Boulder, CO*

FR-09. Spin Pumping Induced Inverse Spin-Hall Effects In $La_{0.7}Sr_{0.3}MnO_3$/Platinum Bilayer. *G. Luo* [1,2], M. Song[1,2], H. Hung[3], Y. Chiu[4], R. Kwo[1,3], S. Lee[4], C. Chang[2] and J. Lin[1] *1. Center for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan; 2. Department of Physics, National Taiwan University, Taipei, Taiwan; 3. Department of Physics, National Tsing Hua University, Hsinchu, Taiwan; 4. Institute of Physics, Academia Sinica, Taipei, Taiwan*

FR-10. Oscillatory spin wave influence on threshold currents in STNO pairs. *S. Redjai Sani* [1,2], S. Mohseni[1,2], A. Eklund[3], J. Persson[2] and J. Åkerman[1,4] *1. Material Physics, KTH, Stockholm, Sweden; 2. Nanosc AB, Stockholm, Sweden; 3. Devices and Circuits, KTH, Stockholm, Sweden; 4. Department of Physics, KTH, Gothenburg, Sweden*

FR-11. Quenched Slonczewski-windmill in spin-torque vortex-oscillators. *V. Sluka* [1,2], A. Kákay[1], A.M. Deac[2], D.E. Bürgler[1], R. Hertel[3] and C.M. Schneider[1] *1. Peter Grünberg Institute, Electronic Properties (PGI-6), Forschungszentrum Jülich GmbH, Jülich, Germany; 2. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf e. V., Dresden, Germany; 3. Institut de Physique et Chimie des Matériaux de Strasbourg, Université de Strasbourg, CNRS UMR 7504, Strasbourg, France*

FR-12. Procession of Domain Wall in Magnetic Nanowires. X. Hu[1], J. Wu[2], H. Zhaocong[3], N. Daxin[1], W. Iain[1] and *Y. Xu* [1] *1. Department of Electronics, University of York, York, United Kingdom; 2. Department of Physics, University of York, York, United Kingdom; 3. Department of Physics, Southeast University, Nanjing, China*

THURSDAY AFTERNOON 1:30

EXHIBITION HALL A

Session FS
POWER AND CONTROL MAGNETICS I (Poster Session)

Mohammed Afsar, Session Chair
Tufts University

FS-01. Surface roughness effects on the magnetization reversal of micron-scale NiFe ring elements. *T. Ger* [1] and Z. Wei[1] *1. National Tsing Hua University, Hsinchu, Taiwan*

FS-02. Direct Field-circuit Coupled Analysis and Corresponding Experiments of Electromagnetic Resonantly Coupling System. *Z. Xian* [1,2], Y. Qingxin[1,2], Y. Rongge[2], L. Yang[1,2] and J. Liang[1,2] *1. Tianjin Key Laboratory of Advanced Electrical Engineering and Energy Technology, Tianjin Polytechnic University, Tianjin, Tianjin, China; 2. Province-Ministry Joint Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability, Hebei University of Technology, Tianjin, China*

FS-03. Proposal of Non-contacting Static Magnetic Measurement Method of Generation Current inside Membrane Electrode Assembly in Polymer Electrolyte Fuel Cell. *Y. Gotoh* [1], N. Takahashi[2], M. Izumi[3] and Y. Kusuhara[4] *1. Department of Mechanical and Energy Systems Engineering,Faculty of Engineering, Oita University, Oita, Japan; 2. Department of Electrical and Electronic Engineering, Okayama University, Okayama, Japan; 3. Department of Mechanical Systems Engineering, The University of Kitakyushu, Kitakyushu, Japan; 4. Department of Electrical and Electronic Engineering, Kagoshima National College of Technology, Kirishima, Japan*

FS-04. Analysis of VR Resolver According to Winding Methods of Output Signal. *C. Jin* [1], Y. Park[1], J. Lee[1] and K. Cho[1] *1. Samsung Techwin, Seongnam, Republic of Korea*

FS-05. Estimation of Deep Defect in Ferromagnetic Material by Low Frequency Eddy Current Method. *K. Lee* [1] and I. Park[1] *1. School of Information and Communication Engineering, Sungkyunkwan University, Suwon, Gyeonggi-Do, Republic of Korea*

FS-06. Estimation Method of Wall Thinning of Carbon Steel Pipe by Using Nonlinearity of Magnetic Saturation. I. Park[1], J. Chai[2], Y. Kim[1] and *M. Baek* [1] *1. School of Information and Communication Engineering, Sungkyunkwan University, Suwon, Republic of Korea; 2. School of Mechanical Engineering, Ajou University, Suwon, Republic of Korea*

FS-07. Vector magnetic field camera for rapid evaluation of permanent magnets. *T. Chady* [1], T. Todaka[2] and M. Enokizono[2] *1. Department of Electrical Engineering, West Pomeranian University of Technology, Szczecin, Szczecin, Poland; 2. Department of Electrical and Electronic Engineering, Oita University, Oita, Japan*

FS-08. Optimal Angle Error Reduction of Magnetic Position Sensor by 3D FEM. *K. Kim* [1] *1. Dept. of electrical engineering, Hanbat National University, Daejeon, Republic of Korea*

FS-09. Improved Torque Calculation of High Speed Permanent Magnet Motor with Compressor Loads Using Measured Power Factor Angle and Analytical Circuit Parameters. *J. Choi* [1], H. Cho[1], S. Jang[1] and S. Lee[2] *1. Chungnam National University, Dae-jeon, Republic of Korea; 2. Korea Institute of Industrial Technology, Gwangju, Republic of Korea*

FS-10. A study of DNA damage by gamma radiation using PHR sensor. *D. Park* [1], H. Song[1], B. Kishore[1], K. Ryu[2] and D. Son[3] *1. Korea Atomic Energy Research Institute, Daejeon, Republic of Korea; 2. Korea Research Institute of Standard Science, Daejeon, Republic of Korea; 3. Dept. of Physics, Hannam University, Daejeon, Republic of Korea*

FS-11. Multi-physics Coupled Field Analysis of Electric Connector in EV. Q. Dong[1], J. Hong[2], *S. Wang* [1], J. Qiu[1], G. Shao[2] and C. Liu[2] *1. Faculty of Electrical Engineering, Xi'an Jiaotong University, xian, China; 2. Faculty of Mechanical Engineering, Xi'an Jiaotong University, Xi'an, China*

FS-12. Vertically Conductive Compliant Composite with Magnetically Aligned Chain-of-Sphere for Tactile Shear Sensing. *L. Chen* [1], C. Choi[1], S. Kong[1], C. Kuru[1] and S. Jin[1] *1. Mechanical & Aspace Engineering, U. of California, San Diego, La Jolla, CA*

FS-13. Analysis of Signal Characteristic of Eddy Current Array Probe about Various defect factors. *J. Kim* [1], K. Lee[2] and H. Lee[1] *1. Soongsil University, Seoul, Republic of Korea; 2. Dankook university, Yongin, Republic of Korea*

FS-14. Nonlinear Augmented State Estimation using Position Feedback for Permanent Magnet Stepper Motors. *D. Shin* [1], W. Kim[1], Y. Lee[1] and C. Chung[1] *1. Electrical Engineering, Hanyang University, Seoul, Republic of Korea*

FS-15. Unified control for a wind turbine-superconducting magnetic energy storage hybrid system based on current source converters. *Z. Wang* [1], Y. Zheng[1], M. Cheng[1] and S. Fan[1] *1. School of Electrical Engineering, Southeast University, Nanjing, China*

FS-16. Vehicle-to-Vehicle operation for vehicle-to-grid system incorporating with superconducting magnetic energy storage. D. Wu[1], K. Chau[1], C. Liu[1], S. Gao[1] and *Z. Zhang* [1] *1. Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong, Hong Kong*

THURSDAY
AFTERNOON
1:30

EXHIBITION HALL A

Session FT
FUNCTIONAL MATERIAL: MAGNETOELASTICS AND MAGNETOCALORICS (Poster Session)

Cajetan Nlebedim, Session Chair
Ames Laboratory, US Department of Energy
Fengxia Hu, Session Chair
Institute of Physics, Chinese Academy of Sciences, Beijing 100190, P. R. China

FT-01. Finite element analysis of galfenol unimorph vibration energy harvester. B. Rezaeealam[1], *T. Ueno* [1] and S. Yamada[1] *1. Division of Biological Measurement and Applications, Institute of Nature and Environmental Technology, Kanazawa, Ishikawa, Japan*

FT-02. Magnetostriction and the influence of higher harmonics in the electricity grid. *S. Gorji Ghalamestani* [1], L. Vandevelde[1], J. Dirckx[2] and J. Melkebeek[1] *1. Electrical Energy, Systems & Automation, University of Ghent, Ghent, Belgium; 2. Laboratory of Biomedical Physics, University of Antwerp, Antwerp, Belgium*

FT-03. Comparison of Fe-Ni-Based Thin Film Materials with Dopant of Mo, B and Al for Magnetoelastic Sensor Applications. *C. Liang* [1], C. Gooneratne[1], Q. Wang[1], Y. Gianchandani[2] and J. Kosel[1] *1. King Abdullah University of Science and Technology, Thuwal, Saudi Arabia; 2. University of Michigan, Ann Arbor, MI*

FT-04. Magnetocaloric effect of $La(Fe,Si)_{13}$-based materials prepared by industrial mischmetal. L. Chen[1], *F. Hu* [1], L. Bao[1], J. Wang[1], J. Sun[1] and B. Shen[1] *1. Institute of Physics, Chinese Academy of Sciences, Beijing 100190, P. R. China, Beijing, Beijing, China*

FT-05. Large field-induced magnetocaloric effect in Ni43Mn46-xVxSn11 Heusler alloys. *S. Li* [1,2], Z. Lin[2], Z. Wang[1], J. Xu[1], J. Lin[2], Y. Hu[2], F. Xu[3], N. Sun[4] and J. Duh[5] *1. College of Physics Science, Qingdao University, Qingdao 266071, Shandong, China; 2. Department of Physics, Fujian Normal University, Fuzhou 350007, Fujian, China; 3. Department of Materials Science and Engineering, Nanjing University of Science and Technology, Nanjing 210094, Jiangsu, China; 4. Electrical and Computer Engineering Department, Northeastern University, Boston 02115, MA; 5. Department of Materials Science and Engineering, National Tsing Hua University, Hsinchu 30013, Taiwan*

FT-06. Enhanced magnetocaloric effect of Li doped PrSrMnO3 perovskite manganites. *H. Yang* [1], P. Zhang[1], M. Pan[1] and H. Ge[1] *1. China Jiliang University, Hangzhou, China*

FT-07. Magnetocaloric effect in perovskite manganites of $La_{0.7}Ca_{0.3}Mn_{1-x}Fe_xO_3$. *Y. Zhang* [1], P. Zhang[1], Y. Song[1], T. Phan[1] and S. Yu[1] *1. Department of Physics, Chungbuk Nat'l Univ, Cheongju, Republic of Korea*

FT-08. Tuning of the magnetocaloric effect in the La-manganite. *I. Park* [1], W. Kwon[1], S. Kim[1] and C. Kim[1] *1. physics, kookmin university, Seoul, Republic of Korea*

FT-09. Magnetocaloric effects and magnetic properties in $Gd_{1-x}Y_x$ and their applications. *A.T. Saito* [1], S. Kaji[1] and T. Kobayashi[1] *1. Corporate R&D Center, Toshiba Corporation, Kawasaki, Kanagawa, Japan*

FT-10. Magnetocrystalline anisotropy in single crystal $Gd_5Si_{2.7}Ge_{1.3}$. *R.L. Hadimani* [1], Y. Melikhov[2], M. Han[3] and D.C. Jiles[1] *1. Department of Electrical and Computer Engineering, Iowa State University, Ames, IA; 2. Wolfson Centre for Magnetics, Cardiff University, Cardiff, United Kingdom; 3. State Key Laboratory of Electronic Thin Films and Integrated Devices, University of Electronic Science and Technology of China, Chengdu, China*

FT-11. Large Refrigerant Capacity in $Ni_{2.9}Co_{0.1}MnIn$ type-Heusler Alloy. *C. Salazar Mejia* [1], A.M. Gomes[1], A.L. Lima Sharma[2] and F.R. Drymiotis[3] *1. Instituto de Fisica, Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil; 2. Materials Physics Department, Sandia National Laboratory, Livermore, CA; 3. Department of Physics and Astronomy, Clemson University, Clemson, SC*

FT-12. Characterization of the Mixed-State Clusters using Self-Similarity Phenomenon for First-Order Magnetocaloric Metamagnets. *Y. Jin* [1], M. Ghahremani[1], S. Gu[1], V. Provenzano[2], R.D. Shull[2], L.H. Bennett[1], E. Della Torre[1] and H. ElBidweihy[1] *1. Dept. of Electrical and Computer Engineering, George Washington University, Washington, DC; 2. National Institute of Standards and Technology, Gaithersburg, MD*

FT-13. Magnetocaloric effect and refrigerant capacity of $Nd_{0.5}Sr_{0.5}MnO_3$. *D. Nanto* [1], Z. Peng[1], S. Yu[1], A. Telegin[2] and A. Yurasov[2] *1. Physics, Chungbuk National University, Cheongju Chungbuk, Republic of Korea; 2. Physics, Institute of Metal Physics Academy of Sciences, Yekaterinburg, Russian Federation*

FT-14. Design and Instrumentation of an Advanced Magnetocaloric Direct Temperature Measurement System. *M. Ghahremani* [1], Y. Jin[1], L. Bennett[1], E. Della Torre[1], H. ElBidweihy[1] and S. Gu[1] *1. Electrical and Computer Engineering Department, The George Washington University, Washington, DC*

FT-15. A compact reciprocating magnetic refrigerator with high performance. O. Sari[1,2], *M. Balli* [1], C. Mahmed[1], D. Duc[1], F. Rahali[1,2] and J. Hadorn[2] *1. Institute of Thermal Sciences, University of Applied Sciences of Western Switzerland, Yverdon-Les-Bains, Vaud, Switzerland; 2. Clean Cool Systems Company, Yverdon-Les-Bains, Vaud, Switzerland*

FT-16. Magnetocaloric effect of $Gd_{55}Co_{20}Al_{25}$ metallic glass. Q. Huang[1], L. Zhang[1], Z. Liao[1], *F. Xu* [1,2], G. Chen[1] and S. Li[3] *1. School of Materials Science and Engineering, Nanjing University of Science and Technology, Nanjing, Jiangsu, China; 2. National Laboratory of Solid State Microstrcture, Nanjing University, Nanjing, China; 3. Physics Department, Fujian Normal University, Fuzhou, China*

THURSDAY AFTERNOON 1:30

EXHIBITION HALL A

Session FU
MAGNETORESISTIVE AND HALF-METALLIC MATERIALS (Poster Session)

Yukiko Takahashi, Session Chair
National Institute for Materials Science

FU-01. Giant spin accumulation at room temperature in Co_2FeSi/Cu lateral spin valves. *S. Oki* [1], N. Hashimoto[1], S. Yamada[1], T. Kimura[2,3], M. Miyao[1,3] and K. Hamaya[1] *1. Department of Electronics, Kyushu University, 744 Motooka, Fukuoka 819-0395, Japan; 2. INAMORI Frontier Research Center, Kyushu University, 744 Motooka, Fukuoka 819-0395, Japan; 3. CREST, Japan Science and Technology Agency, Sanbancho, Tokyo 102-0075, Japan*

FU-02. Fabricating Temperature Dependency of Spin Injection Signals for $Co_2FeAl_{0.5}Si_{0.5}$/*n*-GaAs Schottky Tunnel Junctions. *T. Saito* [1], N. Tezuka[1] and S. Sugimoto[1] *1. Department of Materials Science, Graduate School of Engineering, Tohoku university, Sendai, Miyagi, Japan*

FU-03. Perpendicular magnetic anisotropic structure with thick full-Heusler alloy $Co_2FeAl_{0.5}Si_{0.5}$ film. S. Wang[1], X. Li[1], X. Xu[1], J. Miao[1], L. Qiao[1] and *Y. Jiang* [1] *1. School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing, China*

FU-04. Strong perpendicular magnetic anisotropy in Pt/$Co_2FeAl_{0.5}Si_{0.5}$/MgO/Pt structure. X. Li[1], S. Wang[1], X. Xu[1], J. Miao[1], L. Qiao[1] and *Y. Jiang* [1] *1. School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing, China*

FU-05. Interlayer exchange coupling in Co_2FeAl/Cr/Co_2FeAl structure. X. Xu[1], J. Zhang[1], L. Sha[1], D. Zhang[1], J. Miao[1], L. Qiao[1] and *Y. Jiang* [1] *1. School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing, China*

FU-06. The Effect of SEED Layers in Polycrystalline Co_2FeSi Thin Films. *J. Sagar* [1], C. Yu[1], C. Pelter[1], J. Wood[1], A. Hirohata[2,3] and K. O'Grady[1] *1. Physics, The University of York, York, North Yorkshire, United Kingdom; 2. Electronics, The University of York, York, North Yorkshire, United Kingdom; 3. PRESTO, Japan Science and Technology Agency, Kawaguchi, 332-0012, Japan*

FU-07. Negative AMR: a necessary condition for half-metallicity. S. Kokado[1], *M. Tsunoda* [2], K. Harigaya[3] and A. Sakuma[4] *1. Faculty of Engineering, Shizuoka University, Hamamatsu, Japan; 2. Department of Electronic Engineering, Tohoku University, Sendai, Japan; 3. Nanosystem Research Institute, AIST, Tsukuba, Japan; 4. Department of Applied Physics, Tohoku University, Sendai, Japan*

FU-08. X-ray photoelectron spectroscopy of half-Heusler La-Pt-Bi thin films. N. Sugimoto[1], *T. Miyawaki* [1], Y. Niimi[1], T. Yoshihara[1], N. Fukatani[1], K. Ueda[1], N. Tanaka[2] and H. Asano[1] *1. Department of Crystalline Materials Science, Nagoya University, Nagoya, Japan; 2. EcoTopia Institute, Nagoya University, Nagoya, Japan*

FU-09. Development of a very high sensitivity magnetic field sensor based on planar Hall effect. *A. Roy* [1] and P. Kumar[1] *1. Physics, Indian Institute of Science, Bangalore, Karnataka, India*

FU-10. $L1_0$-MnAl films with high perpendicular magnetic anisotropy and low magnetic damping. *M. Oogane* [1], M. Hosoda[1], H. Saruyama[1], H. Naganuma[1] and Y. Ando[1] *1. Tohoku University, Sendai, Japan*

FU-11. Correlation between phase separation and first order phase transition in $Sm_{0.53}Sr_{0.47}MnO_3$ thin films. M.K. Srivastava[1,3], M.P. Singh[2], A. Kaur[3] and *H.K. Singh* [1] *1. Quantum Phenomena & Applications Division, National Physical Laboratory, New Delhi-110012, Delhi, India; 2. Department of Physics, Brock University, St. Catharines,L2S 3A1, ON, Canada; 3. Department of Physics and Astrophysics, University of Delhi, Delhi-110007, Delhi, India*

FU-12. Anomalous enhancement of coercivity near ferromagnetic transition temperatures of half-metallic CrO2 and La0.7Sr0.3MnO3 films. *J. Dho* [1] *1. Physics, Kyungpook National Univ, Daegu, Republic of Korea*

FU-13. Magnetic properties of epitaxial co-evaporated Fe:MgO anti-granular films. M.S. Rummey[1], L.R. Fleet[2], H. Hing[3], X. Zhang[3] and *A. Hirohata* [1,4] *1. Electronics, The University of York, York, United Kingdom; 2. Physics, The University of York, York, United Kingdom; 3. Electronic Engineering, City University of Hong Kong, Hong Kong, Hong Kong; 4. PPRESTO, Japan Science and Technology Agency, Kawaguchi, Japan*

THURSDAY AFTERNOON 1:30

EXHIBITION HALL A

Session FV
FUNDAMENTAL PROPERTIES AND APPLICATIONS (Poster Session)

Ciro Visone, Session Chair
Universita del Sannio

FV-01. Effect of Annealing Process on Strain-induced Crystallographic Orientation of FePt Thin Films.
S. Hsiao [1,2], S. Liu[2], S. Chen[2], F. Yuan[3] and H. Lee[3] *1. National Synchrotron Radiation Research Center, Hsinchu, Taiwan; 2. Department of Materials Science and Engineering, Feng Chia University, Taichung, Taiwan; 3. Institute of Applied Physics and Center for Nanostoage, National Taiwan University, Taichung, Taiwan*

FV-02. Magnetostriction Measurement of a GMR Film calculated from the Coercive Force Hc on Practical Substrates.
K. Okita [1], K. Ishiyama[2] and H. Miura[3] *1. Industrial Instrumentation Division, Tohoku Steel Co., Ltd., Miyagi, Japan; 2. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 3. Department of Nanomechanics, Graduate School of Engineering, Tohoku University, Sendai, Japan*

FV-03. Phase transition and Magnetic Transport Properties for single crystal of $(Ca_{0.42}Sr_{0.58})_3Ru_2O_7$.
Q. Ji[1], A. Zhang[1,2], S. Wang[1], Z. Wang[1], B. Qian[1], *X. Wu* [1] and Z. Mao[3] *1. Lab of Solid State Microstructures and Department of Physics, Nanjing University, Nanjing, Jiangsu, China; 2. College of Science, Hohai University, Nanjing, China; 3. Physics and Engnieer Physics, Tulane University, New Orlens, LA*

FV-04. Influence of magnetic dots on magnetic droplet lattice structures.
C. Lee [1], Z. Wei[1] and M. Lai[1] *1. Department of Power Mechanical Engineering, National Tsing Hua University, Hsinchu, Taiwan*

FV-05. Magnetic and Magnetotransport Properties of $La_{0.7}Sr_{0.2}Ca_{0.1}MnO_3$ Prepared from Nanoparticles.
L.T. Phan [1], P. Zhang[1], D. Grinting[1], D.A. Tuan[2] and S.C. Yu[1] *1. Chungbuk National University, Cheongju, Republic of Korea; 2. University of Ulsan, Ulsan, Republic of Korea*

FV-06. Giant structural related hysteresis behavior of magnetic ultrathin film by Surface Magneto-optic Faraday Effect. *C. Su* [1] *1. Department of Electrophysics, National Chiayi University, Chiayi 60004, Taiwan*

FV-07. Photo-induced electric phenomena in antiferromagnetic $BiFeO_3$ ceramics. *C. Hung* [1,2], H. Tu[2], M. Jiang[2] and C. Tu[1,2] *1. Graduate Institute of Applied Science and Engineering, Fu Jen Catholic University, Taipei, Taiwan; 2. Department of Physics, Fu Jen Catholic University, Taipei, Taiwan*

FV-08. Study of a High Power Factor Squirrel Cage Induction Generator. C. Nascimento[1], *A. Flores Filho* [1] and C. Neves[2] *1. Federal University of Rio Grande do Sul, Porto Alegre, Rio Grande do Sul, Brazil; 2. Federal University of Pampa, Bagé, Rio Grande do Sul, Brazil*

FV-09. A multi-layer algorithm for three-dimensional magnetic force computation in finite element method. S. Ho[1], *S. Niu* [1] and W. Fu[1] *1. Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, China*

FV-10. Effects of local structural collapse and magnetic moment on magnetization in $Bi_{0.8-x}Pr_xBa_{0.2}FeO_3$ ($x \leqq 0.1$) multiferroics. G. Cheng[1,2], B. Lv[1], Y. Ruan[2], Y. Huang[2] and *X. Wu* [1] *1. Lab of Solid State Microstructures and Department of Physics, Nanjing University, Nanjing, Jiangsu, China; 2. Analysis & Testing Center for Inorganic Materials, Shanghai Institute of Ceramics, CAS, Shanghai, China*

FV-11. Design and Analysis of Relay Resonator in Wireless Power Transfer System. *X. Zhang* [1], S. Ho[1] and W. Fu[1] *1. Department of Electrical Engineering, The HongKong Polytechnic University, HongKong, China*

FV-12. The Design and Research of a New Small Size Resonator Used in Magnetic Coupling Resonance Wireless Energy Transmission System. *J. Zhao* [1], G. Xu[1], C. Zhang[2], X. Li[1], Y. Chen[1] and Q. Yang[1] *1. Province-Ministry Joint Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability,, Tianjin, China; 2. Research Department of Frontiers, Institute of Electrical Engineering Chinese Academy of Science, Beijing, China*

FV-13. Two-dimensional Magnetostriction of Grain-oriented Electrical Steel Sheet under Rotating Flux Conditions. *M. Enokizono* [1], D. Wakabayashi[1] and T. Todaka[1] *1. Oita University, Oita, Japan*

FV-14. Phase transition of multi-component olivine $Li_xFe_{1/3}Co_{1/3}Ni_{1/3}PO_4$ (x=0, 1) from Mössbauer analysis. *I. Lee* [1], S. Hyun[1] and C. Kim[1] *1. Department of Physics, Kookmin University, Seoul, Republic of Korea*

FV-15. Magnetic properties and GMI effect of ductile amorphous microwires. *V. Zhukova* [1], P. Umnov[2], V. Molokanov[2], A. Shalygin[3] and A. Zhukov[1,4] *1. Material Physics, UPV/EHU, San Sebastian, Spain; 2. Baikov Institute of Metallurgy and Materials Science, RAS, Moscow, Russian Federation; 3. R&P Vichel (High-frequency Systems), Moscow, Russian Federation; 4. IKERBASQUE, Basque Foundation for Science, Bilbao, Spain*

THURSDAY AFTERNOON 1:30 — EXHIBITION HALL A

Session FW
HEV AND AUTOMOTIVE APPLICATIONS (Poster Session)

Charles Krafft, Session Chair
University of Maryland

FW-01. Analysis on Cogging Torque of Driving In-wheel Motor for Eectric Vehicle. *Q. Chen* [1] *1. State Key Laboratory of Mechanical Transmission, Chongqing University, Chongqing, Chongqing, China*

FW-02. Equivalent-Magnetic-Circuit Based Levitation Force Computation of a Controlled-Permanent-Magnet Levitation System. H. Cho[1], *J. Yu* [3], C. Kim[2], J. Lee[2] and S. Jang[3] *1. Electronic & Communication Eng. Edu, Chung-Nam natl university, 99 Daehak-ro, Yuseong-gu, Daejeon 305-764, Republic of Korea; 2. Magnetic Levitation and Linear Drive, Korea Institute of Machinery and Materials, 104 sinseong-ro,Yuseong-gu, Daejeon 305-343, Republic of Korea; 3. Electrical Engineering, Chung-Nam natl university, 99 Daehak-ro, Yuseong-gu, Daejeon 305-764, Republic of Korea*

FW-03. Analysis of Torque Characteristics and Power Factor of a Novel Brushless Double Rotor Machine Used for HEVs. *P. Zheng* [1], Q. Wu[1], C. Tong[1], J. Bai[1], Z. Song[1] and Q. Zhao[1] *1. Department of Electrical Engineering, Harbin Institute of Technology, Harbin, Heilongjiang, China*

FW-04. A New Halbach Permanent-Magnet Vernier Wheel Motor for Electric Vehicles. *Y. Fan* [1,2], X. Jin[1] and Y. Luo[1] *1. School of Electrical Engineering, Southeast University, Nanjing, China; 2. Jiangsu Provincial Key Laboratory of smart grid technology and device, Zhenjiang, Jiang su, China*

FW-05. Noval electrical continuously variable transmission system. S. Niu[1], S. Ho[1] and *W. Fu* [1] *1. the Hong Kong Polytechnic University, Hong Kong, Hong Kong*

FW-06. A Novel Magnetic Flux Weakening Method of Permanent Magnet Synchronous Motor for Elelctric Vehicle. *K. Kim* [1] *1. Dept. of electrical engineering, Hanbat National University, Daejeon, Republic of Korea*

FW-07. Improved Performance of IPMSM for Electric Motorcycle by the Harmonics Mitigation of Induced voltage. *K. Lee* [1] and J. Lee[1] *1. Hanyang Univ., Seoul, Republic of Korea*

FW-08. Comparison of Characteristics between the PM Synchronous Motor and the Induction Motor for Electric Vehicle. *M. Kim* [1], W. Kim[2], I. Jang[1], K. Lee[1], J. Lee[1] and J. Lee[1] *1. Hanyang University, Seoul, Republic of Korea; 2. Samsung Elecctronics, Yongin, Republic of Korea*

FW-09. Design and analysis of a fault-tolerant semi-12 phase permanent-magnet synchronous machine for electric vehicles. *P. Zheng* [1], F. Wu[1], Y. Sui[1], B. Yu[1], H. Wang[1] and P. Wang[1] *1. Electrical Engineering, Harbin Institute of Technology, Harbin, Heilongjiang, China*

FW-10. Controllability of Magnetic Force in Magnetic Wheels. K. Yoon[1] and *Y. Park* [1] *1. Department of Mechatronics Engineering, Chungnam National University, Daejeon, Republic of Korea*

FW-11. Optimal design of integrated starter generator for 42V automotive electrical system. *H. Lee* [1] and J. Lee[1] *1. Electric engineering, Hanyang Univ. Seoul. Korea, Seoul, Republic of Korea*

FW-12. Comparison of Vernier In Wheel Motors With Permanent-Magnet Synchronous Counterparts Based on Surface Mounted and Interior Permanent-Magnet for Electric Vehicle. *J. Li* [1,2], K. Chau[1] and C. Liu[1] *1. Department of Electrical & Electronic Engineering, The University of Hong Kong, Hong Kong, Hong Kong; 2. College of Electrical and Computer Science, University of Michigan, Dearborn, MI*

FW-13. Theoretical and Experimental Research on Axially Laminated Flux Switching Permanent Magnet Machine for Novel Topologic Plug-in Hybrid Electrical Vehicle. *W. Xu* [1], G. Lei[2], T. Wang[3], X. Yu[4] and J. Zhu[5] *1. Platform Technologies Research Institute, RMIT University, Melbourne, VIC, Australia; 2. School of Electrical, Mechanical and Mechatronic Systems, University of Technology, Sydney, Sydney, NSW, Australia; 3. School of Electrical, Mechanical and Mechatronic Systems, University of Technology, Sydney, Sydney, NSW, Australia; 4. Platform Technologies Research Institute, RMIT University, Melbourne, VIC, Australia; 5. School of Electrical, Mechanical and Mechatronic Systems, University of Technology, Sydney, Sydney, NSW, Australia*

FW-14. Characteristic Analysis of Axial flux permanent magnet type eddy current brakes using Space harmonic method. *H. Shin* [1], J. Choi[1], H. Jo[2] and S. Jang[1] *1. Electrical engineering, Chungnam National University, Daejeon, Republic of Korea; 2. Electric, Electronics & Communication Engineering Education, Chungnam National University, Daejeon, Republic of Korea*

FW-15. A New Structure of Hybrid Excitation Flux Switching Synchronous Machine for Hybrid Electric Vehicles. *E. Sulaiman* [1] *1. Nagoya Institute of technology, Aichi, Japan*

THURSDAY AFTERNOON 5:15

PARKVIEW 2/3

Session ZA
THE IEEE MAGNETICS SOCIETY ANNUAL MEETING

Takao Suzuki, Session Chair
University of Alabama

FRIDAY MORNING 9:00

BALLROOM A

Session GA
EFFECT OF ELECTRIC FIELD ON MAGNETISM

Kai Liu, Session Chair
University of California - Davis

9:00 **GA-01. Voltage induced switching in CoFeB/MgO/CoFeB magnetic tunnel junctions.** ***(Invited)*** *W. Wang* [1], M. Li[1], S. Hageman[1] and C. Chien[1] *1. Department of Physics and Astronomy, Johns Hopkins University, Baltimore, MD*

9:30 **GA-02. Electrically Induced Ferromagnetism at Room Temperature in Cobalt-Doped Titanium Dioxide.** ***(Invited)*** *T. Fukumura* [1,2] *1. Department of Chemistry, University of Tokyo, Tokyo, Japan; 2. PRESTO, Japan Science and Technology Agency, Saitama, Japan*

10:00 **GA-03. Electric field control of the ferromagnetic phase transition in cobalt.** ***(Invited)*** *D. Chiba* [1,2], K. Shimamura[1], M. Kawaguchi[1], S. Ono[3], S. Fukami[4], N. Ishiwata[4], K. Kobayashi[1] and T. Ono[1] *1. Institute for Chemical Research, Kyoto University, Uji, Kyoto, Japan; 2. PRESTO, Japan Science and Technology Agency, Kawaguchi, Saitama, Japan; 3. Central research institute of electric power industry, Komae, Tokyo, Japan; 4. NEC Corporation,, Tsukuba, Ibaraki, Japan*

10:30 **GA-04. Giant Interface Magnetoelectric Effect on Transport in Complex Oxide Ferroelectric Tunnel Junctions.** ***(Invited)*** *J.D. Burton* [1], Y. Yin[2], X.G. Li[3], Y. Kim[4], A.Y. Borisevich[4], Q. Li[2] and E.Y. Tsymbal[1] *1. Physics and Astronomy, University of Nebraska Lincoln, Lincoln, NE; 2. Physics, Penn State, University Park, PA; 3. Physics, University of Science and Technology of China, Hefei, China; 4. Oak Ridge National Laboratory, Oak Ridge, TN*

11:00 **GA-05. Electric Field Control of Magnetization and Magnetic Multilayer Device.** ***(Invited)*** *R. Ramesh* [1], J.T. Heron[1] and M. Trassin[1] *1. Materials Science and Engineering and Physics, University of Maryland, Berkeley, CA*

FRIDAY MORNING 9:00 BALLROOM B

Session GB
NOVEL BIOMEDICAL THERAPIES AND NANOMEDICINE II

M. Ricardo Ibarra, Session Chair
Universidad Zaragoza

9:00 GB-01. Magnetic Nanoagents for Biomedical Applications. ***(Invited)*** *J. Moreland* [1] *1. NIST, Boulder, CO*

9:30 GB-02. Effect of Frequency and Field Amplitude in Magnetic Hyperthermia. *A.G. Roca* [1], B. Weise[1], J. Timmis[2], G. Vallejo-Fernandez[1], M. Morales[3], C.J. Serna[3] and K. O'Grady[1] *1. Department of Physics, The University of York, York, Yorkshire, United Kingdom; 2. Liquids Research Ltd, Bangor, United Kingdom; 3. Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain*

9:45 GB-03. Magnetic Materials for Thermal Therapy: Cancer Treatment via Thermo-responsive Nanohydrogels. *M.K. Jaiswal* [1], H.D. Sarma[2], M. Gogoi[1], R. Banerjee[1] and D. Bahadur[1] *1. Indian Institute of Technology Bombay, Mumbai, India; 2. Bhabha Atomic Research Centre, Mumbai, India*

10:00 GB-04. Heating efficiency evaluation of low-Tc glassy Fe-Cr-Nb-B magnetic microparticles for magnetic hyperthermia. *H. Chiriac* [1], D. Herea[1] and N. Lupu[1] *1. National Institute of R&D for Technical Physics, Iasi, Romania*

10:15 GB-05. Magnetic Materials for Thermal Therapy: Cancer Treatment via Thermo-responsive Nanohydrogels. *M.K. Jaiswal* [1], H.D. Sarma[2], M. Gogoi[1], R. Banerjee[1] and D. Bahadur[1] *1. Indian Institute of Technology Bombay, Mumbai, India; 2. Bhabha Atomic Research Centre, Mumbai, India*

10:30 GB-06. Calculation of Lorentz forces on coils for transcranial magnetic stimulation. *L.J. Crowther* [1], R.L. Hadimani[1] and D.C. Jiles[1] *1. Electrical and Computer Engineering, Iowa State University, Ames, IA*

10:45 GB-07. Magnetically maneuverable catheter with a rotary magnetic drill tip actuated by a magnetic navigation system for vascular occlusive diseases. *S. Jeon* [1] and G. Jang[1] *1. Dept. of Mechanical Engineering, PREM Lab., Hanyang University, Seoul, Republic of Korea*

11:00 **GB-08. Magnetic Bacterial Cellulose, A Magnetic Biomembrane.** *T. Vijayabaskaran* [1] and S. Vitta[1] *1. Department Of Metallurgical Engineering and Materials Science, Indian Institute Of Technology Bombay, Mumbai, India*

FRIDAY MORNING 9:00

BALLROOM C

Session GC
FUNCTIONAL MATERIALS: MAGNETOCALORICS II

Karl Sandeman, Session Chair
Imperial College London

9:00 **GC-01. Routes to controlling thermal management in magnetocaloric manganite La0.63Ca0.37MnO3.** *J.A. Turcaud* [1], K. Morrison[1], A. Berenov[2], K.G. Sandeman[1] and L.F. Cohen[1] *1. The Blackett Laboratory, Imperial College London, London, United Kingdom; 2. Department of Materials, Imperial College London, London, United Kingdom*

9:15 **GC-02. 3D-printing of LaFeCoSi regenerators for near-room temperature magnetic cooling.** *J.D. Moore* [1], D. Klemm[1], K. Skokov[1], D. Lindackers[1], M. Katter[2] and O. Gutfleisch[1,3] *1. Institute for Metallic Materials, IFW Dresden, Dresden, Germany; 2. Vacuumschmelze GmbH & Co. KG, Hanau, Germany; 3. Department of Materials Science, TU Darmstadt, Darmstadt, Germany*

9:30 **GC-03. Magneto-volume effect in $La(Fe,Si)_{13}H_y$ as a hydrogen pump: tracking and imaging hydrogen diffusion.** *M. Krautz* [1], J.D. Moore[1], K.P. Skokov[1], J. Liu[1], C. da Silva Teixeira[1,2], R. Schäfer[1], L. Schultz[1] and O. Gutfleisch[1,3] *1. Institute for Metallic Materials, IFW Dresden, Dresden, Germany; 2. Mechanical Engineering Department, FU of Santa Catarina, Florianópolis, Brazil; 3. Department of Materials Science, TU Darmstadt, Darmstadt, Germany*

9:45 **GC-04. Magnetic and magnetocaloric properties of $LaFe_{13-x}(Si_{1-w}Al_w)_x$ alloys and their hydrides.** *A. Barcza* [1], V. Zellmann[1], M. Zapf[1] and M. Katter[1] *1. Vacuumschmelze GmbH & Co. KG, Hanau, Germany*

10:00 **GC-05. Magnetocaloric properties of B-site doped $La_{0.7}Sr_{0.3}MnO_3$ bulk ceramic and thick films.** *J. Kim* [1], J. Ryu[1], B. Hahn[1], J. Choi[1], W. Yoon[1], C. Ahn[1], J. Choi[1] and D. Park[1] *1. KIMS, Changwon, Republic of Korea*

10:15 **GC-06. Experiments on Consolidation of the MnAs0,99Sb0.01 Compound Using Spark Plasma Sintering Process.** *S. Gama* [1], W.J. Nascimento[2], O. Quilodrán-Alarcon[3], I. Silva[1], A.A. Coelho[4] and J.A. Eiras[2] *1. Depto. de Ciências Exatas e da Terra, Instituto de Ciências Ambientais, Químicas e Farmacêuticas, Unifesp campus Diadema, Diadema, São Paulo, Brazil; 2. Departamento de Física, Universidade Federal de São Carlos - UFSCar, São Carlos, São Paulo, Brazil; 3. Faculdade de Engenharia Civil, Universidade Estadual de Campinas - Unicamp, Campinas, São Paulo, Brazil; 4. Departamento de Física Aplicada, Instituto de Física Aplicada, Universidade Estadual de Campinas - Unicamp, Campinas, São Paulo, Brazil*

10:30 **GC-07. Magnetocaloric effect and critical behavior in Pr0.5Sr0.5MnO3: An analysis on the validity of Maxwell relation and nature of phase transitions.** *N. Bingham* [1], R. Caballeo-Flores[1,2], M.H. Phan[1], M.A. Torija[3], C. Leighton[3] and H. Srikanth[1] *1. Department of Physics, University of South Florida, Tampa, FL; 2. Dpto. Física de la Materia Condensada, ICMSE-CSIC, Universidad de Sevilla, Sevilla, Spain; 3. Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN*

10:45 **GC-08. Magnetic properties and MCE in Heusler-type glass-coated microwires.** *V. Zhukova* [1], A.M. Aliev[2], T. Ryba[3], S. Michalik[3], Z. Vargova[5], R. Varga[3] and A. Zhukov[1,4] *1. Material Physics, UPV/EHU, San Sebastian, Spain; 2. Amirkhanov Institute of Physics of Daghestan Scientific Center, RAS, Makhachkala, Russian Federation; 3. Inst. Phys., Fac.Sci., UPJS, Kosice, Slovakia; 4. IKERBASQUE, Basque Foundation for Science, Bilbao, Spain, Spain; 5. Inst. Chem., Fac. Sci., UPJS, Kosice, Slovakia*

11:00 **GC-09. Estimation of second order phase transition temperature of monoclinic phase in mixed phase region of $Gd_5(Si_xGe_{1-x})_4$.** *R.L. Hadimani* [1], Y. Melikhov[2] and D.C. Jiles[1] *1. Department of Electrical and Computer Engineering, Iowa State University, Ames, IA; 2. Wolfson Centre for Magnetics, Cardiff University, Cardiff, United Kingdom*

11:15 **GC-10. Adiabatic temperature change obtained from non-adiabatic measurements.** *A. Carvalho* [1], C.S. Mejia[2] and A.M. Gomes[2] *1. INMETRO, Duque de Caxias, RJ, Brazil; 2. UFRJ, Rio de Janeiro, RJ, Brazil*

11:30 **GC-11. A calorimetric investigation of the impact of irreversibility on out-of-equilibrium magnetocaloric effects.** *M. Bratko* [1], K.M. Morrison[1], A. de Campos[2], S. Gama[3], L.F. Cohen[1] and K.G. Sandeman[1] *1. Blacket Laboratory, Imperial College London, London, United Kingdom; 2. Instituto de Ciência Tecnologia e Exatas, Universidade Federal do Triângulo Mineiro, Uberaba, MG, Brazil; 3. Departamento de Ciências Exatas e da Terra, Universidade Federal de São Paulo, Diadema, SP, Brazil*

11:45 **GC-12. High-field magnetization study of one dimensional chain-like molecular magnet $[Fe^{III}(\Delta)Fe^{III}(\Lambda)(ox)_2(phen)_2]_n$ in magnetic fields up to 55 T.** *J. Her* [1,4], H. Yang[2], K. Lin[3], L. Li[3] and Y.H. Matsuda[4] *1. Division of Natural Science, Chang Gung University, Kwei-Shan, Tao-Yuan, Taiwan; 2. Department of Physics, Center for Nanoscience and Nanotechnology, National Sun Yat-sen University, Kaohsiung, Taiwan; 3. Department of Chemistry, Center of Nanoscience and Nanotechnology, National Chung-Hsing University, Taichung, Taiwan; 4. Institute for Solid State Physics, The University of Tokyo, Kashiwa, Chiba, Japan*

FRIDAY MORNING 9:00

MEETING RM 11/12

Session GD
SPIN TRANSFER TORQUE V

Yaowen Liu, Session Chair
Tongji University

9:00 **GD-01. Turning insulators into metals!.** ***(Invited)*** *S. Parkin* [1] *1. IBM Almaden Research Center, San Jose, CA*

9:30 **GD-02. Magnonic spin-transfer torque and domain wall propagation.** ***(Invited)*** *X. Wang* [1,2], P. Yan[1] and X. Wang[1] *1. Physics, Hong Kong Univ. of Sci. and Techno., Kowloon, China; 2. Physics, Wuhan University, Wuhan, Hubei, China*

10:00 **GD-03. Combined wide-narrow double modulation of spin torque oscillators for improved linewidth during communication.** *Y. Pogoryelov* [1], P.K. Muduli[1] and J. Åkerman[1,2] *1. Physics Department, University of Gothenburg, Gothenburg, Sweden; 2. Material Physics, Royal Institute of Technology, Stockholm, Sweden*

10:15 GD-04. Self-modulation in a perpendicular anisotropy Co/Ni based nano-contact spin-torque oscillator. *S. Mohseni* [1,2], S.R. Sani[1,2], Y. Pogoryelov[3], J. Persson[2], S. Bonetti[1,2], T.N. Anh Nguyen[1], S. Chung[1], P.K. Muduli[3], A.M. Deac[4] and J. Åkerman[1,2] *1. Materials Physics, School of ICT, KTH – Royal Institute of Technology, Kista, Sweden; 2. NanOsc AB, Kista, Sweden; 3. Department of Physics, University of Gothenburg, Gothenburg, Sweden; 4. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf e. V., Dresden, Germany*

10:30 GD-05. Influence of coupling parameters on spin-transfer induced gyration of coupled vortices in spin-valve nanopillars. *N. Locatelli* [1], P. Bortolotti[1], A. Khvalkovskiy[5,2], G. Avanesyan[2], V.V. Naletov[3], J. Grollier[1], G. De Loubens[3], K. Zvezdin[2], C. Ulysse[4], G. Faini[4], O. Klein[3] and A. Fert[1] *1. Unité Mixte de Physique CNRS-Thales and Univ Paris Sud, Palaiseau, France; 2. A.M. Prokhorov General Physics Institute of RAS, Moscow, Russian Federation; 3. Service de Physique de l'Etat Condensé (CNRS URA 2464), CEA Saclay, Gif-sur-Yvette, France; 4. CNRS Phynano team, Laboratoire de Photonique et de Nanostructures, Marcoussis, France; 5. Grandis, Inc., Milpitas, CA*

10:45 GD-06. Modeling of the Spin Torque Transfer Switching Energy in Magnetic Tunnel Junction Devices. *C. Surawanitkun* [1], A. Kaewrawang[1], A. Siritaratiwat[1], A. Kruesubthaworn[2], R. Sivaratana[3], N. Jutong[4], C.K. Mewes[5] and T. Mewes[5] *1. KKU-Seagate Cooperation Research Laboratory, Faculty of Engineering, Khon Kaen University, Khon Kaen, Thailand; 2. Science and Technology Program, Nongkhai Campus, Khon Kaen University, Nongkhai, Thailand; 3. Seagate Technology (Thailand) Co., Ltd., Teparak, Samutprakarn, Thailand; 4. Institute of Physics, University of Augsburg, Augsburg, Germany; 5. Department of Physics & Astronomy, MINT Center, University of Alabama, Tuscaloosa, AL*

11:00 GD-07. Enhancement of microwave emission power induced by auto-oscillation in NCMR spin-torque oscillator. *Y. Okutomi* [1], K. Miyake[1], Y. Kozono[1], S. Hashimoto[2], H. Iwasaki[2] and M. Sahashi[1] *1. Electronic Engineering, Tohoku University, Sendai, Japan; 2. TOSHIBA R&D Center, Kawasaki, Japan*

FRIDAY MORNING 9:00

PARKVIEW 2/3

Session GF
ANISOTROPY AND DOMAIN MOTION IN ULTRATHIN FILMS

Wen-Chin Lin, Session Chair
National Taiwan Normal University

9:00 GF-01. Controlling Domain Wall Motion by Electric Fields in Perpendicularly Magnetized Materials. *A.J. Schellekens* [1], A. Brink[1], J. Franken[1], H. Swagten[1] and B. Koopmans[1] *1. Applied Physics, TU/e, Eindhoven, Noord-Brabant, Netherlands*

9:15 GF-02. Voltage Control of Magnetic Anisotropy in Ultrathin Fe Films. *U. Bauer* [1], M. Przybylski[2], J. Kirschner[2] and G.S. Beach[1] *1. Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA; 2. Max-Planck-Institut für Mikrostrukturphysik, Halle, Germany*

9:30 GF-03. Current-induced magnetization dynamics in Rashba systems : Beyond Rashba field torque. *K. Kim* [1], S. Seo[2], J. Ryu[1], K. Lee[2,3] and H. Lee[1] *1. Department of Physics, POSTECH, Pohang, Kyungbuk, Republic of Korea; 2. Department of Materials Science and Engineering, Korea University, Seoul, Republic of Korea; 3. Center for Nanoscale Science and Technology, National Institute of Standards and Technology, Gaithersburg, MD*

9:45 GF-04. Mott Behavior of Ultrathin Epitaxial LaNiO3 Films and Interfaces via Hard X-ray and Standing-Wave Excited Photoemission. *A.X. Gray* [1,2], A.M. Kaiser[2,3], A. Janotti[4], J. Son[4], J.M. LeBeau[4], S. Ueda[5], Y. Yamashita[5], A. Bostwick[6], S. Yang[7], K. Kobayashi[5], C.G. Van de Walle[4], S. Stemmer[4] and C.S. Fadley[2,3] *1. Stanford Institute for Materials and Energy Science, SLAC National Accelerator Laboratory, Menlo Park, CA; 2. Department of Physics, University of California, Davis, Davis, CA; 3. Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA; 4. Materials Department, University of California, Santa Barbara, Santa Barbara, CA; 5. NIMS Beamline Station at SPring-8, National Institute for Materials Science, Sayo, Japan; 6. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA; 7. IBM Almaden Research Center, San Jose, CA*

10:00 **GF-05. Rashba spin-orbit coupling field effects on a domain wall motion.** *J. Ryu* [1], S. Seo[2], K. Kim[1], H. Lee[1] and K. Lee[2,3] *1. Physics, POSTECH, Pohang, Kyungbuk, Republic of Korea; 2. Department of Materials Science and Engineering, Korea University, Seoul, Republic of Korea; 3. Center for Nanoscale Science and Technology, National Institute of Standard and Technology, Gaithersburg, MD*

10:15 **GF-06. Modelling exchange – spring layered systems with perpendicular anisotropy using ferromagnetic resonance measurements.** *D. Schmool* [1], F. Gonçalves[1,2], A. Apolinário[1], N. de Sousa[3], N. Sobolev[4], F. Casoli[5], F. Albertini[5], P. Lupo[5], R. Stamps[2] and C. Hu[2] *1. Physics and Astronomy, University of Porto, Porto, Portugal; 2. Physics an Astronomy, University of Glasgow, Glasgow, United Kingdom; 3. Física de la Materia Condensada, Universidad Autónoma de Madrid, Madrid, Spain; 4. Physics, University of Aveiro, Aveiro, Portugal; 5. IMEM - CNR, Parma, Italy*

10:30 **GF-07. C and CO adsorption on the Co fcc (110) surface.** *S. Chin* [1,3], A. Ionescu[1], R.M. Reeve[1], J. Cheng[2] and C. Barnes[1] *1. Physics, University of Cambridge, Cambridge, United Kingdom; 2. Chemistry, University of Cambridge, Cambridge, United Kingdom; 3. Institute of Microengineering and Nanoelectronics, Universiti Kebangsaan Malaysia, Bangi, Selangor, Malaysia*

10:45 **GF-08. Perpendicular magnetic anisotropy induced by interfacial unpinned moments of antiferromagnetic layer.** *B. Wang* [1,2], J. Hong[1], K. Ou Yang[1], W. Pong[2], H. Lin[3] and M. Lin[1,4] *1. Physics, National Taiwan University, Taipei, Taiwan; 2. Physics, Tamkang University, New Taipei CIty, Taiwan; 3. National Synchrotron Radiation Research Center, Hsinchu, Taiwan; 4. Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei, Taiwan*

11:00 **GF-09. Ultrathin cobalt films contacted to graphene.** *C. Vo-Van* [1], A. Kimouche[1], H. Yang[2], Z. Kassir-Bodon[1], J. Vogel[1], S. Pizzini[1], P. Bayle-Guillemaud[3], M. Chshiev[2], L. Ranno[1], A.T. N'Diaye[4], N. Bendiab[1], A.K. Schmid[4], N. Rougemaille[1], O. Fruchart[1] and J. Coraux[1] *1. Neel Institute/CNRS & UJF, Grenoble, France; 2. SPINTEC, CEA Grenoble, Grenoble, France; 3. INAC/SP2M/LEMMA, CEA Grenoble, Grenoble, France; 4. Lawrence Berkeley National Laboratory, San Francisco, CA*

11:15 GF-10. Relationships between moment and structure in FeRh thin films. M. Loving[1], F. Jimenez-Villacorta[1], M.A. de Vries[2], *D.A. Arena* [3], B. Kaeswurm[1], C.H. Marrows[2] and L.H. Lewis[1] *1. Chemical Engineering, Northeastern University, Boston, MA; 2. Physics, University of Leeds, Leeds, United Kingdom; 3. National Synchrotron Light Source, Brookhaven National Laboratory, Upton, NY*

11:30 GF-11. Perpendicular magnetization of cobalt ferrite epitaxial films grown by a reactive sputtering technique. H. Yanagihara[1], M. Iura[1], M. Myoka[1], T. Niizeki[1], K. Mibu[2] and *E. Kita* [1] *1. Institute of Applied Physics, University of Tsukuba, Tsukuba, Ibaraki, Japan; 2. Graduate School of Engineering, Nagoya Institute of Technology, Nagoya, Aichi, Japan*

11:45 GF-12. Permittivity and Permeability Measurement of Spin-spray Deposited NiZn-Ferrite Thin Film Sample from 18 to 40 GHz. *L. Chao* [1], A. Sharma[1], M. Afsar[1], O. Obi[2], Z. Zhou[2] and N. Sun[2] *1. ECE Department, Tufts University, Medford, MA; 2. ECE Department, Northeasten University, Boston, MA*

FRIDAY MORNING 9:00 — MEETING RM 8/15

Session GG
MAGNETIC FIELD SENSORS AND FLUXGATES

Behtash Behin-Aein, Session Chair
Global Foundries

9:00 GG-01. Orthogonal fluxgate employing selective bandpass sampling. *E. Weiss* [1,2], A. Grosz[2], E. Paperno[2] and S. Amrusi[2] *1. Applied Physics, Soreq NRC, Yavne, Israel; 2. Electrical and Computer Engineering, Ben Gurion University of the Negev, Beer-Sheva, Israel*

9:15 GG-02. Full Model of Magnetoelastic (ME) Micro-Resonator System for Ultrasensitive Mass Sensing Applications. C. Xue[1], X. Li[1] and *C. Yang* [1] *1. Shanghai Institute of Microsystem and Information Technology, Shanghai, China*

9:30 GG-03. Magnetic Field Vector Detection in Frequency Domain with an Optically Pumped Atomic Magnetometer. *N. Mizutani* [1] and T. Kobayashi[2] *1. Frontier Research Center, Canon, Tokyo, Japan; 2. Department of Electrical Engineering, Kyoto University, Kyoto, Japan*

9:45 GG-04. Modelling of the detection of magnetic nanobead arrays with micro-Hall sensors. *A. Manzin* [1] and V. Nabaei[2,1] *1. Istituto Nazionale di Ricerca Metrologica (INRIM), Torino, Italy; 2. Dipartimento di Ingegneria Elettrica, Politecnico di Torino, Torino, Italy*

10:00 GG-05. Surface Acoustic Wave Magnetic Sensor using Galfenol Thin Film. *W. Li* [1], P. Dhagat[1] and A. Jander[1] *1. School of Electrical Engineering and Computer Science, Oregon State Univerisity, Corvallis, OR*

10:15 GG-06. Temperature dependence of offset and sensitivity in orthogonal fluxgate operated in fundamental mode. *M. Butta* [1], I. Sasada[1] and M. Janosek[2] *1. Dept. Of Applied Science for Electronics and Materials, Kyushu University, Fukuoka, Japan; 2. Faculty of Electrical Engineering, Czech Technical University in Prague, Prague, Czech Republic*

10:30 GG-07. 2-axis Magnetometers Based on Full Wheatstone Bridges Incorporating Magnetic Tunnel Junctions Connected in Series. *R. Ferreira* [1], P.P. Freitas[2,4], J. Ribeiro[3], J. Germano[3] and L. Sousa[3,4] *1. International Iberian Nanotechnology Laboratory (INL), Braga, Portugal; 2. Instituto de Engenharia de Sistemas e Computadores – Microsistemas e Nanotecnlogia (INESC-MN), Lisboa, Portugal; 3. Instituto de Engenharia de Sistemas e Computadores – Investigação e Desenvolvimento (INESC-ID), Lisboa, Portugal; 4. Instituto Superior Técnico (IST), Lisboa, Portugal*

10:45 GG-08. Linearization and field detectivity in magnetic tunnel junction sensors connected in series incorporating 16nm-thick NiFe free layers. *R. Janeiro* [1,2], L. Gameiro[1,2], S. Cardoso[1,2] and P.P. Freitas[1,2] *1. INESC-MN, Lisboa, Portugal; 2. Physics Dep, Instituto Superior Técnico, Lisboa, Portugal*

11:00 GG-09. Towards picoTesla magnetic field detection using a GMR-MEMS hybrid device. *A. Guedes* [1], G. Jaramillo[1], S. Cardoso[2,3], P.P. Freitas[2,3] and D.A. Horsley[1] *1. Berkeley Sensor and Actuator Center - University of California Davis, Davis, CA; 2. INESC MN/Institute for Nanosciences and Nanotechnologies, Lisbon, Portugal; 3. Instituto Superior Tecnico - Universidade Tecnica de Lisboa, Lisbon, Portugal*

11:15 GG-10. Analysis of a low-frequency wireless power transfer circuit considering multiple turns of coils. *I. Sasada* [1] and K. Imokawa[1] *1. Kyushu University, Kasuga, Japan*

11:30 GG-11. Operation State Identification for Underground Power Cables by Magnetoresistive Sensors. *X. Sun* [1], G. Chan[2], C. Sum[2], W. Lee[1], L. Jiang[1] and P. Pong[1] *1. The University of Hong Kong, Hong Kong, Hong Kong; 2. The Hongkong Electric, Hong Kong, Hong Kong*

FRIDAY MORNING 9:00 PARKVIEW 1

Session GH
POWER DEVICES, INDUCTORS AND TRANSFORMERS

Donald Gardner, Session Chair
Intel

9:00 GH-01. Power density limits in thin film magnetic inductors for on-chip power conversion. *P. Herget* [1], N. Wang[2], E.J. O'Sullivan[2], B.C. Webb[2], R. Fontana[1], L.T. Romankiw[2], G.M. Decad[1] and W.J. Gallagher[2] *1. IBM Almaden Research Center, San Jose, CA; 2. IBM T.J. Watson Research Center, Yorktown Heights, NY*

9:15 GH-02. Integrated RF on-chip inductors with patterned CoZrTaB Films. *H. Wu* [1], D.S. Gardner[2], W. Xu[1] and H. Yu[1] *1. Ira A. Fulton Schools of Engineering, Arizona State University, Tempe, AZ; 2. Intel Labs, Intel Corp., Santa Clara, CA*

9:30 GH-03. Analysis of Nested Winding Dielectric-Core Transformers for Ethernet Applications. *D. Bowen* [1], A. Lee[1], C. Krafft[2] and I. Mayergoyz[1] *1. ECE, University of Maryland, College Park, MD; 2. Laboratory for Physical Sciences, College Park, MD*

9:45 GH-04. Introducing an optimized novel capacitor layer for integrated magnetic systems. S. Stegen[1], J. Lu[1] and *F.P. Dawson* [2] *1. School of Electrical Engineering, Griffith University, Nathan, QLD, Australia; 2. Department of Electrical and Computer Engineering, University Toronto, Toronto, ON, Canada*

10:00 GH-05. Robust and Postless Air-Suspended High Q Integrated Inductors on Silicon. *S. Cheon* [1], M. Yoon[1], H. Park[1] and J. Park[1] *1. Dept. of Electronic Engineering, Kwangwoon Univ., Seoul, Republic of Korea*

10:15 GH-06. A New Approach for the Global Design Optimization of 3-Phase Core-Type Distribution Transformer Considering Capitalization of Losses. *M.M. Cheema* [1,2], J.E. Fletcher[2,1] and M. Junaid[3] *1. School of Electrical Engineering, University of New South Wales, Sydney, NSW, Australia; 2. School of Electrical Engineering, University of New South Wales, Sydney, NSW, Australia; 3. Planning Division, Gujranwala Electric Power Company, Gujranwala, Punjab, Pakistan*

10:30 GH-07. Design and Analysis of a Compact Planar Transformer for DC/DC Converter Application. *S. Djuric* [1], G. Stojanovic[1], M. Radovanovic[1], M. Damnjanovic[1] and E. Laboure[2] *1. Power, Electronics, and Communication, Faculty of Technical Sciences, Novi Sad, Serbia; 2. LGEP/SPEE Labs – SUPELEC, Paris, France*

10:45 GH-08. Self-biased meta-low loss conductor for high quality RF passives. I. Iramnaaz[1], H. Schellevis[2], B. Rejaei[3] and *Y. Zhuang* [1] *1. Electrical engineering, Wright State University, Dayton, OH; 2. electrical engineering, Delft University of Technology, Delft, Netherlands; 3. Electrical engineering, Sharif University of Technology, Tehran, Islamic Republic of Iran*

11:00 GH-09. A novel RF CMOS active inductor for wireless communication systems. *Y. Lai* [1] and C. Zheng[1] *1. Department of Mechatronics Engineering, National Changhua University of Education, Changhua, Taiwan*

11:15 GH-10. Effect of Nonlinear Inductor Behavior on the Performance of Interleaved Power Factor Correction. *Y. Liu* [1], D. Zhang[1] and G. Luo[1] *1. NTU, Singapore, Singapore*

11:30 GH-11. 3-D Analytical Linear Force and Rotary Torque Analysis of Linear and Rotary Permanent Magnet Actuator. *P. Jin* [1], S. Fang[1] and H. Lin[1] *1. School of Electrical Engineering, Southeast University, Nanjing, China*

11:45 GH-12. From Galilean covariance to gauge conditions: A thermodynamic insight to power integrity. *V.G. Mazauric* [1] and P.F. Wendling[2] *1. Strategy & Innovation, Schneider Electric, Grenoble Cedex 9, France; 2. Magsoft Corporation, Ballston Spa, NY*

FRIDAY MORNING 8:00

EXHIBITION HALL A

Session GP
LINEAR MOTORS AND ACTUATORS (Poster Session)

Ciro Visone, Session Chair
Universita del Sannio

GP-01. Eddy current driven coding of a magnetic lock. *R. Groessinger* [1], S. Heiss[2], M. Schönhart[1], M. Kriegisch[1] and B. Stix[3] *1. Inst. of Solid State Physics, Techn. Univ. Vienna, Vienna, Austria; 2. MAGNETTECHNIK, MAGNETECHNIKHeiss, A-3341 Ybbsitz, Austria; 3. EVVA, EVVA Sicherheitstechnologie GmbH, Vienna, Austria*

GP-02. Contribution of the reluctance force to the signal distortion in electrodynamic loudspeakers. M. Erza[1], *G. Lemarquand* [1] and V. Lemarquand[2] *1. LAUM UMR 6613, Universite du Maine, Le Mans, France; 2. LAPLACE UMR 5213, Universite de Toulouse, Figeac, France*

GP-03. Development of slim speaker for use in flat TVs. *P. Sun* [1], J. Kwon[2] and S. Hwang[1] *1. Mechcnial Engineering College, Pusan National University, Busan, Busan, Republic of Korea; 2. Research and Development Center, EM-TECH, Anyang, Gyeonggi-do, Republic of Korea*

GP-04. Characteristics Analysis of Permanent Magnet Linear Oscillatory Actuators Using Equivalent Magnetic Circuit Considering Magnet and Magnetization Condition. S. Jang[1], *J. Kim* [1], K. Kim[1], J. Park[1] and S. Jeong[2] *1. Electrical Engineering, Chungnam National University, Daejeon, Republic of Korea; 2. LG Electronics, Seoul, Republic of Korea*

GP-05. Fundamental development of power supply system for a mobile gadget using a bicycle. *S. Suzuki* [1], M. Ishihara[1] and Y. Kobayashi[1] *1. Electrical and Computer, Oyama National College of technology, Oyama, Tochigi, Japan*

GP-06. Reduction in adsorption of bearing oil from fluid dynamic bearings of hard disk drive spindle motor by diamagnetic field. *H. Tani* [1], R. Habara[2] and N. Tagawa[1] *1. Mechanical Engineering Dept., Kansai University, Suita-shi, Osaka, Japan; 2. Graduate school of Kansai University, Suita-shi, Osaka, Japan*

GP-07. 2-D Equivalent Finite Element Model of Quadratic Linear Electromagnetic Actuator. S. Park[1], *J. Kim* [1] and B. Lim[1] *1. Yeungnam University, Gyeongsan, Republic of Korea*

GP-08. A Slim Horizontally Vibrating Linear Motor for Smart Phone. K. Hwang[1], *J. Kim* [1], J. Kim[1] and B. Lim[1] *1. Yeungnam University, Gyeongsan, Republic of Korea*

GP-09. Design of Disposable External Driver for Magnetic Wireless Blood Pump. *S. Kim* [1], J. Shin[1], S. Hashi[1] and K. Ishiyama[1] *1. Tohoku university, RIEC, Sendai, Japan*

GP-10. Design optimization of magnetic gears using mesh adjustable finite element algorithm for improved torque transmission. *S. Niu* [1], N. Chen[1], S. Ho[1] and W. Fu[1] *1. Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, China*

GP-11. A Novel Permanent Mangnet Single-Phase AC Linear Generator for Wave Energy Generation in the Direct-Drive System. J. Zhang[1], *H. Yu* [1], Q. Chen[1] and M. Hu[1] *1. Engineering Research Center of Motion Control of Ministry of Education, Southeast University, Nanjing, China*

GP-12. An Adaptive Mesh Method in Transient Finite Element Analysis of Magnetic Field Using a Novel Error Estimator. *Y. Zhao* [1], X. Zhang[1], S. Ho[1] and W. Fu[1] *1. Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

GP-13. Analysis and modeling of a voice-coil linear vibration motor using the method of images. *J. Choi* [1], S. Yoo[1] and M.D. Noh[1] *1. Mechatronics Engineering, Chungnam National University, Daejeon, Republic of Korea*

GP-14. Design and Characteristics Analysis of Linear Oscillatory Actuator Using Ferrite Permanent Magnet for Household Refrigerator Compressor. *K. Kim* [1], S. Jang[1], J. Choi[1], H. Park[1] and S. Jeong[2] *1. Chungnam National uuiversity, Daejeon, Republic of Korea; 2. LG Electronics, Seoul, Republic of Korea*

GP-15. Optimum Design of Transverse Flux Linear Motor for Transfer of LCD Glass Panel. *D. Hong* [1], B. Woo[1], D. Joo[1], S. Chung[1] and D. Kang[1] *1. Korea Electrotechnology Research Institute, Changwon, Republic of Korea*

FRIDAY MORNING 8:00

EXHIBITION HALL A

Session GQ
MOTORS AND ACTUATORS IV (Poster Session)

Kiruba Haran, Session Chair
GE Global Research

GQ-01. Winding Changeover Permanent-Magnet Generators for Renewable Energy Applications. *M. Hsieh* [1], F. Hsu[1], D.G. Dorrell[2] and C. Li[1] *1. Systems and Naval Mechatronic Eng., National Cheng Kung University, Tainan, Taiwan; 2. University of Technology Sydney, Sydney, NSW, Australia*

GQ-02. A novel double-winding permanent magnet flux modulated machine for stand-alone wind power generation. *L. Jian* [1], S. Ho[1], W. Gong[1] and W. Fu[1] *1. Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

GQ-03. A Novel Linear Transverse-Flux Permanent-Magnet Synchronous Generator for Wave Energy Conversion. *T. Chan* [1], W. Wang[1] and L. Lai[2] *1. Department of Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, China; 2. Energy Strategy, Planning, Policy Support and Research & Development Center, State Grid Energy Research Institute, Beijing, China*

GQ-04. A novel brushless doubly fed generator for wind power generation. Y. Wang[2,1], *W. Fu* [1], S. Ho[1] and J. Shen[2] *1. Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong; 2. Electrical Engineering, Zheng Jiang University, Hang Zhou, China*

GQ-05. Design and Analysis of a New Fault-Tolerant Permanent-Magnet Vernier Machine for Electric Vehicles. J. Yang[1], *G. Liu* [1], Q. Chen[1] and W. Gong[1] *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*

GQ-06. Numerical Calculations of Transient Electromagnetic Fields and Forces Acting on the End-Windings of Large Turbo-generators. S. Ho[1] and *S. Yang* [2,1] *1. Electrical Engineering Department, The Hong Kong Polytechnic University, Kowloon, Hong Kong; 2. College of Electrical Engineering, Zhejiang University, Hangzhou, China*

GQ-07. The driving characteristics simulation method for washing machine using BLDC motor for energy consumption and washing performance improvement. *H. Kim* [1], C. Park[1] and T. Jung[1] *1. KyungNam Univ., Changwong, Republic of Korea*

GQ-08. Theory and performance study of an axial-flux-modulated machine. *S. Niu* [1], S. Ho[1] and W. Fu[1] *1. Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, China*

GQ-09. Key Parameters Calculation of Permanent Magnet Synchronous Motor and its Application. *J. Zhang* [1], H. Li[1], Y. Luo[1] and X. Cui[1] *1. North China Electric Power University, Beijing, China*

GQ-10. Cogging Torque Reduction and No Load Back-EMF Improvement of Surface Permanent Magnet Transverse Flux Machine with Consequent Pole Rotor. *J. Xie* [1], D. Kang[2], R. Palka[3], J. Lee[2], Z. Sha[4], B. Woo[2], D. Hong[2] and S. Zhao[1] *1. Department of Electromechanical Engineering, Xi'an Jiaotong University, Xi'an, China; 2. Electric Motor Research Center, Korea Electrotechnology Research Institute, Changwon, Republic of Korea; 3. Department of Power Systems and Electrical Drives, West Pomeranian University of Technology, Szczecin, Poland; 4. School of Engineering, Washington State University, Pullman, WA*

GQ-11. Structural Parameters and Force Characteristic Analysis for a HTS Axial-Flux Induction Maglev Motor. *S. Li* [1], Y. Fan[1], J. Fang[1], W. Qin[1], G. Lv[1], X. Zhu[1] and Y. Liu[1] *1. School of Electrical Engineering, Beijing Jiaotong University, Beijing, China*

GQ-12. The Design of a Coreless Axial-flux Permanent Magnet Brushless DC Motor Based on Field Circuit Combined Method. *Y. Cao* [1,2], L. JIn[1], M. Hu[1] and Y. Huang[1] *1. School of Electrical Engineering, Southeast University, Nanjing, China; 2. Department of Electrical Engineering, Nanjing University of Information Science and Technology, Nanjing, China*

GQ-13. Novel Design of Double-stator Single-rotor Magnetic-geared Machines. *C. Liu* [1], K. Chau[1] and Z. Zhang[1] *1. Department of Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong, China*

GQ-14. Integrated magnetic-geared machine with sandwiched armature stator for low-speed large-torque applications. *L. Jian* [1], W. Gong[1], G. Xu[1] and Y. Wu[1] *1. Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China*

GQ-15. A Novel Method for Determination of the Initial Values of Transient Finite Element Analysis in Magnetic Field Computation. *Y. Zhao* [1], S. Ho[1] and W. Fu[1] *1. Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

GQ-16. Design and optimization of the new H-module linear actuator. *X. Liu* [1], K. Wu[2,3], K. Lu[1] and Y. Ye[3] *1. Department of Energy Technology, Aalborg University, Aalborg, Denmark; 2. Changsha Electric Power Bureau, Hunan Electric Power Corporation, Changsha, China; 3. College of Electrical Engineering, Zhejiang University, Hangzhou, China*

FRIDAY MORNING 8:00

EXHIBITION HALL A

Session GR
MOTORS AND ACTUATORS V (Poster Session)

Elena Lomonova, Session Chair
Eindhoven

GR-01. Performance Analysis of Doubly Excited Brushless Generator with Outer Rotor for Wind Power Application. Y. Zhang[1], *H. Liu* [1] and W. Fu[2] *1. School of Electrical Engineering, Beijing Jiaotong University, Beijing, China; 2. Department of Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, China*

GR-02. Finite Element Analysis of Magnet-less Laminar Motor Used for HEV/EV Applications. Y. Zhang[1], *H. Liu* [1] and W. Fu[2] *1. School of Electrical Engineering, Beijing Jiaotong University, Beijing, China; 2. Department of Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, China*

GR-03. Precise Magnetic Field Modeling Techniques of Rotation Problems Using Transient Finite-element Method. H. Li[1], S. Ho[1] and *W. Fu* [1] *1. The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

GR-04. Analysis and Optimal Design of Ironless Linear Permanent Magnet Synchronous Motors with Non-overlapping Concentrated Windings for Ultra-precision Applications. L. Li yi[1] and *T. Yong bin* [1] *1. Electrical Engineering Department, Harbin, Heilongjiang, China*

GR-05. Unimorph vibrational energy harvester using Galfenol. *T. Ueno* [1] *1. Kanazawa University, Kanazawa, Japan*

GR-06. Development of a Novel Permanent-Magnet Synchronous Generator with Amorphous Stator Core using Particle Swarm Optimization Method. *C. Hsu* [1], C. Lee[2], Y. Chang[3], C. Yao[1,2], H. Chu[1] and C. Chang[3] *1. Division of Electrical Engineering, Fortune Electric Ltd, Co., Tao-Yuan, 320, Taiwan; 2. Department of Electrical Engineering, Chung Yuan Christian University, Tao-Yuan, 320, Taiwan; 3. Department of Electrical Engineering, Chang Gung University, Tao-Yuan, 333, Taiwan*

GR-07. Effects of Noise and Vibration on Permanent-Magnet Synchronous Generator with Amorphous Stator Core. *C. Hsu* [1], C. Lee[2], Y. Chang[3], C. Yao[1,2], H. Chu[1], C. Chang[3] and Y. He[1,2] *1. Division of Electrical Engineering, Fortune Electric Ltd, Co., Tao-Yuan, 320, Taiwan; 2. Department of Electrical Engineering, Chung Yuan Christian University, Tao-Yuan, 320, Taiwan; 3. Department of Electrical Engineering, Chang Gung University, Tao-Yuan, 333, Taiwan*

GR-08. Moving Properties of a Cableless In-piping Magnetic Actuator Capable of Long-distance Locomotion with a New Propulsion Module. T. Izumikawa[1] and *H. Yaguchi* [1] *1. Tohoku gakuin university, Tagajo, Japan*

GR-09. Torque Characteristics according to Load Angle of Permanent Magnet Motor. *K. Kim* [1] *1. Dept. of electrical engineering, Hanbat National University, Daejeon, Republic of Korea*

GR-10. Electromagnetic Performance Analysis of a New Double-rotor Stator Permanent Magnet Motor for Hybrid Electric Vehicles. Y. Chen[1,2], *L. Quan* [1], X. Zhu[1] and Q. Ding[1] *1. School of Electrical and Information Engineering, Jangsu University, ZhenJiang 212013, China; 2. School of Energy and Power Engineering, Yangzhou University, YangZhou 225127, China*

GR-11. Detection of Complex Fault with Stator Winding Inter-turn Short and Broken Rotor Bar in 0.4kW Squirrel Cage Induction Motor by Motor Current Signal Analysis. S. Jang[1], *M. Koo* [1], Y. Park[1], D. You[2] and C. Goo[3] *1. Electrical Engineering, Chungnam National University, Daejeon, Republic of Korea; 2. Fire Safety Engineering, Cheongyang Provincial College, Chungyang, Republic of Korea; 3. Korea Institute of Nuclear Safety, Daejeon, Republic of Korea*

GR-12. A novel dq axis theory based approach towards parameter determination of line-start permanent magnet synchronous machines. *L. Iyer* [1], X. Lu[1], K. Mukherjee[1] and N.C. Kar[1] *1. Electrical and Computer Engineering, University of Windsor, Windsor, ON, Canada*

FRIDAY MORNING 8:00

EXHIBITION HALL A

Session GS
MOTORS AND ACTUATORS VI (Poster Session)

Helm Jansen, Session Chair
Eindhoven

GS-01. Static Characteristics Analysis and Experiment Study of a Novel Axial Field Flux-Switching Permanent Magnet Generator. *L. Hao* [1], M. Lin[1], X. Zhao[1], H. Luo[1] and Z. Zhu[2] *1. School of Electrical Engineering, Southeast University, Nanjing, Jiangsu Province, China; 2. Department of Electronic and Electrical Engineering, University of Sheffield, Sheffield, United Kingdom*

GS-02. A Study of Advanced Permanent Magnet Spherical Motor for Improvement of Multi-DOF Motion. *H. Park* [1] and J. Lee[1] *1. Hanyang University, Seoul, Republic of Korea*

GS-03. Numerical and Experimental Investigation on Magnet characteristics of IPMSM by Space and Time Harmonics. *S. Lee* [1], Y. Kim[2] and S. Jung[1] *1. School of Electronic and Electrical Engineering, Sungkyunkwan Univeristy, Suwon, Republic of Korea; 2. School of Electronic Department of Electrical Engineering, College of Engineering, Chosun University, Gwangju, Republic of Korea*

GS-04. Force and torque modeling method for ironless permanent-magnet linear actuator with large yaw angle. *G. Zhou* [1], X. Huang[1] and H. Jiang[1] *1. School of Electrical Engineering, Southeast University, Nanjing, Jiangsu, China*

GS-05. The Evaluation of On-line Observer of LIM Servo System using a Transient FEM & Experiment. J. Lee[1], *S. Jang* [1] and M. Jun[1] *1. Electrical Engineering, Hanbat National University, Daejoen, Republic of Korea*

GS-06. Vibration Analysis and Measurements through Prediction of Electromagnetic Vibration Sources of Permanent Magnet Synchronous Motor Based on Analytical Magnetic Field Calculations. *J. Choi* [1], H. Shin[1], H. Park[1], H. Cho[1] and S. Jang[1] *1. Chungnam National University, Dae-jeon, Republic of Korea*

GS-07. Comparison of Flux-Modulated Permanent-Magnet Motor with Two Topologies. *Y. Fan* [1,2], F. Yu[1] and X. Jin[1] *1. School of Electrical Engineering, Southeast University, Nanjing, China; 2. Jiangsu Provincial Key Laboratory of smart grid technology and device, Zhenjiang, Jiang su, China*

GS-08. Design of Deep Sea Oil-filled Brushless DC Motor Considering the High Pressure Effect. J. Zou[1], *W. Qi* [1], Y. Xu[1], F. Xu[1] and K. Liu[1] *1. Harbin Institute of Technology, Harbin, China*

GS-09. Unbalanced magnetic force calculation for assembly jig design. *J. Lee* [1], D. Hong[1], . Woo[1], D. Koo[1] and Y. Choi[2] *1. Korea Electrotechnology Research Institute, Changwon, Republic of Korea; 2. Doosan Corporation Mottrol, Changwon, Republic of Korea*

GS-10. Analysis and Reduction on Cogging Torque in Flux-Switching Permanent Magnet Machine. D. Wang[1,2], X. Wang[2] and *S. Jung* [1] *1. School of Information and Communication Engineering, Sungkyunkwan University, Suwon, Republic of Korea; 2. Electrical engineering, Shandong University, Jinan, Shandong, China*

GS-11. A Novel Dual-Rotor Axial Field Flux-switching Permanent Magnet Machine. *L. Hao* [1], M. Lin[1], W. Li[1] and H. Luo[1] *1. School of Electrical Engineering, Southeast University, Nanjing, China*

GS-12. Characteristic Analysis and Efficiency Improvement of Linear Induction Motor by Design Optimization. S. Jang[1], *J. Jeong* [1], Y. Park[1], J. Choi[1] and K. Lee[1] *1. Electrical Engineering, Chungnam National University, Daejeon, Republic of Korea*

FRIDAY MORNING 8:00

EXHIBITION HALL A

Session GT
SUPERCONDUCTIVITY AND EMERGING TOPICS
(Poster Session)

Maria Iavarone, Session Chair
Temple University

GT-01. Phenomena of vortex pinning by composite pinning array on Nb films. *W. Sheng-Hao* [1], H. Lance[1], C. Chien Miao[1], W. Tian Chiuan[2], C. Rong[1] and W. Jong Ching[1] *1. Dept. of Physics, National Changhua University of Education, Changhua, Taiwan; 2. Dept. of Electronic Engineering, National Formosa University, Huwei, Taiwan*

GT-02. Mechanism of Vortex pinning by arrays of defects with gradient spatial distributions on niobium film. *L. Horng* [1], W. Tian Chiuan[2], W. Jong Ching[1], J. Kolacek[4] and Y. Tzong Jer[3] *1. Dep. Physics, National Changhua University of Education, Changhua, Taiwan; 2. Dept. of Electrical Engineering, National Formosa University, Huwei, Taiwan; 3. Dept. of Electrical Engineering, Chung Hua University, Hsinchu, Taiwan; 4. Institute of Physics, ASCR, Cukrovarnicka, Czech Republic*

GT-03. Nb lateral Josephson junction induced by inverse proximity effect with NiFe. *L. Lin* [1,2], S. Huang[1], J. Huang[2] and S. Lee[1] *1. Physics, Academia Sinica, Taipei, Taiwan; 2. Materials Science and Engineering, National Tsing Hua University, HsinChu, Taiwan*

GT-04. Effect of $BaSnO_3$ nanoparticle inclusion on critical current density of $GdBa_2Cu_3O_{7-\delta}$ thin films. *D.H. Tran* [1], W.B. Putri[1], B. Kang[1], N. Lee[2] and W. Kang[2] *1. Physics, Chungbuk National University, Cheongju, Chungbuk, Republic of Korea; 2. Physics, Sungkyunkwan University, Suwon, Gyeonggi, Republic of Korea*

GT-05. Effect of 3d metal (Ni and Co) doping on the superconductivity of FeTe1/2Se1/2. *A.K. Vashistha* [1,2], R. Tandon[2] and V. Awana[1] *1. Quantum Phenomnena and Application, National Physical Laboratory, New Delhi, Delhi, India; 2. Physics and Astrophysics, University of Delhi, New Delhi, Delhi, India*

GT-06. Temperature controlled perfect absorber based on metal-superconductor-metal square array. *H. Lee* [1] and J. Wu[1] *1. Department of Physics, National Changhua University of Education, Changhua, Taiwan*

GT-07. Understanding the Superconducting Mechanism through direct and redox layer doping in Pnictides. *S.K. Singh* [1,2], A. Pal[1,2], H. Kishan[1], M. Husain[2] and V. Awana[1] *1. Quantum Phenamena and applications, National Physical Laboratory, New Delhi, delhi, India; 2. Department of Physics, Jamia Millia Islamia, New Delhi, Delhi, India*

GT-08. Enhancing Magnetic Properties of Cyanide Based Molecular Magnetic Materials: The role of Single Ion Anisotropy. *M.R. Saber* [1,2] and K.R. Dunbar[1] *1. Chemistry, Texas A&M University, College Station, TX; 2. Chemistry, Fayoum University, Fayoum, Egypt*

GT-09. Magnetoresistance in ferromagnetically-coupled 3D topological insulator strips. *Z. Siu* [1,2], M. Jalil[3,1] and S. Tan[2] *1. NUS Graduate School for Integrative Sciences and Engineering, National Univ Singapore, Singapore, Singapore; 2. Data Storage Institute, Singapore, Singapore; 3. Electrical and Computer Engineering Department, National University of Singapore, Singapore, Singapore*

GT-10. Influence factors analysis and improvement on efficiency of wireless power transfer. *Y. Li* [1,2] and Q. Yang[2,1] *1. Province-Ministry Joint Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability, Tianjin, China; 2. Tianjin Key Laboratory of Advanced Electrical Engineering and Energy Technology, Tianjin, China*

GT-11. Dispersive Casimir Force Effect of Surface Plasmon Quanta between Quasi 1D Metal Wire Structure and Ferrite Disks. M. Obol[1] and *M. Afsar* [2] *1. biomagnomics, Auburndale, MA; 2. Electrical and Computer Engineering, Tufts University, Medford, MA*

GT-12. Numerical investigation of magnetic resonant coupling technique in inter-chip communication via electromagnetics-TCAD coupled simulation. Q. Chen[2], S. Ho[1] and *W. Fu* [1] *1. Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong, Hong Kong; 2. Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

FRIDAY
MORNING
8:00

EXHIBITION HALL A

Session GU
HEAD DISK INTERFACE AND TRIBOLOGY I (Poster Session)

Bruno Marchon, Session Chair
Hitachi Global Storage Technologies

GU-01. Flying Instability due to Organic Compounds in Hard Disk Drive. *K. Sonoda* [1] *1. Storage Product Development, Toshiba co., Ome, Tokyo, Japan*

GU-02. Theoretical model for lubricant pick-up considering ultra-thin liquid film effect. *H. Matsuoka* [1], K. Matsuda[1] and S. Fukui[1] *1. Department of Mechanical and Aerospace Engineering, Tottori University, Tottori, Japan*

GU-03. Bridging multiscale descriptions of perfluoropolyether lubricants via reduced order modeling techniques. *L.T. Biegler* [1], R.L. Smith[1] and M.S. Jhon[1,2] *1. Chemical Engineering, Carnegie Mellon Univ, Pittsburgh, PA; 2. School of Advanced Materials Science and Engineering, Sungkyunkwan University, Suwon, Republic of Korea*

GU-04. Passive vibration absorption for extremely high density recording. *A.I. Vakis* [1] and A.A. Polycarpou[2] *1. Electrical and Computer Engineering, University of Cyprus, Nicosia, Cyprus; 2. Mechanical Science and Engineering, University of Illinois, Urbana, IL*

GU-05. Temperature profile in the presence of hotspots for heat assisted magnetic recording. *H. Kim* [2], S. Vemuri[1], P. Chung[1] and M.S. Jhon[1,3] *1. Chemical Engineering and Data Storage Systems Center, Carnegie Mellon Univ, Pittsburgh, PA; 2. Department of Mechanical System Engineering, Kyonggi University, Suwon, Suwon, Republic of Korea; 3. School of Advanced Material Science and Engineering, Sungkyunkwan University, Suwon, Suwon, Republic of Korea*

GU-06. Thermo-mechanical properties of graphene overcoat in heat assisted magnetic recording. *Y. Jhon* [1], S. Vemuri[2], R. Smith[2] and M.S. Jhon[1,2] *1. School of Advanced Materials Science and Engineering, Sungkyunkwan University, Suwon, Suwon, Republic of Korea; 2. Chemical Engineering and Data Storage Systems Center, Carnegie Mellon Univ, Pittsburgh, PA*

GU-07. Transient Responses of Magnetic Sliders with Thermal Flying Height Control. *J. Juang* [1] and F. Huang[2] *1. Department of Mechanical Engineering, National Taiwan University, Taipei, Taiwan; 2. San Jose Research Center, Hitachi Global Storage Technologies, San Jose, CA*

GU-08. Experimental study of lube depletion in heat assisted magnetic recording over the lifetime of a drive. *Y. Ma* [1] and B. Liu[1] *1. Data Storage Institute, Singapore, Singapore*

GU-09. Adhesion Properties of Monolayer Lubricant Films Coated on Magnetic Disk Surfaces: Contributions of Mobile and Bonded Molecules. *L. Renguo* [1], Z. Hedong[1], I. Masashi[2], F. Kenji[2] and I. Shintaro[2] *1. Graduate School of Information Science, Nagoya University, Nagoya, Japan; 2. Graduate School of Engineering, Nagoya University, Nagoya, Japan*

GU-10. Atomistically tuning lubricant adhesion on carbon overcoat surface. *R.L. Smith* [1], P. Chung[1], L.T. Biegler[1] and M.S. Jhon[1,2] *1. Chemical Engineering, Carnegie Mellon Univ, Pittsburgh, PA; 2. School of Advanced Materials Science and Engineering, Sungkyunkwan University, Suwon, Republic of Korea*

GU-11. Perfluoropolyether lubricants interaction with graphene overcoat surface. *S. Vemuri* [1], P. Chung[1], R. Smith[1], L.T. Biegler[1] and M.S. Jhon[1,2] *1. Department of Chemical Engineering and Data Storage Systems Center, Carnegie Mellon University, Pittsburgh, PA; 2. School of Advanced Materials Science and Engineering, Sungkyunkwan University, Suwon, Republic of Korea*

GU-12. Physio-chemical characteristics of star-like lubricant nano films. *P. Chung* [1], K. Tak[2], I. Moon[2], L.T. Biegler[1] and M.S. Jhon[1,3] *1. Department of Chemical Engineering and Data Storage Systems Center, Carnegie Mellon University, Pittsburgh, PA; 2. Department of Chemical and Biomolecular Engineering, Yonsei University, Seoul, Republic of Korea; 3. School of Advanced Materials Science and Engineering, Sungkyunkwan University, Suwon, Republic of Korea*

FRIDAY
MORNING
8:00

EXHIBITION HALL A

Session GV
SOFT NANO-CRYSTALLINE AND MAGNETIC DIELECTRIC MATERIALS (Poster Session)

Mi Yan, Session Chair
Zhejing University

GV-01. Investigation of TbFeGa ternary alloys deposited by cosputtering. *R. Ranchal* [1] and C. Aroca[2] *1. Universidad Complutense de Madrid, Madrid, Spain; 2. ISOM& Dpto. Física Aplicada, Universidad Politécnica de Madrid, Madrid, Spain*

GV-02. Magnetocrystalline anisotropy and *g*-factor of Fe(001) and $Fe_{50}Co_{50}$(001) single-crystal thin films measured by broadband FMR. *T. Kawai* [1], M. Ohtake[1], S. Takeda[2] and M. Futamoto[1] *1. Chuo Univ., Tokyo, Japan; 2. Magnontech, Kumagaya, Saitama, Japan*

GV-03. Magnetic behaviour of La0.9-xGdxTe0.1MnO3 (x = 0.10, 0.15). *N. Sharma* [1], B.K. Srivastava[1], A. Krishnamurthy[1] and A.K. Nigam[2] *1. Department of Physics, University of Rajasthan, Jaipur, Rajasthan, India; 2. Tata Institute of Fundamental Research, Mumbai, India*

GV-04. An Approach to Configure Low-loss and Full Transmission Metamaterial Based on Electromagnetically Induced Transparency. L. Zhu[1], F. Meng[1], *Q. Wu* [1], J. Fu[1] and J. Hua[2] *1. Harbin Institute of Technology, Harbin, China; 2. Science and Technology on Communication Information Security Control Laboratory, Jiaxing, China*

GV-05. Negative refractive index in a flower shaped structure metamaterial. *P.V. Tuong* [1,2], J. Park[1], V. Lam[2], J. Rhee[3], K. Kim[4] and Y. Lee[1] *1. Physics, Hanyang University, Seul, Republic of Korea; 2. Institute of Material Science, VAST, Hanoi, Viet Nam; 3. Sungkyunkwan University, Suwon, Republic of Korea; 4. Sunmoon University, Asan, Republic of Korea*

GV-06. Metamaterials with Reconfigurable Negative Permeability Based on the Mie Resonance. *K. Zhang* [1], Q. Wu[1], J. Fu[1], F. Meng[1] and G. Yang[1] *1. Harbin institute of technology, Harbin, China*

GV-07. Polarization- and Angle-insensitive Metamaterial Absorber in Simple Design. *J. Park* [1], P. Toung[1], J. Rhee[2], K. Kim[3] and Y. Lee[1] *1. Physics, Hanyang Uni., Seoul, Republic of Korea; 2. Sungkyunkwan Uni., SooWon, Republic of Korea; 3. Sunmoon Uni., Asan, Republic of Korea*

GV-08. Synthesis and the characteristics of iron/iron oxide nanoparticles. *J. He* [1], J. An[1] and D. Zhao[1] *1. Central Iron & Steel Research Institute, Beijing, China*

GV-09. Thickness effect of inter-layer on the dielectric permittivity of BaTiO3/Co/ BaTiO3 and BaTiO3/Ta/ BaTiO3 films. Y. Ding[1,2], Y. Yao[1], C. Tu[1,3], J. Hsu[3], D. Hung[4], S. Lee[5] and *P. Chen* [6] *1. Graduate Institute of Applied Science and Engineering, Fu Jen Catholic University, New Taipei City, Taiwan; 2. The Teaching Center of Natural Sciences, Minghsin University of Science and Technology, Hsinchu, Taiwan; 3. Department of Physics, Fu Jen Catholic University, Taipei, Taiwan; 4. Department of Informations and Telecommunication Engineering, Ming Chuan University, Taipei, Taiwan; 5. Institute of Physics, Academia Sinica, Taipei, Taiwan; 6. Department of Physics, National Chung Cheng University, Chia-Yi, Taiwan*

GV-10. Metamaterial Based Electronically-Scanned Circularly-Polarized LWA. X. Li[1], *J. Fu* [1], Q. Wu[1] and C. Feng[2] *1. School of Electronics and Information Engineering, Harbin Institute of Technology, Harbin, Heilongjiang, China; 2. RFID Development Dept., ZTE Corporation, Tianjin, China*

GV-11. Role of magnetism in the short-range order formation in dilute Fe-Si, Fe-Al, Fe-Ga alloys. Y. Gornostyrev[1,2], N. Ershov[1], M. Petrik[2], O. Gorbatov[2], *A. Kuznetsov* [1,2], Y. Chernenkov[3], V. Fedorov[3] and V. Lukshina[1] *1. Institute of Metal Physics UB RAS, Yekaterinburg, Russian Federation; 2. Institute of Quantum Materials Science, Yekaterinburg, Russian Federation; 3. B.P.Konstantinov Petersburg Nuclear Physics Institute RAS, Gatchina, Russian Federation*

GV-12. Crystal Grain Shape Aspect of Grain Oriented Steel by Three Dimensional Polycrystal Magnetic Field Analysis. *K. Fujisaki* [1] *1. Toyota Technological Institute, Nagoya-city, Aichi-prefecture, Japan*

GV-13. Thermal, structural, and magnetic properties of amorphous ribbons and nanopowders of $Fe_{64}Co_7Nd_3Zr_6B_{20}$. G. Barbosa[1,2], *F. de Araujo Machado* [1], A. Rodrigues[1] and W. de Azevedo[3] *1. Departamento de Física, Universidade Federal de Pernambuco, Recife, Pernambuco, Brazil; 2. Departamento de Ciências Exatas e Naturais, Universidade Federal Rural do Semi-Árido, Mossoro, Rio Grande do Norte, Brazil; 3. Departamento de Quimica Fundamental, Universidade Federal de Pernambuco, Recife, Pernambuco, Brazil*

GV-14. High frequency permeabilitty spectra performed in Co_xO_y / CoFeB / Co_xO_y trilayer. *A. Bonneau-Brault* [1,2] and S. Dubourg[1] *1. CEA Le Ripault, 37260 Monts, France; 2. GREMAN UMR 7347, Univ. Tours, 37200 Tours, France*

GV-15. Bentonite/iron oxide composites study by nuclear magnetic resonance. *P. Kristan* [1] *1. Faculty of Mathematics and Physics, Charles University in Prague, Prague 8, Czech Republic*

FRIDAY MORNING 8:00

EXHIBITION HALL A

Session GW
MICROWAVE AND MILLIMETER WAVE MATERIALS & DEVICES I (Poster Session)

Jeffrey McCord, Session Chair
CAU Kiel

GW-01. A Magnetic Coupling Folded Dipole for UHF Near-field RFID Reader. D. Xumin[1], *Q. Wu* [1], K. Zhang[1] and C. Feng[2] *1. Dept.of Electronic & Communications Engineering, Harbin Institution of Technology, Harbin, China; 2. RFID Development Dept., ZTE CORPORATION, Tianjin, China*

GW-02. Omni-directional selective shielding multilayered material for high frequency radiation. G. Ababei[1], V. David[2], V. Dafinescu[2], I. Nica[2], *H. Chiriac* [1] and A. Pica[3] *1. National Institute of Research & Development for Technical Physics, Iasi, Romania; 2. Faculty of Electrical Engineering, "Gh. Asachi" Technical University of Iasi, Iasi, Romania; 3. Research Institute for Advanced Coatings, Bucharest, Romania*

GW-03. Microwave frequency performance and high magnetic anisotropy of Fe70Co30-B films prepared by a modified composition gradient sputtering. *S. Li* [1,2], L. Wang[2], J. Xu[1], Z. Wang[1], M. Liu[3,4], J. Lou[3], S. Beguhn[3], F. Xu[5], N. Sun[3] and J. Duh[6] *1. College of Physics Science, Qingdao University, Qingdao, Shandong, China; 2. Physics, Fujian Normal University, Fuzhou, Fujian, China; 3. Electrical and Computer Engineering, Northeastern University, Boston, MA; 4. Center for Nanoscale materials, Argonne National Laboratory, Argonne, IL; 5. Materials Science and Technology, Nanjing University of Science and Technology, Nanjing, Jiangsu, China; 6. Materials Science and Engineering, National Tsing Hua University, Hsinchu, Taiwan*

GW-04. Effect of Zn addition on Y-type barium cobalt ferrite for microwave application. *C. Rhee* [1], C. Kim[1], K. Joo[2], I. Shim[1] and C. Kim[1] *1. Department of Physics, Kookmin University, Seoul, Republic of Korea; 2. Department of Physics, Myongji University, Yongin, Gyeonggi-do, Republic of Korea*

GW-05. Enhanced microwave absorption properties of the milled flake-shaped FeSiAl/graphite composites. J. Sun[1,2], H. Xu[1,2], Y. Shen[1,2], *H. Bi* [1,2], W. Liang[3] and R. Yang[3] *1. College of Chemistry and Chemical Engineering, Anhui University, Hefei, China; 2. AnHui Province Key Laboratory of Environment-friendly Polymer Materials, Hefei, China; 3. Department of Aerospace and Systems Engineering, Feng Chia University, Taichung, Taiwan*

GW-06. Dual-tunable multiferroic active ring microwave resonator. A. Nikitin[1], A.B. Ustinov[1], *M. Cherkasskii* [1] and B. Kalinikos[1] *1. Department of Physical Electronics and Technology, St.Petersburg Electrotechnical University "LETI", Saint Petersburg, Russian Federation*

GW-07. Quantized standing spin waves in the Fabry-Perot type resonator consisted of magnetic nanowires. Y. Cao[1], Y. Urazuka[1], K. Nagai[1], *T. Tanaka* [1] and K. Matsuyama[1] *1. Graduate School of Information Science and Electrical Engineering, Kyushu University, Fukuoka, Fukuoka, Japan*

GW-08. Self-biased circulator with CPW structure using barium ferrite thin films. *B. Peng* [1], Y. Pan[1], Y. Wang[1], H. Xu[1], W. Zhang[1] and W. Zhang[1] *1. State Key Laboratory of Electronic Thin Films and Integrated Devices, University of Electronic Science and Technology of China, ChengDu, SiChuan, China*

GW-09. The role of dysprosium-gadolinium substitution on the microwave and magnetic properties of barium ferrite nanoparticles. A. Ghasemi[1] and *A. Morisako* [2] *1. Malek Ashtar University of Technology, Shahin Shahr, Islamic Republic of Iran; 2. ShinShu University, Nagano, Japan*

GW-10. A novel two-stage low radiation transmission system in mobile phone application based on magnetic resonant coupling. Q. Chen[1], S. Ho[1] and *W. Fu* [1] *1. Electrical Engineering, The Polytechnic University of Hong Kong, Hong Kong, Hong Kong*

GW-11. Analysis of Magnetic Flux through Magnetic Film Integrated to Coplanar Line using Magnetic Circuit Network Model. *S. Muroga* [1], Y. Asazuma[1], Y. Endo[1], Y. Shimada[1] and M. Yamaguchi[1,2] *1. Graduate School of Engineering, Tohoku University, Sendai, Miyagi, Japan; 2. New Industry Creation Hatchery Center (NICHe), Tohoku University, Sendai, Miyagi, Japan*

GW-12. Optimization of autonomous magnetic field sensor consisting of giant magnetoimpedance sensor and surface acoustic wave transducer. *B. Li* [1] and J. Kosel[1] *1. Physical Science and Engineering Division, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia*

GW-13. Novel Polymer-bonded Magnetic Cores Using for High Frequency Converters. *W. Wang* [1], K. Cheng[1] and K. Ding[1] *1. The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

GW-14. Composite nanofibers produced by electrospinning for high frequency shielding. O. Chiscan[1], I. Ursachi[1], I. Dumitru[1], P. Postolache[1] and *A. Stancu* [1] *1. Faculty of Physics, "Alexandru Ioan Cuza" University of Iasi, Iasi, Iasi, Romania*

GW-15. Magnetic Properties and High Frequency Characteristics of Isotropic FeCoZr Thin Films. F. Zheng[1], F. Luo[1], Y. Lou[1], Y. Wang[1], *J. Cao* [1], J. Bai[1], D. Wei[2] and F. Wei[1] *1. Key Laboratory for Magnetism and Magnetic Materials of the Ministry of Education, Research Institute of Magnetic Materials, Lanzhou University, Lanzhou, Gansu, China; 2. Laboratory of Advanced Materials, Department of Materials Science and Engineering, Tsinghua University, Beijing, Beijing, China*

GW-16. Evaluation of microwave and magnetic properties of substituted SrFe12O19 and substituted SrFe12O19/ multi-walled carbon nanotubes nanocomposites. M. Asghari[1,2], A. Ghasemi[1,2], E. Paimozed[1,2] and *A. Morisako* [2,1] *1. Malek Ashtar University of Technology, Esfahan, Islamic Republic of Iran; 2. Spin Device Technology Center, Faculty of Engineering, Shinshu University, Nagano, Japan*

FRIDAY AFTERNOON 2:00 — BALLROOM A

Session HA
EMERGING SENSOR TECHNOLOGIES FOR RECORDING BEYOND 2 TB/IN^2

Yoshihiro Shiroishi, Session Chair
Hitachi, R&D Group

2:00 HA-01. Developing Sensor Technologies. ***(Invited)*** *B. Gurney* [1] *1. Hitachi Global Storage Tech, San Jose, CA*

2:30 HA-02. CPP-GMR Film with GaOx Based Novel Spacer. ***(Invited)*** *Y. Tsuchiya* [1], T. Chou[1], H. Matsuzawa[1], S. Hara[1], K. Shimazawa[1], K. Noguchi[1] and K. Terunuma[1] *1. Data Storage & Thin Film Technology Components Business Group, TDK Corporation, Saku, Nagano, Japan*

3:00 HA-03. Novel Spintronics effects based on the Spin-orbit Coupling: Spin-gating and spintronics with antiferromagnets. ***(Invited)*** *J. Wunderlich* [1,2] *1. Hitachi Cambridge Laboratory, Cambridge, United Kingdom; 2. Institute of Physics, Academy of Science Czech Republic, Prague, Czech Republic*

3:30 HA-04. Low resistance narrow read sensors using high spin-polarization Heusler alloys. ***(Invited)*** *K. Hono* [1], T.M. Nakatani[1], Y.K. Takahashi[1], N. Hase[1], T. Furubayashi[1], S. Kasai[1] and S. Mitani[1] *1. Magnetic Materials Unit, NIMS, Tsukuba, Japan*

4:00 HA-05. Extending MgO-TMR Readers to Areal Density >>1 Tb/in^2. ***(Invited)*** *M. Ho* [1] *1. Western Digital Corp, Fremont, CA*

4:30 HA-06. Spin-torque Oscillator as a magnetic reader. ***(Invited)*** *R. Sato* [1], K. Mizushima[1], T. Nagasawa[1], H. Suto[1], K. Kudo[1] and T. Yang[1] *1. Frontier Research Laboratory, Corporate Research & Development Center, Toshiba Corporation, Kawasaki, Japan*

FRIDAY AFTERNOON 2:00 BALLROOM B

Session HB
MRAM AND MAGNETIC LOGIC DEVICES II

Daniel Worledge, Session Chair
IBM

2:00 HB-01. Racetrack Memory: A High Performance Non-volatile Memory Based on the Current-Controlled Motion of Magnetic Domain Walls. ***(Invited)*** *A.J. Annunziata* [1], M.C. Gaidis[1], L. Thomas[2], C. Chien[3], C. Hung[3], P. Chevalier[2], E.J. O'Sullivan[1], J.P. Hummel[1], E.A. Joseph[1], Y. Zhu[1], T. Topuria[2], E. Delenia[2], P.M. Rice[2], S.P. Parkin[2] and W.J. Gallagher[1] *1. IBM T. J. Watson Research Center, Yorktown Heights, NY; 2. IBM Almaden Research Center, San Jose, CA; 3. Industrial Technology Research Institute, Chutung, Hsinchu, Taiwan*

2:30 HB-02. Nanomagnetic Logic: error-free, directed signal transmission by an inverter chain. *I. Eichwald* [1], A. Bartel[1], J. Kiermaier[1], S. Breitkreutz[1], G. Csaba[2], D. Schmitt-Landsiedel[1] and M. Becherer[1] *1. Technische Universität München, München, Germany; 2. Center for Nano Science and Technology, University of Notre Dame, Notre Dame, IN*

2:45 HB-03. Majority gate for nanomagnetic logic with perpendicular magnetic anisotropy. *S. Breitkreutz* [1], J. Kiermaier[1], I. Eichwald[1], X. Ju[2], G. Csaba[3], D. Schmitt-Landsiedel[1] and M. Becherer[1] *1. Lehrstuhl für Technische Elektronik, Technische Universität München, Munich, Germany; 2. Lehrstuhl für Nanoelektronik, Technische Universität München, Munich, Germany; 3. Center for Nano Science and Technology, University of Notre Dame, Notre Dame, IN*

3:00 HB-04. Field-driven domain-wall ratchet shift register. *J. Franken* [1], H. Swagten[1] and B. Koopmans[1] *1. Applied Physics, Eindhoven University of Technology, Eindhoven, Netherlands*

3:15 HB-05. Barrier Breakdown mechanism in MgO-based Magnetic Tunnel Junctions and correlation with low-frequency Noise. *A. Selma* [1], B. Hélène[1], S. Ricardo[1], B. Claire[1] and D. Bernard[1] *1. Grenoble, Spintec (UMR 8191 CEA/CNRS/UJF), Grenoble, France*

3:30 HB-06. MTJ based non volatile SRAM and low power non volatile logic-in-memory architecture. ***(Invited)*** *T. Endoh* [1], T. Ohsawa[1], S. Ikeda[1], T. Hanyu[1], N. Kasai[1] and H. Ohno[1] *1. Center for Spintronics Integrated Systems, Tohoku University, Sendai, Japan*

4:00 HB-07. Robustness of MTJ Switching in STT-RAM under Radiation Attack. *P. Wang* [1] and Y. Chen[1] *1. ECE, University of Pittsburgh, Pittsburgh, PA*

4:15 HB-08. On the thermal stability of STT-MRAM Designs. *X. Zhu* [1] and S. Kang[1] *1. Advanced Memory Technology, Qualcomm Incorporated, San Diego, CA*

4:30 HB-09. Statistical variance in switching probability of spin-torque switching in MgO-MTJ. *A. Fukushima* [1], T. Seki[2], K. Yakushiji[1], H. Kubota[1], S. Yuasa[1] and K. Ando[1] *1. Spintronic Research Center, AIST, Tsukuba, Ibarki, Japan; 2. CANON ANELVA Corp., Kawasaki, Kanagawa, Japan*

4:45 HB-10. Time-resolved measurements of precessional switching in a MRAM cell with a perpendicular polarizer under a hard axis magnetic field. M. Marins de Castro[1], T. Devolder[2], B. Lacoste[1], R. Sousa[1], L. Buda-Prejbeanu[1], S. Auffret[1], U. Ebels[1], C. Ducruet[3], L. Prejbeanu[3], L. Vila[4], B. Rodmacq[1] and *B. Dieny* [1] *1. SPINTEC, UMR CEA / CNRS / UJF-Grenoble 1 / Grenoble-INP, INAC, Grenoble, Isère, France; 2. Institut d'Electronique Fondamentale, CNRS UMR 8622, Orsay, Ilê de France, France; 3. Crocus Technology, Grenoble, Isère, France; 4. SP2M / NM, CEA / Grenoble, INAC, Grenoble, Isère, France*

FRIDAY AFTERNOON 2:00

BALLROOM C

Session HC
EXCHANGE BIAS II

Bret Heinrich, Session Chair
Simon Fraser University

2:00 **HC-01. X-ray study of antiferromagnetic/ferromagnetic domain structures.** ***(Invited)*** *Z. Qiu* [1] *1. UC Berkeley, Berkeley, CA*

2:30 **HC-02. Perpendicular exchange anisotropy in Mn-Ir / Fe-Co / [Pt / Co] multilayers.** *H. Takahashi* [1], M. Tsunoda[1] and M. Takahashi[1] *1. Department of Electronic Engineering, Tohoku University, Sendai, Miyagi, Japan*

2:45 **HC-03. Mn Interfacial Doping in Polycrystalline Exchange Bias Thin Films.** R. Carpenter[1], N. Cramp[1] and *K. O'Grady* [1] *1. Physics, University of York, Heslington, North Yorkshire, United Kingdom*

3:00 **HC-04. Magnetization Dynamics in Vortex-Imprinted $Ni_{80}Fe_{20}/Ir_{80}Mn_{20}$ Square Elements.** H. Xu[1], E. Girgis[1], J. Rudge[1], T. Speliotis[2], C. Ross[3], Y. Hong[4] and *B. Choi* [1] *1. Dept. of Physics & Astronomy, Univ of Victoria, Victoria, BC, Canada; 2. Institute of Materials Science, NCSR "Demokritos", 15310 Aghia Paraskevi, Greece; 3. Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA; 4. Department of Electrical and Computer Engineering, and MINT Center, University of Alabama, Tuscaloosa, AL*

3:15 **HC-05. Magnetic properties of exchange biased IrMn/Co patterned arrays.** *G.M. Vinai* [1,4], J. Moritz[1], G. Gaudin[1], J. Vogel[2], M. Bonfim[2,3], I. Prejbeanu[4], K. Mackay[4] and B. Dieny[1] *1. CEA-INAC, SPINTEC, Grenoble, France; 2. CNRS-UJF, Institut Néel, Grenoble, France; 3. Departamento de Engenharia Elétrica, Universidade do Parana, Curitiba, Brazil; 4. CROCUS Technology, Grenoble, France*

3:30 **HC-06. Edge and shape dependence of the magnetization reversal of exchange-biased "ferromagnet/patterned antiferromagnet" bilayers.** *R.D. Shull* [1], Y.P. Kabanov[2], V.S. Gornakov[2,1] and V.I. Nikitenko[1,2] *1. National Institute of Standards & Technology, Gaithersburg, MD; 2. Institute of Solid State Physics, Russian Academy of Sciences, Chernogolovka, 142432, Russian Federation*

3:45 **HC-07. In-plane and out-of-plane exchange anisotropy induced by multiferroic domain walls.** *S. Liao* [1], J. Yang[2], W. Tsai[1], D. Wang[1], Y. Chu[2] and C. Lai[1] *1. Department of Materials Science & Engineering, National Tsing Hua University, Hsinchu, Taiwan; 2. Department of Materials Science & Engineering, National Chiao Tung University, Hsinchu, Taiwan*

4:00 **HC-08. Grain growth effect of Cr_2O_3 thin film layer on exchange coupling of Cr_2O_3/Co interface.** *T. Nozaki* [1], N. Shimomura[1], T. Ashida[1], Y. Sato[1] and M. Sahashi[1] *1. Electronic Engineering, Tohoku University, Sendai, Japan*

4:15 **HC-09. Exchange Bias and Coercivity in Al_2O_3 (0001) or (1-102)/Cr_2O_3/Co/Pt thin films.** *T. Ashida* [1], N. Shimomura[1], Y. Sato[1], T. Nozaki[1] and M. Sahashi[1] *1. Department of Electronic Engineering, Tohoku University, Sendai, Japan*

4:30 **HC-10. Anomalous Behavior of Hysteresis Loop Caused by Frozen Interface Spins in Core-Shell Iron-Iron Oxide Nanoclusters.** *M. Tarsem Singh* [1], J.S. McCloy[2] and Y. Qiang[1] *1. Physics, University of Idaho, Moscow, ID; 2. Pacific Northwest National Laboratory, Richland, WA*

4:45 **HC-11. Antiferromagnetic coupling at the interface of two ferromagnetic layers: $La_{0.67}Sr_{0.33}MnO_3$ and $SrRuO_3$.** *A. Solignac* [1], R. Guerrero[1], P. Gogol[2], T. Maroutian[2], F. Ott[3], P. Lecoeur[2], C. Fermon[1] and M. Pannetier-Lecoeur[1] *1. DSM/IRAMIS/SPEC, CEA, Gif Sur Yvette, 91191, France; 2. Institut d'Electronique Fondamentale, Université Paris 11,CNRS, Orsay, 91405, France; 3. Laboratoire Léon Brillouin CEA/CNRS, CEA, Gif Sur Yvette, 91191, France*

FRIDAY
AFTERNOON
2:00

MEETING RM 11/12

Session HD
SPIN TRANSFER TORQUE AND COMPLEX OXIDES I

Stefan Maat, Session Chair
Hitachi GST

2:00 **HD-01. Tunneling magneto thermopower and magnetization precession in the presence of thermal gradients in magnetic tunnel junction nanopillars.** ***(Invited)*** N. Liebing[1], *S. Serrano Guisan* [1], K. Rott[2], G. Reiss[2], J. Langer[3], B. Ocker[3] and H. Schumacher[1] *1. Nanomagnetism, Physikalisch-Technischen Bundesanstalt, Braunschweig, Germany; 2. Department of Physics, University of Bielefeld, Bielefeld, Germany; 3. Singulus AG, Kahl am Main, Germany*

2:30 **HD-02. Direct Observation of nearly Mass-less Domain Walls in Nanostripes with Perpendicular Magnetic Anisotropy.** *J. Vogel* [1], S. Pizzini[1], M. Bonfim[1,2], O. Boulle[3], E. Jué[3], N. Rougemaille[1], M. Miron[3], A. Hrabec[1], S. Auffret[3], B. Rodmacq[3], J.C. Cezar[4], F. Sirotti[5] and G. Gaudin[3] *1. Nanosciences, CNRS, Institut Néel, Grenoble, France; 2. Departamento de Engenharia Elétrica, Universidade do Paraná, Curitiba, Brazil; 3. Spintec, UMR8191, CEA/CNRS/UJF/GINP, INAC, Grenoble, France; 4. European Synchrotron Radiation Facility (ESRF), Grenoble, France; 5. Synchrotron SOLEIL, Gif-sur-Yvette, France*

2:45 **HD-03. Current and magnetic field driven domain wall motion study for amorphous TbFeCo magnetic nanowire.** *H. Awano* [1], M. Nomura[1] and K. Ikeda[1] *1. Toyota Technological Institute, Nagoya, Japan*

3:00 **HD-04. Remote Barrier and Trap Induced by Neighboring Domain Walls.** *I. Purnama* [1], C. Murapaka[1] and W. Lew[1] *1. Nanyang Technological Uni, Singapore, Singapore*

3:15 **HD-05. Spin-transfer torque induced rf-oscillation in half-metallic Co_2(Fe,Mn)Si-based CPP-GMR devices.** *Y. Sakuraba* [1], R. Okura[1], M. Ueda[1], T. Seki[1], M. Mizuguchi[1] and K. Takanashi[1] *1. Tohoku University, Institute for Materials Research, Aoba-ku, Sendai, Miyagi, Japan*

3:30 HD-06. Spin Torque Induced From Diffusive Spin Current. *K. Hosono* [1], J. Shibata[2], H. Kohno[3] and Y. Nozaki[1,4] *1. Physics, Keio university, Yokohama, Kanagawa, Japan; 2. Faculty of Science and Engineering, Toyo University, Kawagoe, Saitama, Japan; 3. Graduate School of Engineering Science, Osaka University, Toyonaka, Osaka, Japan; 4. JST, CREST, Chiyoda-ku, Tokyo, Japan*

3:45 HD-07. Anomalous Magnetization Behaviour in La_2FeCoO_6 spin glass. *P. Ramachandran* [1], S. Kanikrishnan[1] and S. Venkataraman[1] *1. Physics, Indian Institute of Technology Madras, Chennai, Tamil Nadu, India*

4:00 HD-08. Photoinduced spin dynamics in $La_{0.5}Sr_{1.5}MnO_4$. *S.S. Dhesi* [1], H. Ehrke[1,2], R.I. Tobey[2,3], S. Wall[2,4], S.A. Cavill[1], M. Först[3], V. Khanna[1,3], T. Garl[3], N. Stojanovic[5], D. Prabhakaran[2], A.T. Boothroyd[2], M. Gensch[6], A. Mirone[7], P. Reutler[8], A. Revcolevschi[8] and A. Cavalleri[2,3] *1. Diamond Light Source, Didcot, United Kingdom; 2. Department of Physics, University of Oxford, Oxford, United Kingdom; 3. Max Planck Research Department for Structural Dynamics, University of Hamburg-CFEL, Hamburg, Germany; 4. Department of Physical Chemistry, Fritz Haber Institute, Berlin, Germany; 5. HASYLAB, DESY, Hamburg, Germany; 6. Helmholtz-Zentrum Dresden-Rosendorf, Dresden, Germany; 7. European Synchrotron Radiation Facility, Grenoble, France; 8. Laboratoire de Physico-Chimie de l'Etat Solide, Centre Université Paris Sud, Paris, France*

4:15 HD-09. Magnetism in complex oxides: a challenge for advanced ab-initio methods. *A. Filippetti* [1] *1. CNR-IOM UOS Cagliari - Italy, Monserrato, Italy*

FRIDAY AFTERNOON 2:00 — PARKVIEW 1

Session HE
MICROWAVE AND MILLIMETER WAVE MATERIALS & DEVICES II

Nian-Xiang Sun, Session Chair
Northeasttern University

2:00 HE-01. A Novel Tunable Planar Isolator with Serrated Microstrip Structure. *J. Wu* [1], X. Yang[1], M. Li[1], S. Beguhn[1] and N. Sun[1] *1. ECE, Northeastern University, Boston, MA*

2:15 HE-02. Barium hexaferrite films on sapphire substrate; microwave monolithic band-stop filter. I. Harward[1], B.B. Kuanr[1], D. Chen[1] and *Z. Celinski* [1] *1. Center for Magnetism and Magnetic Nanostructures, UCCS, Colorado Springs, CO*

2:30 HE-03. Magnetoimpedance response in Co-based amorphous ribbons obtained under the action of a magnetic field. *J.E. González* [1], A. Chizhik[1], T. Sánchez[2], J. Bonastre[2], L. González[2], J. Santos[2], M. Sánchez[2], B. Hernando[2], J. Sunyol[3], M. Domínguez[4] and J. Blanco[4] *1. Materials Physics, University of the Basque Country, San Sebastián, Gipuzkoa, Spain; 2. Física, Universidad de Oviedo, Oviedo, Asturias, Spain; 3. Física, Universidad de Girona, Girona, Girona, Spain; 4. Applied Physics I, University of the Basque Country, SWan Sebastián, Gipuzkoa, Spain*

2:45 HE-04. Bias-field dependence of spin wave attenuation lengths studied by spin pumping signals. *S.S. Mukherjee* [1], P. Deorani[1], J.H. Kwon[1] and H. Yang[1] *1. National University of Singapore, Singapore, Singapore*

3:00 HE-05. Spin torque oscillator in a compact package. *J. Persson* [1,5], S.R. Sani[1,2], S. Bonetti[2], F. Magnusson[2], M. Mohseni[1,2], Y. Pogoryelov[4], S. Gunnarsson[3], M. Norling[3], C. Stoij[3] and J. Åkerman[4,1] *1. Materials Physics, Department of Microelectronics and Applied Physics, Royal Institute of Technology, Kista, Sweden; 2. NanOsc AB, Kista, Sweden; 3. Sivers IMA AB, Kista, Sweden; 4. Physics, University of Gothenburg, Gothenburg, Sweden; 5. Spinroc SAS, Marseille, France*

3:15 HE-06. Dissipative Soliton Oscillator with a Nonlinear Spin Wave Transmission Line and a Signal-to-Noise Enhancer in the Feedback Loop. *S.V. Grishin* [1], B.S. Dmitriev[2], S.A. Nikitov[3], Y.P. Sharaevskii[2], V.N. Skorokhodov[1] and Y.D. Zharkov[1] *1. Electronics, oscillations and waves, Saratov State University, Saratov, Russian Federation; 2. Nonlinear Physics, Saratov State University, Saratov, Russian Federation; 3. Kotel'nikov Institute of Radio Engineering and Electronics of Russian Academy of Science, Moscow, Russian Federation*

3:30 HE-07. Non-reciprocal Tunable Low-loss Bandpass Filters With Ultra-Wideband Isolation Based on Magnetostatic Surface Wave. *J. Wu* [1], X. Yang[1], J. Lou[1], S. Beguhn[1] and N. Sun[1] *1. Electrical & Computer Engineering, Northeastern University, Boston, MA*

3:45 HE-08. Investigation of the magnetodynamic modes of a patch resonator loaded with magnetic metamaterial. *F.Y. Ogrin* [1] and A. Hibbins[1] *1. School of Physics, University of Exeter, Exeter, United Kingdom*

4:00 HE-09. High frequency zero-field ferromagnetic resonance in ε-$M_xFe_{2-x}O_3$. *A. Namai* [1], T. Goto[2], T. Yoshida[2], T. Miyazaki[2] and S. Ohkoshi[1,3] *1. The University of Tokyo, Tokyo, Japan; 2. DOWA electronics, Okayama, Japan; 3. CREST, JST, Tokyo, Japan*

4:15 HE-10. Analogue of Electromagnetically Induced Transparency in Magnetic Metamaterial. F. Meng[1], *Q. Wu* [1], J. Fu[1], K. Zhang[1], J. Hua[2] and J. Lee[3] *1. Microwave Engineering, Harbin Institute of Technology, Harbin, Heilongjiang, China; 2. Science and Technology on Communication Information Security Control Laboratory, jiaXing, Zhejiang, China; 3. KwangWoon University, Seoul, Republic of Korea*

4:30 HE-11. Analysis of intra-chip noise decoupling performance of on-chip integrated ferromagnetic thin-film noise suppressor. *M. Yamaguchi* [1], W. Kodate[1] and Y. Endo[1] *1. ECE, Tohoku Unviersity, Sendai, Miyagi, Japan*

4:45 HE-12. Dual-band noise suppressors based on Co/Au multilayered magnetic nanowires. Y. Li[1], *L. Li* [1] and J. Cai[2] *1. Materials Science and Engineering, Tsinghua University, Beijing, China; 2. Institute of Microelectronics, Tsinghua University, Beijing, China*

FRIDAY AFTERNOON 2:00 PARKVIEW 2/3

Session HF
MAGNONICS, ANTIDOTS, AND DOMAIN STRUCTURE

Erol Girt, Session Chair
Simon Fraser University

2:00 HF-01. Spin wave band structure of a two-dimensional ferromagnetic antidot array. *R. Zivieri* [1], S. Tacchi[2], F. Montoncello[1], L. Giovannini[1], F. Nizzoli[1], M. Madami[2], G. Gubbiotti[2], G. Carlotti[2], S. Neusser[3], G. Duerr[3] and D. Grundler[3] *1. Department of Physics, Cnism, University of Ferrara, Ferrara, Italy; 2. Department of Physics, Cnism, University of Perugia, Perugia, Italy; 3. Physik Department, Lehrstuhl für Physik funktionaler Schichtsysteme, Technische Universität München, München, Germany*

2:15 HF-02. Speeding up magnetic vortex core reversal to below 100 ps. *M. Noske* [1], M. Kammerer[1], M. Weigand[1], M. Sproll[1], A. Gangwar[3], G. Woltersdorf[3], A. Vansteenkiste[2], B. Van Waeyenberge[2], H. Stoll[1], C.H. Back[3] and G. Schuetz[1] *1. Max Planck Institute for Intelligent Systems, Stuttgart, Germany; 2. Ghent University, Ghent, Belgium; 3. Regensburg University, Regensburg, Germany*

2:30 HF-03. Modified Phase Diagram of Domain Walls in FeNi/Cu/Co Nanostripes. N. Rougemaille[1], V. Uhlir[1,2], O. Fruchart[1], Z. Ishaque[1], *J. Vogel* [1], S. Pizzini[1], Z. Kassir-Bodon[1], A. Masseboeuf[1,3], P. Bayle-Guillemaud[3], A. Locatelli[4], O. Mentes[4], M. Urbanek[2] and J. Toussaint[1,5] *1. Nanosciences, CNRS, Institut Néel, Grenoble, France; 2. Institute of Physical Engineering, Brno University of Technology, Brno, Czech Republic; 3. Laboratoire d'Etude des Matériaux par Microscopie Avancée, INAC/CEA, Grenoble, France; 4. Sincrotrone ELETTRA, Trieste, Italy; 5. Institut National Polytechnique de Grenoble (G-INP), Grenoble, France*

2:45 HF-04. Time resolved characterization of a Co antidots / NiFe thin film 2D magnonic metamaterial. *E. Ahmad* [1], Y. Au[1], T. Davison[1], F.Y. Ogrin[1] and V.V. Kruglyak[1] *1. School of Physics, University of Exeter, Exeter, Devon, United Kingdom*

3:00 HF-05. Direct Measurement of Magnetic Coupling between Nanomagnets for NML Applications. *P. Li* [1], G. Csaba[1], V.K. Sankar[1], X. Ju[3], X.S. Hu[2], M.T. Niemier[2], W. Porod[1] and G.H. Bernstein[1] *1. Dept. of Electrical Engineering, University of Notre Dame, Notre Dame, IN; 2. Dept. of Computer Science and Engineering, University of Notre Dame, Notre Dame, IN; 3. Institute for Nanoelectronics, Technische Universität München, Munich, Germany*

3:15 HF-06. High-symmetry magnonic modes in perpendicularly magnetized magnetic antidot arrays. *M. Kostylev* [1], R. Bali[1], D. Tripathy[2], A.O. Adeyeye[2] and S. Samarin[1] *1. School of Physics, The University of Western Australia, Crawley, WA, Australia; 2. Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore*

3:30 HF-07. Morphology induced two-magnon scattering in thin NiFe films. *M. Körner* [1], K. Lenz[1], M. Fritzsche[1], S. Facsko[1] and J. Fassbender[1] *1. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden Rossendorf, P.O. Box 510119, D-01314, Dresden, Germany*

3:45 HF-08. Symmetry of magnetic dipole controlled anisotropy in nanomodulated thin ferromagnetic film. T. Maity[1], S. Li[1] and *S. Roy* [1] *1. Microelectronics Applications Integration (MAI), Tyndall National Institute, Cork, Ireland*

4:00 HF-09. Effect of the Oersted field on current-induced domain wall motion and domain wall chirality in multilayer nanostripes. *J. Vogel* [1], Z.M. Ishaque[1], S. Pizzini[1], U. Vojtech[1], N. Rougemaille[1], O. Fruchart[1], J. Toussaint[1], V. Cros[2], J. Camarero[3], J.C. Cezar[4] and S. Fausto[5] *1. Nanosciences, CNRS, Institut Néel, Grenoble, France; 2. Unité Mixte de Physique CNRS/Thales, Palaiseau, France; 3. Universidad Autonoma de Madrid and IMDEA Nanociencia, Madrid, Spain; 4. European Synchrotron Radiation Facility (ESRF), Grenoble, France; 5. Synchrotron SOLEIL, Gif sur Yvette, France*

4:15 HF-10. Localization of FMR modes in permalloy antidot arrays. V. Bhat[1], J. Woods[1], *L. DeLong* [1], T. Hastings[2], J. Skelnar[3], J.B. Ketterson[3] and M. Pechan[4] *1. Physics and Astronomy, University of Kentucky, Lexington, KY; 2. Electrical and Computer Engineering, University of Kentucky, Lexington, KY; 3. Physics and Astronomy, Northwestern University, Evanston, IL; 4. Physics, Miami University, Oxford, OH*

4:30 HF-11. Formation of double vortices and reconfigurable dynamic properties using an isosceles-triangular Py nanodot. *S. Yakata* [1,2], M. Miyata[1], K. Kiseki[1], H. Wada[3] and T. Kimura[1,2] *1. INAMORI Frontier Research Center, Kyushu University, Fukuoka, Japan; 2. CREST, JST, Tokyo, Japan; 3. Department of Physics, Kyushu University, Fukuoka, Japan*

4:45 HF-12. 3D architectural approach for manipulation of the micromagnetic configuration in nanostructures. *M. Stebliy* [1], A.V. Ognev[1,2], A.S. Samardak[1], L.A. Chebotkevich[1,2] and K.S. Diga[1] *1. School of Natural Sciences, Far Eastern Federal University, Vladivostok, Russian Federation; 2. Institute of Automation and Control Processes, Russian Academy of Sciences, Vladivostok, Russian Federation*

FRIDAY
AFTERNOON
2:00

MEETING RM 8/15

Session HG
POWER AND CONTROL MAGNETICS II

Zhao-hua Cheng, Session Chair
State Key Lab. of Magnetism,
Chinese Academy of Sciences

2:00 **HG-01. Non destructive detection of composition, microstructure, and residual stress gradients with a moving magnet hysteresis comparator.** *I.J. Garshelis* [1], G. Crevecoeur[2] and L. Dupré[2] *1. Magnova, Inc., Pittsfield, MA; 2. Department of Electrical Energy, Systems and Automation, Ghent University, B-900 Ghent, Belgium*

2:15 **HG-02. Wireless temperature sensor operating in complete metallic environment using permanent magnets.** *L. Gupta* [1] and D. Peroulis[1] *1. Electrical and Computer Engg., Birck Nanotechnology Center Purdue University, W. Lafayette, IN*

2:30 **HG-03. The resonant converter leakage inductance design for the electric vehicle charger.** *C. Jung Muk* [1,2], B. Byeng Joo[1], L. Yong Jin[1], H. Dong Hwa[1] and C. Gyu Ha[1] *1. Electrical Engineering, Konkuk university, Seoul, Republic of Korea; 2. SK C&C, Seoul, Republic of Korea*

2:45 **HG-04. Robust Hall effect magnetic field sensors for operation at high temperatures and in harsh radiation environments.** A. Abderrahmane[1], H. Okada[1], S. Koide[1], S. Sato[2], T. Ohshima[2] and *A. Sandhu* [1,3] *1. Electronics-Inspired Interdisciplinary Research Institute, Toyohashi University of Technology, Toyohashi, Japan; 2. Quantum Beam Science Directorate, Japan Atomic Energy Agency (JAEA), Takasaki, Japan; 3. Dept. of Electrical and Electronic Engineering, Tokyo Institute of Technology, Tokyo, Japan*

3:00 **HG-05. Acoustic Noise Reduction in Permanent Magnet Synchronous Motor Drive System by Triangular Periodic Frequency Modulation.** X. Yongxiang[1], *Y. Qingbing* [1], Z. Jibin[1] and L. Kai[1] *1. Harbin Institute of Technology, Harbin, China*

3:15 **HG-06. Mapping stress as a function of depth at the surface of steel structures using a specialized magnetic barkhausen noise technique.** *O. Kypris* [1], I.C. Nlebedim[2] and D.C. Jiles[1] *1. Electrical and Computer Engineering, Iowa State University, Ames, IA; 2. Ames Laboratory, US Department of Energy, Ames, IA*

3:30 HG-07. Smoother substrate deposition designs and process emulations of DC magnetron sputters. *C. Liu* [1], C. Chang[1] and C. Hwang[2] *1. Electrical Engineering, National Sun Yat-Sen University, Kaohsuing, Taiwan; 2. Electrical Engineering, Feng Chia University, Taichung, Taiwan*

3:45 HG-08. Multi-layer thick-film air-core power inductors for integrated power converters. *C.D. Meyer* [1,2], S.S. Bedair[1] and D.P. Arnold[2] *1. Sensors and Electron Devices Directorate, U.S. Army Research Laboratory, Adelphi, MD; 2. Electrical and Computer Engineering, University of Florida, Gainesville, FL*

4:00 HG-09. Elasto-magnetic and Magneto-electric Effect Based Stress Monitoring Sensor of Steel Cables: Numerical Simulation and Full-scale Experiment. Y. Duan[1], *R. Zhang* [1], Y. Zhao[1], K. Fan[2], W. Yin[2] and S. Or[3] *1. College of Civil Engineering and Architecture, Zhejiang University, Hangzhou, Zhejiang, China; 2. School of Information Engineering, Wuyi University, Jiangmen, Guangdong, China; 3. Department of Electrical Engineering, The Hong Kong Polytechnic University, Kowloon, Hong Kong*

4:15 HG-10. A Generalized Equivalent Source Model of AC Electric Machines for Numerical Electromagnetic Field Signature Studies. *M. Barzegaran* [1] and O.A. Mohammed[1] *1. Electrical and Computer Engineering, Florida International University, Miami, FL*

4:30 HG-11. Properties of the Linear Equations Derived from Euler's Equation and Its Application to Magnetic Dipole Localization. *T. Nara* [1], H. Watanabe[1] and W. Ito[1] *1. Mechanical Engineering, The University of Electro-Communications, Chofu, Tokyo, Japan*

FRIDAY
AFTERNOON
2:00

MEETING RM 13

Session HH
HEAD DISK INTERFACE AND TRIBOLOGY II

Mathew Mate, Session Chair
Hitachi Global Storage Technologies

2:00 HH-01. Tribological challenges of flying recording heads over unplanarized patterned media. *C. Mate* [1], O.J. Ruiz[2], R. Wang[1], B. Feliss[1], X. Bian[2] and S. Wang[2] *1. San Jose Research Center, Hitachi GST, San Jose, CA; 2. Head/Media BU, Hitachi GST, San Jose, CA*

2:15 HH-02. In-situ FH measurement from arbitrary data pattern. *Z. Yuan* [1], B. Liu[1], C. Ong[1], S. Leong[1] and S. Ang[1] *1. DSI, Singapore, Singapore*

2:30 HH-03. Simultaneous Measurement of Film Deformation and Friction Force during Shearing nm-thick Lubricants. *Y. Kajihara* [1], K. Fukuzawa[1], S. Itoh[1], R. Watanabe[1] and H. Zhang[2] *1. Micro-Nano System Engineering, Nagoya University, Nagoya, Aichi, Japan; 2. Complex Systems Science, Nagoya University, Nagoya, Aichi, Japan*

2:45 HH-04. Effect of interfacial roughness on head-disk interface dynamics at near-contact regime. *K. Ng* [1], H. Seet[1], W. Hua[1], V. Ng[2] and B. Liu[1] *1. Data Storage Institute, (A*STAR) Agency for Science, Technology and Research, Singapore, Singapore; 2. ECE, National University of Singapore, Singapore, Singapore*

3:00 HH-05. Head and interface for high areal density tape recording. *R. Biskeborn* [1], C. Lo[1], J. Liang[1] and P. Jubert[1] *1. IBM Corporation, San Jose, CA*

3:15 HH-06. High-speed Friction Measurements for a Molecularly Thin Lubricant Film Using a Fiber Wobbling Method. *S. Itoh* [1], K. Fukuzawa[1], K. Imai[1], K. Ishii[1] and H. Zhang[2] *1. Department of Micro-nano systems engineering, Nagoya University, Nagoya, Aichi, Japan; 2. Department of Complex Systems Science, Nagoya University, Nagoya, Aichi, Japan*

3:30 HH-07. Improved Tribological Properties of the Magnetic Disk Media: Surface Modification with a Mixture of Si and C Atoms. *E. RismaniYazdi* [1], A. Mohammed[2], S. Sinha[1] and C. Bhatia[2] *1. Mechanical Engineering, National University of Singapore, Singapore, Singapore; 2. Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore*

3:45 HH-08. Lubricant thermodiffusion in thermally assisted magnetic recording. *B. Marchon* [1] and Y. Saito[2] *1. San Jose Research Center, Hitachi, San Jose, CA; 2. Hitachi Research Laboratory, Hitachi ltd, Hitachinaka, Japan*

4:00 HH-09. Studies of degradation and decomposition mechanisms of high temperature lubricants undergoing laser irradiation. *R. Ji* [1], Y. Ma[1], J. Tsai[1] and B. Liu[1] *1. Data Storage Institute, Singapore, Singapore*

4:15 HH-10. Air entrapment in nanometer-thick lubricant films and its effect on slider flying height in a hard disk drive. *B. Marchon* [1], X. Guo[1], S. Canchi[1], R. Wang[1], N. Supper[1], S. Deoras[2], J. Zhang[2], A. Yang[2], Y. Saito[3] and H. Deng[2] *1. San Jose Research Center, Hitachi GST, San Jose, CA; 2. Hitachi GST, San Jose, CA; 3. Hitachi Research Laboratory, Hitachi ltd, Hitachinaka, Japan*

4:30 HH-11. Fundamental study of vapor lubrication by PFPE lubricants in thermally assisted magnetic recording. *N. Tagawa* [1] and H. Tani[1] *1. Kansai University, Suita, Osaka, Japan*

4:45 HH-12. Adhesion and friction behaviors of probes approaching a magnetic disk surface. *H. Tani* [1], T. Mitsutome[2], Y. Tsujiguchi[3], M. Kanda[3] and N. Tagawa[1] *1. Mechanical Engineering Dept., Hight Technology Research Center, Kansai University, Suita-shi, Osaka, Japan; 2. Graduate School of Kansai University, Suita-shi, Osaka, Japan; 3. Kubota Comps Co., Amagasaki-shi, Hyogo, Japan*

FRIDAY AFTERNOON 1:30

EXHIBITION HALL A

Session HP
ELECTRICAL MACHINES II (Poster Session)

Weinong Fu, Session Chair
Hong Kong Polytechnic University

HP-01. Design of high pole direct drive fractional slot concentrated winding machine. *U. Seo* [1,2], Y. Chun[2,1], J. Choi[2,1], P. Han[2], S. Jung[2] and D. Koo[2,1] *1. University of Science and Technology, Changwon, Republic of Korea; 2. Industry Applications Research Divison, Korea Electrotechnology Reseach Institute, Changwon, Republic of Korea*

HP-02. Right Triangle Distribution and Combined Optimization of Maximum Cogging Torque in Few Slots Permanent Magnet Machines. *P. Jin* [1], H. Lin[1] and S. Fang[1] *1. Southeast University, School of Electrical Engineering, Nanjing, Jiangsu, China*

HP-03. Chaotic speed synchronization control of multiple induction motors using stator flux regulation. *Z. Zhang* [1], K. Chau[1] and Z. Wang[2] *1. Electrical & Electronic Engineering, The University of Hong Kong, Hong Kong, Hong Kong; 2. Electrical Engineering, Southeast University, Nanjing, Jiangsu, China*

HP-04. Design approach on double-side Halbach permanent magnet synchronous motor/generator for fully integrated FESS. *J. Choi* [1], S. Jang[1], Y. Park[1], S. Sung[1], D. You[2] and S. Han[3] *1. Electrical engineering, Chungnam national University, Daejeon, Republic of Korea; 2. Fire safety engineering, Chungnam provincial Cheongyang College, Chungnam, Republic of Korea; 3. Korea electric power research institute, Daejeon, Republic of Korea*

HP-05. Analysis on Performance Characteristics of 40 kVA, 12000 rpm class High Speed Alternator System considering Load Conditions and Power Factor. S. Jang[1], *D. Chang* [1], K. Ko[1], J. Choi[1] and H. Cho[2] *1. Electrical Engineering, Chungnam Nat'l Univ, Daejeon, Republic of Korea; 2. Electric, Electronic & Communication Eng, Edu., Chungnam Nat'l Univ, Daejeon, Republic of Korea*

HP-06. Flux-regulation capability of hybrid-excited flux-switching machines with different topologies. *H. Wei* [1], Z. Gan[1] and C. Ming[1] *1. School of Electrical Engineering, Southeast University, Nanjing, 210096, China*

HP-07. The harmonics influence and efficiency improvement in high-speed permanent magnet synchronous motor using 2-d finite element method. *C. Han* [1], J. Choi[1], J. Ahn[1], J. Choi[1] and S. Jang[1] *1. Electrical Engineering, Chungnam national university, Daejeon, Republic of Korea*

HP-08. Development of a spindle motor for hard disk drive. *D. Jang* [1] and J. Chang[1] *1. Electrical Engineering, Donga univ, Busna, Saha-gu, Republic of Korea*

HP-09. Rotor Structure Optimization of Interior Permanent Magnet by using Response Surface Method. *J. Han* [1] and J. Lee[1] *1. Electric Engineering, Hanyang University, Seoul, Republic of Korea*

HP-10. Direct-Drive PM type Synchronous Machine for Turret Application Using Optimization. *D. Hong* [1], J. Lee[1], B. Woo[1], B. Nam[2] and D. Park[3] *1. Korea Electrotechnology Research Institute, Changwon, Republic of Korea; 2. Agency for Defense Development, Daejeon, Republic of Korea; 3. Doosan Corporation Mottrol, Changwon, Republic of Korea*

HP-11. Optimal design and inductance calculation of a five-phase in-wheel permanent-magnet synchronous machine. *P. Zheng* [1], Y. Sui[1], F. Wu[1], P. Wang[1], H. Wang[1] and B. Wang[1] *1. Department of Electrical Engineering, Harbin Institute of Technology, Harbin, Heilongjiang, China*

HP-12. Design of variable-flux type DSPM motor for the optimal driving characteristic. *J. Jeong* [1], J. Jang[1] and B. Kim[1] *1. Kunsan National Univ., Kunsan, Republic of Korea*

HP-13. Optimum design of IPMSM by using output equation. *J. Kim* [1], J. Jang[1] and B. Kim[1] *1. Kunsan National Univ., Kunsan, Republic of Korea*

HP-14. Study on eddy current loss reduction of Interior permanent magnet synchronous machines with concentrated windings for railway traction. *S. Oh* [1], H. Lee[1], G. Ryu[1] and J. Lee[1] *1. Electrical Enginnering, Hanyang University, Seoul, Republic of Korea*

HP-15. Design Methodology of Single-Phase Line-Start Permanent Magnet Motor Considering of Equivalent Circuit Parameter. *M. Choi* [1], K. Lee[1] and B. Kim[1] *1. Kunsan National university, Gunsan, Republic of Korea*

FRIDAY AFTERNOON 1:30

EXHIBITION HALL A

Session HQ
TRANSFORMER DESIGN, ANALYSIS AND MEASUREMENT (Poster Session)

Zhejie Liu, Session Chair
DSI Singapore

HQ-01. A vibration-based hybrid energy harvester for wireless sensor systems. *Y. Sang* [1,2] and X. Huang[1] *1. Electrical Engineering School, southeast university, Nanjing, jiangsu, China; 2. Faculty of Electronic and Electrical Engineering, Huaiyin Institute of Technology, Huaian, jiangsu, China*

HQ-02. Measurement of Local Vector Magnetic Properties in Laser Scratched Grain-oriented Silicon Steel Sheet with a Microscopic Vector-hysteresis Sensor. *S. Aihara* [1,2], H. Shimoji[3,2], T. Todaka[2] and M. Enokizono[2] *1. NISHINIPPON ELECTRIC WIRE & CABLE CO., LTD, Oita, Japan; 2. Oita University, Oita, Japan; 3. Oita Prefectural Organization for Industry Creation, Oita, Japan*

HQ-03. Multi-Coils Design for Induction Cookers with Applying Switched Exciting Method. *L. Meng* [1], K. Cheng[1], S. Ho[1] and W. Fu[1] *1. Department of EE, the Hong Kong Polytechnic University, Hong Kong, China*

HQ-04. An Efficient Parameterized Mesh Method for Large Shape Variation in Optimal Designs of Electromagnetic Devices. S. Ho[1], *Y. Zhao* [1] and W. Fu[1] *1. Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

HQ-05. Environmentally Friendly Power Device for Extreme Low-Loss HB1 Amorphous Transformer: Design, Analysis, and Measurement. *C. Hsu* [1], C. Lee[2], Y. Chang[3], C. Chang[3], H. Chu[1] and C. Yao[1,2] *1. Division of Electrical Engineering, Fortune Electric Ltd, Co., Tao-Yuan, Taiwan; 2. Department of Electrical Engineering, Chung Yung Christian University, Tao-Yuan, Taiwan; 3. Department of Electrical Engineering, Chang Gung University, Tao-Yuan, Taiwan*

HQ-06. An Efficient Coupling Method for Temperature Rise Prediction of Power Transformer. *H. Ahn* [1], B. Lee[1], Y. Oh[2] and S. Hahn[1] *1. Dong-A University, Busan, Republic of Korea; 2. Korea Electrotechnology Research Institude, Changwon, Republic of Korea*

HQ-07. Characteristics of a variable inductor for power conversion adopting magnetorheological fluids. *D. Kim* [1], D. Kim[1], S. Jung[1], S. Lee[1] and H. Cha[1] *1. Electrical Engineering, Kyungpook National University, Daegu, Republic of Korea*

HQ-08. Thermal Analysis of Giant Magnetostrictive Ultrasonic Transducer take account into magnetic hysteresis loss and eddy current loss. *J. Zeng* [1,2], Y. Guo[2], B. Bai[1] and J. Zhu[2] *1. SEE, Shenyang University of Technology, Shenyang, Liaoning, China; 2. FEIT, University of Technology, Sydney, Sydney, NSW, Australia*

HQ-09. Analysis and Optimization of Magnetically Coupled Resonators for Wireless Power Transfer. *X. Zhang* [1], S. Ho[1] and W. Fu[1] *1. The HongKong Polytechnic University, HongKong, China*

HQ-10. The influence of non-local eddy currents and saturation on field distribution and iron losses in electrical steel lamination. *S. Steentjes* [1] and K. Hameyer[1] *1. Institute of Electrical Machines, RWTH Aachen University, Aachen, Germany*

HQ-11. A possibility of tunable soft magnetic inductive device using DC bias magnetic field of hard magnetic film magnetized by pulse current method. Y. Megumi[1], I. Kenji[2], K. Yutaka[1], S. Kunihiko[1], S. Makoto[1] and *S. Toshiro* [1] *1. Faculty of Engineering, Shinshu University, Nagano, Nagano, Japan; 2. R&D Center, TAIYO YUDEN CO., Takasaki, Gunma, Japan*

HQ-12. Three Dimensional Optimization of Inductors Based on Nonconforming Voxel Finite Element Analysis. *T. Sato* [1], K. Watanabe[1], H. Igarashi[1], Y. Iijima[2] and K. Kawano[2] *1. Hokkaido University, Sapporo, Japan; 2. Taiyo Yuden co., Takasaki, Japan*

HQ-13. **Relation between high-frequency properties and direction of anisotropy magnetic field in magnetic thin film for RF inductor.** *M. Sonehara* [1] and T. Sato[1] *1. Spin Device Technology Center, Shinshu University, Nagano, Nagano, Japan*

HQ-14. **A novel hybrid resonator for wireless power delivery in bio-implantable devices.** *F. Weinong* [1] and K. Yik Yan[1] *1. Electrical Engineering, Hong Kong Polytechnice University, Hong Kong, Hong Kong*

HQ-15. **The Effect of Alignment between Transmitter Coil and Receiver Coil to the Performance of Printed-circuit-broad Wireless Transfer System.** J. Wang[1,3], *J. LI* [2], W. Chau[3], W. Lee[3], S. Ho[3], W. Fu[3] and M. Sun[1] *1. Department of Neurological Surgery, University of Pittsburgh, Pittsburgh, PA; 2. Department of Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong, Hong Kong; 3. Department of Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

FRIDAY AFTERNOON 1:30

EXHIBITION HALL A

Session HR
SHIELDING, LEVITATION AND MOTORS (Poster Session)

Wenyong Zhang, Session Chair
UN Lincoln

HR-01. **Measurement and Calculation of Iron Loss and Flux inside Silicon Steel Lamination under DC Biasing.** *Z. Zhao* [1], F. Liu[1], Z. Cheng[2], Y. Wang[1] and W. Yan[1] *1. Province-Ministry Joint Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability, Hebei university of technology, Tianjin, China; 2. R & D Center, Baoding Tianwei Group Co., LTD, Baoding, China*

HR-02. **Wireless Power Transfer System of Magnetic Resonant Coupling for Robots inside the Body.** T. Mizuno[1], *Y. Goto* [1], S. Yachi[1], T. Ueda[1] and R. Ohtomo[1] *1. Faculty of engineering, Shinshu University, Nagano, Japan*

HR-03. **Complete Modeling of Toroidal Inductors for High Power RF Applications.** *A. Eroglu* [1] *1. Engineering, Purdue University Fort Wayne, Fort Wayne, IN*

HR-04. Design and analysis of a CHB converter based PV-battery hybrid system for better electromagnetic compatibility. *Z. Wang* [1], S. Fan[1], Y. Zheng[1] and M. Cheng[1] *1. School of Electrical Engineering, Southeast University, Nanjing, China*

HR-05. A novel active frequency selective surface with wideband tuning range for EMC purpose. L. Zhang[1], G. Yang[1], *Q. Wu* [1,2] and J. Hua[2] *1. Harbin Institute of Tech., Harbin, Heilongjiang, China; 2. Science and Technology on Communication Information Security Control Laboratory, Jiaxing, Zhejiang, China*

HR-06. Multiobjective Sequential Optimization Method for the Design of Electromagnetic Devices. *G. Lei* [1,2], X. Chen[2], Y. Guo[1], J. Zhu[1] and K. Shao[2] *1. University of Technology, Sydney, Sydney, NSW, Australia; 2. Huazhong University of Science and Technology, Wuhan, China*

HR-07. A Novel Modeling Method for Radial Suspension Forces of AC Magnetic Bearings. *W. Zhang* [1] and H. Zhu[1] *1. Jiangsu University, Zhenjiang, China*

HR-08. A Study on Propulsion System with LIM in Processing Magnetically Levitated Steel Plates. *R. Morisawa* [1] and T. Nakagawa[1] *1. Tokyo City University, Tokyo, Japan*

HR-09. Analyzing of Eddy Current in Magnetic Suspension Iron-Orbit for High Speed Electromagnetic Launcher. *L. Hexiang* [1], Y. Li[2], Y. Haitao[1], H. Minqiang[1] and H. Lei[1] *1. Electrical Engineering Department, Southeast University, Nanjing, China; 2. Department of Information Science and Engineering, Nanjing University of Information Science&Technology, Nanjing, China*

HR-10. Control method of the semi-active damper coil system in the superconducting magnetically levitated bogie against vertical and pitching oscillation. *S. Ohashi* [1] and T. Ueshima[1] *1. Electrical and Electric Engineering, Kansai University, Osaka, Japan*

HR-11. New Linear Fault-Tolerant Permanent-Magnet Motor for Magnetic Levitation Vehicles. *W. Zhao* [1] and G. Liu[1] *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*

HR-12. Active magnetic compensation by mutual control of multiple detectors for environmental magnetic noises at low frequencies. *A. Hayashi* [1], Y. Hirata[2], K. Yamazaki[3], K. Miura[3], R. Miyase[4], Y. Gao[4] and K. Muramatsu[4] *1. Forestec Co. Ltd., Sapporo, Japan; 2. Hokkai-Gakuen Univ., Sapporo, Japan; 3. Takenaka Corp., Inzai, Japan; 4. Saga Univ., Saga, Japan*

HR-13. Design and Dynamic Analysis of Magnetically Levitated Electromagnets with Low Resolution Position Sensor. *J. Choi* [1], S. Sung[1] and S. Jang[1] *1. Chungnam National University, Dae-jeon, Republic of Korea*

HR-14. Effective combination of soft magnetic materials for magnetic shielding. *S. Lee* [1], Y. Lim[1], D. Lee[1] and S. Kim[1] *1. Korea Electric Power Corporation Research Institute, Daejeon, Republic of Korea*

HR-15. Active magnetic shielding using symmetric control sensor method. *K. Kobayashi* [1], A. Kon[1], M. Yoshizawa[1] and Y. Uchikawa[2] *1. Faculty of Engineering, Iwate University, Morioka, Iwate, Japan; 2. School of Science and Engineering, Tokyo Denki University, Hatoyama, Saitama, Japan*

FRIDAY AFTERNOON 1:30

EXHIBITION HALL A

Session HS
SPIN TRANSFER TORQUE AND COMPLEX OXIDES II (Poster Session)

Jiafeng Feng, Session Chair
Trinity College

HS-01. Modulation of a parametrically phase-locked spin torque oscillator. *P. Dürrenfeld* [1], P.K. Muduli[1] and J. Åkerman[1,2] *1. Department of Physics, University of Gothenburg, Gothenburg, Sweden; 2. Materials Physics, School of ICT, KTH - Royal Institute of Technology, Kista, Sweden*

HS-02. Modulation of the vortex polarity switching fields with bias current in the two vortex configuration in GMR stacks. *N. Locatelli* [1], A.E. Ekomasov[2], E.G. Ekomasov[2], S.A. Azamatov[2], A. Khvalkovskiy[4,3], K. Zvezdin[3], J. Grollier[1], V. Cros[1] and A. Fert[1] *1. Unité Mixte de Physique CNRS-Thales and Univ Paris Sud, Palaiseau, France; 2. Bashkir State University, Ufa, Russian Federation; 3. A.M. Prokhorov General Physics Institute of RAS, Moscow, Russian Federation; 4. Grandis, Inc., Milpitas, CA*

HS-03. Noise-induced Transition of Mutual Phase Synchronization in Spin Torque Nano Oscillators. *K. Nakada* [1], S. Yakata[1,2] and T. Kimura[1,2] *1. INAMORI Frontier Research Center, Kyushu University, Fukuoka, Japan; 2. CREST, JST, Tokyo, Japan*

HS-04. Electron spin resonance studies of Bi1-XCaXMnO3 (X ≥ 0.65). R. Ade[1] and *R. Singh* [1] *1. School of Physics, University of Hyderabad, Hyderabad, Andhra Pradesh, India*

HS-05. Oersted field effect in STO with three nanocontacts. *S. Redjai Sani* [1,2], A. Eklund[3], S. Mohseni[1,2], J. Persson[1,2] and J. Åkerman[1,4] *1. Material Physics, KTH, Stockholm, Sweden; 2. Nanosc AB, Stockholm, Sweden; 3. Devices and Circuits, KTH, Stockholm, Sweden; 4. Department of Physics, University of Gothenburg, Gothenburg, Sweden*

HS-06. Strain Relaxation in Atomic Flat $SrRu_{1-x}O_3/SrTiO_3$ Layers Grown by Off-axis RF-sputtering. *M. Bohra* [1], H. Chou[1], H.J. Yeh[1], C.P. Wu[1], Y.H. Cheng[1] and C.C. Peng[1] *1. Physics, National Sun Yet-sen University, Kaohsiung, Taiwan*

HS-07. Self-modulation in nanocontact spin torque oscillators with in-plane anisotropy. *R.K. Dumas* [1], E. Iacocca[1], S. Bonetti[2], S. Sani[2,3], M. Mohseni[2,3], A. Eklund[2], J. Persson[3], O. Heinonen[4] and J. Åkerman[1,2] *1. Physics, University of Gothenburg, Gothenburg, Sweden; 2. Materials Physics, Royal Institute of Technology(KTH), Stockholm-Kista, Sweden; 3. NanOsc AB, Kista, Sweden; 4. Materials Science Division, Argonne National Laboratory, Lemont, IL*

HS-08. Influence of technologically driven disorder on spin dynamics in $La_{0.9}Ca_{0.1}MnO_3$ manganites in mid-to-far critical range. *M. Auslender* [1], A.I. Shames[2] and E. Rozenberg[2] *1. Electrical and Computer Engineering, Ben-Gurion University of the Negev, Beersheba, Israel; 2. Physics, Ben-Gurion University of the Negev, Beersheba, Israel*

HS-09. Current induced magnetization switching of magnetic tunnel junctions with CoFeB-based synthetic ferrimagnetic freelayers. *Y. Lee* [1,4], B. Min[1], K. Jung[1,4], S. Park[2], J. Langer[3], B. Ocker[3], W. Maass[3], Y. Kim[4] and K. Shin[1] *1. Spin device research center, Korea institution of science and technology, Seoul, Republic of Korea; 2. Division of Materials Science, Korea Basic Science Institute, Daejeon, Republic of Korea; 3. Singulus Technologies Ag, Kahl am Main, Germany; 4. Material Science and Enginnering, Korea university, Seoul, Republic of Korea*

HS-12. Magnetic and magnetotransport properties of LCMO//BTO ultrathin films. A. Alberca[1], N.M. Nemes[1,2], F.J. Mompean[1], C. Munuera[1], N. Biskup[1], J. Tornos[2], A. Hernando[3], J. Santamaria[2] and *M. Garcia-Hernandez* [1] *1. ICMM, CSIC, Madrid, Spain; 2. Física Aplicada III, UCM, Madrid, Spain; 3. Física de Materiales and IMA, UCM, Madrid, Spain*

HS-14. Low Field Magnetoimpedance in (001) Oriented $La_{0.7}Sr_{0.3}MnO_3$ Thin Films. *R.S. Joshi* [1], D.M. Sylvinson[2] and P. Kumar[1] *1. Physics, Indian Institute of Science, Bangalore, Karnataka, India; 2. Physics, Indian Institute of Science Education and Research, India., Trivandrum,, Kerala, India*

HS-15. Coherent metallic screening in strongly correlated manganites: relationship between electronic and magnetic states. *S. Ueda* [1], K. Kobayashi[1] and H. Tanaka[2] *1. Synchrotron X-ray Station at SPring-8, National Institute for Materials Science, Sayo, Hyogo, Japan; 2. Institute of Scientific and Industrial Research, Osaka University, Ibaraki, Osaka, Japan*

FRIDAY AFTERNOON 1:30

EXHIBITION HALL A

Session HT
SERVO AND CHANNEL (Poster Session)

William Radich, Session Chair
Seagate Technologies

HT-01. Determination of bit patterned media noise based on island perimeter fluctuations. *L. Alink* [1,2], H. Groenland[1,2] and L. Abelmann[1,2] *1. University of Twente, Enschede, Netherlands; 2. MESA+ Institute for Nanotechnology, Enschede, Netherlands*

HT-02. Analytical expressions for the readback signal of timing-based servo schemes. *S. Furrer* [1], P. Jubert[2], G. Cherubini[1], R.D. Cideciyan[1] and M.A. Lantz[1] *1. IBM Research-Zurich, Ruschlikon, Switzerland; 2. IBM Research-Almaden, San Jose, CA*

HT-03. Detection in Two-Dimensional Magnetic Recording Systems. *Y. Wang* [1], R.H. Victora[1] and M. Erden[2] *1. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN; 2. Seagate Technology, Bloomington, MN*

HT-04. A comparison of HAMR and MAMR systems via micromagnetic/GFP modelling and channel simulations. H. Wang[1], M. Elidrissi[1], S. Shafidah Binte Shafiee[1], K. Eason[1], *K. Chan* [1], S. Greaves[2], Y. Kanai[3] and H. Muraoka[2] *1. Data Storage Institute (DSI), Agency for Science, Technology and Research (A*STAR), Singapore, Singapore; 2. RIEC, Tohoku University, Sendai, Japan; 3. Niigata Institute Technology, Kashiwazaki, Japan*

HT-05. Off-track detection in magnetic recording based on the readback signals. L.M. Myint[1], *P. Supnithi* [2,3], C. Warisarn[3] and N. Puttarak[2] *1. School of Information Technology, Shinawatra University, Pathumthani, Thailand; 2. Faculty of Engineering, King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand; 3. College of Data Storage Innovation, King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand*

HT-06. Modeling of Writing Process for Two-Dimensional Magnetic Recording and Performance Evaluation of Two-Dimensional Neural Network Equalizer. *M. Yamashita* [1], Y. Okamoto[1], Y. Nakamura[1], H. Osawa[1], K. Miura[2], S. Greaves[2], H. Aoi[2], Y. Kanai[3] and H. Muraoka[2] *1. Graduate School of Science and Engineering, Ehime University, Matsuyama, Japan; 2. RIEC, Tohoku University, Sendai, Japan; 3. Niigata Institute of Technology, Kashiwazaki, Japan*

HT-07. Two-dimensional Voronoi-based model and detection for shingled magnetic recording. R.M. Todd[1], E. Jiang[1], R.L. Galbraith[2], *J.R. Cruz* [1] and R.W. Wood[3] *1. The University of Oklahoma, Norman, OK; 2. Hitachi Global Storage Technologies, Inc., Rochester, MN; 3. Hitachi Global Storage Technologies, Inc., San Jose, CA*

HT-08. Dynamic Writer Pole-Tip Protrusion Compensation by Thermal Actuator. *C. Ong* [1], S. Ang[1] and Z. Yuan[1] *1. Data Storage Institute, Agency for Science, Technology and Research (A*STAR), Singapore, Singapore*

HT-09. Turbo Equalization Effect for Non-binary LDPC Code in BPM R/W Channel. *Y. Nakamura* [1], Y. Bandai[1], Y. Okamoto[1], H. Osawa[1], H. Aoi[2] and H. Muraoka[2] *1. Graduate School of Science and Engineering, Ehime University, Matsuyama, Ehime, Japan; 2. Research Institute of Electrical Communication, Tohoku University, Sendai, Miyagi, Japan*

HT-10. LDPC decoder using pattern-dependent modified LLR for the bit patterned media storage with written-in errors. P. Supnithi[1], W. Wiriya[1], *W. Phakphisut* [1] and N. Puttarak[1] *1. Faculty of engineering, King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand*

HT-11. Performance of Low Density Parity Check codes with Parity Encoded by Run Length Limited Codes for Perpendicular Magnetic Recording. *J. Kim* [1], J. Lee[1] and J. Lee[2] *1. School of Electronic Engineering, Soongsil unversity, Seoul, Republic of Korea; 2. RDC Engineering Group, Marvell Semiconductor, Santa Clara, CA*

HT-12. Integral Resonant Control for Suppression of Micro-actuator Resonance in Dual Stage Actautor. A. Al-Mamun[1], *E. Keikha* [1], C. Bhatia[1] and T. Lee[1] *1. National University of Singapore, Singapore, Singapore*

HT-13. Modified graph-based detection methods for two-dimensional interference channels. *T. Sopon* [1], L.M. Myint[3], P. Supnithi[1,2] and K. Wichianchom[1,2] *1. College of Data Storage Innovation, King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand; 2. Faculty of Engineering, King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand; 3. School of Information Technology, Shinawatra University, Pathum Thani, Thailand*

HT-14. On Reducing the Complexity of Shingled Decoding. *N. Awad* [1], M. Zaki[1] and P. Davey[1] *1. Plymouth University, Plymouth, United Kingdom*

HT-15. A novel decoding scheme for product codes in bit patterned media. *X. Shao* [1,3], L. Alink[1,2], J. Groenland[1,2], L. Abelmann[1,2] and C.H. Slump[1,3] *1. University of Twente, Enschede, Netherlands; 2. MESA+, Enschede, Netherlands; 3. CTIT, Enschede, Netherlands*

HT-16. Mixed-scheduling belief propagation for LDPC decoder in bit patterned media storage. *W. Phakphisut* [1], P. Supnithi[1] and N. Puttarak[1] *1. Faculty of Engineering, King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand*

FRIDAY AFTERNOON 1:30

EXHIBITION HALL A

Session HU
MOTORS AND ACTUATORS VII (Poster Session)

Cheng-Tsung Liu, Session Chair
National Sun Yat-Sen University

HU-01. Design of a Novel Magnetic-Switched Actuator with High Energy Utilization Efficiency and Auto-locking Function. *P. Huang* [1] and M. Tsai[1] *1. National Cheng Kung University, Tainan, Taiwan*

HU-02. Magnetic circuit modeling of magnetostriction in a magnetostrictive actuator. *J. Jeong* [1], H. Park[1], Y. Park[1] and M.D. Noh[1] *1. Mechatronics Engineering, Chungnam National University, Daejeon, Republic of Korea*

HU-03. Development of a voice coil actuator for auto-focusing using double ferromagnetic yoke array in video camera. *C. Kim* [1], M. Song[1], N. Park[1], K. Park[1], Y. Park[1] and D. Song[2] *1. Center for Information Storage Device, Yonsei University, Seoul, Republic of Korea; 2. Samsung Electronics, Suwon, Republic of Korea*

HU-04. Modelling and validation of a dynamic strongly coupling numerical method for giant magnetostrictive actuator. *Z. Xian* [1,2], Y. Qingxin[1,2], Y. Rongge[2], L. Yang[1], J. Liang[1] and Z. Xin[1] *1. Tianjin Key Laboratory of Advanced Electrical Engineering and Energy Technology, Tianjin Polytechnic University, Tianjin, Tianjin, China; 2. Province-Ministry Joint Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability, Hebei University of Technology, Tianjin, Tianjin, China*

HU-05. Integrated Design of Tubular Permanent Magnet Actuator for Improved Thrust and Low Cogging Force. *J. Yoon* [1], J. Woo[1], N. Park[1], K. Park[1] and Y. Park[1] *1. Department of Mechanical Engineering, Yonsei University, Seoul, Republic of Korea*

HU-06. Coupled electromagnetic and mechanical analysis of a linear actuator for mobile phones. *J. Nam* [1], K. Kang[1] and G. Jang[1] *1. Dept. of Mechanical Engineering, PREM Lab., Hanyang University, Seoul, Republic of Korea*

HU-07. Novel permanent magnet pole shaped SPM motor modeling for reducing torque pulsation. *S. Qurban Ali Shah* [1], T.A. Lipo[2] and B. Kwon[1] *1. Department of Electronics, Electrical, Control & Instrumentation Engineering, Hanyang University, Ansan, Gyeonggi, Republic of Korea; 2. Wisconsin Power Electronics Research Center, University of Wisconsin-Madison, Madison, WI*

HU-08. Research on Interior Permanent Magnet Synchronous Machine design to considered Electromagnetic Characteristics based on Real Time Simulation. *S. Lee* [1], Y. Kim[2] and S. Jung[1] *1. School of Electronic and Electrical Engineering, Sungkyunkwan Univeristy, Suwon, Republic of Korea; 2. Department of Electrical Engineering, College of Engineering, Chosun University, Gwangju, Republic of Korea*

HU-09. A Novel Double-C Stator Hoops Transverse Flux Permanent Magnet Generator with Flux-concentrated Rotor. *Z. Jia* [1], H. Lin[1], P. Jin[1], J. Yan[1], Y. Guo[1] and X. Lu[1] *1. Southeast University, School of Electrical Engineering, Nanjing, Jiangsu, China*

HU-10. Novel Inkjet Mechanism Using Pulsed Thermal-magnetic Driving. *H. Han* [1], S. Murai[1], K. Kikuchi[1], S. Tsuchitani[1] and Y. Kosimoto[1] *1. Depart. of Systems Engineering, Wakayama University, Wakayama City, Japan*

HU-11. Design and comparison of a Permanent Magnet-Assisted Synchronous Reluctance Motor with an Interior Permanent Magnet Synchronous Motor. *Y. Jeong* [1] *1. School of Electronic and Electrical Engineering, Sungkyunkwan Univeristy, Suwon, Republic of Korea*

HU-12. Improving the torque prediction of saturated automotive drive machines by accurate representation of saturated B/H curves. A.M. Knight[1] and *D. Dorrell* [2] *1. Dept of Electrical and Computer Engineering, University of Alberta, Edmonton, AB, Canada; 2. School of Electrical, mechanical and Mechatronic Engineering, University of Technology Sydney, Sydney, NSW, Australia*

FRIDAY AFTERNOON 1:30

EXHIBITION HALL A

Session HV
MOTORS AND ACTUATORS VIII (Poster Session)

C. Bing Rong, Session Chair
Ford Motor Company
Matthew Lucas, Session Chair
Wright Patterson Air Force Base

HV-01. Design Considerations and Validation of Permanent Magnet Vernier Machine with Consequent Pole Rotor for Low Speed Servo Applications. *S. Chung* [1], J. Kim[1], D. Koo[1], B. Woo[1], D. Hong[1] and J. Lee[1] *1. Electric Motor Research Center, KERI, Changwon, Republic of Korea*

HV-02. A Characteristic Galerkin Method for Eddy-current Field Analysis in High-speed Rotating Solid Conductors. S. Ho[1], *Y. Zhao* [1] and W. Fu[1] *1. Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

HV-03. A Study on the Design Process of Reduction of Noise in Induction Motors. *D. Kim* [1], J. Jung[1], J. Hong[1], K. Kim[2] and C. Park[2] *1. Department of Automotive Engineering, Hanyang University, Seoul, Republic of Korea; 2. Hyosung corporation, Chang-Won, Republic of Korea*

HV-04. Demagnetizing Analysis of Single Phase Line-Start Permanent Magnet Motor Using Preisach Model. *J. Lee* [1], Y. Kim[1], S. Rhyu[1] and I. Jung[1] *1. Korea Electronics Technology Institute, Bucheon-si, Gyeonggi-do, Republic of Korea*

HV-05. Cogging Torque Minimization of Wind Generator with PM Embedded Salient Poles Using Analytical and Finite Element Combination Technique. *Y. Guo* [1], H. Lin[1], P. Jin[1], M. Huang[1], J. Yan[1] and Z. Jia[1] *1. Southeast University, Nanjing, China*

HV-06. Minimization of Cogging torque in Axial Flux Permanent Magnet Machines by Choosing an Optimal Slot Opening and Pole Arc Ratio Combination. *J. Li* [1], D. Choi[1] and Y. Cho[1] *1. Electrical Engineering, Dong-A University, Busan, Republic of Korea*

HV-07. Optimization of Axial Air Gap Single Phase Permanent Magnet Stepper Motor with Claw Poles. *J. Zou* [1], W. Li[1], B. Zhao[1], F. Xu[1] and K. Liu[1] *1. Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, Heilongjiang, China*

HV-08. Optimal design for improvement of the force characteristics of a 2-phase/8-pole hybrid linear pulse motor. *X. Liu* [1], Y. Liu[2], K. Lu[1] and Y. Ye[2] *1. Department of Energy Technology, Aalborg University, Aalborg, Denmark; 2. College of Electrical Engineering, Zhejiang University, Hangzhou, China*

HV-09. Numerical Analysis of End Edge at the Discontinuous Armature PM-LSM with Multi-Auxiliary Teeth. *Y. Kim* [1] and S. Jung[2] *1. Department of Electrical Engineering, Chosun University, Gwangju, Republic of Korea; 2. School of Information and Communication Engineering, Sungkyunkwan University, Suwon, Republic of Korea*

HV-10. A new magnetic-planetary-geared permanent magnet brushless machine for hybrid electric vehicles. *X. Zhu* [1], Y. Sun[1], L. Quan[1], L. Kong[1] and Y. Chen[1] *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang 212013, China*

HV-11. Design of the Air-Barrier Width of IPMSM for EV Traction Motor Considering Mechanical Fatigue. Y. Kim[1], *S. Kim* [1] and S. Jung[2] *1. Department of Electrical Engineering, Chosun University, Gwangju, Republic of Korea; 2. School of Information and Communication Engineering, Sungkyunkwan University, Suwon, Republic of Korea*

HV-12. Development and Analysis of a Novel Limited-angle torque motor. Y. Xu[1], *Y. Wei* [1], J. Zou[1], S. Jiang[1] and F. Xu[1] *1. Department of Electrical Engineering, Harbin Institute of Technology, Harbin, China*

FRIDAY AFTERNOON 1:30

EXHIBITION HALL A

Session HW
MOTORS AND ACTUATORS IX (Poster Session)

Jeonghoon Yoo, Session Chair
Yonsei University

HW-01. Optimizing the Turn-on Angle of Switched Reluctance Motor on PWM Mode. *R. Zhong* [1], Y. Xu[1], L. Chen[1] and Y. Xu[1] *1. National ASIC System Engineering Research Center, Southeast University, Nanjing, Jiangsu, China*

HW-02. Influence of rotor skew in induction type bearingless motor. *A. Chiba* [1] and J. Asama[2] *1. Electrical & Electronic Engineering, Tokyo Institute of Technology, Meguro, Tokyo, Japan; 2. Mechanical Engineering, Shizuoka University, Hamamatsu, Shizuoka, Japan*

HW-03. Finite Element Analysis of 1MW High Speed Wound-Rotor Synchronous Machine. *H. Liu* [1], L. Xu[2] and W. Fu[3] *1. School of Electrical Engineering, Beijing Jiaotong University, Beijing, China; 2. Department of Electrical & Computer Engineering, The Ohio State University, Columbus, OH; 3. Department of Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, China*

HW-04. Improvements of performance of multi-DOF spherical motor by double air-gap feature. *H. Lee* [1] and J. Lee[1] *1. Electric engineering, Hanyang Univ. Seoul. Korea, Seoul, Republic of Korea*

HW-05. Performance of a novel multi-tooth flux-switching linear motor. *Q. Lu* [1], J. Cai[1], . Huang[1] and Y. Ye[1] *1. College of Electrical Engineering, Hangzhou, China*

HW-06. Design and control of a novel axial flux permanent magnet in-wheel machine for wide constant power speed range operation. S. Niu[1], K. Yang[1,2], S. Ho[1] and *W. Fu* [1] *1. the Hong Kong Polytechnic University, Hong Kong, Hong Kong; 2. Huazhong University of Science and Technology, Wuhan, China*

HW-07. Static Characteristic Analysis of a Long-Stroke Synchronous Permanent Magnet Planar Motor. *L. Zhang* [1], B. Kou[1], H. Zhang[1] and S. Guo[1] *1. Electrical Engineering, Harbin Institute of Technology, Harbin, Heilongjiang, China*

HW-08. Development of Min-max uDEAS (univariate Dynamic Encoding Algorithm for Searches) and Application to Optimal Design of Electric Machines. J. Kim[1], N. Choi[1], D. Lee[2] and *S. Jung* [2] *1. Department of Electronic Engineering, Dong-A University, Busan, Republic of Korea; 2. School of Information and Communication Engineering, Sungkyunkwan University, Suwon, Republic of Korea*

HW-09. A Rotor Shape Design of Interior PM Motor for Reducing Cogging Torque in Electric Air-Conditioning System of HEV. J. Cho[1,3], M. Han[2], B. Kim[3], K. Woo[4], D. Chung[5], J. So[5] and *D. Kim* [5] *1. Korea Electronics Technology Institute, Gwangju, Republic of Korea; 2. Koh-A Jung Gong Corp., Gwangju, Republic of Korea; 3. Kunsan National University, Kunsan, Republic of Korea; 4. Pukyong National University, Busan, Republic of Korea; 5. Electrical Control Engineering, Sunchon National University, Suncheon, Jeollanam-do, Republic of Korea*

HW-10. Stator and Rotor Shape Designs of Interior Permanent Magnet type Brushless DC Motor for Reducing Torque Fluctuation. *S. Lee* [1,2], G. Kang[1] and J. Hur[2] *1. Electric & Electronic Research Division, Korea marine equipment research institute, Busan, Republic of Korea; 2. Electrical Engineering, University of Ulsan, Ulsan, Ulsan, Republic of Korea*

HW-11. Thrust Ripple of a Permanent Magnet LSM with Step Skewed Magnets. *Q. Lu* [1], J. Cai[1], X. Huang[1], Y. Ye[1] and Y. Fang[1] *1. College of Electrical Engineering, Hangzhou, China*

HW-12. Design and velocity control of slim axial flux sensorless motors for blowers in cleaner robots. *H. Yu* [1,2], C. Jang[1], C. Lin[1], W. Peng[1], C. Wang[1,3] and T. Liu[3] *1. Mechanical and Systems Research Laboratories, Industrial Technology Research Institute, Hsinchu, Taiwan; 2. Department of Systems Engineering and Naval Architecture, National Taiwan Ocean University, Keelung, Taiwan; 3. Department of Mechanical Engineering, National Chiao Tung University, Hsinchu, Taiwan*

HW-13. Optimal design of double squirrel cage induction motor for EV driving using Response Surface Method. *K. Jeon* [1], S. Jung[1] and S. Hahn[2] *1. School of Electronic and Electrical Engineering, Sungkyunkwan Univ., Suwon, Republic of Korea; 2. Electrical Engineering, Dong-A Univ., Busan, Republic of Korea*

HW-14. A Linear Stator Halbach Permanent Magnet Vernier Machine. Y. Du[1,2], K. Chau[1,3], *M. Cheng* [1], Y. Fan[1] and X. Li[1] *1. School of Electrical Engineering, Southeast University, Nanjing, China; 2. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China; 3. Department of Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong, China*

HW-15. FEM-based Design and Evaluation of IPMSM for Optimal Efficiency Distribution matching with Main Operating Range. *H. Jung* [1], S. Lee[2], D. Kim[1], C. Lee[1] and S. Jung[2] *1. Diesel / Hybrid R&D Center, Korea Automotive Technology Institute, Cheonan, Republic of Korea; 2. School of Electronic and Electrical Engineering, Sungkyunkwan Univeristy, Suwon, Republic of Korea*

HW-16. Minimization of Cogging Force in a Novel Double-Stator Tubular Permanent-Magnet Machine for Total Artificial Hearts. S. Yan[1], *J. Ji* [1], W. Zhao[1] and G. Liu[1] *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*

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