



Welcome

On behalf of the Management Committee, it is our great pleasure to welcome you to Singapore for the IEEE International Magnetism Conference in Asia, INTERMAG 2018.

INTERMAG is the premier Conference on all aspects of applied magnetism. It has the tradition of bringing international researchers together, to discuss the latest developments in magnetism. With the aim of keeping that tradition and high standard, we have arranged the Conference program with a range of oral and poster presentations, invited talks and symposia, a tutorial session, two special evening sessions and exhibits. The presentation topics range from fundamental science to applied magnetism, including advances in magnetic recording, spintronics, energy and power technologies, biomagnetism, and the emerging fields of Internet-of-Things and smart living. All members of the international scientific community interested in new developments in magnetism and associated technologies are invited to attend INTERMAG 2018.

Singapore is located at the tip of the Malay Peninsula. Singapore's tropical climate welcomes both leisure and business travelers all year round. The island republic's excellent infrastructure enables visitors to enjoy its many sites and attractions in a safe, clean and green environment. This tiny island-state is also remarkably culturally diverse. Visitors can taste the foods of Chinatown or Little India, visit a historic mosque on Arab Street, stroll or cruise along the Singapore River, and enjoy the wildlife of the Singapore Zoo Night Safari or the Jurong Bird Park. Finish it off with fireworks and a beautiful view of the city from the Marina Bay Sands Hotel. We hope you will have the opportunity to explore Singapore during the Conference.

On behalf of the Management Committee of INTERMAG 2018, we wish all INTERMAG 2018 participants a fruitful and enjoyable stay in Singapore.

Sara Majetich
S. N. Piramanayagam (Prem)
Conference General Chairs

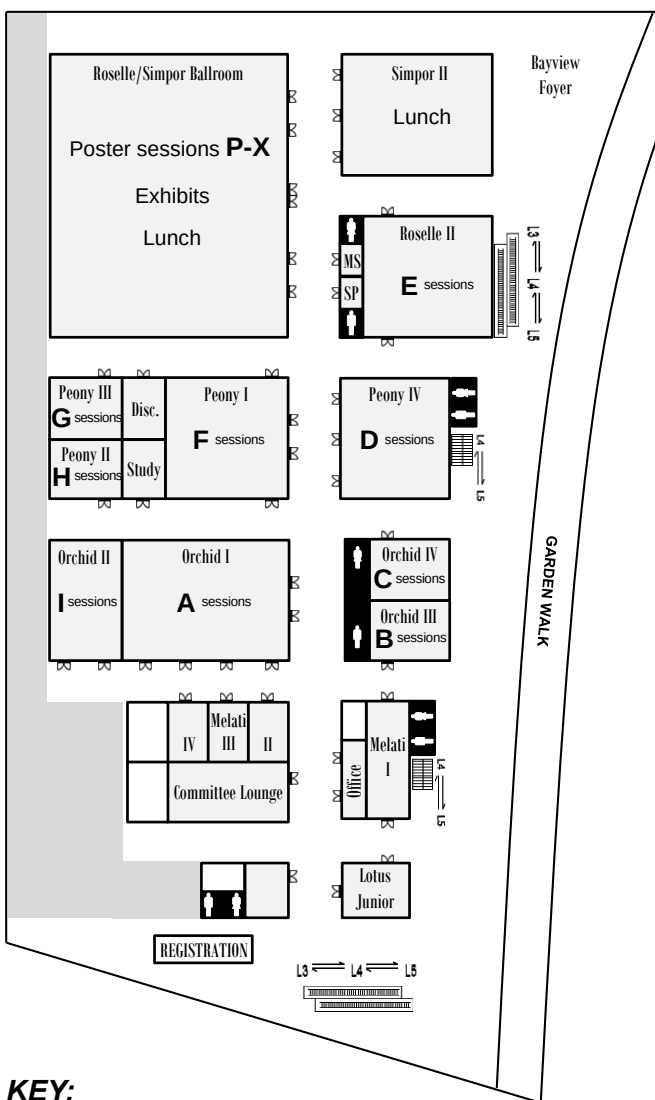
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Venue and Map

The technical program and exhibits of INTERMAG 2018 are being held in Marina Bay Sands (MBS) Expo and Convention Centre. We wish to highlight to the participants that the Marina Bay Sands Hotel and Sands Expo and Convention Centre are located next to each other and that the Conference is held in the **Sands Expo & Convention Centre**.

The location of each session is based on the second letter of the session ID. (*E.g.* Session BF will be held in the Peony I room.)



KEY:

SP – Speaker practice room

Study – Quiet study area

Disc. – Discussion room (first come first served)

Office – Conference secretariat

MS – IEEE Magnetics Society office

Melati, Lotus – Committee meeting rooms

Location

Marina Bay Sands Expo & Convention Centre is located in the heart of Singapore's business and entertainment district. A convenient 20-minute ride from Changi Airport and in the heart of the central business district area, Marina Bay Sands is just minutes away from popular cultural and leisure spots like Chinatown, Little India and Orchard Road. Well-served by the transport system with a train station just at its doorstep, it has never been more convenient for you to experience Singapore.

Transportation

Car and Taxi:

Sands Expo & Convention Centre is situated at 10 Bayfront Avenue, and is also accessible by vehicle via Sheares Avenue. From Changi Airport, you can reach us in a 20-minute direct drive along the East Coast Parkway (ECP) expressway, which leads directly into Sheares Avenue across the Benjamin Sheares Bridge.

MRT Train Services:

Marina Bay Sands is linked directly to CE1/DT16 Bayfront Station on the Circle Line and Downtown Line of Singapore's Mass Rapid Transit (MRT) train system. MRT services to/from Bayfront Station operate daily from (approximately) 6:00 am to 12:00 am midnight.

Exits at Bayfront Station:

- **Exits C & D** - Connect to The Shoppes at Marina Bay Sands (1 minute walk), Sands Expo & Convention Centre (3 minute walk), the Hotel (5 minute walk), Sands SkyPark (10 minute walk), ArtScience Museum (10 minute walk), and Mastercard Theatre (10 minute walk). Signs direct the way to each location and other attractions at Marina Bay Sands.
- **Exit E** - Connects to Sands Expo & Convention Centre.

Bus Services

Marina Bay Sands is serviced by the following bus routes:

- 97 / 106 / 518 / 133 / 502 (every day)
- 97E / 502A / 518A (every day except Sat, Sun & public holidays)
- NR1 / NR6 (late night Fri, Sat & eve of public holidays)

Registration

All INTERMAG 2018 attendees, including invited speakers, must pay registration fees. Registration should be done in advance via the online system at <https://goo.gl/1n9Cka>. Incomplete or incorrect payments will be considered late and the onsite rates will be collected onsite.

Onsite registrations during the Conference will be at the onsite rates listed below. Onsite payments are by credit card or cash (SGD only).

	Onsite registration fee
Full Registration IEEE Member	1000 SGD
Full Registration Non-IEEE Member	1220 SGD
Student/Retiree/Life IEEE Member	510 SGD
Student/Retiree Non-IEEE Member	605 SGD

Student registrants should be prepared to show a confirmation of their student status (student ID card or similar) when they pick up their conference materials at the registration desk.

Lunch is provided each day (Tue-Fri) for each registered participant in the Exhibits/Poster Area (Roselle and Simpor II ballrooms)

Registration Cancellation Policy:

Cancellations of advanced registrations must be submitted in writing and received before 9:00 am GMT on Sunday, March 25, 2018. Refunds of the original payment, less a SGD 80 service fee, will be mailed to the original registrant following the Conference. Later cancellations will not be refunded.

For a registrant who has paid the registration fee in advance but cannot attend the Conference, attendee substitution can be made at any time, either online or at the Onsite Registration Desk. Onsite substitutes must bring authorization of their substitution in writing from the original registrant.

Registration Desk

The Registration Desk will be located at Lotus Foyer on Level 4 of the Sands Expo & Convention Center. It will be open during the following hours:

Monday, April 23: 2:00 pm – 6:00 pm

Tuesday, April 24: 7:30 am – 6:00 pm

Wednesday, April 25: 7:30 am – 6:00 pm

Thursday, April 26: 7:30 am – 6:00 pm

Friday, April 27: 7:30 am – 4:00 pm

Many thanks to Singulus Technologies AG for sponsoring registration lanyards.



Badge Policy

When you check in at the Registration Desk, you will receive a personalized name badge. It enables you to access all Conference areas. All attendees will be required to wear their name badges to enter the Technical Sessions, Exhibits and Special Conference Events.

Special Conference Events

Coffee Service and Bierstuben

Coffee service will be available Tuesday through Friday mornings starting at 8:30am in the Poster and Exhibits Hall (Roselle/Simpor Ballroom).

Join your colleagues at the traditional Bierstube, which will take place on Tuesday and Thursday evenings from 5:00 pm - 6:00 pm in the Poster and Exhibits Hall.

Many thanks to Materion Corporation for partial sponsorship of the Bierstuben.



Tutorial Session

Monday, April 23
3:30 pm - 5:45 pm

Orchid I-II

This session will present tutorials on recent advances in antiferromagnetic films and their applications. The first speaker will introduce antiferromagnetic materials in their film form. The second speaker will explain the detection of antiferromagnetic ordering using synchrotron radiation. The third speaker will discuss spintronic device applications of the antiferromagnetic films. The tutorials will not only be accessible to those with no background in the subjects, but they will also provide comprehensive and timely summaries to specialists in the field. The tutorial session is organized by the Education Committee of the IEEE Magnetics Society.

- **Kevin O’Grady**, University of York, UK
“Characterisation of Antiferromagnets”
- **Elke Arenholz**, Lawrence Berkeley National Laboratory, USA
“Making the Invisible Visible: Probing Antiferromagnetic Order in Novel Materials”
- **Tomas Jungwirth**, Academy of Sciences, Czech Republic & University of Nottingham, UK
“Antiferromagnetic Devices”

Symposia

- AA Compensated Spintronics
- BA Synchrotron X-Ray and Neutron Sciences for Magnetism
- CA Skyrmions for the Future
- DA Magnetism in Biomedicine: Where Next?
- EA Novel Hard Magnetic Materials and Their Applications
- EE Symposium on recent advances and Future Challenges of Computational Magnetism

- FA Topological and Collective Magnetic Phenomena
- GA The Present and Future of STT-MRAM
- HA Atoms, Molecules and Interfaces for Spin Quantum Engineering

Special Evening Session

Tuesday, April 24
5:30 pm – 7:00 pm

Orchid I

HOW TO GET A JOB IN INDUSTRY, ACADEMIA OR GOVERNMENT LABORATORY

Chairs: Usha Varsheny and Albrecht Jander

This special evening session will focus on jobs in magnetics research. The three panelists, with distinguished leadership positions in industry, academia and government laboratory, will provide perspectives and advice on how to prepare for, and apply to, research positions. An extended question-and-answer period will follow their presentations. Although this session is primarily intended for prospective and recent graduates, all conference attendees are encouraged to participate.

Panelists:

- **Dr. Steve Hwang,**
Vice President of Product Development,
Seagate Technology
- **Dr. Liesl Folks,**
Dean, School of Engineering and Applied
Sciences, University at Buffalo
- **Dr. Lucian Prejbeanu,**
Executive Director, SPINTEC, CEA

Plenary Session and Award Ceremony

Wednesday, April 25
4:00 pm – 6:00 pm

Orchid I-II

Session Chairs: Sara Majetich and S. N.
(Prem) Piramanayagam

Awards Chair: Burkard Hillebrands

IEEE Magnetics Society Achievement Award

Professor Roy Chantrell

For contributions to the theory of interacting spin systems and application to the understanding of magnetic recording media and ultrafast magnetization processes

IEEE Magnetics Society Early Career Award

Dr. Anjan Soumyanarayanan

For contribution to tailoring interfacial interactions to generate and manipulate room temperature topological spin structures

IEEE Magnetics Society Distinguished Service Award

Professor Kevin O'Grady

For advancing international participation and inclusive representation in the IEEE Magnetics Society

Newly elected Fellows of the IEEE

- **Hideo Ohno, Tohoku University**, for contributions to materials and device design for spintronics

2018 Magnetics Society Distinguished Lecturers

- **Yoshichika Otani**, University of Tokyo, "Spin Conversion Phenomena in Spintronics"
- **Mitsuteru Inoue**, Toyohashi University of Technology, "Magnetic Phase Interference in Artificial Magnetic Lattices: Functions and Applications to Optical, High-Frequency, and Spin Wave Devices"
- **Can-Ming Hu**, University of Manitoba, "Cavity Spintronics"
- **Alison B. Flatau**, University of Maryland, "Structural Magnetostrictive Alloys: From Flexible Sensors to Energy Harvesters and Magnetically Controlled Auxetics"

Plenary Lecture

Wednesday, April 25
5:00 pm – 6:00 pm

Orchid I-II

SPINTRONICS NANODEVICES

Professor Hideo Ohno

Tohoku University, Sendai, Japan

Abstract:

Development of spintronics nonvolatile nanodevices and their integration with CMOS circuits are critical to realize standby power free, low-power consumption, yet high performance integrated circuits for Internet-of-Things (IoT), high performance computing and artificial intelligence. Endurance and low supply-voltage operation make these spintronics device capable of being used in the place of current volatile working memories such as DRAM and SRAM and beyond. The magnetic tunnel junction (MTJ), a two-terminal nonvolatile spintronic device that can scale down to 20 nm with the perpendicular-easy-axis CoFeB-MgO system, is the device most widely employed for such a purpose. I will review the development of MTJs, and discuss about its ultimate scalability below 10 nm by showing MTJs with current induced switching and high thermal stability in the range of 4-8 nm. I will then describe the work on three-terminal devices that separate the write current path from the read current path. Here I focus on devices that utilize spin-orbit torque arising from structures involving heavy metals as well as from antiferromagnets; the latter is shown to operate as analog memory suitable for neuromorphic applications.

Biography:

Professor Hideo Ohno, is an internationally renowned physicist, recognized for his extensive work on spintronic devices. He currently serves as the director of the Research Institute of Electrical Communication and a vice president of Tohoku University. Professor Ohno has been selected to serve as president of Tohoku University starting in April 2018.

Appointed as professor at Tohoku University in 1994, Ohno holds B.S., M.S. and Ph.D. degrees from the University of Tokyo. He spent time as a graduate student at Cornell University in 1979 and was a visiting scientist at IBM T. J. Watson Research Center from 1988 to 1990. From 1982 to 1994 he was appointed as lecturer and then associate professor at Hokkaido University.

Professor Ohno has received the IBM Japan Science Award (1998), the IUPAP Magnetism Prize (2003), Japan Academy Prize (2005), Presidential Prize for Research Excellence,

Tohoku University (2005), Agilent Technologies Europhysics Prize (2005), Thomson Reuters Citation Laureate (2011), JSAP Outstanding Achievement Award (2012), and the IEEE David Sarnoff Award (2012). He was a distinguished lecturer for the IEEE Magnetics Society in 2009 and has recently been elevated to Fellow of the IEEE *“for contributions to materials and device design for spintronics.”*

Plenary Reception

**Wednesday, April 25, Sands Ballroom, Level 5
6:15 pm – 7:45pm**

Invitation from Sara Majetich and
S. N. (Prem) Piramanayagam,
Conference General Chairs of INTERMAG 2018:

Following the Plenary Lecture, a Plenary Reception will be held for all registered participants of INTERMAG 2018. This reception is supported by the IEEE Magnetics Society, Singapore Tourism Board and Nanyang Technological University, Singapore. All registered participants are cordially invited to attend and celebrate the achievements of our award winners and to network with your colleagues. A Western/Chinese/Indian vegetarian buffet will be served. Accompanying guests have the option to buy a Reception Ticket at the Onsite Registration Desk no later than noon on Tuesday, April 24, 2018.

Meet the Experts Lunch

**Thursday, April 26
12:00 – 1:30 pm**

Simpor II

Student and post-doc participants of the Conference are invited to join experts in their field at lunch time on Thursday for informal discussion. Prior registration is mandatory. To see a list of available “experts” and to sign up for a table, please visit:

bit.ly/MeetTheExperts2018

This event is sponsored
by Capres A/S and Evico
Magnetics.



CAPRES A/S

COPENHAGEN APPLIED RESEARCH

=evicomagnetics

IEEE Magnetism Society Annual Meeting

Thursday, April 26
5:00 pm – 6:00 pm

Lotus Junior

This meeting is particularly open to all INTERMAG participants. Come to learn more about what the IEEE Magnetism Society is doing to support and strengthen the Magnetism Community. By joining the IEEE Magnetism Society, you become part of the world's best-known magnetism organization and benefit of discounts on registration for conferences as well as educational, technical and other professional benefits. Your suggestions and feedback are most welcome! Beverage and light food will be provided.

Special Evening Session

Thursday, April 26
5:30 – 7:00 pm

Orchid I

PANEL DISCUSSION: THE FUTURE OF INFORMATION STORAGE AND MEMORY TECHNOLOGIES

Session Chair: Jingsheng Chen

This Special Evening Session features executives from the leading hard disk drive and memory companies discussing the state of the art and future directions of magnetic storage and memory technology. Each will present their vision and roadmap of technology development. What revolutionary approaches will extend the dominance of the hard disk in mass data storage? How and when will magnetic random access memory (MRAM) become competitive? What breakthroughs are still anticipated to keep these technologies growing at historic trends?

The session will be conducted as a panel discussion, with an extended question and answer period following the presentations of the panelists.

Panelists:

- **Dr. Ed Gage**
Vice President, Seagate Research Group
- **Dr. Thao A Nguyen**
Senior Vice President of Head Operation,
Western Digital Corporation
- **Dr. Danny Shum**
Fellow eNVM, Technology Development &
Research, GLOBALFOUNDRIES Singapore

Women's Networking Event

Thursday, April 26
6:00 pm – 7:30 pm

Bayview Foyer
(behind Simpor II)

As has been the tradition, the IEEE Magnetics Society will be sponsoring a Networking Reception for women in the magnetism community. This is a great opportunity to become acquainted with other women in the profession and to discuss a range of topics including leadership, work-life balance, and professional development. At the reception you will also have the opportunity to form small dinner groups, build new friendships and expand your professional network. All graduate students, researchers and retirees are encouraged to attend. For questions, please contact Pallavi Dhagat (dhagat@oregonstate.edu).

Next Generation Magnetics Network

Thursday, April 26
7:00 pm – 8:30 pm

Lotus Junior

All students at the graduate and post-doctoral level are invited for a social event featuring coffee and snacks hosted by the Next Generation Magnetics Group! This initiative aims to promote networking among young researchers and provide resources for career development. Come find out a little more about us and help to shape the future of this organization. For more information, please contact Joachim Gräfe (graefe@is.mpg.de).

Event is sponsored by  GLOBALFOUNDRIES

Sponsors

The INTERMAG 2018 Conference Committee would like to gratefully thank the following sponsors (in alphabetical order):

Gold sponsor:

Western Digital

Silver sponsors:

Seagate Technology

Tokyo Electron Ltd

Other sponsors and partner:

CAPRES – *Meet the Experts*

evico magnetics GmbH – *Meet the Experts*

Globalfoundries Singapore –

Young Professionals Network

Materion – *Bierstube on Tuesday*

Singulus Technologies AG – *Lanyards*

Tokyo Electron Ltd – *Best Poster Award*

Anexus – *Best Poster Award*

Western Digital – *Art in Magnetism*

Exhibits

Suppliers of instrumentation, materials, process tools, and other products and services will exhibit their latest offerings for professionals in magnetism and associated technologies. The exhibit will be located in Simpor/Roselle Ballrooms adjacent to the poster sessions. The Exhibit Hall will also be the site of coffee service, Bierstube etc.

Exhibit Opening Hours

Monday, April 23	6:00 pm – 7:00 pm
Tuesday, April 24	8:30 am – 6:00 pm
Wednesday, April 25	8:30 am – 4:00 pm
Thursday, April 26	8:30 am – 6:00 pm
Friday, April 27	8:30 am – 4:30 pm

List of Exhibitors

(in alphabetical order)

- aNexus
- Bartington Instruments
- CAPRES
- Evatec AG
- GMW Associates
- Hakuto Singapore Pte Ltd
- Hprobe
- Intlvac Inc
- IOP Publishing
- Kurt J. Lesker
- Lake Shore Cryotronics
- Materion
- Metrolab Technology SA
- MicroSense, LLC
- MicroXact Inc.
- NanoScan
- Neoark Corporation
- OHT Inc.
- Premier Solutions
- Quantum Design
- Raith Nanofabrication
- Singulus Technologies AG
- Scia Systems GmbH
- SmartTip BV
- Springer Nature
- ULVAC Singapore
- Zurich Instruments

The INTERMAG 2018 Management Committee would like to acknowledge and thank participation of the exhibitors.

Wireless Access

Wireless access will be available in the Conference area including the Poster/Exhibit Hall. An access code and relevant instructions will be posted onsite. The speed of connection serves basic purposes, such as emailing, and may be limited due to the high number of expected attendees.

Speakers Practice Room

Speakers may use the Speaker Practice Room to practice their presentation and test their computer connections with the in-house equipment prior to their individual presentations. Audiovisual equipment (LCD projector and screen) will be available for speakers to use from Monday through Friday. Speakers are encouraged to use this facility to practice their presentation, either alone or with colleagues.

Oral Sessions

All oral sessions will be held on Level 4 of the Sands Expo & Convention Center from 9:00 am to 12:00 pm in the morning and 2:00 pm to 5:00 pm in the afternoon on Tuesday through Friday (except Wednesday, when the abbreviated afternoon session will run from 2:00 pm – 4:00 pm). The detailed order and locations of talks are listed in this program book, also accessible via the Conference web and mobile apps.

Contributed oral presentations are 15 minutes per speaker (including 3 minutes for questions), while invited presentations are 30 minutes per speaker (including 5 minutes for questions).

All oral presentations are to be made using the speaker's own laptop. The Conference will provide the LCD projector and screen, laser pointer, and microphone in each oral session room. The display aspect ratio is 4:3 (not widescreen). There will also be a multi-port switchbox in each session room so that speakers can connect their laptops during the question period of the previous speaker.

Only standard PC-style VGA connections to the LCD projector will be supplied (**not HDMI**). Presenting authors must supply any adaptor required for their computer. In particular, Mac OS users must make sure that they have the correct adaptor plug.

Presenters are encouraged to test their connections and display settings in the Speaker Practice Room (see venue map) prior to their presentations.

Speakers should check in with the Session Chair at least five minutes before the scheduled start of the session. Session Chairs have the responsibility of reporting "No-Shows" to the Publication Committee. Papers associated with no-show presentations will not be published in the special INTERMAG issue of the IEEE Transactions on Magnetics.

IEEE Magnetics Society Best Student Presentation Award

Following the establishment of this prestigious prize by the IEEE Magnetics Society in 2008, the selection of the six finalists for INTERMAG 2018 has been made after full review of all students entering the competition. This selection has been based on the quality and likely impact of the work, with preference given to students who are within one year of graduation and who are, and whose advisors are, current members of the IEEE Magnetics Society. The six finalists will receive a cash award from the Magnetics Society as well as recognition for their achievement. The eventual winner will be selected by a transnational panel of scientists who will assess each presentation according to the following criteria:

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

Each of the criteria will make an equal contribution to the assessment. The panel evaluation process will be overseen by the Chair of the IEEE Magnetics Society Education Committee and the Chair of the Honors and Awards Committee. The award will be made to the student achieving the highest overall ranking in the three criteria.

The six finalists of INTERMAG 2018 are:

Jérémy Létang

AE-01 (Tuesday, 09:00, Roselle II)

Hiroki Taniguchi

AD-03 (Tuesday, 09:30, Peony IV)

Mohammad Zahedinejad

AI-11 (Tuesday, 11:45, Orchid II)

Mario Fratzl

BC-01 (Tuesday, 14:00, Orchid IV)

Dédalo Sanz-Hernández

BF-05 (Tuesday, 15:00, Peony I)

Xueying Zhang

CD-03 (Wednesday, 09:30, Peony IV)

Poster Sessions

All poster sessions will be held in the Simpor/Roselle Ballroom on Level 4 of the Sands Expo & Convention Center. Posters will be displayed from 8:30 am - 11:30 am for morning sessions, and 1:30 pm - 4:30 pm for afternoon sessions. Posters should be set up at least 15 minutes before the session starts and must be removed by the authors promptly at the end of their session. Posters not removed will be discarded.

The maximum poster size is 0.85 meters wide by 1.2 meters high (33 inches wide by 46 inches high). You must include the title and authors on the poster. The Conference provides a small sign designating the paper to be posted on each board and adhesive strips for attaching your poster to the board.

Poster presentations will consist of well-prepared visual materials about the work posted on a designated board. An author of the digest must be available to present details and answer questions during the selected poster session times. If a poster is posted but none of the authors is present, the Session Chairs will count the presentation as a "No-Show". Papers associated with no-show presentations will not be published in the special INTERMAG issue of the IEEE Transactions on Magnetics.

Best Poster Awards

Best Poster Awards will be given to recognize excellence in research and presentation. There will be one award made for each morning and afternoon session of the Conference. The awards will be made in the last hour of each poster session. The award consists of a SGD 100 cash prize and an award certificate. A ribbon will also be attached to the winning posters. Winning posters will be prominently displayed throughout the remainder of the Conference.

All posters will be eligible for nomination for this award provided that they meet the requirements and guidelines for poster presentations. Selections will be based on the level of the research, quality of the poster, and clarity of the presentation.

Nominations will be made by the individual Session Chairs. The final decision will be made by the Poster Award Committee after reviewing the nominated posters.

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 2018. 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 letter of endorsement for the applicant. A second letter of endorsement from a full member of the Magnetics Society is also required.

Travel grants are a reimbursement for actual expenses. Thus, the students must attend the Conference and submit receipts to the Student Travel Coordinator, which then are processed and reimbursed by IEEE. Reimbursement will be made at the Conference.

Shortly after the Conference, grant recipients must submit a short account of their experience for possible inclusion in the IEEE Magnetics Society newsletter.

Additional Information

Complete and up-to-date Conference information can be found at:

www.intermag2018.com

The Conference language is English.

Camera, Cell Phone and Video Recording Policy

By registering for this meeting, all attendees acknowledge that they may be photographed by Conference personnel while at events, and that those photos may be used for promotional purposes, in Conference publications and websites, and on social media sites. Any recording of sessions (audio, video, still photography, etc.) intended for personal use, distribution, publication, or copyright is strictly prohibited. Attendees violating this policy may be asked to leave the session.



IEEE Magnetics Society

President	Manuel Vazquez
Vice President	Pallavi Dhagat
Secretary/Treasurer	Masahiro Yamaguchi
Past-President	Bruce Terris

Elected IEEE Magnetics Society Administrative Committee Members

Terms expiring December 31, 2018: K. Gao; G. Ju; D. Jiles; O. Kazakova; V. Mazauric; K. Nakagawa; M. Pasquale; and R. Stamps.

Terms expiring December 31, 2019: A. Adeyeye; D. Altbir; Y. Kubota; C-H. Lai; S. Mangin; M. Ruehrig; R. Sommer; and J. Sykulski.

Terms expiring December 31, 2020: C. Dennis; P. Fischer; S. Greaves; M. Klau; J. Lau; H. Nembach; T. Ono; and T. Thomson.

Appointed Committee Chairs: P. Andrei; O. Chubykalo-Fesenko; B. Hillebrands; A. Hirohata; L. Lewis; P.W.T. Pong; R. Schaefer; B. Stadler; B. Terris; D. Wei; and M. Wu.

Other Appointed Members: G. Hatch, P. Kabos, H. Muraoka and T. McKinnon

Council Representatives: R. Goldfarb and A. Zeller (Supercond.); I. Nlebedim (Engagement with Young Professionals); J. Kosel (Sensors); J-P Wang and J.A. Incorvia (Nanotechnology).

Joining the Magnetics Society

By joining the IEEE Magnetics Society, 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 part of the established and vibrant IEEE technical community
- And you will receive a large discount on Conference registrations, including INTERMAG 2018.

Joining is easy: Go to www.ieeemagnetics.org and follow the links prior to registering for the Conference.

Whether you are a member or not, we cordially invite you to stop by our Membershiup Table to 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 INTERMAG 2018.

Social Media

The IEEE Magnetics Society and its sponsored Conferences have an active and wide social media presence.



IEEE Magnetics Society

Facebook Page: @ieeemagsoc

<https://www.facebook.com/IEEEMagSoc/>

Facebook Group

<https://www.facebook.com/groups/IEEEMagSoc/>

Twitter: @IEEEMagSoc

Linkedin Page:

<https://www.linkedin.com/company/ieee-magnetics-society/>

Linkedin Group:

<https://www.linkedin.com/groups/3835192>

Intermag Conference

Facebook Page: @Intermagconf

<https://www.facebook.com/Intermagconf/>

Twitter: @Intermagconf

Conference on Magnetism and Magnetic Materials

Facebook Page: @MMMConference

<https://www.facebook.com/MMMConference/>

Twitter: @MMMConf

Conference Management Committee

General Conference Chairs	Sara Majetich S. N. (Prem) Piramanayagam
Treasurers	Mark Kief Wen Siang Lew
Program Co-Chairs	Jingsheng Chen Albrecht Jander Shigeki Nakagawa Johannes Paulides
Local Chair	Raju V. Ramanujan
Publication Chairs	Petru Andrei Dan Wei
Publicity Chair	Philip Pong
Awards Chair	Burkard Hillebrands
Exhibition and Sponsorship Co-Chairs	Atsufumi Hirohata Young Keun Kim Hyunsoo Yang
Best Poster Awards	Vivian Ng
Student Travel Award	Adekunle Adeyeye
IEEE Representative	Rudolf Schaefer

Program Committee Members

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Conference Local Support

INTERMAG 2018 is being held in Singapore for the first time and we would like to thank various organizations and people for their help in making this happen. INTERMAG 2018 has greatly benefited from the financial support of Singapore Exhibitions and Conventions Beruau (SECB) and Nanyang Technological University (NTU), Singapore. IEEE Magnetism Singapore Chapter has been helpful right from the beginning. We would like to particularly thank several students who submitted an entry for the logo design competition. The winners, Tanmay Dutta and Yu Jiawei, were helpful even at the later stages in the design of cover page for program book. The experience and support of local Conference organizers, Meeting Matters International has been very useful.

Future Conferences

21st International Conference on Magnetism (ICM 2018)

July 15-20, 2018, San Francisco, USA

2019 Joint MMM/Intermag Conference

January 14-18, 2019, Washington DC, USA

2019 Conference on Magnetism and Magnetic Materials

November 4-8, 2019, Las Vegas, USA

2020 Intermag Conference

May 4-8, 2020, Montreal, Canada

2020 Conference on Magnetism and Magnetic Materials

November 16-20, 2020, Fort Lauderdale, USA

2021 Intermag Conference

April 26-30, 2021, Lyon, France

2022 Joint MMM/Intermag Conference,

January 14-18, 2022, New Orleans, USA

2022 Conference on Magnetism and Magnetic Materials

October 31-Nov. 4, 2022, Minneapolis, USA

2023 Conference on Magnetism and Magnetic Materials

October 30-November 3, 2023, Dallas, USA

Program at a Glance

ID	Title	Time	Location	Type
Monday Afternoon, April 23				
TU	Tutorial session: Antiferromagnetic Spintronics	3:30	Orchid I-II	Tutorial
Tuesday Morning, April 24				
AA	Compensated Spintronics	9:00	Orchid I	Symp.
AB	Rare Earth Transition Metal Borides I	9:00	Orchid III	Oral
AC	Microscopy, Imaging and Characterization I	9:00	Orchid IV	Oral
AD	Spin-orbitronics I	9:00	Peony IV	Oral
AE	Skyrmions, Vortices & Magnetisation Dynamics	9:00	Roselle II	Oral
AF	Magnetic Recording: Components and Architecture	9:00	Peony I	Oral
AG	Electrical Machines and Control I	9:00	Peony III	Oral
AH	Sensors: Fundamental Developments and Materials I	9:00	Peony II	Oral
AI	Emerging and Interdisciplinary Applications I	9:00	Orchid II	Oral
AP	Bio-imaging and Bio-detection II	8:30	Simpdor/ Roselle	Poster
AQ	High Frequency Magnetic Materials and Devices I	8:30	Simpdor/ Roselle	Poster
AR	Magneto-electronic Devices	8:30	Simpdor/ Roselle	Poster
AS	Nanoparticles and Nanostructured Arrays	8:30	Simpdor/ Roselle	Poster
AT	Permanent Magnet and Reluctance Machines I	8:30	Simpdor/ Roselle	Poster
AU	Permanent Magnet and Reluctance Machines II	8:30	Simpdor/ Roselle	Poster
AV	Soft Magnetic Materials I	8:30	Simpdor/ Roselle	Poster
AW	Transformers and Inductors: Modelling I	8:30	Simpdor/ Roselle	Poster
Tuesday Afternoon, April 24				
BA	Synchrotron X-Ray and Neutron Sciences for Magnetism	2:00	Orchid I	Symp.
BB	Soft Magnetic Materials II: Amorphous and Nanocrystalline Materials	2:00	Orchid III	Oral
BC	Bio-imaging and Bio-detection I	2:00	Orchid IV	Oral
BD	Magnetic Tunnel Junction and Spin Orbit Torque	2:00	Peony IV	Oral
BE	Spin Injection and Spin Torque Oscillators	2:00	Roselle II	Oral
BF	Nanowires, Nanoparticles and Clusters	2:00	Peony I	Oral
BG	Linear Motors I	2:00	Peony III	Oral
BH	Sensors: Frontier Applications I	2:00	Peony II	Oral
BI	Computational Magnetism: Micromagnetics and Ab-initio Calculations	2:00	Orchid II	Oral
BP	TMR, VCMA and Multiferroic Materials I	1:30	Simpdor/ Roselle	Poster
BQ	Energy Assisted Recording and Recording Media	1:30	Simpdor/ Roselle	Poster
BW	TMR, VCMA and Multiferroic Materials II	1:30	Simpdor/ Roselle	Poster
BR	Magnetic Oxide and Alloy Films	1:30	Simpdor/ Roselle	Poster

BS	Permanent Magnet and Reluctance Machines III	1:30	Simpor/ Roselle	Poster
BT	Permanent Magnet and Reluctance Machines IV	1:30	Simpor/ Roselle	Poster
BU	Rare Earth Transition Metal Borides II	1:30	Simpor/ Roselle	Poster
BV	Spin-orbitronics II	1:30	Simpor/ Roselle	Poster

Tuesday Evening, April 24

XA	How to Get a Job in Industry, Academia or Government Lab	5:30 PM	Orchid I	Special
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Wednesday Morning, April 25

CA	Skyrmions for the Future	9:00	Orchid I-II	Symp.
CB	Soft Magnetic Materials III: Crystalline Materials	9:00	Orchid III	Oral
CC	Microscopy, Imaging and Characterization II	9:00	Orchid IV	Oral
CD	Domain Wall Dynamics	9:00	Peony IV	Oral
CE	High Frequency Magnetic Materials and Devices II	9:00	Roselle II	Oral
CF	Magnetisation Dynamics I	9:00	Peony I	Oral
CG	Modelling of Machines I	9:00	Peony III	Oral
CH	Transformers and Inductors	9:00	Peony II	Oral
CP	Magnetic Therapies and Nanomedicine I	8:30	Simpor/ Roselle	Poster
CQ	Domain Walls and Skyrmions	8:30	Simpor/ Roselle	Poster
CR	Fundamental Properties and Cooperative Phenomena I	8:30	Simpor/ Roselle	Poster
CS	Hard Magnets I	8:30	Simpor/ Roselle	Poster
CT	Linear Motors II	8:30	Simpor/ Roselle	Poster
CU	Linear Motors III	8:30	Simpor/ Roselle	Poster
CV	Sensors: Frontier Applications II	8:30	Simpor/ Roselle	Poster
CW	Sensors: Fundamental Developments and Materials II	8:30	Simpor/ Roselle	Poster

Wednesday Afternoon, April 25

DA	Magnetism in Biomedicine: Where Next?	2:00	Orchid I-II	Symp.
DB	Magnetic Fluids and Organic Magnetic Materials I	2:00	Orchid III	Oral
DC	Spin-transport with Topological Materials	2:00	Orchid IV	Oral
DD	Neuromorphic Computing	2:00	Peony IV	Oral
DE	Antiferromagnetic Spintronics	2:00	Roselle II	Oral
DF	Heat Assisted Recording Physics	2:00	Peony I	Oral
DG	Energy Harvesters and Generators I	2:00	Peony III	Oral
DH	Permanent Magnet and Reluctance Machines V	2:00	Peony II	Oral
PL	Awards Ceremony and Plenary Talk	4:00	Orchid I-II	Plenary

Thursday Morning, April 26

EA	Novel Hard Magnetic Materials and Their Applications	9:00	Orchid I	Symp.
EB	Magneto-elastic and Magneto-optic Materials	9:00	Orchid III	Oral

EC	GMR, TMR, and Multiferroic Materials	9:00	Orchid IV	Oral
ED	Spin-orbitronics III	9:00	Peony IV	Oral
EE	Recent Advances and Future Challenges of Computational Magnetism	9:00	Roselle II	Symp.
EF	Energy Assisted Recording	9:00	Peony I	Oral
EG	Shielding, Electromagnetic Compatibility, Motors and Generators I	9:00	Peony III	Oral
EH	Magnetic Semiconductors and Oxides	9:00	Peony II	Oral
EI	Magnetic Therapies and Nanomedicine II	9:00	Orchid II	Oral
EP	Exchange Coupling, Superconductivity and Electronic Structure I	8:30	Simpdor/ Roselle	Poster
EQ	Ferrite Materials and Applications	8:30	Simpdor/ Roselle	Poster
ER	Magnetic Bearings, and Levitation	8:30	Simpdor/ Roselle	Poster
ES	Magnetic Gears	8:30	Simpdor/ Roselle	Poster
ET	Magnetisation Dynamics II	8:30	Simpdor/ Roselle	Poster
EU	Micromagnetics I	8:30	Simpdor/ Roselle	Poster
EV	Microscopy, Imaging and Characterization III	8:30	Simpdor/ Roselle	Poster
EW	Sensors: New Sensing Principles	8:30	Simpdor/ Roselle	Poster

Thursday Afternoon, April 26

FA	Topological and Collective Magnetic Phenomena	2:00	Orchid I	Symp.
FB	Hard Magnetic Materials and Processing I	2:00	Orchid III	Oral
FC	TMR, VCMA and Switching	2:00	Orchid IV	Oral
FD	Magneto-caloric Materials I	2:00	Peony IV	Oral
FE	Patterned Films and Elements	2:00	Roselle II	Oral
FF	Spin Waves I	2:00	Peony I	Oral
FG	Magnetic Bearings, Gears and Levitation	2:00	Peony III	Oral
FH	Analysis and Optimisation of Electrical Machines I	2:00	Peony II	Oral
FI	Fundamental Properties and Cooperative Phenomena II	2:00	Orchid II	Oral
FP	Circuit Analysis of Transformers	1:30	Simpdor/ Roselle	Poster
FQ	Hard Magnetic Materials and Motor Applications	1:30	Simpdor/ Roselle	Poster
FR	Magnetic Fluids and Organic Magnetic Materials II	1:30	Simpdor/ Roselle	Poster
FS	Magneto-elastic Materials	1:30	Simpdor/ Roselle	Poster
FT	Modelling of Machines II	1:30	Simpdor/ Roselle	Poster
FU	Modelling of Machines III	1:30	Simpdor/ Roselle	Poster
FV	Spin Waves and Optical Magnetisation Switching	1:30	Simpdor/ Roselle	Poster
FW	Transformers and Inductors: Modelling II	1:30	Simpdor/ Roselle	Poster

Thursday Evening, April 26

YA	Panel Discussion: The Future of Memory Technologies	5:30	Orchid I	Special
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Friday Morning, April 27				
GA	The Present and Future of STT-MRAM	9:00	Orchid I	Symp.
GB	Nanostructured Hard Magnetic Materials	9:00	Orchid III	Oral
GC	Magnetisation Switching and Magnon-Photon Coupling	9:00	Orchid IV	Oral
GD	Spin-orbitronics IV	9:00	Peony IV	Oral
GE	Exchange Coupling, Superconductivity and Electronic Structures II	9:00	Roselle II	Oral
GF	Spin Waves II	9:00	Peony I	Oral
GG	Modelling of Machines V	9:00	Peony III	Oral
GH	High Speed Machines II	9:00	Peony II	Oral
GI	Recording Systems and Head-Disk Interface	9:00	Orchid II	Oral
GP	Electrical Machines and Control II	8:30	Simpor/ Roselle	Poster
GQ	Emerging and Interdisciplinary Applications II	8:30	Simpor/ Roselle	Poster
GR	Hard Magnetic Materials and Processing II	8:30	Simpor/ Roselle	Poster
GS	High Speed Machines I	8:30	Simpor/ Roselle	Poster
GT	Hysteresis Modelling I	8:30	Simpor/ Roselle	Poster
GU	Inductors	8:30	Simpor/ Roselle	Poster
GV	Modelling of Machines IV	8:30	Simpor/ Roselle	Poster
GW	Ultrathin Films and Surface Effects I	8:30	Simpor/ Roselle	Poster

Friday Afternoon, April 27				
HA	Atoms, Molecules & Interfaces for Spin Quantum Engineering	2:00	Orchid I	Symp.
HB	Hard Magnets II	2:00	Orchid III	Oral
HC	Magnetic Tunnel Junctions and STT-MRAM	2:00	Orchid IV	Oral
HD	Spin Injection and Transport	2:00	Peony IV	Oral
HE	Dynamics of Skyrmions	2:00	Roselle II	Oral
HF	Ultrathin Films and Surface Effects II	2:00	Peony I	Oral
HG	Permanent Magnet and Reluctance Machines VII	2:00	Peony III	Oral
HH	Hysteresis Modelling II	2:00	Peony II	Oral
HI	Transformers and Inductors: High Frequency Effects	2:00	Orchid II	Oral
HP	Ab-initio Calculations	1:30	Simpor/ Roselle	Poster
HQ	Analysis and Optimisation of Electrical Machines II	1:30	Simpor/ Roselle	Poster
HR	Energy Harvesters and Generators II	1:30	Simpor/ Roselle	Poster
HS	Shielding, Electromagn. Compatibility, Motors & Generators II	1:30	Simpor/ Roselle	Poster
HT	Micromagnetics II	1:30	Simpor/ Roselle	Poster
HU	Permanent Magnet and Reluctance Machines VI	1:30	Simpor/ Roselle	Poster
HV	Recording Systems: Coding and Head-Disk Interface	1:30	Simpor/ Roselle	Poster
HW	Magneto-caloric Materials II	1:30	Simpor/ Roselle	Poster
HX	Power Transformers	1:30	Simpor/ Roselle	Poster

Session TU
**TUTORIAL ON ANTIFERROMAGNETIC
SPINTRONICS**

Atsufumi Hirohata, Chair
University of York, York, United Kingdom

3:30

- TU-01. Characterisation of Antiferromagnets. (Invited)** *K. O'Grady¹ and G. Vallejo-Fernandez¹ 1. University of York, York, United Kingdom*

4:15

- TU-02. Making the Invisible Visible: Probing Antiferromagnetic Order in Novel Materials. (Invited)** *E. Arenholz^{1,2} 1. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 2. Material Sciences and Engineering, University of California, Berkeley, CA, United States*

5:00

- TU-03. Antiferromagnetic Devices. (Invited)** *T. Jungwirth^{1,2} 1. Institute of Physics, Academy of Sciences of the Czech Republic, Praha, Czechia; 2. School of Physics and Astronomy, University of Nottingham, Nottingham, United Kingdom*

Session AA
SYMPOSIUM ON COMPENSATED SPINTRONICS

Michael Coey, Chair
Trinity College Dublin, Dublin, Ireland

9:00

- AA-01. Compensated ferromagnetic Heusler compounds for antiferromagnetic spintronics. (Invited)** *C. Felser¹, G. Fecher¹, R. Stinshoff¹, A. Nayak¹ and M. Coey² 1. Solid State Chemistry, Max Planck Institute for Chemical Physics of Solids, Dresden, Germany; 2. Physics, Trinity College Dublin, Dublin, Ireland*

9:30

- AA-02. New functionality in half-metallic $\text{Mn}_2\text{Ru}_x\text{Ga}$ close to compensation. (Invited)** *Y. Lau^{1,2} 1. Department of Physics, The University of Tokyo, Tokyo, Japan; 2. National Institute for Materials Science (NIMS), Tsukuba, Japan*

10:00

- AA-03. Ultrafast spin dynamics in antiferromagnets. (Invited)**
O. Gomonay¹, T. Jungwirth² and J. Sinova^{1,2} 1. Institute of physics, Johannes Gutenberg University, Mainz, Germany; 2. Institute of Physics ASCR, Praha, Czechia

10:30

- AA-04. Electrical detection of reversed antiferromagnetic states switched by unidirectional current pulses. (Invited)**
J. Godinho^{1,2}, H. Reichlova¹, D. Kriegner^{1,2}, K. Olejnik¹, Z. Soban¹, V. Novak¹, R. Otxoa³, P. Roy³, T. Jungwirth^{1,4} and J. Wunderlich^{3,1} 1. Institute of Physics ASCR, Prague, Czechia; 2. Faculty of Mathematics and Physics, Charles University, Prague, Czechia; 3. Hitachi Cambridge Laboratory, Hitachi Europe LTD, Cambridge, United Kingdom; 4. School of Physics and Astronomy, University of Nottingham, Nottingham, United Kingdom

11:00

- AA-05. Spin Current Generation, Detection, and Transport with Antiferromagnets. (Invited)** *Z. Wei^{1,2}, M. Jungfleisch^{1,3}, W. Jiang^{1,4}, H. Saglam^{1,5}, F. Freimuth⁶, J. Sklenar^{1,7}, J. Pearson¹, J. Ketterson⁷, Y. Mokrousov⁶ and A. Hoffmann¹ 1. Materials Science Division, Argonne National Laboratory, Lemont, IL, United States; 2. Department of Physics, Oakland University, Rochester, MI, United States; 3. Physics Department, University of Delaware, Newark, DE, United States; 4. State Key Laboratory of Low-Dimensional Quantum Physics, and Department of Physics, Tsinghua University, Beijing, China; 5. Department of Physics, Illinois Institute of Technology, Chicago, IL, United States; 6. Peter Grünberg Institut and Institute for Advanced Simulation, Forschungszentrum Jülich, Jülich, Germany; 7. Department of Physics and Astronomy, Northwestern University, Evanston, IL, United States*

11:30

- AA-06. Spin Transport in Speromagnets: Disordered Spintronic Materials with Antiferromagnetic Correlations. (Invited)**
B.L. Zink¹ 1. Physics & Astronomy, University of Denver, Denver, CO, United States

TUESDAY
MORNING
9:00

ORCHID III

Session AB

RARE EARTH TRANSITION METAL BORIDES I

Jinbo Yang, Co-Chair
Peking University, Beijing, China
Weibin Cui, Co-Chair
Northeastern University, Shenyang, China

9:00

- AB-01. Electronic states and magnetic properties around the grain boundary in Nd-Fe-B sintered magnets studied by first-principles calculations.** *Y. Tatetsu¹ and Y. Gohda¹ 1. Department of Materials Science and Engineering, Tokyo Institute of Technology, Yokohama, Japan*

9:15

- AB-02. A novel approach of substitution of Ce for Nd in preparing $R_2Fe_{14}B$ nanocrystalline magnets with high coercivity.** *L. Zha¹, Z. Liu¹, G. Tian¹, K. Li¹, M. Xue¹, Z. Shao¹, H. Zhao¹, Y. Zhang¹, W. Yang¹, Y. Lai¹, G. Qiao¹, X. Li¹, L.S. Ding¹, S. Liu¹, H. Du¹, C. Wang¹, J. Han¹, Y. Yang¹ and J. Yang^{1,2}*
1. State Key Laboratory for Mesoscopic Physics, School of Physics, Beijing, China; 2. Collaborative Innovation Center of Quantum Matter, Beijing, China

9:30

- AB-03. Magnetic performance change of multi-main-phase Nd-Ce-Fe-B magnets by diffusing (Nd, Pr) H_x .** *W. Zhang¹, T. Ma¹, B. Peng¹ and M. Yan¹*
1. School of Materials Science and Engineering, Zhejiang University, Hangzhou, China

9:45

- AB-04. Coercivity enhancement of multi-main-phase Ce-Fe-B magnets by spark plasma sintered technique and dual alloy method.** *Q. Jiang¹, W. Lei¹, S. Rehman¹, Q. Zeng¹, L. He¹, X. Hu¹, L. Zhang¹, M. Zhong¹, S. Ma¹, W. Cui² and Z. Zhong¹*
1. Jiangxi University of Science and Technology, Ganzhou, China; 2. Northeast University, Shenyang, China

10:00

- AB-05. Nd-Fe-B films with perpendicular magnetic anisotropy and extremely large room temperature coercivity.** *C. Ma¹, S. Wang¹, A. Morisako¹, S. Piramanayagam² and X. Liu¹*
1. Faculty of Engineering, Shinshu University, Nagano, Japan; 2. School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore

10:15

- AB-06. Development of non-rare earth grain boundary diffusion process for Nd-Fe-B permanent magnets.** *Z. Liu¹, Q. Zhou¹, H. Zeng¹, H. Yu¹, X. Zhong¹ and X. Che¹*
1. School of Materials Science and Engineering, South China University of Technology, Guangzhou, China

10:30

- AB-07. Low spin reorientation transition temperature, high coercivity, $Nd_2(Fe,Co,Cr)_{14}B$ based hard magnetic nanoparticles.** *V. Chaudhary¹, Y. Zhong¹, H. Parmar¹, X. Tan¹ and R.V. Ramanujan¹*
1. Nanyang Technological University, Singapore, Singapore

10:45

- AB-08. Effect of impurities on magnetic properties in Nd-Fe-B particles synthesized by reduction-diffusion process.** *D. Kim^{1,2}, V. Galkin^{1,2} and K. Haider^{1,2}*
1. Korea Institute of Materials Science, Changwon, The Republic of Korea; 2. DMR CRC, Korea Institute of Geoscience and Mineral Resources, Daejeon, The Republic of Korea

11:00

- AB-09. Coercivity enhancement of hot-pressed magnet prepared by HDDR Nd–Fe–B powders using Pr-Cu eutectic alloys diffusion.** *T. Song*¹, *X. Tang*¹, *W. Yin*¹, *R. Chen*¹ and *A. Yan*¹
1. Ningbo Institute of Industrial Technology, Chinese Academy of Sciences, Ningbo, China

11:15

- AB-10. Corrosion of Co,Al-alloyed NdFeB magnetic nanostructures processed by microwave synthesis.** *H. Parmar*¹, *X. Tan*¹, *Y. Zhong*¹, *V. Chaudhary*¹, *D. Peng*¹, *Y. Huang*¹ and *R.V. Ramanujan*¹ *1. Nanyang Technological University, Singapore, Singapore*

11:30

- AB-11. Mechanism for the enhancement of magnetic properties of Nd-Fe-B, after the addition of Pr, Dy and Tb.** *K. Haider*^{1,2}, *V. Galkin*^{1,2}, *Y. Kang*³ and *D. Kim*^{1,2} *1. Development of Mineral Resources, Korea Institute of Geoscience and Mineral Resources, Daejeon, The Republic of Korea; 2. Powder & Ceramics Division, Korea Institute of Materials Science, Changwon, The Republic of Korea; 3. Department of Chemistry, Sogang University, Seoul, The Republic of Korea*

11:45

- AB-12. Magnetic Properties of NdFeB Alloys Obtained by Gas Atomization Technique.** *G. Sarriegui*^{1,2}, *J.M. Martín*^{1,2}, *M. Ipatov*³, *A.P. Zhukov*^{4,5} and *J. Gonzalez*⁵ *1. Materials and Manufacturing, CEIT-IK4, San Sebastián, Spain; 2. Tecnun (University of Navarra), San Sebastián, Spain; 3. SgiKER (Magnetic Measurements), University of the Basque Country, San Sebastián, Spain; 4. IKERBASQUE Foundation, Bilbao, Spain; 5. Department Materials Physics, Faculty of Chemistry, University of the Basque Country, San Sebastián, Spain*

TUESDAY
MORNING
9:00

ORCHID IV

Session AC

MICROSCOPY, IMAGING AND CHARACTERIZATION I

Xiaoyan Zhong, Chair
Tsinghua University, Beijing, China

9:00

- AC-01. Quantitative magnetic measurement by electron magnetic chiral dichroism with high spatial resolution in the transmission electron microscope. (Invited)** *J. Zhu*¹ and *D. Song*¹ *1. Tsinghua University, Beijing, China*

- AC-02. Stable skyrmion states at room temperature confined in corrals of artificial surface pits fabricated by a focused electron beam.** *T. Matsumoto*¹, *Y. So*², *Y. Kohno*³, *Y. Ikuhara*^{1,4} and *N. Shibata*^{1,4} *1. The University of Tokyo, Tokyo, Japan; 2. Akita University, Akita, Japan; 3. JEOL, Ltd., Tokyo, Japan; 4. Japan Fine Ceramic Center, Nagoya, Japan*

- AC-03. Tuning Magnetic Domains with Ion-beam Irradiation in Co/Pd Multilayer.** *A. Talapatra*¹, *A. Chelvane*², *C. Günther*^{3,4}, *S. Eisebitt*^{4,3}, *T. Shibayama*⁵ and *J. Mohanty*¹ *1. Physics, Indian Institute of Technology Hyderabad, Hyderabad, India; 2. Defence Metallurgical Research Laboratory, Hyderabad, India; 3. Technical University Berlin, Berlin, Germany; 4. Max Born Institute, Berlin, Germany; 5. Hokkaido University, Sapporo, Japan*

- AC-04. Directly observed dynamics of distorted vortex cores including asymmetric Bloch walls utilizing soft X-ray microscopy.** *M. Im*¹, *H. Han*², *M. Jung*³, *P. Fischer*¹, *J. Hong*³ and *K. Lee*² *1. LBNL, Berkeley, CA, United States; 2. UNIST, Ulsan, The Republic of Korea; 3. Daegu Gyeongbuk Institute of Science & Technology (DGIST), DAEGU, The Republic of Korea*

- AC-05. Calibrated MFM: electrostatic compensation of μ -coils.** *C. Barton*¹, *R. Puttock*^{1,2}, *H. Corte-León*¹, *M. Gerken*³, *A. Manzin*⁵, *V. Neu*⁴, *H. Schumacher*³ and *O. Kazakova*¹ *1. Quantum Science, National Physical Laboratory, Teddington, United Kingdom; 2. Physics department, Royal Holloway, Egham, United Kingdom; 3. Physikalisch-Technische Bundesanstalt, Braunschweig, Germany; 4. IFW Dresden, Dresden, Germany; 5. INRIM, Torino, Italy*

- AC-06. Off-axis electron holography for the quantitative study of magnetic properties of nanostructures: from the single nanomagnet to the complex device. (Invited)** *C. Gatel*¹, *B. Warot-Fonrose*¹, *M. Casanove*¹, *A. Masseboeuf*¹, *N. Biziere*¹, *F.B. Bonilla*², *L. Lacroix*², *A. Meffre*² and *T. Blon*² *1. CEMES, CNRS, University of Toulouse, Toulouse, France; 2. Laboratoire de Physique et Chimie des Nano-objets - INSA, Toulouse, France*

- AC-07. Atomic-plane resolved magnetic circular dichroism by transmitted electrons.** *Z. Wang*¹ and *X. Zhong*¹ *1. School of Materials Science and Technology, Tsinghua University, Beijing, China*

11:15

- AC-08. Effect of annealing on the structural and magnetic properties of CoMnSi investigated by X-ray diffraction and X-ray absorption fine structure measurements.** R. Kou^{2,1}, J. Gao², Y. Ren¹, S. Heald¹, B. Fisher¹ and C. Sun¹ *1. Argonne National Laboratory, Argonne, IL, United States; 2. Key Laboratory of Electromagnetic Processing of Materials (Ministry of Education), Northeastern University, Shenyang, China*

11:30

- AC-09. Spatially resolved investigation of all optical magnetization switching in TbFe alloys.** M.A. Mawass¹, A. Arora^{1,5}, O. Sandig³, C. Luo², A.A. Ünal^{1,4}, F. Radu¹, S. Valencia¹ and F. Kronast¹ *1. Department Materials for Green Spintronics, Helmholtz-Zentrum Berlin für Materialien und Energie, Berlin, Germany; 2. Department of Physics, University of Regensburg, Regensburg, Germany; 3. Institut für Experimentalphysik, Freie Universität Berlin, Berlin, Germany; 4. Max Born Institute for Nonlinear Optics and Short Pulse Spectroscopy, Berlin, Germany; 5. Institut für Physik und Astronomie, Universität Potsdam, Potsdam, Germany*

11:45

- AC-10. A Magnetic Field Camera for Real-Time Subsurface Imaging Applications.** A.B. Suksmono^{1,2}, D. Danudirdjo¹, R.P. Prastio¹, A.D. Setiawan³ and D. Rahmawati¹ *1. School of Electrical Engineering and Informatics, Institut Teknologi Bandung, Bandung, Indonesia; 2. ITB Research Center on ICT (PPTIK-ITB), Institut Teknologi Bandung, Bandung, Indonesia; 3. School of Electrical Engineering, Telkom University, Bandung, Indonesia*

TUESDAY
MORNING
9:00

PEONY IV

Session AD SPIN-ORBITRONICS I

Wanjun Jiang, Chair
Tsinghua University, Beijing, China

9:00

- AD-01. Modulated spin orbit torque in a Pt/Co/Pt/YIG multilayer by nonequilibrium proximity effect.** Q. Liu¹, K. Meng¹, X. Xu¹, J. Miao¹, Y. Wu¹, J. Chen¹ and Y. Jiang¹ *1. School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing, China*

9:15

- AD-02. Spin orbit torque and topological Hall effect in MnX(X=Ga or Al)/heavy metal bilayers.** K. Meng¹, J. Zhao² and Y. Jiang¹ *1. University of Science and Technology of China, Beijing, China; 2. Institute of Semiconductors Chinese Academy of Sciences, Beijing, China*

- AD-03. Strong suppression of spin Hall effects induced by spin fluctuations.** *H. Taniguchi*^{1*}, *T. Arakawa*^{1,2}, *T. Taniguchi*¹, *Y. Niimi*^{1,2} and *K. Kobayashi*^{1,2} *1. Graduate School of Science, Osaka University, Toyonaka, Japan; 2. Center for Spintronics Research Network, Osaka University, Toyonaka, Japan*

- AD-04. Symmetry and magnitude of intrinsic spin-orbit torques in the half-Heusler alloy PtMnSb.** *J. Mendil*¹, *J. Krieff*², *P. Dao*¹, *C. Avci*⁵, *M.H. Aguirre*³, *K. Rott*², *J. Schmalhorst*², *F. Freimuth*⁴, *G. Reiss*², *T. Kuschel*² and *P. Gambardella*¹
1. Department of Materials, ETH Zurich, Zurich, Switzerland; 2. Center for Spinelectronic Materials and Devices, Department of Physics, Bielefeld University, Bielefeld, Germany; 3. Instituto de Nanociencia de Aragón & Laboratorio de Microscopías Avanzadas, Dpto. de Física de Materia Condensada, Universidad de Zaragoza, Zaragoza, Spain; 4. Peter Grünberg Institut and Institute for Advanced Simulation, Forschungszentrum Julich and JARA, Julich, Germany; 5. Massachusetts Institute of Technology, Materials Science and Engineering, Cambridge, MA, United States

- AD-05. Anomalous Hall effect in fully compensated half-metallic Mn₂Ru_xGa thin films. (Invited)** *C. Fowley*¹, *K. Rode*², *Y. Lau*², *N. Thiagarajah*², *D. Betto*², *K. Borisov*², *G. Atcheson*², *E. Kampert*¹, *Z. Wang*¹, *Y. Yuan*¹, *S. Zhou*¹, *J. Lindner*¹, *P.S. Stamenov*², *M. Coey*² and *A. Deac*¹ *1. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. School of Physics, AMBER and CRANN, Trinity College Dublin, Dublin, Ireland*

- AD-06. A Comparative Study on Spin-Orbit Torque Efficiencies from W/ferromagnetic and W/ferrimagnetic Heterostructures.** *T. Wang*¹, *C. Pai*¹, *H. Yen*¹, *T. Chen*¹ and *C. Wu*¹ *1. Material Science and Engineering, National Taiwan University, New Taipei City, Taiwan*

- AD-07. All-Optical Measurements of Spin Hall Angles in Tungsten and Tantalum.** *S. Mondal*¹, *S. Choudhury*¹, *J. Sinha*¹ and *A. Barman*¹ *1. S. N. Bose National Centre for Basic Sciences, Kolkata, India*

- AD-08. Demonstration of unidirectional spin Hall magnetoresistance by using naturally oxidized Cu.** *G. Okano*¹ and *Y. Nozaki*^{1,2} *1. Department of Physics, Keio University, Yokohama, Japan; 2. Center for Spintronics Research Network, Keio University, Yokohama, Japan*

- AD-09. Dzyaloshinskii-Moriya interaction and spin-orbit torques for controlling skyrmions in Co-based trilayers.** *J. Hanke*^{1,2}, *F. Freimuth*², *S. Bluegel*² and *Y. Mokrousov*² *1. Institut für Physik, Johannes Gutenberg University, Mainz, Germany; 2. Peter Grünberg Institut and Institute for Advanced Simulation, Forschungszentrum Julich, Juelich, Germany*

11:30

- AD-10. Spin-orbit effective fields in CoTb single layer.** *L. Liu¹, J. Deng¹, J. Yu¹, C. Zhou¹ and J. Chen¹* *1. Materials Science and Engineering, National University of Singapore, Singapore*

11:45

- AD-11. Chiral magnetization switching induced by spin orbit torque in Pt/Co/Ta structure.** *S. Li¹ and W. Lew¹* *1. School of Physics and Physical Science, Nanyang Technological University, Singapore, Singapore*

TUESDAY
MORNING
9:00

ROSELLE II

Session AE
SKYRMIONS, VORTICES & MAGNETISATION
DYNAMICS

Teruo Ono, Chair
Kyoto University, Uji, Japan

9:00

- AE-01. Modulation of chaotic nanocontact vortex oscillators.** *J. Létang^{1*}, T. Devolder¹, S. Petit-Watelot², K. Bouzehouane³, V. Cros³ and J. Kim¹* *1. Centre de Nanosciences et de Nanotechnologies, CNRS, Université Paris-Sud, Université Paris-Saclay, Orsay, France; 2. Institut Jean Lamour, CNRS, Université de Lorraine, Vandoeuvre Lés Nancy, France; 3. Unité Mixte de Physique, CNRS, Thales, Université Paris-Sud, Université Paris-Saclay, Palaiseau, France*

9:15

- AE-02. Magnetic vortex dynamics and frequency tunability in Cr-implanted permalloy disks.** *L. Ramasubramanian^{1,2}, A. Kakay¹, C. Fowley¹, O. Yildirim³, P. Matthes⁴, R. Böttger¹, J. Lindner¹, J. Fassbender⁵, S. Gemming^{1,2}, S.E. Schulz^{2,4} and A. Deac¹* *1. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. TU Chemnitz, Chemnitz, Germany; 3. Empa-Swiss Federal Laboratories for Materials Science and Technology, Dübendorf, Switzerland; 4. Fraunhofer Institute for Electronic Nano Systems, Chemnitz, Germany; 5. Institute for Physics of Solids, TU Dresden, Dresden, Germany*

9:30

- AE-03. Stability and manipulation of magnetic skyrmions. (Invited)** *G. Finocchio¹* *1. University of Messina, Messina, Italy*

10:00

- AE-04. Entropy-limited topological protection of skyrmions. (Invited)** J. Wild¹, T. Meier¹, S. Pöllath¹, M. Kronseder¹, A. Bauer², A. Chacon², M. Halder², M. Schowalter³, A. Rosenauer³, J. Zweck¹, J. Müller⁴, A. Rosch⁴, C. Pfleiderer² and C. Back^{1,2} *1. Universität Regensburg, Regensburg, Germany; 2. Technical University of Munich, Munich, Germany; 3. University of Bremen, Bremen, Germany; 4. University of Cologne, Köln, Germany*

10:30

- AE-05. Tunable geometrical frustration in magnonic vortex crystals.** C. Behncke^{1,2}, C.F. Adolff^{1,2}, S. Wintz³, M. Hänge^{4,5}, B. Schulte⁵, M. Weigand⁶, S. Finizio³, J. Raabe³ and G. Meier^{2,5} *1. Institute of Applied Physics, University of Hamburg, Hamburg, Germany; 2. The Hamburg Centre for Ultrafast Imaging, Hamburg, Germany; 3. Paul Scherrer Institut, Villigen, Switzerland; 4. Max Planck Institute for Solid State Research, Stuttgart, Germany; 5. Max Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany; 6. Max Planck Institute for Intelligent Systems, Stuttgart, Germany*

10:45

- AE-06. Static and dynamic behavior of Interlayer exchange coupled Ni₈₀Fe₂₀/Ru Continuous Films and Nanowires.** L. Xiong¹ and A. Adeyeye¹ *1. National University of Singapore, Singapore*

11:00

- AE-07. Three-dimensional localized spin textures in chiral magnets. (Invited)** H. Du^{1,2} and M. Tian^{1,2} *1. High Magnetic Field Laboratory of Chinese Academy of Sciences, Hefei, China; 2. Collaborative Innovation Center of Advanced Microstructures, Nanjing University, Nanjing, China*

11:30

- AE-08. Development of the New Measurement Technique for Spin Dynamics of Magnetic Thin Films.** Y. Endo^{1,2}, O. Mori³, S. Yabukami⁴, R. Utsumi³ and Y. Shimada³ *1. Department of Electrical Engineering, Graduate School of Engineering, Tohoku University, Sendai, Japan; 2. Center for Spintronics Research Network, Tohoku University, Sendai, Japan; 3. Toei Scientific Industrial Co Ltd., Sendai, Japan; 4. Faculty of Engineering, Tohoku Gakuin University, Sendai, Japan*

11:45

- AE-09. Effects of Anisotropic Dipolar Interaction on Spin-Wave Dynamics in Ni₈₀Fe₂₀ Nanodot Arrays with Honeycomb and Octagonal Lattice Symmetries.** S. Mondal¹, S. Barman², S. Choudhury¹, Y. Otani³ and A. Barman¹ *1. S. N. Bose National Centre for Basic Sciences, Kolkata, India; 2. Institute of Engineering and Management, Kolkata, India; 3. Institute for Solid State Physics, University of Tokyo, Kashiwa, Japan*

Session AF
MAGNETIC RECORDING: COMPONENTS AND
ARCHITECTURE

Ganping Ju, Chair
Seagate, Cupertino, CA, United States

9:00

- AF-01. Comparison between Interlaced, Shingled, and Conventional Heat Assisted Magnetic Recording. (Invited)** *S. Hernandez¹, S.D. Granz¹, Z. Liu¹, P. Krivosik², P. Huang³, G. Ju³, T. Rausch¹ and E. Gage¹* *1. Seagate Research Group, Seagate Technology, Shakopee, MN, United States; 2. Recording Head Operations, Seagate Technology, Bloomington, MN, United States; 3. Recording Media Operations, Seagate Technology, Fremont, CA, United States*

9:30

- AF-02. Reader noise due to thermally driven asymmetric oscillations.** *A. Stankiewicz¹, T. Pipathanapoomprorn^{2,4}, K. Subramanian³ and A. Kaewrawang⁴* *1. Seagate Technology, Bloomington, MN, United States; 2. Seagate Technology, Korat, Thailand; 3. Seagate Technology, Shakopee, MN, United States; 4. Department of Electrical Engineering, Khon Kaen University, Khon Kaen, Thailand*

9:45

- AF-03. Probe-based Spin Torque Transfer Device for Writing Hard Disks.** *J. Hong², O. Lee³, K. Dong⁴, S. Khizroev⁵, L. You² and J. Bokor¹* *1. University of California, Berkeley, Berkeley, CA, United States; 2. Huazhong University of Science & Technology, Wuhan, China; 3. Korea Institute of Science and Technology, Seoul, The Republic of Korea; 4. China University of Geosciences, Wuhan, China; 5. Florida International University, Miami, FL, United States*

10:00

- AF-04. Large magnetoresistive outputs in Heusler alloy-based CPP-GMR sensors using with AgInZnO spacers.** *T. Nakatani¹, T. Sasaki¹, Y. Sakuraba¹ and K. Hono¹* *1. Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science (NIMS), Tsukuba, Japan*

10:15

- AF-05. Tailoring epitaxially grown exchange spring Fe/L10-FePt multilayers as perpendicular recording media.** *A. Syed Mohd¹, S. Pütter¹, S. Mattauch¹ and T. Brückel^{1,2}* *1. Jülich Centre for Neutron Science (JCNS) at MLZ, Forschungszentrum Jülich GmbH, Garching, Germany; 2. Jülich Centre for Neutron Science JCNS and Peter Grünberg Institut, JCNS-2, PGI-4: Scattering Methods, Forschungszentrum Jülich GmbH, Jülich, Germany*

10:30

- AF-06. Data Temperature and Future Data Storage Architecture.** *(Invited) K. Gao^{2,1} 1. Energy Systems, Argonne National Laboratory, Argonne, IL, United States; 2. International Business and Technology Service, North Oaks, MN, United States*

11:00

- AF-07. CoPt capped FePtC based ECC media for HAMR.** *T. Dutta^{1,2}, S. Piramanayagam³, M. Saifullah², C.S. Bhatia¹ and H. Yang¹ 1. Electrical and Computer Engineering, National University of Singapore, Singapore; 2. Institute of Material Research and Engineering, Singapore, Singapore; 3. School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore*

11:15

- AF-08. Order-disorder Temperature of MnGa Thin Films on Glass Substrate.** *C. Huang¹, Y. Chen², S. Wang¹ and A. Sun² 1. Institute of Materials Science and Engineering, National Taipei University of Technology, Taipei, Taiwan; 2. Chemical Engineering and Materials Science, Yuan Ze University, Taoyuan, Taiwan*

11:30

- AF-09. Controlling Size Distribution of FePt Nuclei by Tuning Sputtering Conditions.** *B. Zhou^{1,2}, B. Varaprasad^{1,3}, E. Zhang^{1,2}, D. Laughlin^{1,2} and J. Zhu^{1,3} 1. Data Storage Systems Center, Carnegie Mellon University, Pittsburgh, PA, United States; 2. Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, PA, United States; 3. Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA, United States*

11:45

- AF-10. Influence of Stress and Strain on the $L 1_0$ -ordered Phase Formation in FePt Thin film.** *M. Futamoto¹, T. Shimizu¹, M. Nakamura¹ and M. Ohtake¹ 1. EECE, Chuo University, Shinjuku, Japan*

Session AG
ELECTRICAL MACHINES AND CONTROL I

Jiadan Wei, Co-Chair
Nanjing University of Aeronautics and Astronautics, Nanjing, China
 Andrew Knight, Co-Chair
University of Calgary, Calgary, AB, Canada

9:00

- AG-01. Design of a Novel Variable-stiffness Permanent Magnetic Mechanism for Flexible Robots.** *M. Zhang¹, L. Fang² and F. Sun³* *1. School of Mechanical Engineering and Automation, Northeastern University, Shenyang, China; 2. Faculty of Robot Science and Engineering, Northeastern University, Shenyang, China; 3. School of Mechanical Engineering, Shenyang University of Technology, Shenyang, China*

9:15

- AG-02. Two-Converters Based Synchronous Operation and Control of a Brushless Doubly-Fed Reluctance Machine.** *R. Rebeiro¹ and A. Knight¹* *1. Electrical Engineering, University of Calgary, Calgary, AB, Canada*

9:30

- AG-03. A Novel Two-Phase Excitation Switched Reluctance Motor with Symetrical Winding Distribution.** *Y. Zhu¹, C. Yang¹ and Y. Zhang¹* *1. Tianjin University of Science and Technology, Tianjin, China*

9:45

- AG-04. Rotor Design Optimization of a new Flux Assisted consequent Pole Spoke type Permanent Magnet Torque Motor for low speed applications.** *M. Onsal¹, Y. Demir¹ and M. Aydin^{1,2}* *1. R&D, MDS Motor Ltd., Kocaeli, Turkey; 2. Mechatronics Engr., Kocaeli University, Kocaeli, Turkey*

10:00

- AG-05. Manufacturing Condition and Variations of Soft Magnetic Composite Cores for Application in PM Motors Based on Taguchi Method.** *G. Lei¹, Y. Guo¹ and J. Zhu¹* *1. University of Technology Sydney, Sydney, NSW, Australia*

10:15

- AG-06. Design of Cryogenic Permanent Magnet Synchronous Motor for Submerged Liquefied Natural Gas Pump.** *C. Guo¹, S. Huang¹, J. Wang¹ and Y. Feng¹* *1. College of Electrical & Information Engineering, Hunan University, Changsha, China*

10:30

- AG-07. Study on Optimal Current Allocation Strategy for Doubly Salient Electromagnetic Machine based on Particle Swarm Optimization.** *A. Wang¹, Z. Chen¹, H. Li¹ and C. Zhang¹* *1. Department of Electrical Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing, China*

10:45

- AG-08. A Novel Coupled Auto-transformer and Magnetic Control Soft Starter for Super Large Capacity High Voltage Motor.** J. Yuan¹, C. Wang¹, Y. Zhu¹, H. Zhou¹, L. Wei^{1,2}, C. Tian¹, Y. Gao³, K. Muramatsu³ and B. Chen¹ *1. Electrical and Engineering, Wuhan University, Wuhan, China; 2. Department of Electrical Engineering, Graduate School of Engineering, Kyoto University, Kyoto, Japan; 3. Department of Electrical and Electronic Engineering, Saga University, Saga, Japan*

11:00

- AG-09. A novel vector control strategy for six-phase induction motor with low torque ripples and harmonic currents.** H. Heidari¹, A. Taheri¹ and M. Holakooie¹ *1. University of Zanjan, Zanjan, The Islamic Republic of Iran*

11:15

- AG-10. A Novel Dual-Sided PM Variable Flux Memory Machine.** H. Yang¹, H. Lin¹, Z. Zhu², S. Lyu¹ and K. Wang¹ *1. School of Electrical Engineering, Southeast University, Nanjing, China; 2. Department of Electronic and Electrical Engineering, The University of Sheffield, Sheffield, United Kingdom*

11:30

- AG-11. Analysis of Torque Characteristics of A Parallel Hybrid Excitation Machine Drives with Sinusoidal and Rectangular Current Excitations.** Y. Wu¹, L. Sun¹, Z. Zhang¹, Z. Miao¹ and C. Liu¹ *1. Nanjing University of Aeronautics and Astronautics, Nanjing, China*

11:45

- AG-12. Improved Analytical Eddy Current Loss Modelling Considering Carrier Harmonics towards Maximum Efficiency Control of PMSM- Drive Systems.** A. Balamurali¹, C. Lai¹, H. Dhulipati¹, V. Loukanov² and N. C. Kar¹ *1. University of Windsor, Windsor, ON, Canada; 2. D&V Electronics Ltd., Woodbridge, ON, Canada*

TUESDAY
MORNING
9:00

PEONY II

Session AH
SENSORS: FUNDAMENTAL DEVELOPMENTS AND MATERIALS I

James Deak, Chair
MultiDimension Technology Co., Ltd, Zhangjiagang, China

9:00

- AH-01. Integrated NEMS Magnetoelectric Sensors and Antennas. (Invited)** N. Sun¹ *1. ECE, Northeastern University, Boston, MA, United States*

- AH-02. Giant photo-Hall effect in metals.** *A. Ruotolo*^{1,2} and *D. Li*^{1,2}
1. City University of Hong Kong, Kowloon, Hong Kong; 2. City University Shenzhen Research Institute, Shenzhen, China

- AH-03. Magneto-optical magnetic field sensor based on magnetoplasmonic crystal.** *N. Gusev*^{1,3}, *A. Kalish*^{1,4},
V. Belotelov^{1,4}, *G.A. Knyazev*^{1,4}, *P. Kapralov*^{1,3}, *P. Vetoshko*^{1,2}
 and *A. Zvezdin*^{1,3} *1. Russian Quantum Center, Moscow, Russian Federation; 2. Kotelnikov Institute of Radioengineering and Electronics Russian Academy of Sciences, Moscow, Russian Federation; 3. Prokhorov General Physics Institute Russian Academy of Sciences, Moscow, Russian Federation; 4. Faculty of Physics, Lomonosov Moscow State University, Moscow, Russian Federation*

- AH-04. Phase Transitions in Spin-Crossover Thin Films Probed by Graphene Transport Measurements.** *J. Dugay*¹, *M. Aarts*²,
*M. Giménez-Marqués*¹, *T. Kozlova*², *H. Zandbergen*²,
*E. Coronado*¹ and *H. van der zant*² *1. Molecular Materials, Institute of Molecular Science (ICMol), Paterna, Spain; 2. Department of Quantum Nanoscience, Delft University of Technology, Delft, Netherlands*

- AH-05. Custom-designed GMR- and TMR-sensor functionalities via oblique-incidence deposition.** *S. Willing*^{1,2}, *K. Schlage*²,
L. Bocklage^{2,3}, *G. Meier*^{4,3} and *R. Roehlsberger*^{2,3} *1. PIER Helmholtz Graduate School, Hamburg, Germany; 2. Deutsches Elektronen-Synchrotron (DESY), Hamburg, Germany; 3. The Hamburg Centre for Ultrafast Imaging, Hamburg, Germany; 4. Max-Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany*

- AH-06. Magnetic tunnel junctions with perpendicular synthetic antiferromagnetic CoPt pinned layers for magnetic sensors with wide dynamic range.** *T. Ogasawara*¹, *M. Oogane*¹,
*M. Tsunoda*² and *Y. Ando*¹ *1. Department of Applied Physics, Tohoku University, Sendai, Japan; 2. Department of Electronic Engineering, Tohoku University, Sendai, Japan*

- AH-07. Magnetic Sensor Using Spin-orbit Torque Effective Field as Transverse Bias.** *Y. Xu*¹, *Y. Yang*¹, *Z. Luo*¹ and *Y. Wu*¹
1. Electrical and Computer Engineering, National University of Singapore, Singapore

- AH-08. Co/Pd Multilayer Structure for Hydrogen Sensing.** *J. Liang*¹,
*K. Chang*¹, *K. Chen*¹ and *Y. Tseng*¹ *1. Materials Science & Engineering, National Chiao Tung University, Hsin-chu, Taiwan*

11:15

- AH-09. Enhanced annealing stability of exchange biased pinned layer in magnetic tunnel junctions using a thin Ta/Ru/Ta/Ru underlayer for analog sensor applications.** *K. Okamoto¹, Y. Fuji¹, Y. Higashi¹, S. Kaji¹, T. Nagata¹, S. Baba¹, A. Yuzawa¹ and M. Hara¹* *1. Corporate Reserch & Development Center, Toshiba Corporation, Saiwai-ku, Kawasaki, Japan*

11:30

- AH-10. Modification of Ce valence states by Y/Dy co-doping of CeO₂ nano-particles for effective Electrical and Sensing properties.** *C. Madhusudan^{1,2}* *1. Department of Physics, Osmania University, Hyderabad, India; 2. S.R.R Govt. Arts & Science College, Karimnagar, India*

11:45

- AH-11. Dural Field Frequency Mixing in Piezoelectric/ Piezomagnetic Laminates at Acoustic Resonance.** *P. Li¹, L. Bian², Y. Wen¹, X. Ji¹, T. Han¹ and Y. Wang¹* *1. Instrument Science and Engineering, Shanghai Jiaotong University, Shanghai, China; 2. Mechanical Engineering, Nanjing Technology University, Nanjing, China*

TUESDAY
MORNING
9:00

ORCHID II

Session AI
EMERGING AND INTERDISCIPLINARY
APPLICATIONS I

Albrecht Jander, Chair
Oregon State University,

9:00

- AI-01. Highly and tunable spin-to-charge conversion in 2D electron gas at LaAlO₃/SrTiO₃ interfaces. (Invited)** *J. Rojas-Sánchez¹, E. Lesne², Y. Fu³, S. Oyarzun³, D. Vaz², E. Jacquet², J. George², L. Vila³, S. Petit-Watelot¹, A. Barthélémy², H. Jaffres², M. Bibes² and A. Fert²* *1. Institut Jean Lamour - CNRS - Univ. Lorraine, Nancy, France; 2. Unité Mixte de Physique, CNRS, Thales, Univ. Paris-Sud, Université Paris-Saclay, Palaiseau, France; 3. Spintec, Institut Nanosciences et Cryogenie, Univ. Grenoble Alpes, CEA, CNRS, Grenoble, France*

9:30

- AI-02. An Electromagnetic Field Reduction Method for Inductive Power Transfer in Transportation System.** *J. Kim¹, K. Kim¹ and S. Ahn¹* *1. The Cho Chun Shik Graduate School for Green Transportation, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, The Republic of Korea*

9:45

- AI-03. Optimal Design of Quadrature-Shaped Pickup for Omnidirectional Wireless Power Transfer.** Z. Zhang¹, B. Zhang¹, R. Tong¹, W. Ai¹, S. Chang¹ and J. Wang¹ *1. School of Electrical and Information Engineering, Tianjin University, Tianjin, China*

10:00

- AI-04. A 3D-Printing Magnetic Forward Method for Objects in Motion.** Y. Sui¹ and K. Liu¹ *1. Jilin University, Changchun, China*

10:15

- AI-05. Fabrication technology of low-propagation-loss plasmonic waveguide containing a ferromagnetic metal.** V. Zayets¹, H. Saito¹ and S. Yuasa¹ *1. Spintronics Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan*

10:30

- AI-06. Area Efficient Multi Level Cell SOT-MRAM with Shared Diode for High Density Memories Applications.** K.A. Ahmed^{1,2}, L. Fei¹, S.Y. Lua¹ and C. Heng² *1. NVM, Data Storage Institute, Singapore, Singapore; 2. ECE, National University of Singapore, Singapore*

10:45

- AI-07. Rowhammer for Spin Torque based Memory: Problem or not?** S. Agarwal¹, H. Dixit³, D. Datta¹, M. Tran², D. Houssameddine², D. Shum² and F. Benistant² *1. GLOBALFOUNDRIES Engineering Pvt. Ltd, Bangalore, India; 2. GLOBALFOUNDRIES Singapore Pte. Ltd, Singapore, Singapore; 3. GLOBALFOUNDRIES, 400 Stone Break Rd Extension, Malta, NY, United States*

11:00

- AI-08. Artificial neural network based on spin-wave coupled spin torque oscillators.** H. Arai^{1,2} and H. Imamura¹ *1. Spintronics RC, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki, Japan; 2. JST-PRESTO, Kawaguchi, Saitama, Japan*

11:15

- AI-09. Spin-Hall effects and unconventional Anomalous Hall Effects in transition-metal based metallic spintronic multilayers for THz Emission.** H. Jaffres¹, T. Dang¹, Q. Barbedienne¹, H. Nong², J. Tignon², N. Reyren¹, J. George¹, S. Collin¹, L. Vila³, L. Divay⁴, P. Bortolotti⁴ and S. Dhillon² *1. Unité Mixte de Physique CNRS-Thales, Palaiseau, France; 2. Laboratoire Pierre Aigrain, ENS, Equipe THZ & Infrarouge, PARIS, France; 3. INAC/SP2M, CEA-Université Grenoble-Alpes, GRENOBLE, France; 4. Thales Research & Technology, Palaiseau, France*

- AI-10. Investigation of intrinsic large anomalous Nernst effect in Co-based Heusler compounds for novel energy harvesting applications.** *Y. Sakuraba*^{1,2}, K. Hyodo³, S. Mitani¹ and A. Sakuma³ *1. National Institute for Materials Science (NIMS), Tsukuba, Japan; 2. JST-PRESTO, Saitama, Japan; 3. Tohoku University, Sendai, Japan*

- AI-11. Mutually synchronized 2D spin Hall nano-oscillator arrays.** *M. Zahedinejad*^{1*}, A.A. Awad¹, S. Muralidhar¹, M. Dvornik¹ and J. Åkerman¹ *1. Physics, University of Gothenburg, Gothenburg, Sweden*

TUESDAY
MORNING
8:30

SIMPOR/ROSELLE BALLROOM

Session AP
BIO-IMAGING AND BIO-DETECTION II
(Poster Session)

Neil Telling, Co-Chair
Keele University, Stoke-on-Trent, United Kingdom
Alfredo García-Arribas, Co-Chair
Universidad del País Vasco, UPV/EHU, Leioa, Spain

- AP-01. Histamine Magnetic Test for Wine.** *M. Rivas*¹, A. Moyano^{1,3}, M. Salvador^{1,4}, J.C. Martínez-García¹, M. Fernández² and M.C. Blanco-López³ *1. Physics Department, University of Oviedo, Gijón, Spain; 2. Dairy Research Institute of Asturias, CSIC, Villaviciosa, Spain; 3. Physical and Analytical Chemistry Department, University of Oviedo, Oviedo, Spain; 4. Institute of Structure of Matter, National Research Council, Rome, Italy*
- AP-02. Microstructure engineering of polymer-based magnetic composites for microfluidic devices.** *D. Le Roy*¹, M. Samir², V. Dupuis¹ and A. Deman² *1. Institut Lumière Matière, Villeurbanne, France; 2. Institut des Nanotechnologies de Lyon, Villeurbanne, France*
- AP-03. Temperature dependence of transverse relaxivity of the nanoparticle contrast agents for MRI: different magnetic cores and coatings.** *O. Kaman*¹, V. Herynek², P. Veverka¹, L. Kubickova¹, M. Pashchenko^{1,3}, J. Kulickova¹ and Z. Jirak¹ *1. Institute of Physics, Czech Academy of Sciences, Praha, Czechia; 2. Institute for Clinical and Experimental Medicine, Praha, Czechia; 3. Faculty of Mathematics and Physics, Charles University, Praha, Czechia*

- AP-04. A Novel 1H/ 3He Dual-Tuned Transmit Coil at Ultra-low Field MRI Designed by Using Electromagnetic Field and Radio Frequency Circuit Co-Simulation Method.** *Y. Dou*^{1,2}, *Y. Li*², *J. Xu*¹, *Q. Chen*², *L. Wang*¹, *X. Zhang*³, *N. Li*², *C. Luo*² and *F. Du*² *1. School of Electrical Engineering and Automation, Hefei University of Technology, Hefei, China; 2. Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China; 3. Department of Radiology and Biomedical Imaging, University of California San Francisco, San Francisco, DC, United States*
- AP-05. Peak to Peak Voltage Detector Type MI Gradiometer for Real Time Alpha Rhythm Measurement.** *J. Ma*¹ and *T. Uchiyama*¹ *1. Graduate School of Engineering, Nagoya University, Nagoya, Japan*
- AP-06. A Theoretical and Simulational Study on the Chemical Shift Effects on the Magnetic Susceptibility of Iron at Ultra-Short Echo Times.** *X. Lu*¹, *J. Zhu*¹, *Z. Wang*¹, *S. Wei*¹, *H. Wang*¹ and *W. Yang*¹ *1. Institute of Electrical Engineering, Chinese Academy of Science, Beijing, China*
- AP-07. Magnetic-Fluorescent Fe₃O₄@Chitosan-Graphene Quantum Dots Nanocomposites for Dual-Modal nanoprobe of Fluorescence and Magnetic Resonance Imaging.** *Y. Li*¹, *K. Wang*¹, *X. Xu*¹ and *Y. Jiang*¹ *1. University of Science and Technology Beijing, Beijing, China*
- AP-08. Asymmetric Gradiometer System for Magnetocardiograms Measuring Without Magnetic Shielding.** *Q. Wang*¹, *J. Du*^{2,1} and *T. Song*¹ *1. Department of Bioelectromagnetism, Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China; 2. University of Chinese academy of sciences, Beijing, China*
- AP-09. Demonstration of low-field unilateral nuclear magnetic resonance (NMR) for future medical diagnostics.** *N. Prabhu Gaunkar*¹, *S. Utsuzawa*², *M. Mina*¹, *Y. Song*² and *D.C. Jiles*¹ *1. Department of Electrical and Computer Engineering, Iowa State University, Ames, IA, United States; 2. NMR Fluids Division, Schlumberger-Doll Research, Boston, MA, United States*
- AP-10. Noise reduction in magnetocardiograph based on time-shift PCA just using measurement data.** *M. Iwai*¹ and *K. Kobayashi*¹ *1. Science and engineering, Iwate University, Morioka, Japan*
- AP-11. Quantitative component selection method using attractor analysis for noise reduction by ICA of magnetocardiogram.** *K. Kobayashi*¹ and *M. Iwai*¹ *1. Faculty of Science and Engineering, Iwate University, Morioka, Iwate, Japan*

- AP-12. Electromagnetic Field and Radio Frequency Circuit Co-simulation Approach for Strongly Coupled Coil Array in Magnetic Resonance Imaging.** *N. Li^{2,1}, S. Liu², F. Du^{2,1}, Q. Chen¹, C. Luo¹, Y. Dou¹, X. Zhang^{3,4} and Y. Li¹* *1. Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China; 2. Department of Biomedical Engineering, Chongqing University of Technology, Chongqing, China; 3. Department of Radiology and Biomedical Imaging, University of California, San Francisco, CA, United States; 4. UCSF/UC Berkeley Joint Graduate Group in Bioengineering, San Francisco, CA, United States*
- AP-13. Improving Tip Position Estimation Accuracy of Gastric Tube by Compensating Geomagnetic Field with Offset Coils.** *T. Sasayama¹, Y. Gotoh² and K. Enpuku¹* *1. Kyushu University, Fukuoka, Japan; 2. Oita University, Oita, Japan*
- AP-14. Effect of Gd₅Si₄ ferromagnetic nanoparticle sizes on T₁, T₂ and T₂^{*} relaxation in MRI.** *S. Hunagund¹, J. Rosenberg², S.M. Harstad¹, A.A. El-Gendy³, S. Gupta⁴, V. Pecharsky^{5,4} and R.L. Hadimani¹* *1. Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States; 2. The National High Magnetic Field Laboratory, Florida State University, Tallahassee, FL, United States; 3. Dept. of Physics, University of Texas at El Paso, El Paso, TX, United States; 4. Iowa State University, Ames Laboratory, US Department of Energy, Ames, IA, United States; 5. Dept. of Material Science and Engineering, Iowa State University, Ames, IA, United States*

**TUESDAY
MORNING
8:30**

SIMPOR/ROSELLE BALLROOM

Session AQ
HIGH FREQUENCY MAGNETIC MATERIALS AND DEVICES I
(Poster Session)

Zhongming Zeng, Chair

Suzhou Institute of Nano-tech and Nano-bionics, CAS, Suzhou, China

- AQ-01. Analysis and Optimization of a New Structure for Wireless Charging System of Electric Vehicles.** *Z. Li¹ and J. Yi¹*
1. College of Traffic Engineering, Hunan University of Technology, Zhuzhou, China
- AQ-02. Influence of the phase structure on the acoustic and optical mode ferromagnetic resonance of FeNi stripe domain films.** *D. Cao¹, L. Pan², Y. Song¹, X. Cheng², H. Feng², C. Zhao², Q. Li¹, J. Xu¹, S. Li¹, Q. Liu² and J. Wang²* *1. College of Physics, Qingdao University, Qingdao, China; 2. Lanzhou University, Lanzhou, China*
- AQ-03. Indirect Permeability Measurements using a ‘Strip-coil’ for Co_{0.6}Zn_{0.4}Fe_{1.7}Mn_{0.3}O₄.** *U. Chaudhuri¹, M. Kumari¹ and R. Mahendiran¹* *1. Physics, National University of Singapore, Singapore*

- AQ-04. Microwave absorption properties of polymeric ferrite core-shell nanocomposites.** K. Song¹, K. Seo¹ and J. Jung¹
1. Chemistry, Gangneung-Wonju National University, Gangneung city, The Republic of Korea
- AQ-05. High frequency magnetic loss in nanogranular FeCoTiO films with different history of induced uniaxial anisotropy.** Y. He¹, Y. Wang¹, Z. Zhong¹, H. Zhang¹ and F. Bai¹
1. University of Electronic Science and Technology, State Key Laboratory of Electronic Thin Films and Integrated Devices, Chengdu, China
- AQ-06. Foldover effect in spin-wave optoelectronic active ring resonators.** V. Vitko¹, A. Nikitin¹, A.B. Ustinov¹ and B.A. Kalinikos¹ *1. Saint-Petersburg Electrotechnical University "LETI", Saint Petersburg, Russian Federation*
- AQ-07. Effect of annealing on the structural and FMR properties of epitaxial YIG thin films grown by RF magnetron sputtering.** B. Bhoi¹, N. Venkataramani², R. Aiyar¹, S. Prasad³ and M. Kostylev⁴ *1. Center for Research in Nanotechnology and Science, Indian Institute of Technology Bombay, Mumbai, India; 2. Metallurgical Engineering & Materials Science (MEMS), Indian Institute of Technology Bombay, Mumbai, India; 3. Dept of Physics, Indian Institute of Technology Bombay, Mumbai, India; 4. Physics, The University of Western Australia (M013), Perth, WA, Australia*
- AQ-08. Design of an implantable antenna operating at ISM band using magneto-dielectric material.** Z. Luan¹, L. Liu², W. Zong², Z. Jin², D. Cao¹, H. Lin³, N. Sun³ and S. Li¹
1. Physics, Qingdao University, Qingdao, China; 2. Electronics and information, Qingdao University, Qingdao, China; 3. Northeastern University, Boston, MA, United States
- AQ-09. Electromagnetic Noise Suppression Composite Sheet Made of Hexagonal Ferrite Particles.** M. Sato¹, R. Sai¹, Y. Miyazawa¹, A. Takahashi¹ and M. Yamaguchi^{1,2} *1. New Industry Creation Hatchery Center, Tohoku University, Sendai, Japan; 2. Department of Electrical Engineering, Tohoku University, Sendai, Japan*
- AQ-10. Enhancement of Phase-Shifting Nonreciprocity in Metamaterial Lines Loaded with Comb-Shaped Stubs Supporting Slow Wave Propagation of Edge Guided Modes.** T. Ueda¹, K. Okamoto¹, J. Yamauchi¹ and T. Itoh² *1. Electrical Engineering and Electronics, Kyoto Institute of Technology, Kyoto, Japan; 2. Electrical Engineering Department, University of California, Los Angeles, Los Angeles, CA, United States*
- AQ-11. Synthesis and Microwave Absorbing Property of SrZn_xFe_(2-x)Fe₁₆O₂₇ (0.0 ≤ x ≤ 1.0).** J. You¹, S. Choi¹, S. Lee¹ and S. Yoo¹ *1. Material science and engineering, Seoul National University, Seoul, The Republic of Korea*
- AQ-12. Transport, magneto-optical and micromagnetic characterization of domain-wall resonance (DWR) in giant magnetoimpedance strain and magnetic field sensors.** G. Büttel¹ and U. Hartmann¹ *1. Institute of Experimental Physics, University of Saarland, Saarbrücken, Germany*

- AQ-13. New Measurement Method of Broadband Permittivity and Permeability of Non-Solid Materials in Small Quantity.** *K. Miura¹, Y. Odagiri¹, T. Umesaka¹, D. Suzue¹ and H. Osada¹*
1. Faculty of Science and Engineering, Iwate University, Morioka, Japan
- AQ-14. Comparative Analysis of Core Loss Calculation Methods for Magnetic Materials Under Nonsinusoidal Excitations.** *Y. Li¹, S. Yue¹ and Q. Yang²* 1. Hebei University of Technology, Tianjin, China; 2. Electrical Engineering, Tianjin Polytechnic University, Tianjin, China
- AQ-15. Design and Analysis of a Novel High Frequency 2-D Magnetization Structure with Ultra-Thin Silicon Steel Sheet.** *Y. Li¹, Y. Dou¹, C. Zhang¹, A. Li¹ and J. Zhu²* 1. Hebei University of Technology, Tianjin, China; 2. Electrical engineering, University of Technology, Sydney, Sydney, NSW, Australia
- AQ-16. High-frequency magnetic and dielectric properties of CaO-SiO₂ codoped NiZnCo spinel ferrites.** *Z. Zheng¹, Y. Li¹, T. Liu¹, Q. Xiang¹ and Q. Feng¹* 1. School of Information Science and Technology, Southwest Jiaotong University, Chengdu, China

TUESDAY
MORNING
8:30

SIMPOR/ROSELLE BALLROOM

Session AR
MAGNETO-ELECTRONIC DEVICES
(Poster Session)
Yumeng Yang, Chair
National University of Singapore, Singapore

- AR-01. Radiation Hardening Techniques for SOT-MRAM Peripheral Circuitry.** *B. Wang^{1,2}, Z. Wang¹, C. Hu², Y. Zhao², Y. Zhang¹ and W. Zhao¹* 1. Beihang University, Beijing, China; 2. Beijing Micoelectronics Technology Institute, Beijing, China
- AR-02. Magnetization uniformity and threshold current of out-of-plane precession in spin-torque oscillator with synthetic ferrimagnet free layer under perpendicular magnetic field: Micromagnetic simulation study.** *T. Kanao¹, T. Nagasawa¹, H. Suto¹ and K. Mizushima¹* 1. Corporate Research & Development Center, Toshiba Corporation, Kawasaki, Japan
- AR-03. Fabrication of L_{10} -MnAl thin films with high perpendicular magnetic anisotropy for STT-MRAM.** *M. Parvin¹, M. Kubota¹, M. Oogane¹, M. Tsunoda² and Y. Ando¹* 1. Applied Physics, Graduate School of Engineering, Tohoku University, Sendai-shi, Japan; 2. Electronic Engineering, Tohoku University, Sendai, Japan

- AR-04. Hybrid memory layer with low Curie temperature CoPd/Pd multilayer for high-density magnetic random access memory cells.** *W. Zhao*¹, *T. Kimura*¹, *T. Kato*¹, *D. Oshima*³, *Y. Sonobe*², *Y. Kawato*² and *S. Iwata*³ *1. Department of Electronics, Nagoya University, Nagoya, Japan; 2. Samsung R&D Institute Japan, Yokohama, Japan; 3. Institute of Materials and Systems for Sustainability, Nagoya University, Nagoya, Japan*
- AR-05. Magnetic Properties of Mn-based Heusler alloy films with Ru doping.** *L. Ren*¹, *Y. Zheng*¹, *Y. Liu*¹ and *K. Teo*¹ *1. Department of Electrical & Computer Engineering, National University of Singapore, Singapore*
- AR-06. Reducing the switching current with a Dzyaloshinskii-Moriya interaction in nanomagnets with perpendicular anisotropy.** *S. Takamatsu*¹, *K. Yamada*² and *Y. Nakatani*¹ *1. University of Electro-Communications, Chofu, Japan; 2. Gifu University, Gifu, Japan*
- AR-07. Effect of the damping constant on switching time distribution in the magnetic tunnel junction.** *J. Moon*¹, *T. Lee*² and *C. You*³ *1. Department of Materials Science and Engineering, Korea University, Seoul, The Republic of Korea; 2. New Memory Device and Process Integration Group, SK hynix, Icheon, The Republic of Korea; 3. Department of Emerging Materials Science, Daegu Gyeongbuk Institute of Science and Technology, Daegu, The Republic of Korea*
- AR-08. Proposal of an ultra-fast all spin logic device based on RE-TM ferrimagnetic material.** *Z. Zheng*^{1,2}, *Y. Zhang*^{1,2}, *Z. Zhang*^{1,2}, *J. Nan*^{1,2}, *K. Zhang*^{1,2}, *J. Klein*³, *D. Ravelosona*³, *Y. Zhang*^{1,2} and *W. Zhao*^{1,2} *1. Fert Beijing Institute, Beihang University, Beijing, China; 2. School of Electrical and Information Engineering, Beihang University, Beijing, China; 3. Center for Nanoscience and Nanotechnology, University of Paris-Sud, Orsay, France*
- AR-09. Evaluation of ultrahigh-speed magnetic memories using field-free spin orbit torque.** *Z. Wang*¹, *L. Chang*¹, *X. Lin*¹, *J. Yang*¹, *Y. Zhang*¹ and *W. Zhao*¹ *1. Beihang University, Beijing, China*
- AR-10. Observation of local spin signals at room temperature in germanium lateral devices.** *M. Tsukahara*¹, *M. Yamada*¹, *T. Naito*¹, *Y. Fujita*¹, *S. Yamada*^{1,2}, *K. Sawano*³ and *K. Hamaya*^{1,2} *1. Graduate School of Engineering Science, Osaka University, Toyonaka, Japan; 2. Center for Spintronics Research Network, Osaka University, Toyonaka, Japan; 3. Advanced Research Laboratories, Tokyo City University, Todoroki, Japan*
- AR-11. Proposal for Multi-gate Spin Field Effect Transistor (Spin-FET).** *G. Wang*¹, *Z. Wang*^{2,3}, *J. Klein*¹ and *W. Zhao*^{3,2} *1. Centre de Nanosciences et de Nanotechnologies, Université Paris Saclay, Orsay, France; 2. Spintronics Interdisciplinary Center, Beihang University, Beijing, China; 3. Fert Beijing Institute, Beihang University, Beijing, China*

- AR-12. Estimating the spin relaxation time of platinum by second harmonic electrical transport measurement.** C. Fang¹, C. Wan¹, A. Hoffmann², B. Tao¹, H. Wu¹ and X. Han¹ *1. State Key Lab of Magnetism, Institute of Physics, Beijing, China; 2. Materials Science Division, Argonne National Laboratory, Lemont, IL, United States*
- AR-13. Spin Dice Based on Orthogonal Spin Transfer Devices.** X. Li¹ and L. You¹ *1. School of Optical and Electronics Information, Huazhong University of Science and Technology, WuHan, China*
- AR-14. Magnetization behaviors of magnetic tunnel junctions driven by the spin-orbit torque.** T. Wu¹ *1. Graduate School of Materials Science, National Yunlin University of Science and Technology, Douliu, Taiwan*
- AR-15. Recognizing and memorizing patterns with delayed feed-back spin-torque nano-oscillators.** M. Riou⁴, J. Torrejon⁴, F. Abreu Araujo⁴, G. Khalsa¹, M. Stiles¹, S. Tsunegi², K. Yakushiji², A. Fukushima², H. Kubota², S. Yuasa², D. Querlioz³, V. Cros⁴ and J. Grollier⁴ *1. National Institute of Standards and Technology, Gaithersburg, MD, United States; 2. National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan; 3. Centre de nanosciences et nanotechnologies, Université Paris-Sud, Orsay, France; 4. Unité Mixte de Physique CNRS/Thales, Palaiseau, France*

TUESDAY
MORNING
8:30

SIMPOR/ROSELLE BALLROOM

Session AS NANOPARTICLES AND NANOSTRUCTURED ARRAYS (Poster Session)

Joachim Gräfe, Co-Chair
Max Planck Institute for Intelligent Systems, Stuttgart, Germany
Valeria Rodionova, Co-Chair
Immanuel Kant Baltic Federal University, Kaliningrad, Russian Federation

- AS-01. Domain structure and magnetic properties of magnetostatically coupled epitaxial Co nanostripe arrays with induced anisotropy.** A. Kozlov¹, A. Kolesnikov¹, E. Pustovalov¹, A.S. Samardak¹ and L. Chebotkevich¹ *1. School of Natural Sciences, Far Eastern Federal University, Vladivostok, Russian Federation*
- AS-02. Exchange bias in Co/CoO core-shell nanowires: roles of antiferromagnetic grain size distribution and interfacial spin glass.** X. Wen¹, K. Gandha³, P. Liu² and J. Yang¹ *1. Physics, Peking University, Beijing, China; 2. Physics, University of Texas at Arlington, Arlington, TX, United States; 3. Ames Laboratory, US Department of Energy, Ames, IA, United States*

- AS-03. Synthesis and magnetic investigation of CoCr₂O₄/Ni hybrid core-shell nanowires.** W. Li¹, C. Wang³, X. Zhang¹, M. Irfan¹, U. Khan¹, Y. Liu² and X. Han¹ 1. *State Key Lab of Magnetism, Institute of Physics, Beijing, China;* 2. *Tongji University, Shanghai, China;* 3. *Tongji University, Shanghai, China*
- AS-04. Magneto-thermodynamic properties and anomalous magnetic phase transition in FeRh nano-wires.** K. Matsumoto¹, M. Kimata², K. Kondou³, R.C. Temple⁴, C.H. Marrows⁴ and Y. Otani^{1,3} 1. *Institute for Solid State Physics, The University of Tokyo, Kashiwa, Japan;* 2. *Institute for Material Research, Tohoku University, Sendai, Japan;* 3. *Center for Emergent Matter Science, RIKEN, Wako, Japan;* 4. *School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom*
- AS-05. Atomic pair ordering and strain relaxation in thermally and vacuum Annealed NiCu nanowires prepared in Al₂O₃ nanoporous templates.** N. Ahmad¹ and Q. abbas¹ 1. *Physics, International Islamic University, Islamabad, Pakistan*
- AS-06. Controlled growth of Fe₃O₄ nanopillars and their magnetic properties.** M. Guan¹, G. Dong¹, Z. Zhou¹ and M. Liu¹ 1. *Xi'an Jiaotong University, Xi'an, China*
- AS-07. Effect of size on multiferroic SmMn₂O₅ nanorods.** T. Hsu¹, C. Yang¹, C. Yang¹, Y. Tung¹, C. Kao¹, W. Wu¹ and K. Lin² 1. *Physics, Chung Yuan Christian University, Taoyuan City, Taiwan;* 2. *Department of Chemical Engineering and Material Science, Yuan Ze University, Zhongli, Taiwan*
- AS-08. Fabrication of high-density metal alloy nanodots by a facile block copolymer inclusion method.** T. Maity¹, T. Ghoshal² and S. Roy¹ 1. *Tyndall National Institute, Cork, Ireland;* 2. *University College Cork, Cork, Ireland*
- AS-09. One-Pot Synthesis and Surface Modification of Lauric-Acid-Capped CoFe₂O₄ Nanoparticles.** Y. Teng¹ and P. Pong¹ 1. *Electrical and Electronical Engineering, The University of Hong Kong, Hong Kong*
- AS-10. Enhanced photocatalytic degradation of tri-chlorophenol by Fe₃O₄@TiO₂@Au photocatalyst under visible-light.** K. Song¹, K. Choi², B. Park³ and J. Jung¹ 1. *Chemistry, Gangneung-Wonju National University, Gangneung city, The Republic of Korea;* 2. *Institute of Biomaterials, Kwangwoon University, Seoul, The Republic of Korea;* 3. *Department of Electrical & Biological Physics, Kwangwoon University, Seoul, The Republic of Korea*
- AS-11. Solvothermal Synthesis of Uniform Water-Soluble Fe₃O₄ Nanoparticles.** S. Lee¹, Y. Chen¹ and A. Sun¹ 1. *Chemical Engineering and Materials Science, Yuan Ze University, Taoyuan, Taiwan*
- AS-12. Synthesis of Triangular Shaped Single Crystalline Magnetite Nanoparticles and Their Magnetorheological Response.** D. Bae¹, W. Han¹, C. Gao¹, Y. Dong¹ and H. Choi¹ 1. *Dept. of Polymer Science and Engineering, Inha University, Incheon, The Republic of Korea*

- AS-13. Structure and magnetic properties of MnBi nanoparticles prepared by laser ablation and arc discharge method.** X. Wang¹, H. Qian², P. Si¹, Y. Yang², C. Choi², J. Park², X. Wang¹, H. Ge¹, K. Shinde² and K. Chung² *1. China Jiliang University, Hangzhou, China; 2. Korea Institute of Materials Science, Changwon, The Republic of Korea*
- AS-14. Organization and magnetic properties of FePt nanoparticles deposited on graphene/Ir moiré pattern.** F. Tournus¹, P. Capiod¹, L. Bardotti¹, A. Tamion¹, O. Boisson¹, C. Albin¹, V. Dupuis¹, G. Renaud² and P. Ohresser³ *1. Institut Lumière Matière, Université Lyon 1 & CNRS, Villeurbanne, France; 2. CEA-INAC, Grenoble, France; 3. Synchrotron SOLEIL, Gif sur Yvette, France*
- AS-15. Research on Eddy Current Testing of Functional Polymer Composite Material.** Z. Cai² and C. Liu¹ *1. Province-Ministry Joint Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability, Hebei University of Technology, Tianjin, China; 2. East China Jiaotong University, Nanchang, China*

TUESDAY
MORNING
8:30

SIMPOR/ROSELLE BALLROOM

Session AT
PERMANENT MAGNET AND RELUCTANCE
MACHINES I
(Poster Session)

Hui Yang, Co-Chair
Southeast University, Nanjing, China
TW Ching, Co-Chair
University of Macau, Macau, China

- AT-01. Optimal Design of Asymmetric Step-Sloping Notches for Reduce the Cogging Torque of Single Phase BLDC Motor.** D. Kim^{1,2}, Y. Park^{1,2}, J. So^{1,2} and Y. You³ *1. Electrical Control Engineering, Suncheon National University, Suncheon, The Republic of Korea; 2. Greenenergy Laboratory, Suncheon National University, Suncheon, The Republic of Korea; 3. Honam University, Gwangju, The Republic of Korea*
- AT-02. Comparison of Electromagnetic Characteristics of Linear Oscillating Actuator according to Magnetic Flux Path.** C. Kim¹, G. Jang¹, S. Seo¹, J. Ahn^{3,1}, S. Jeong² and J. Choi¹ *1. electrical engineering, Chungnam National University, Daejeon, The Republic of Korea; 2. R&D, LG Electronics, Seoul, The Republic of Korea; 3. R&D, MAGNETAR, Daejeon, The Republic of Korea*
- AT-03. Analysis of Flux Reversal Permanent Magnet Machines with Different Consequent-Pole PM Topologies.** H. Li¹ and Z. Zhu¹ *1. Electronic and Electrical Engineering, University of Sheffield, Sheffield, United Kingdom*

- AT-04. Influence of Aluminum Die-Cast Rotor Porosity on the Efficiency of Induction Machines.** *J. Yun*^{2,1} and *S. Lee*¹
1. Korea University, Seoul, The Republic of Korea; 2. Hyundai Electric Co., LTD, Yongin, The Republic of Korea
- AT-05. Influence of Cooling Air Flow Velocity on Temperature Rise and Output Power for Permanent Magnet Servo Motor.** *G. Zhao*¹, *X. Gao*¹, *Y. Wang*¹ and *B. Bai*¹ 1. Shenyang University of Technology, Shenyang, China
- AT-06. The Method for Reducing Intrinsic Shaft Voltage by Suitable Selection of Pole-arc Coefficient in Fractional Slot Permanent Magnet Synchronous Machines.** *B. Peng*¹, *X. Wang*¹ and *W. Zhao*¹ 1. Shandong University, Jinan, China
- AT-07. Comparison of Rotor Eddy Current Losses in Fractional-Slot Concentrated-Winding IPM machines with Different Rotor Topology.** *L. Cong*^{1,2}, *X. Li*¹ and *L. Wu*² 1. College of Electrical Engineering, Guangxi University, Nanning, China; 2. School of Automation and Electrical Engineering, Linyi University, Linyi, China
- AT-08. Design and Analysis of A Mechanical Flux-varying PM Machine with Auto-rotary PMs.** *X. Liu*¹, *Z. Zhang*¹, *H. Xu*¹, *J. Xiao*¹ and *Z. Liu*¹ 1. School of Electrical Engineering and Automation, Jiangxi University of Science and Technology, Ganzhou, China
- AT-09. Development of Variable Stress Applying System for Shrink Fitting of Stator Housing in IPM Motor.** *J. Kitao*¹, *J. Aizawa*¹, *M. Nakano*¹, *M. Yamada*¹ and *A. Daikoku*¹
1. Mitsubishi Electric Corp., Hyogo, Japan
- AT-10. Study on structure aimed at low vibration of 16-pole 18-slot IPM motor for Mild-HEV.** *Y. Hirai*¹ 1. Motor Drive Laboratory, Tokyo City University, Tokyo, Japan
- AT-11. Torque Improvement in Partitioned Stator Wound Field Switched Flux Machine By Using Assisted Ferrites.** *Z. Wu*¹ and *Z. Zhu*¹ 1. Electronic and Electrical Engineering, The University of Sheffield, Sheffield, United Kingdom
- AT-12. Rotor Shape Optimization for Improving Torque Performance of PM-Assisted Wound Field Synchronous Machine.** *W. Chai*¹, *B. Kwon*¹ and *T.A. Lipo*² 1. Hanyang University, ANSAN, The Republic of Korea; 2. University of Wisconsin–Madison, Madison, WI, United States
- AT-13. Torque Ripple Improvement for Ferrite-Assisted Synchronous Reluctance Motor by Using Asymmetric Flux-barrier Arrangement.** *M. Xu*¹, *G. Liu*¹ and *W. Zhao*¹
1. Jinagsu university, Zhenjiang, China
- AT-14. Influence of Magnetic Saturation and Rotor Eccentricity on Back-EMF of Novel Hybrid-excited Stator Slot Opening Permanent Magnet Machine.** *M. Zheng*¹, *Z. Zhu*¹, *S. Cai*¹, *H. Li*¹ and *Y. Liu*¹ 1. Department of Electronic and Electrical Engineering, University of Sheffield, Sheffield, United Kingdom

AT-15. Design and Analysis of Variable Flux Memory Motor with Series-Parallel Structure Considering Permanent Magnet Load-Line. *J. Song*¹, *Y. Kim*² and *S. Jung*¹ *1. Department of Electronic, Electrical and Computer Engineering, Sungkyunkwan University, Suwon-si, The Republic of Korea; 2. Department of Electrical Engineering, Chosun University, Gwangju, The Republic of Korea*

AT-16. Design and Verification of 80kW Traction Motor for EV. *H. Kim*¹, *K. Jung*² and *J. Moon*¹ *1. Rotating Machinery Center, Korea Testing Certification, Gunpo-si, The Republic of Korea; 2. Automotive Engineering, Hanyang University, Seoul, The Republic of Korea*

TUESDAY
MORNING
8:30

SIMPOR/ROSELLE BALLROOM

Session AU
PERMANENT MAGNET AND RELUCTANCE
MACHINES II
(Poster Session)

Daohan Wang, Co-Chair
Shandong University, Shandong, China
Hongmei Li, Co-Chair
Hefei University of Technology, Hefei, China

AU-01. Design of slit-like flux barriers to improve space harmonic distribution in a slit stator motor. *Y. Yokoi*¹, *R. Hashizume*¹ and *T. Higuchi*¹ *1. Nagasaki University, Nagasaki, Japan*

AU-02. A New Modular Flux-Concentrated Doubly Salient Machine with PMs in Both Stator Yoke and Slot Openings. *Q. Wang*¹ and *S. Niu*¹ *1. Department of Electrical Engineering, The Hong Kong Polytechnic University, Hung Hom, Hong Kong*

AU-03. Rotor Structure for Reducing Demagnetization of Magnet and Torque Ripple in a PMA-synRM with Ferrite Permanent Magnet. *Y. Kong*¹, *M. Lin*¹, *G. Yang*¹ and *K. Liu*¹ *1. Engineering Research Center for Motion Control of MOE, Southeast University, Nanjing, China*

AU-04. Electromagnetic Performance Analysis of Hybrid Excited Segmental Rotor Flux Switching Machine. *Y. Yang*¹, *J. Chen*¹, *B. Yan*¹, *X. Wang*¹ and *C. Zhu*¹ *1. Shandong University, Jinan, China*

AU-05. Performance Analysis of Suspension Force and Torque in an IBPMSM with V-shape PMs for Flywheel Batteries. *B. Su*¹, *X. Sun*¹, *G. Lei*², *Z. Yang*¹, *J. Zhu*², *Y. Guo*² and *K. Diao*¹ *1. Automotive Engineering Research Institute, Jiangsu University, Zhenjiang, China; 2. School of Electrical, Mechanical and Mechatronic Systems, University of Technology, Sydney, Sydney, NSW, Australia*

- AU-06. Characteristic analysis of a consequent-pole motor with vernier structure using ferrite magnets.** M. Choi², B. Han¹ and B. Kim¹ 1. *Electrical, Electronic and Control Engineering, Gunsan National university, South Korea, Gunsan, The Republic of Korea*; 2. *Electrical System R&D Team Assistant Research Engineer, Jeonbuk Institute of Automotive convergence Technology, South Korea, Gunsan, Jeollabuk-do, The Democratic People's Republic of Korea*
- AU-07. Static Characteristics of Hybrid Excitation Machine with Parallel Magnetic Path.** J. Zhang¹, Z. Xu¹, Y. Jiang¹ and W. Hua¹ 1. *School of Electrical Engineering, Southeast University, Nanjing, China*
- AU-08. A Double-Rotor Consequent-Pole Vernier Permanent-Magnet Machine with Toroidal-Winding Arrangement for Hybrid Electric Vehicles.** C. Lee¹ 1. *Research Laboratory of Electronics, Massachusetts Institute of Technology, Cambridge, MA, United States*
- AU-09. Efficiency-Enhanced Variable Flux Reluctance Machine with Reduced Excitation Coils for Electric Vehicles.** X. Zhao¹ and S. Niu¹ 1. *Electrical Engineering, The Hong Kong Polytechnic University, Kowloon, Hong Kong*
- AU-10. Parametric Optimization of Flux Focusing Type Double Stator and Single Rotor Axial Flux Permanent Magnet Motor.** Q. Syed¹ and I. Hahn¹ 1. *Electrical Drives and Machines, University of Erlangen-Nürnberg, Erlangen, Germany*
- AU-11. Comparative Assessments of Flux-switching PM Motor Drives for EV Applications.** C. Liu¹, C. Hwang², Y. Chao², H. Chang³ and C. Hong⁴ 1. *Electrical Engineering, National Sun Yat-sen University, Kaohsiung, Taiwan*; 2. *Electrical Engineering, Feng Chia University, Taichung, Taiwan*; 3. *Automatic Control Engineering, Feng Chia University, Taichung City, Taiwan*; 4. *Ph.D. Program in ECE., Feng Chia University, Taichung, Taiwan*
- AU-12. Analysis and improvement of a variable flux hybrid-permanent-magnet synchronous machine.** Y. Hu^{1,2}, B. Chen^{1,2}, B. Zhou¹, Y. Xiao¹ and M. Wang¹ 1. *Gree Electric Appliances Inc. of Zhuhai, Zhuhai, China*; 2. *State Key Laboratory of Air-Conditioning Equipment and System Energy Conservation, Zhuhai, China*
- AU-13. A Simplified Rotor-Shape Optimization Method for IPM Motor to Torque Ripple Reduction.** G. Yu¹, J. Li¹, Y. Xu¹, J. Zou¹, L. Xiao¹ and H. Lan¹ 1. *Harbin Institute of Technology, Harbin, China*
- AU-14. Design for an Six-Phase Synchronous Reluctance Motor Mounted with Centrifugal Compressor Using Multiobjective Optimization Methods.** C. Lin¹ and C. Hwang² 1. *Electrical Engineering, National United University, Miaoli, Taiwan*; 2. *Department of Electrical Engineering, Feng Chia University, Taichung, Taiwan*

- AU-15. Design and investigation of a V-shaped Permanent Magnet Vernier Motor with enhanced Flux-Modulated effect and Low Torque Ripple.** Y. Chen¹ and L. Quan¹ *1. Electrical Engineering, School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*
- AU-16. A Novel Wide Speed Range Permanent Magnetic Machine Based on Mechanical Flux Weakening Control.** Y. Mao¹ and S. Niu¹ *1. Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

**TUESDAY
MORNING
8:30**

SIMPOR/ROSELLE BALLROOM

**Session AV
SOFT MAGNETIC MATERIALS I
(Poster Session)**

Nobuyoshi Imaoka, Co-Chair
Advanced Industrial Science and Technology, Nagoya, Japan
Shinpei Yamamoto, Co-Chair
Advanced Industrial Science and Technology, Nagoya, Japan

- AV-01. CoFe-Based Amorphous Microwires for GMI Sensor Applications.** P. Sarkar^{1,2}, F. Yuan³, M. Lai², J. Jeng⁴ and C. Lu¹ *1. Department of Mechanical Engineering, National Taipei University of Technology, Taipei, Taiwan; 2. iSentek Inc, Taipei, Taiwan; 3. iSentek Inc., New Taipei City, Taiwan; 4. Department of Mechanical Engineering, National Kaohsiung University of Applied Sciences, Kaohsiung, Taiwan*
- AV-02. Stress Induced Domain Wall Motion in FeCo microwires for Energy Harvesting.** S. Bhatti¹, C. Ma², X. Liu² and S. Piramanayagam¹ *1. School of Physical and Mathematical Science, Nanyang Technological University, Singapore, Singapore; 2. Department of Electrical and Computer Engineering, Shinshu University, Nagano, Japan*
- AV-03. Magnetic Property of Amorphous Magnetic Thin Ribbon and its Laminated Bulk under the Tensile and Compressive Stress.** T. Mizuta¹, Y. Tani¹ and K. Fujiwara² *1. Mitsubishi Electric Corporation, Amagasaki, Japan; 2. Doshisha University, Kyotanabe, Japan*
- AV-04. Fabrication and evaluation of composite magnetic core using iron-based amorphous alloy powder with different particle-size distribution.** N. Yabu¹, K. Sugimura¹, Y. Inagaki¹, D. Ueda¹, M. Sonehara¹ and T. Sato¹ *1. Faculty of Engineering, Shinshu University, Nagano, Japan*
- AV-05. Analysis of cutting technology influence on the magnetic anisotropy in grain-oriented steel based on the orientation distribution functions.** G. Paltanea¹, V. Manescu (Paltanea)¹, L. Dumitru¹ and H. Gavrilă¹ *1. Electrical Engineering Department, University Politehnica of Bucharest, Bucharest, Romania*

- AV-06. Effects of Annealing in Magnetic Field or under Tensile Stress on the Magnetic Properties of Fe-based Amorphous Magnetic Material.** *T. Todaka*¹, *I. Uesugi*¹ and *T. Sato*¹
1. Division of Electrical and Electronic Engineering, Faculty of Science and Technology, Dept. of Innovative Engineering, Oita University, Oita, Japan
- AV-07. Analysis of dynamic permeability and energy loss of ring-shaped Fe-Ga alloy.** *L. Weng*¹, *W. Li*¹, *X. Cao*¹, *S. Liang*¹ and *B. Wang*¹ *1. The State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China*
- AV-08. Magnetization reversal of helical Co and CoFe nanosprings.** *D. Nam*¹, *A. Samardak*², *Y. Jeon*¹, *S. Kim*¹, *A. Davydenko*², *A. Ognev*², *L. Chebotkevich*², *A.S. Samardak*^{2,3} and *Y.K. Kim*¹
1. Materials Science and Engineering, Korea University, Seoul, The Republic of Korea; 2. School of Natural Sciences, Far Eastern Federal University, Vladivostok, Russian Federation; 3. Center for Spin-Orbitronic Materials, Korea University, Seoul, The Republic of Korea
- AV-09. Degradation of static and dynamic magnetic properties of non-oriented steel sheets by cutting.** *V. Manescu (Paltanea)*¹, *G. Paltanea*¹, *E. Ferrara*², *F. Fiorillo*² and *I. Nemoianu*¹
1. Electrical Engineering Department, University Politehnica of Bucharest, Bucharest, Romania; 2. Nanoscience and Materials Division, Istituto Nazionale di Ricerca Metrologica, Torino, Italy
- AV-10. Magnetic properties of exchange coupled Fe-Ni/Fe₂₂Ni₇₈ double-layered films.** *J. Kaji*¹, *H. Aramaki*¹, *K. Koda*¹, *K. Takashima*¹, *T. Yanai*¹, *M. Nakano*¹ and *H. Fukunaga*¹
1. Nagasaki University, Nagasaki, Japan
- AV-11. Investigation of dynamic and continuous heat treatment on the magnetic losses of non-oriented electrical steels.** *J. Fuzer*¹, *P. Kollar*¹, *S. Martinkova*¹, *F. Kovac*² and *I. Petryshynets*² *1. Institute of Physics, P.J. Safarik University, Kosice, Slovakia; 2. Division of Metals Systems, Institute of Materials Research, Kosice, Slovakia*
- AV-12. NiFe₂O₄ Nano-Hollow Spheres with Improved Magnetic and Dielectric Properties.** *D. Mandal*¹ and *K. Mandal*¹
1. Condensed Matter Physics and Material Sciences, S.N.Bose National Centre for Basic Sciences, Kolkata, India
- AV-13. Magnetic material deterioration of non-oriented electrical steels as a result of plastic deformation considering residual stress distribution.** *N. Leuning*¹, *S. Steentjes*¹, *H. Weiss*², *W. Volk*² and *K. Hameyer*¹ *1. Institute of Electrical Machines (IEM), RWTH Aachen University, Aachen, Germany; 2. Institute of Metal Forming and Casting (utg), Technische Universität München, Munich, Germany*

AV-14. Magnetic properties and crystal structure of high-purity Fe-(6, 6.5, 7) mass%Si alloys. *K. Matsuyama¹, I. Sasaki¹, S. Nakagawa¹, H. Era¹, M. Takezawa¹, Y. Horibe¹, S. Hata², C. Kaidou³, T. Ogawa⁴ and S. Kubo⁵* *1. Kyushu Institute of Technology, Kitakyushu, Japan; 2. Kyushu University, Fukuoka, Japan; 3. National Institute of Technology, Kitakyusyu College, Kitakyusyu, Japan; 4. Fukuoka Industrial Technology Center, Kitakyusyu, Japan; 5. Kagoshima University, Kagoshima, Japan*

AV-15. Soft Magnetic Thin Films Laminations on Various Silicon Wafer Trench Geometries. *D.J. Cronin^{1,2}, P. McCloskey¹, A. Masood¹ and C. O'Mathuna¹* *1. Integrated Magnetics, Tyndall National Institute, Cork, Ireland; 2. University College Cork, Cork, Ireland*

AV-16. Effect of growth conditions on the Soft Magnetostrictive properties of thin Fe-Co-Cr films. *S. Baco¹, Q.A. Abbas¹, Z. Leong¹, T. Hayward¹, N. Morley¹ and T. Thomson²* *1. Material Science and Engineering, The University of Sheffield, Sheffield, United Kingdom; 2. School of Computer Science, University of Manchester, Manchester, United Kingdom*

TUESDAY
MORNING
8:30

SIMPOR/ROSELLE BALLROOM

Session AW
TRANSFORMERS AND INDUCTORS: MODELLING I
(Poster Session)

Cheng-Tsung Liu, Chair
National Sun Yat-Sen University, Kaohsiung, Taiwan

AW-01. Effect of Magnetic Annealing on Magnetic Characteristic of Amorphous Wound Core. *T. Sato¹ and T. Todaka¹* *1. Oita University, Oita, Japan*

AW-02. Numerical Simulation of Particle Motion Inside Nano-Modified Transformer by Multi-Scale LBM-FDM Method. *L. Xuan¹, F. Zeng¹, X. Guan¹ and H. Peng¹* *1. School of Electrical Engineering, Wuhan University, Wuhan, China*

AW-03. An Efficient Finite Element Modeling for Stray Loss Calculation in Power Transformer Tank Using Impedance Boundary Condition. *K. Park¹, S. Hahn¹ and H. Ahn²* *1. Electrical Engineering, Dong-A University, BUSAN, The Republic of Korea; 2. R&D Center, Power & Industrial Systems Performance Group, Hyosung Corporation, Changwon, The Republic of Korea*

AW-04. Relationship Between Drive Frequency and Load Characteristics in Bidirectional Contactless Power Transfer for Electric Vehicles. *T. Takura¹ and H. Matsuki²* *1. Tohoku Institute of Technology, Sendai, Japan; 2. Tohoku University, Sendai, Japan*

- AW-05. Insulation Materials Test and Electric Field Analysis for 330 kV IOCT used in Traction Network.** *B. Bai¹, Q. Wang¹, D. Chen¹, X. He¹, T. Fu² and Q. Ma²* 1. *Shenyang University of Technology, Shenyang, China;* 2. *TBEA Shenyang Transformer Group Co. Ltd, Shenyang, China*
- AW-06. A Study on Increase of Core Loss Ratio and Inductance According to Construction of Induction Heater for Electric Vehicle.** *J. Kang¹, Z. Wang¹ and K. Kim¹* 1. *Dept. of Electrical Engineering, Hanbat National University, Daejeon, The Republic of Korea*
- AW-07. A Novel Magnetic Valve Structure for Magnetically Controlled Reactor.** *M. Liu^{1,2}, S. Wang², Y. Li¹ and J. Li²* 1. *State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China;* 2. *State Key Laboratory of Control and Simulation of Power System and Generation Equipments, Tsinghua University, Beijing, China*
- AW-08. Characteristic Analysis of a 100kW class High Frequency Transformer Using a Magnetic Equivalent Circuit Method.** *H. Lee^{2,1}, S. Oh², J. Cho², S. Kim², J. So^{1,3}, Y. Park^{1,3} and D. Kim^{1,3}* 1. *Electrical Control Engineering, Suncheon National University, Suncheon, The Republic of Korea;* 2. *Korea Electronics Technology Institute, Gwanju, The Republic of Korea;* 3. *Greenenergy Laboratory, sunchon national university, Suncheon, The Republic of Korea*
- AW-09. Simulation and Impact Analysis of Remanent Flux on Power Transformer Inrush Current.** *W. Ge¹ and Y. Wang²* 1. *School of Control and Mechanical Engineering, Tianjin Chengjian University, Tianjin, China;* 2. *State Key Lab of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China*
- AW-10. A Study on the Loss Analysis according to the Switching State of Single-Phase 3kW Transformerless Solar Inverter.** *P. Je-Seok^{1,2}, P. Young-Un^{1,2} and D. Kim^{1,2}* 1. *Electrical Control Engineering, Suncheon National University, Suncheon, The Republic of Korea;* 2. *Sunchon National University, Greenenergy Laboratory, Sunchon, The Republic of Korea*
- AW-11. Design and Fabrication of Rotary Magnetostrictvie Energy Harvester for Knee-joint wearable applications.** *B. Yan¹, J. Hong¹ and C. Zhang²* 1. *Guangdong University of Technology, Guangzhou, China;* 2. *Harbin Institute of Technology, Harbin, China*

Session BA
**SYMPOSIUM ON SYNCHROTRON X-RAY AND
NEUTRON SCIENCES FOR MAGNETISM**

Chengjun Sun, Chair
Argonne National Laboratory, Argonne, IL, United States

2:00

- BA-01. New opportunities for characterizing magnetic systems using next-generation synchrotron radiation sources. (Invited) J. Lang¹** *1. X-Ray Science Division, Argonne National Laboratory, Argonne, IL, United States*

2:30

- BA-02. Ultrafast and Very Small: Discover Nanoscale Magnetism With Picosecond Time Resolution Using X-Rays. (Invited) H. Ohldag¹** *1. Stanford Synchrotron Radiation Lightsource, SLAC National Accelerator Laboratory, Menlo Park, CA, United States*

3:00

- BA-03. Neutron Scattering on Magnetic Thin Films. (Invited) Y. Liu¹** *1. Neutron Sciences Directorate, Oak Ridge National Laboratory, Oak Ridge, TN, United States*

3:30

- BA-04. Polarized Neutron Reflectometry of Epitaxial Fe[0.25 + x] Pt[0.75 – x] Layers. (Invited) G.J. Mankey¹, G.L. Causer^{2,3}, D.L. Cortie^{2,3}, X. Wang², H. Zhu³, M. Ionescu³ and F. Klose⁴** *1. Physics and Astronomy, University of Alabama, Tuscaloosa, AL, United States; 2. Institute for Superconducting and Electronic Materials, University of Wollongong, Lucas Heights, NSW, Australia; 3. Australian Nuclear Science and Technology Organisation, Lucas Heights, NSW, Australia; 4. Guangdong Technion-Israel Institute of Technology, Shantou, China*

4:00

- BA-05. Characterization of Magnetic Nanostructures with Polarized Neutron and Resonant X-ray scattering. (Invited) S. Sinha¹** *1. Physics, University of California San Diego, La Jolla, CA, United States*

4:30

- BA-06. Imaging the statics and dynamics of sub-10nm skyrmions using x-ray holography and scanning transmission x-ray microscopy. (Invited) F. Buettner¹** *1. Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, United States*

Session BB

**SOFT MAGNETIC MATERIALS II: AMORPHOUS
AND NANOCRYSTALLINE MATERIALS**

Peter Kollar, Chair

P. J. Safarik University, Faculty of Science, Institute of Physics,
Kosice, Slovakia

2:00

- BB-01. Influence of annealing time on structural and magnetic properties in Fe-Co-Si-B-P-Cu.** *M. Kuhnt¹, M. Amalraj², K. Pradeep², M. Marsilius³, T. Strache³, C. Polak³ and G. Herzer³* *1. Department of Materials Science, Technische Universität Darmstadt, Darmstadt, Germany; 2. Materials Chemistry, RWTH Aachen University, Aachen, Germany; 3. Vacuumschmelze GmbH & Co.KG, Hanau, Germany*

2:15

- BB-02. Fabrication and properties of under 10 μm sized amorphous powders of high B_s soft magnetic alloy for high frequency applications.** *T. Suzuki^{1,2}, P. Sharma¹, L. Jiang¹, Y. Zhang³ and A. Makino¹* *1. Tohoku University, New Industry Creation Hatchery Center (NICHe), Sendai, Japan; 2. Sendai R&D Center, Sendai, Japan; 3. Tohoku University, Institute for Materials Research, Sendai, Japan*

2:30

- BB-03. Nanostructured Soft Magnetic Multilayers with Tunable Properties for On-Chip Micro-Magnetic Devices.** *C. Falub¹, R. Hida², M. Meduna^{3,4}, M. Bless¹, J. Richter¹, H. Rohrmann¹, T. Nadig¹ and M. Padrun¹* *1. Evatec AG, Trübbach, Switzerland; 2. CEA-LETI/Minatec, Grenoble, France; 3. Department of Condensed Matter Physics, Masaryk University, Brno, Czechia; 4. CEITEC, Masaryk University, Brno, Czechia*

2:45

- BB-04. Magnetic Properties of Annealed Amorphous Alloys (Fe-rich) Obtained by Gas Atomization Technique.** *K.L. Alvarez^{2,3}, J.M. Martín^{1,2}, M. Ipatov⁴, L. Dominguez⁵ and J. Gonzalez⁶* *1. Materials and Manufacturing, CEIT-IK4, San Sebastián, Spain; 2. Tecnun (University of Navarra), San Sebastián, Spain; 3. Escuela de Ingeniería Mecánica, Pontificia Universidad Católica de Valparaíso, Valparaíso, Chile; 4. SGiker (Magnetic Measurements), University of the Basque Country, San Sebastián, Spain; 5. Escuela de Ingeniería de Gipuzkoa, University of the Basque Country, San Sebastián, Spain; 6. Department Materials Physics, Faculty of Chemistry, University of the Basque Country, San Sebastián, Spain*

3:00

- BB-05. Novel making method of high resistive surface layer of Fe-based amorphous alloy powder by surface-modification using two-step acid solution process.** *K. Sugimura¹, N. Yabu¹, M. Sonehara¹ and T. Sato¹* *1. Faculty of Engineering, Shinshu University, Nagano, Japan*

- BB-06. Comparison of magnetostatic and magnetoimpedance properties for amorphous ribbons, wires and glass-coated microwires.** *N.S. Perov^{1,2}, Y.A. Alekhina¹, L.A. Makarova¹, M.F. Khajrullin¹, I.A. Baraban² and V.V. Rodionova^{2,3}*
1. Faculty of Physics, magnetism department, Lomonosov MSU, Moscow, Russian Federation; 2. Institute of Physics & Technology and STP "Fabrika", Immanuel Kant Baltic Federal University, Kaliningrad, Russian Federation; 3. National University of Science and Technology «MISIS», Moscow, Russian Federation

- BB-07. Tunable structural and magnetic properties of single- and multiphase glass-coated microwires.** *V. Rodionova^{1,2}, I.A. Baraban¹ and N.S. Perov^{1,3}*
1. STP "Fabrika", Immanuel Kant Baltic Federal University, Kaliningrad, Russian Federation; 2. National University of Science and Technology «MISIS», Moscow, Russian Federation; 3. Lomonosov Moscow State University, Moscow, Russian Federation

- BB-08. Magneto-optical observations of amorphous glass-coated microwires: role of topography.** *K. Richter², A. Thiaville¹ and R. Varga²*
1. Université Paris-Sud, Orsay, France; 2. University of Pavol Jozef Safarik, Kosice, Slovakia

- BB-09. Comparison between two methods to measuring the magnetic flux density in soft magnetic materials at high frequencies.** *Y. Wang¹, X. Zhang¹, L. Chen¹, C. Liu¹ and Z. Wang¹*
1. Hebei University of Technology, Tianjin, China

- BB-10. Thickness dependent high frequency properties of multistripe patterned FeCoBSi magnetic films.** *L. Zhang¹, Y. Liu¹, H. Zheng¹, W. Zhu¹, M. Zhang¹, P. Zhou¹, H. Chen¹, X. Wang¹, H. Lu¹, J. Xie¹ and L. Deng¹*
1. School of Microelectronics and Solid-State Electronics, University of Electronic Science and Technology of China, Chengdu, China

- BB-11. Microwave behaviour of metacomposites containing CNTs-coated ferromagnetic microwires.** *Y. Luo¹, S. Wei¹, D. Estevez¹, F. Qin¹ and H. Peng¹*
1. Material Science and Engineering, Zhejiang University, Hangzhou, China

- BB-12. Collective behavior of nanograins in Co-substituted Fe-based nanocrystalline alloys.** *G. Manginas¹, G. Ababei¹, A. Damian¹, G. Stoian¹, M. Grigoras¹, M. Tibu¹, H. Chiriac¹, T.A. Ovari¹ and N. Lupu¹*
1. National Institute of Research and Development for Technical Physics, Iasi, Romania

Session BC
BIO-IMAGING AND BIO-DETECTION I

Daniel Ortega Ponce, Chair
IMDEA Nanociencia, Madrid, Spain

2:00

- BC-01. Magneto-paper composites for low-cost two-way valves and other active μ Pads.** *M. Fratzl^{1,3*}, B. Chang², S. Oyola-Reynoso², G. Blaire³, S. Delshadi^{3,4}, O. Cugat³, M. Thuo², J. Bloch⁵ and N. Dempsey¹* *1. Univ. Grenoble Alpes, CNRS, Grenoble INP, Institut Néel, Grenoble, France; 2. Department of Materials Science and Engineering, Iowa State University, Ames, IA, United States; 3. Univ. Grenoble Alpes, CNRS, Grenoble, France; 4. Univ. Grenoble Alpes, CNRS, Inserm, Grenoble, France; 5. Univ. Grenoble Alpes, CNRS, Grenoble INP*, 3SR, Grenoble, France*

2:15

- BC-02. Vertical hydrodynamic focusing for cell counting with a magnetoresistive cytometer.** *A. Chicharo^{4,1}, L. Barnsley^{2,3}, M. Martins⁴, A. Taouallah^{1,4}, B. Silva⁴, S. Cardoso de Freitas⁵, L. Dieguez⁴, B. Espiña⁴ and P. Freitas^{4,5}* *1. Instituto Superior Técnico, Universidade de Lisboa, Lisbon, Portugal; 2. Jülich Centre for Neutron Science at Heinz Maier-Leibnitz Zentrum, Forschungszentrum Jülich GmbH, Garching, Germany; 3. Institute of Biomedical Engineering, University of Oxford, Oxford, United Kingdom; 4. INL - International Iberian Nanotechnology Laboratory, Braga, Portugal; 5. INESC-MN, Lisbon, Portugal*

2:30

- BC-03. Magnetic Micro/Nano Structures for Biological Detection and Manipulations. (Invited)** *C. Li¹, B. Chen¹, Y. He¹, C. Hou¹, H. Huang¹ and Z. Wei¹* *1. National Tsing Hua University, Hsinchu, Taiwan*

3:00

- BC-04. Magnetic sensing of Antimony bioactivity through Antimony bearing Ferrihydrite bioreduction.** *A. Zegeye¹, C. Chang², M. Abdelmoula³ and T. Hauet²* *1. LIEC, Université de Lorraine, Nancy, France; 2. Institut Jean Lamour, Université de Lorraine, Nancy, France; 3. LCPME, Université de Lorraine, Nancy, France*

3:15

- BC-05. Novel Electromagnet for MRI Applications.** *J. Alonso-Valdesueiro¹, B. Sisniega¹ and J. Collantes¹* *1. Electricity and Electronics, University of the Basque Country (UPV/EHU), Leioa, Spain*

- BC-06. Marrying Nanomagnetism with RNA Sequencing of Single Cancer Cells. (Invited)** S.X. Wang^{1,2} and C. Ooi^{3,4} *1. Materials Science and Engineering, Stanford University, Stanford, CA, United States; 2. Electrical Engineering, Stanford University, Stanford, CA, United States; 3. A*STAR, Singapore, Singapore; 4. Chemical Engineering, Stanford University, Stanford, CA, United States*

4:00

- BC-07. Development of Peak to Peak Voltage Detector Type MI Gradiometer for Magnetocardiography.** J. Ma¹ and T. Uchiyama¹ *1. Graduate School of Engineering, Nagoya University, Nagoya, Japan*

4:15

- BC-08. Eddy Current-TMR Sensor for micro-motion detection of orthopaedic implants.** R.P. Khokle¹, S. Cardoso de Freitas², K. Esselle¹, M. Heimlich¹, F. Franco² and D. Bokor³
1. Engineering, Macquarie University, Sydney, NSW, Australia; 2. INESC-MN - Microsistemas e Nanotecnologias, Lisbon, Portugal; 3. Faculty of Medicine, Macquarie University, Sydney, NSW, Australia

4:30

- BC-09. On-chip magnetophoretic concentration of Malaria-infected red blood cells and hemozoin nanocrystals.** M. Giacometti², L.B. Callegari¹, A. Collovini², M. Monticelli¹, C. Rinaldi¹, D. Petti¹, G. Ferrari², M. Sampietro², A. Dimasi², M. Piola², G.B. Fiore² and R. Bertacco¹ *1. Department of Physics, Politecnico di Milano, Milano, Italy; 2. DEIB, Politecnico di Milano, Milano, Italy*

4:45

- BC-10. Effect of anti-LGR5 MicroBeads on CoFeB/Ta/CoFeB spin valve switching.** O. Koplak¹, A.A. Aristov², R. Morgunov^{2,3} and S. Mangin⁴ *1. Laboratory of Nanomaterials Spectroscopy, Institute of Problems of Chemical Physics, Chernogolovka, Russian Federation; 2. Tambov State Technical University, 392000, Tambov, Russia, Tambov, Russian Federation; 3. Institute of Problems of Chemical Physics, 142432, Chernogolovka, Moscow, Russia, Chernogolovka, Russian Federation; 4. Institut Jean Lamour, UMR 7198 CNRS, University de Lorraine, France, Nancy, France*

Session BD
**MAGNETIC TUNNEL JUNCTION AND SPIN ORBIT
TORQUE**

Yihong Wu, Chair
National University of Singapore, Singapore

2:00

- BD-01. Voltage controlled magnetic tunnel junction based 3D-crosspoint memory with step shaped pulse for reliable write operation.** *K. Ikegami¹, S. Fujita¹, T. Nozaki³, T. Yamamoto³, S. Yuasa³ and Y. Suzuki^{3,2}* *1. Toshiba Corporation, Kawasaki, Japan; 2. Graduate School of Engineering Science, Osaka University, Osaka, Japan; 3. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan*

2:15

- BD-02. Nanoscale spin-orbit torque devices with Co/Pt multilayers for wide-temperature range applications.** *B. Jinnai¹, S. Fukami¹, H. Sato¹ and H. Ohno¹* *1. Tohoku University, Sendai, Japan*

2:30

- BD-03. Novel approach for nano-patterning magnetic tunnel junctions stacks: A route towards high density STT-RAM application. (Invited)** *I.L. Prejbeanu^{1,2}, V. Nguyen^{1,2}, P. Sabon^{1,3}, J. Chatterjee^{1,2}, N. Perrissin^{1,2}, S. Lequeux^{1,2}, L. Tillie^{1,4}, S. Auffret^{1,2}, R.C. Sousa^{1,2}, E. Gautier^{1,3}, L. Vila^{1,2} and B. Dieny^{1,2}* *1. Université Grenoble Alpes, Grenoble, France; 2. INAC-SPINTEC, CEA, Grenoble, France; 3. SPINTEC, CNRS, Grenoble, France; 4. CEA-LETI, Grenoble, France*

3:00

- BD-04. Voltage-control spintronics memory (VoCSM) with potential cell-size of 4F² using in-plane magnetic tunnel junction.** *S. Shirotori¹, H. Yoda¹, Y. Ohsawa¹, M. Shimizu¹, A. Buyandalai¹, K. Koi¹, T. Inokuchi¹, N. Shimomura¹, H. Sugiyama¹, Y. Kato¹, S. Oikawa¹, M. Ishikawa¹, A. Tiwari¹ and A. Kurobe¹* *1. Toshiba corporation, Kawasaki, Japan*

3:15

- BD-05. Ultra Low Power Composite Free Layer Spin-Orbit Torque MRAM.** *W. Hsu¹, R. Bell¹ and R.H. Victora¹* *1. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States*

BD-06. Low frequency noise in vortex spin torque nano-oscillators.

*S. Wittrock*¹, *S. Tsunegi*², *K. Yakushiji*², *A. Fukushima*²,
*H. Kubota*², *P. Bortolotti*¹, *U. Ebels*³, *S. Yuasa*², *G. Cibié*⁴,
*E. Rubiola*⁵ and *V. Cros*¹ *1. Unité Mixte de Physique CNRS/Thales, Palaiseau, France; 2. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Ibaraki 305-8568, Japan; 3. Univ. Grenoble Alpes, CEA, CNRS, Grenoble INP, INAC, SPINTEC, 38000 Grenoble, France; 4. Centre National d'Études Spatiales (CNES), 31401 Toulouse, France; 5. Time-Frequency department, CNRS FEMTO-ST, Université de Franche Comté, 25030 Besançon, France*

3:45

BD-07. Non-local damping and perpendicular magnetic anisotropy in Hf/CoFeB/MgO.

*J. Lourembam*¹, *A. Ghosh*¹, *M. Zeng*¹,
*S. Wong*², *Q. Yap*¹ and *S. Lim*¹ *1. Non volatile memory, Data Storage Institute, Singapore, Singapore; 2. Material Science Lab, Data Storage Institute, Singapore, Singapore*

4:00

BD-08. A thermally robust perpendicular magnetic tunnel junction with the FeTa decoupling layer.

*J. Yu*¹, *X. Wang*¹ and
*H. Fukuzawa*¹ *1. Emerging Memories, Institute of Microelectronics, A*STAR, Singapore, Singapore*

4:15

BD-09. Effect of MgO interface in double barrier CoFeB MTJ structures.

*S. Srivastava*¹, *A.P. Chen*¹, *T. Dutta*¹,
*R. Ramaswamy*¹, *M. Saifullah*², *K. Yamane*³, *J. Son*^{1,3}, *K. Lee*³,
*P. Yang*¹ and *H. Yang*¹ *1. National University of Singapore, Singapore; 2. Agency for Science, Technology, and Research, Institute of Materials Research and Engineering, Singapore, Singapore; 3. GLOBALFOUNDRIES Singapore Pte. Ltd., Singapore, Singapore*

4:30

BD-10. Withdrawn

4:45

BD-11. Effect of stray field from adjacent bits of high-density STT-MRAM on switching current.

*S. Itai*¹, *T. Kai*¹, *M. Nakayama*¹,
*T. Daibou*¹ and *J. Ito*¹ *1. Institute of Memory Technology Research & Development, Toshiba Memory Corporation, Kawaksaki, Japan*

Session BE

SPIN INJECTION AND SPIN TORQUE OSCILLATORS

Ciarán Fowley, Chair

Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany

2:00

- BE-01. Effects of spin-orbit torque on the magnon gas. (Invited)** V.E. Demidov¹, S. Urazhdin², B. Divinskiy¹ and S.O. Demokritov¹ *1. Institute for Applied Physics, University of Muenster, Muenster, Germany; 2. Emory University, Atlanta, GA, United States*

2:30

- BE-02. Current-Induced Superparamagnetism in CoFeB Nanodots.** A.M. Abdelgawad¹, B. Parks² and S. Majetich² *1. Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, PA, United States; 2. Physics, Carnegie Mellon University, Pittsburgh, PA, United States*

2:45

- BE-03. Out-of-plane auto-oscillation in spin Hall oscillator with additional polarizer.** T. Taniguchi¹ *1. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan*

3:00

- BE-04. Engineering lateral nanostructures for the study of spin accumulation phenomena, giant magnetoresistance, spin Hall effect, and sensors. (Invited)** J. Attané¹, L. Vila¹, A. Marty¹, G. Zahnd¹, T. Van Pham¹, P. Noel¹ and W. Savero-Torres¹ *1. Univ. Grenoble Alpes, CEA, CNRS, Grenoble INP*, INAC, SPINTEC, Grenoble, France*

3:30

- BE-05. Robust electrical mutual synchronization of spin torque oscillators.** S. Tsunegi¹, T. Taniguchi¹, R. Lebrun², K. Yakushiji¹, A. Fukushima¹, J. Grollier², V. Cros², S. Yuasa¹ and H. Kubota¹ *1. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Palaiseau, France; 2. Unité Mixte de Physique CNRS, Thales, Univ. Paris Sud, Université Paris-Saclay, Palaiseau, France*

3:45

- BE-06. Micromagnetic Analysis of Emission Power in Spin Torque Oscillator: Influence of Diameter and Interlayer Exchange Coupling.** T. Tanaka¹, A. Furuya¹, Y. Uehara¹, K. Shimizu¹, J. Fujisaki¹, T. Ataka¹, C. Yoshida¹, H. Oshima², H. Kubota³ and H. Imamura³ *1. Fujitsu Limited, Kawasaki, Japan; 2. Fujitsu Laboratories Limited, Atsugi, Japan; 3. National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan*

4:00

- BE-07. Influence of MgO Tunnel Barrier thickness in 3-terminal Spin Hall Nano-Oscillators.** *M. Tarequzzaman*^{1,2}, T. Boehnert¹, A. Jenkins¹, J. Borme¹, E. Paz¹, R. Ferreira¹ and P. Freitas^{1,2}
1. Nanoelectronics (Spintronics), International Iberian Nanotechnology Laboratory (INL), Braga, Portugal; 2. Physics Department, Instituto Superior Tecnico (IST) – Universidade de Lisboa, Lisbon, Portugal

4:15

- BE-08. Spin torque diode with perpendicular anisotropy used for passive demodulation of FM digital signals.** *S. Louis*², V.S. Tiberkevich¹, J. Li², O. Prokopenko³ and A.N. Slavin¹
1. Physics, Oakland University, Rochester, MI, United States; 2. Electrical and Computer Engineering, Oakland University, Rochester, MI, United States; 3. Faculty of Radio Physics, Electronics and Computer Systems, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine

4:30

- BE-09. The reversible spin texture of ferroelectric GeTe for a tunable source of spin currents.** *C. Rinaldi*^{1,2}, S. Varotto¹, M. Asa¹, J. Slawinska³, J. Fujii⁴, G. Vinai⁴, S. Cecchi⁵, D. Di Sante⁶, R. Calarco⁵, I. Vobornik⁴, G. Panaccione⁴, S. Picozzi³ and R. Bertacco¹
1. Physics, Politecnico di Milano, Milano, Italy; 2. IFN-CNR, Milan, Italy; 3. CNR-SPIN, Chieti, Italy; 4. CNR-IOM, Trieste, Italy; 5. Paul-Drude-Institut für Festkörperelektronik, Berlin, Germany; 6. Institut für Theoretische Physik und Astrophysik, Universität Würzburg, Würzburg, Germany

4:45

- BE-10. Charge pumping induced by magnetic texture dynamics in Weyl semimetals.** *Y. Araki*^{1,2} and K. Nomura¹
1. Institute for Materials Research, Tohoku University, Sendai, Japan; 2. Frontier Research Institute for Interdisciplinary Sciences, Tohoku University, Sendai, Japan

TUESDAY
AFTERNOON
2:00

PEONY I

Session BF

NANOWIRES, NANOPARTICLES AND CLUSTERS

Paola Tiberto, Chair

Istituto Nazionale di Ricerca Metrologica (INRIM), Torino, Italy

2:00

- BF-01. Anisotropy and coercivity analysis in tetragonal (Cu,Co) Fe₂O₄ particles.** *H. Latiff*^{1,2}, T. Devillers¹, H. Yanagihara², N. Dempsey¹ and D. Givord¹
1. Université Grenoble Alpes, CNRS, Grenoble INP, Institut Néel, 38000 Grenoble, France; 2. Institute of Applied Physics, University of Tsukuba, 305-8573 Tsukuba, Japan

2:15

- BF-02. The effect of surface spin disorder on magnetic properties of Fe/Fe_xO_y core-shell nanoparticles.** M. Lostun¹, D. Herea¹, M. Grigoras¹, G. Ababei¹, I. Ghemes¹ and N. Lupu¹ *1. National Institute of Research and Development for Technical Physics, Iasi, Romania*

2:30

- BF-03. Magnetic Properties NFO-BTO and NFO-BSTO Nanocomposites.** T. Parida¹, M. B S² and G. Markandeyulu¹ *1. Physics, Indian Institute of Technology Madras, Chennai, India; 2. Metallurgical and Materials Engineering, Indian Institute of Technology Madras, Chennai, India*

2:45

- BF-04. Topological control of the magnetic and magneto-transport properties of 3D interconnected nanofiber networks.** T. da Câmara Santa Clara Gomes¹, J. De La Torre Medina², Y. Velázquez-Galván¹, J. Martínez-Huerta³, A. Encinas¹ and L. Piraux¹ *1. Institute of Condensed Matter and Nanosciences, Université catholique de Louvain, Louvain-La-Neuve, Belgium; 2. Instituto de Investigaciones en Materiales - Unidad Morelia, Universidad Nacional Autonoma de Mexico, Morelia, Mexico; 3. Division de Materiales Avanzados, Instituto Potosino de Investigacion Cientca y Tecnologica, San Luis Potosi, Mexico*

3:00

- BF-05. Information Transfer and Trapping in a 3D Nano-printed Domain-wall Conduit. (Invited)** D. Sanz-Hernández^{1*}, R.F. Hamans², J. Liao¹, A. Welbourne¹, R. Lavrijsen² and A. Fernández-Pacheco¹ *1. Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom; 2. Department of Applied Physics, Eindhoven University of Technology, Eindhoven, Netherlands*

3:30

- BF-06. From vanishing interaction to superferromagnetic dimerization: Experimental determination of interaction lengths for embedded Co clusters.** F. Tournus¹, A. Hillion¹, A. Tamion¹, C. Albin¹ and V. Dupuis¹ *1. Institut Lumière Matière, Université Lyon 1 & CNRS, Villeurbanne, France*

3:45

- BF-07. The role of topologically non-trivial structures in magnetization processes of diameter modulated nanowires.** J. Fernandez-Roldan¹, C. Bran¹, R. Perez del Real¹, M. Vázquez¹ and O. Chubykalo-Fesenko¹ *1. Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain*

4:00

- BF-08. Multisegmented cylindrical nanowires: from designed domain configuration to controlled stepped domain wall propagation. (Invited)** C. Bran¹, E. Berganza¹, J. Fernandez-Roldan¹, M. Jaafar¹, R. Perez del Real¹, A. Asenjo¹, O. Chubykalo-Fesenko¹ and M. Vázquez¹ *1. Institute of Materials Science of Madrid, CSIC, Madrid, Spain*

- BF-09. Magnetic-field-induced domain wall propagation in modulated-diameter cylindrical nanowires.** J. Fernandez-Roldan², A. De Riz¹, B. Trapp³, C. Thirion³, J. Toussaint³, O. Fruchart¹ and D. Gusakova¹ *1. SPINTEC, Univ. Grenoble Alpes, CNRS, CEA, Grenoble, France; 2. Institute of Materials Science of Madrid (ICMM-CSIC), Madrid, Spain; 3. Institut NEEL, Univ Grenoble Alpes, CNRS, Grenoble, France*

- BF-10. Dominance of shape anisotropy among magnetostatic interaction and Magnetocrystalline anisotropy in electrodeposited (FeCo)_{1-x}Cu_x(X=0.1-0.5) Ternary Alloy Nanowires.** N. Ahmad^{1,2}, M. Zahid Shafiq¹, S. Khan³, R. Sharif⁴, A. Safeer³, A. Majid⁵, S.A. Shah⁶ and K. Javed⁶ *1. Physics, International Islamic University, Islamabad, Pakistan; 2. University of Chinese Academy of Sciences, Beijing, China; 3. Spintronics Laboratory, Department of Physics, International Islamic University, Islamabad, Pakistan; 4. Physics, University of Engineering and Technology, Lahore, Pakistan; 5. Physics, University of Gujrat, Gujrat, Pakistan; 6. Physics, FC College University, Lahore, Pakistan*

TUESDAY
AFTERNOON
2:00

PEONY III

Session BG LINEAR MOTORS I

Yacine Amara, Chair
Universite de Le Havre, Le Havre, France

- BG-01. Design Optimization and Performance Comparison of Two Linear Motor Topologies with PM-less Tracks. (Invited)** S. Aleksandrov¹, T. Overboom¹ and E. Lomonova¹ *1. Electrical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands*

- BG-02. A Three-Phase Tubular Permanent-Magnet Linear Machine with Hybrid Halbach/Axially-Magnetized Permanent Magnets.** Y. Sui^{1,2}, P. Zheng¹, Z. Yin¹ and J. Zhao² *1. School of Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, China; 2. School of Mechatronics Engineering, Harbin Institute of Technology, Harbin, China*

- BG-03. Design A Linear Flux-Switching Permanent Magnets Machine for Wave Energy Harvesting.** Y. Zou¹ *1. Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, China*

3:00

- BG-04. Torque Characteristics of Interior Permanent Magnet Spherical Actuators.** *K. Takahara¹, K. Hirata¹ and N. Niguchi¹*
1. Osaka University, Suita-city, Japan

3:15

- BG-05. Force Estimation Method for a Magnetic Lead-Screw-Driven Linear Actuator.** *A. Heya¹, Y. Nakata², M. Sakai¹, H. Ishiguro² and K. Hirata¹* *1. Department of Adaptive Machine Systems, Osaka University, Suita, Japan; 2. Department of Systems Innovation, Osaka University, Toyonaka, Japan*

3:30

- BG-06. Performance Investigation of a five-phase Multi-segment primary PMLSM for Ropeless Elevator.** *Q. Jiang¹ and Q. Lu¹*
1. Zhejiang University, Hangzhou, China

3:45

- BG-07. A Novel Linear Stator PM Vernier Machine with Spoke-Type Magnets.** *A. Nematsaberi¹ and J. Faiz¹*
1. Electrical and Computer Engineering, University of Tehran, Tehran, The Islamic Republic of Iran

4:00

- BG-08. Development of a new rotary flux switching transverse flux machine with the ability of linear motion.** *C. Liu^{1,3}, Y. Wang¹, J. Zhu², Y. Guo², G. Lei² and S. Wang¹* *1. Hebei University of Technology, Tianjin, China; 2. University of Technology Sydney, Sydney, NSW, Australia; 3. PMG Fussen GmbH, Fussen, Germany*

4:15

- BG-09. Quantitative Comparison of Novel Dual-PM Linear Motors for Ropeless Elevator System.** *H. Fan¹, K. Chau¹, C. Liu² and T. Ching³* *1. Electrical and Electronic engineering, The University of Hong Kong, Hong Kong Island, Hong Kong; 2. School of Energy and Environment, City University of Hong Kong, Hong Kong; 3. Faculty of Science and Technology, University of Macau, Macao, Macao*

4:30

- BG-10. Design, control, and comparison of low-energy solenoid valve actuators.** *J. van Dam¹, B. Gysen¹, M. Dhaens² and E. Lomonova¹* *1. Electrical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands; 2. Advanced Chassis Research, Tenneco Automotive bvba, Sint-Truiden, Belgium*

4:45

- BG-11. Design and Analysis of a Planar Flux-Switching Permanent Magnet Motor.** *H. Hu¹, G. Cao¹, S. Huang¹, C. Wu¹, J. Guo¹, D. Liang² and R. Mai³* *1. Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China; 2. School of Electrical Engineering, State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, China; 3. School of Electrical Engineering, Southwest Jiaotong University, Chengdu, China*

Session BH
SENSORS: FRONTIER APPLICATIONS I

Antonio Ruotolo, Chair
City University of Hong Kong, Kowloon, Hong Kong

2:00

- BH-01. The Ultimate Compact Packaging Technology based on Magnetoresistive devices for a minimum source-sensor distance.** *F. Franco*^{1,2}, *R. Dias*³, *J. Gaspar*³, *T. Materne*⁴, *T. Becker*⁴, *S. Cardoso de Freitas*^{1,2} and *P. Freitas*^{1,3}
1. INESC-MN, Lisbon, Portugal; 2. Instituto Superior Técnico, Lisbon, Portugal; 3. INL, Braga, Portugal; 4. BOGEN Electronic, Berlin, Germany

2:15

- BH-02. Busbar current transducer with suppression of external fields and gradients.** *P. Ripka*¹, *A. Chirtsov*¹ and *J. Vyhnanek*¹
1. Czech Technical University, Prague, Czechia

2:30

- BH-03. Small Eddy Current Testing Sensor Probe using Tunneling Magnetoresistance Sensors for Detection of Cracks in Steel Structures.** *K. Tsukada*¹, *M. Hayashi*¹, *Y. Nakamura*¹, *K. Sakai*¹ and *T. Kiwa*¹ *1. Okayama University, Okayama, Japan*

2:45

- BH-04. Nondestructive testing of wire rope based on shoving magnetic field structure.** *X. Yan*¹ and *D. Zhang*¹ *1. Electrical Engineering and Electronics, Harbin Institute of Technology Shenzhen Graduate School, Shenzhen, China*

3:00

- BH-05. Magnetic detection of steel corrosion at a buried position near the ground level using a magnetic resistance sensor.** *K. Tsukada*¹, *T. Tomioka*¹, *S. Wakabayashi*¹, *K. Sakai*¹ and *T. Kiwa*¹ *1. Okayama University, Okayama, Japan*

3:15

- BH-06. Remote Underwater Animal Monitoring Magnetic Sensor System.** *A. Kaidarova*², *S. Amara*², *M. Karimi*², *A. Shamim*², *N. Gerald*¹, *C. Duarte*¹ and *J. Kosel*² *1. Red Sea Research Center (RSRC), King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia; 2. Computer, Electrical and Mathematical Sciences & Engineering (CEMSE), King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia*

3:30

- BH-07. High-performance micro magnetic sensors installed in wearable electronic compasses and I-o-T magnetic sensors promoting new information society - Amorphous Wire CMOS IC Magneto-Impedance Sensors -. (Invited)**
K. Mohri^{1,2} 1. Graduate School of Engineering, Nagoya University, Nagoya, Japan; 2. Division of Research, Nagoya Industrial Science Research Institute, Nagoya, Japan

4:00

- BH-08. A localization method of submarines by using an airborne three-axis magnetometer carried on cruising aircraft.**
Y. Shangguan¹, J. Yuan¹ and J. Zou¹ 1. Dept. of Electrical Engineering, Tsinghua University, Beijing, China

4:15

- BH-09. Efficient wireless power transmission to medical implant using Wiegand sensor.** K. Takahashi¹, T. Yamada¹ and Y. Takemura¹ *1. Yokohama National University, Yokohama, Japan*

4:30

- BH-10. Accurate Position Detection in Wireless Power Transfer Using Magnetoresistive Sensors for Implant Applications.**
W. Han¹, K. Chau¹, C. Jiang¹ and W. Liu¹ 1. Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong

4:45

- BH-11. Traffic Flow and Vehicle Speed Measurements using Magnetoresistive Sensors.** B. Santos¹, Y. Bo², O. Chun Lian¹ and Y. Zhimin¹ *1. Non-volatile Memory, Data Storage Institute, Singapore, Singapore; 2. Institute of High Performance Computing, Singapore, Singapore*

TUESDAY
AFTERNOON
2:00

ORCHID II

Session BI

COMPUTATIONAL MAGNETICS: MICROMAGNETICS AND AB-INITIO CALCULATIONS

Andrivo Rusdyi, Chair
National University of Singapore, Singapore

2:00

- BI-01. GPU-Accelerated Atomistic Energy-Barrier Calculations for Skyrmion Annihilation.** P.T. Heistracher¹, C. Abert¹, F. Bruckner¹, C. Vogler¹ and D. Suess¹ *1. Physics of Functional Materials, University of Vienna, Vienna, Austria*

2:15

- BI-02. Effect of dipolar interactions on magnetization reversal process using ultra-large-scale micromagnetics simulation.** *H. Tsukahara*¹, *K. Iwano*¹, *C. Mitsumata*², *T. Ishikawa*¹ and *K. Ono*¹ *1. High Energy Accelerator Research Organization, Tsukuba, Japan; 2. National Institute for Materials Science (NIMS), Tsukuba, Japan*

2:30

- BI-03. Withdrawn**

2:45

- BI-04. Novel micromagnetic approach for self-consistent modeling of magnetization and temperature dynamics.** *O. Chubykalo-Fesenko*¹, *D. Serantes*², *P. Nieves*³, *C. Muñoz-Mendez*² and *R.W. Chantrell*⁴ *1. Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain; 2. Universidad de Santiago de Compostela, Santiago de Compostela, Spain; 3. Universidad de Burgos, Burgos, Spain; 4. University of York, York, United Kingdom*

3:00

- BI-05. Simulation of the Novel Magnetic Response of the Perpendicular Synthetic Ferrimagnet Ni₃Pt/Ir/Co using VAMPIRE.** *J.N. Scott*¹, *W.R. Hendren*¹, *R. Bowman*¹, *R.W. Chantrell*² and *R.F. Evans*² *1. Queen's University Belfast, Belfast, United Kingdom; 2. University of York, York, United Kingdom*

3:15

- BI-06. Evaluation of Thermal Stability of Spin-Transfer Torque based Magnoresistive Random-Access Memory for Cache Applications in Advanced Technology Nodes.** *H. Dixit*¹, *S. Agarwal*¹, *D. Datta*¹, *A. Jacob*², *D. Shum*³ and *F. Benistant*³ *1. Globalfoundries Engineering Pvt. Ltd., Bangalore, India; 2. Globalfoundries, Malta, NY, United States; 3. Globalfoundries Singapore Pte. Ltd., Singapore, Singapore*

3:30

- BI-07. Stable Bloch point in helimagnetic nanostructures containing boundary between grains with different chirality.** *M. Beg*^{1,2}, *D.I. Cortes*², *R. Pepper*², *M. Bisotti*², *G. Downing*², *B. Atie*², *O. Hovorka*² and *H. Fangohr*^{1,2} *1. European XFEL GmbH, Schenefeld, Germany; 2. Faculty of Engineering and the Environment, University of Southampton, Southampton, United Kingdom*

3:45

- BI-08. The effect of antisite disorder on magnetic and magnetocaloric properties of Ni-Co-Mn-In alloys: ab initio and Monte Carlo studies.** *V. Sokolovskiy*¹, *V. Buchelnikov*¹ and *P. Entel*² *1. Condensed matter, Chelyabinsk State University, Chelyabinsk, Russian Federation; 2. Duisburg-Essen University, Duisburg, Germany*

- BI-09. Analysis of switching times distributions for uniaxial magnetic particles.** *M. d'Aquino*¹, C. Serpico² and V. Scalera²
 1. *Dipartimento di Ingegneria, Università degli Studi di Napoli "Parthenope", Napoli, Italy;* 2. *DIETI, University of Naples Federico II, Naples, Italy*

- BI-10. *Ab initio* prediction of giant perpendicular magnetic anisotropy at Fe/CuIn_{1-x}Ga_xSe₂ interface.** *K. Masuda*¹, S. Kasai¹, Y. Miura^{1,2} and K. Hono¹ 1. *National Institute for Materials Science (NIMS), Tsukuba, Japan;* 2. *Electrical Engineering and Electronics, Kyoto Institute of Technology, Kyoto, Japan*

TUESDAY
 AFTERNOON
 1:30

SIMPOR/ROSELLE BALLROOM

Session BP

TMR, VCMA AND MULTIFERROIC MATERIALS I (Poster Session)

Xiufeng Han, Chair

Institute of Physics, Chinese Academy of Sciences, Beijing, China

- BP-01. Coexistence of Large Voltage Controlled Magnetic Anisotropy, Large Surface Anisotropy, and Large TMR by a new MTJ structure having MgO/CoFeB/Ir/CoFeB.** *S. Oikawa*¹, Y. Saito¹, H. Yoda¹, Y. Kato¹, A. Tiwari¹, M. Ishikawa¹, N. Shimomura¹, K. Koi¹, T. Inokuchi¹, H. Sugiyama¹, M. Shimizu¹, S. Shirotori¹, A. Buyandalai¹, Y. Ohsawa¹ and A. Kurobe¹ 1. *Corporate R&D Center, Toshiba Corporation, Kawasaki, Japan*
- BP-02. Ionic Liquid Gating Modulation of Diluted Magnetic Semiconductor (Zn, Mn)O Thin Films.** *H. Wong*¹, S. Ng¹, Y. Liu¹, K. Lam¹, K. Chan¹, W. Cheng¹, D. von Nordheim², C. Mak¹, B. Ploss² and C. Leung¹ 1. *Department of Applied Physics, The Hong Kong Polytechnic University, Hong Kong, Hong Kong;* 2. *Department of SciTec, University of Applied Sciences Jena, Jena, Germany*
- BP-03. Development of all spinel magnetic tunnel junctions: epitaxial Fe₃O₄/MgAl₂O₄/Fe₃O₄(001) structure.** *T. Tainosho*¹, H. Yanagihara¹ and H. Sukegawa² 1. *Applied physics, University of Tsukuba, Tsukuba, Japan;* 2. *Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science (NIMS), Tsukuba, Japan*
- BP-04. Large enhancement of magneto-dielectric effect in Co-MgF₂ nano-composites by small addition of Si.** *Y. Cao*¹, N. Kobayashi², S. Ohnuma^{1,2} and H. Masumoto¹ 1. *Frontier Research Institute for Interdisciplinary Science, Tohoku University, Sendai, Japan;* 2. *Research Institute for Electromagnetic Materials, DENJIKEN, Sendai, Japan*

- BP-05. Giant zero-biased magnetoelectric coupling characteristics in flexible Metglas/poly(vinylidene fluoride) heterostructures.** Y. Long¹, J. Qiu¹, X. He¹, Q. Chang¹, Z. Hu¹ and H. Liu¹ *1. College of Optoelectronic Engineering, Chongqing University, Chongqing, China*
- BP-06. Study of magnetic and electrical properties of $\text{Zn}_{0.9}\text{Mn}_{0.1}\text{Fe}_2\text{O}_4\text{-BaTiO}_3$ multiferroic composites.** A. Farheen¹ and R. Singh¹ *1. School of Physics, University of Hyderabad, Hyderabad, India*
- BP-07. Theory of electrically tunable thin-film electromagnetic crystals based on a coplanar waveguide.** A.A. Nikitin^{1,2}, A. Nikitin^{1,2}, A.B. Ustinov¹, E. Lähderanta² and B.A. Kalinikos¹ *1. Physical Electronics and Technology, St. Petersburg Electrotechnical University, St. Petersburg, Russian Federation; 2. Laboratory of Physics, Lappeenranta University of Technology, Lappeenranta, Finland*
- BP-08. Dielectric relaxation and conduction mechanism of magnetoelectric hexaferrite $\text{BaFe}_{10.2}\text{Sc}_{1.8}\text{O}_{19}$.** R. Tang¹, Q. Zhu¹ and X. Su¹ *1. College of Physics, Optoelectronics and Energy, Soochow University, Suzhou, China*
- BP-09. Magnetodielectric effects in multiferroic M-type hexaferrite thin films.** R. Tang¹, Q. Zhu¹, X. Su¹ and H. Yang² *1. College of Physics, Optoelectronics and Energy, Soochow University, Suzhou, China; 2. School of Science, Nanjing University of Aeronautics and Astronautics, Nanjing, China*
- BP-10. Room-temperature multiferroic properties of $0.5\text{LaFe}_{0.5}\text{Co}_{0.5}\text{O}_3\text{-Bi}_4\text{Ti}_3\text{O}_{12}$ thin films.** J. Su^{1,2} *1. Qingdao University, Qingdao, China; 2. Nanjing University, Nanjing, China*

TUESDAY
AFTERNOON
1:30

SIMPOR/ROSELLE BALLROOM

Session BQ
ENERGY ASSISTED RECORDING AND
RECORDING MEDIA
(Poster Session)

Stephanie Hernandez, Chair
Seagate Technology, Shakopee, MN, United States

- BQ-01. Micromagnetic model analysis of spin-torque oscillator (STO) integrated into recording write head for microwave-assisted magnetic recording—Oscillation of STO vs. rise time of in-gap field—.** Y. Kanai¹, R. Itagaki¹, S. Greaves² and H. Muraoka² *1. Information and Electronics Engineering Department, Niigata Institute of Technology, Kashiwazaki, Japan; 2. RIEC, Tohoku University, Sendai, Japan*
- BQ-02. Effect of SIL magnetic design on STO optimization in MAMR.** I. Tagawa¹ *1. Electrical and Electronics, Tohoku Institute of Technology, Sendai, Japan*

- BQ-03. Magnetic recording using a spin torque oscillator.** *S. Greaves*¹ 1. *Tohoku University, Sendai, Japan*
- BQ-04. Columnar Structural FePt films with Good Perpendicular Anisotropy Grown on TiNZrO Intermediate Layer.** *K. Dong*¹, *F. Jin*¹, *W. Mo*¹ and *J. Song*¹ 1. *School of Automation, China University of Geosciences, Wuhan, China*
- BQ-05. Study of Erase Band and Write Performance in Shingled Magnetic Recording with Exchanged Coupled Composite Media.** *J. Chen*^{1,4}, *G. Xie*^{1,2}, *K. Luo*¹, *W. Cheng*¹, *P. Lu*^{1,4} and *Y. Wang*³ 1. *Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, China*; 2. *Key Lab of Jiangxi Province for Numerical Simulation and Emulation Technology, Gannan Normal University, Ganzhou, China*; 3. *Electrical and Computer Engineering Department, Carnegie Mellon University, Pittsburgh, PA, United States*; 4. *Key Laboratory of Information Storage System (School of Computer Science and Technology, Huazhong University of Science and Technology), Ministry of Education of China, Wuhan, China*
- BQ-06. Lattice Mismatch Induced Oscillatory Feature Size and its Impact on the Physical Limitation of Grain Size.** *J. Deng*¹, *H. Li*¹, *K. Dong*⁵, *R. Li*², *Y. Peng*³, *G. Ju*³, *J. Hu*⁴, *G. Chow*¹ and *J. Chen*¹ 1. *Materials Science and Engineering, National University of Singapore, Singapore*; 2. *Key Laboratory of Magnetic Materials and Devices & Zhejiang Province Key Laboratory of Magnetic Materials and Application Technology, Ningbo, China*; 3. *Seagate Technology, Fremont, CA, United States*; 4. *Singapore Institute of Manufacturing Technology, Singapore, Singapore*; 5. *School of Automation, China University of Geoscience, Wuhan, China*
- BQ-07. Magnetic properties and microstructure of [FePt-Mg(Ti, Ta, Zr, Nb, B)O] granular films.** *J. Tsai*¹, *Y. Chen*¹, *C. Pi*¹, *Y. Wu*¹, *C. Chang*¹ and *G. Varvaro*² 1. *Department of Materials Science and Engineering, National Chung Hsing University, Taichung, Taiwan*; 2. *nM2-Lab, Istituto di Struttura della Materia, CNR, Monterotondo Scalo (Roma), 00015, Roma, Italy*
- BQ-08. First order reversal curves and intrinsic parameter determination for magnetic materials: limitations of hysteron-based approaches in correlated systems.** *S. Ruta*¹, *O. Hovorka*², *K. Wang*³, *P. Huang*³, *G. Ju*³ and *R.W. Chantrell*¹ 1. *Physics, University of York, York, United Kingdom*; 2. *Faculty of Engineering and the Environment, University of Southampton, Southampton, United Kingdom*; 3. *Seagate Technology, Fremont, CA, United States*
- BQ-09. Magnetization Reversal of antiferromagnetically coupled (Co/ Ni) and (Co/ Pt) Multilayers.** *A.Y. AlSubhi*¹ 1. *Physics, Sultan Qaboos University, Muscat, Oman*
- BQ-10. In-plane components of FePt nanogranular films on MgO underlayer with and without carbon segregant.** *J. Wang*^{2,1}, *Y. Takahashi*¹ and *K. Hono*¹ 1. *Research Center for Magnetic and Spintronic Materials, Magnetic Materials Gr., National Institute for Materials Science (NIMS), Tsukuba, Japan*; 2. *International Center for Young Scientists (ICYS), National Institute for Materials Science (NIMS), Tsukuba, Japan*

- BQ-12. Ion beam patterning of ultrathin $\text{Li}_0\text{-MnGa}$ (001) film grown on CoGa buffer layer.** *Y. Horie*¹, *D. Oshima*¹, *T. Kato*¹ and *S. Iwata*¹ *1. Nagoya University, Nagoya-shi, Japan*
- BQ-13. Exchange coupling through a Pt spacer to enable ultrafast memory devices.** *C.A. Lambert*^{2,1}, *J. Gorchon*¹, *Y. Yang*¹, *A. Pattabi*¹, *R. Wilson*¹, *J. Bokor*¹ and *S. Salahuddin*¹ *1. EECS, UC Berkeley, Berkeley, CA, United States; 2. Materials Science, ETH Zürich, Zürich, Switzerland*
- BQ-14. Thermodiffusion and the replenishment phenomena of PFPEs for the application of heat-assisted magnetic recording.** *P. Chung*¹ *1. Energy Engineering, Inje University, Gimhae-si, The Republic of Korea*
- BQ-11. Reduction of intergranular exchange coupling for $\text{CoPt-B}_2\text{O}_3$ granular media by employing a RuCoCr -oxide buffer layer with oxide of various melting points.** *K. Tham*¹, *R. Kushibiki*¹, *T. Kamada*¹, *S. Hinata*² and *S. Saito*² *1. Tanaka Kikinzoku Kogyo, Sendai, Japan; 2. Tohoku University, Sendai, Japan*
- BQ-15. Investigation Nonlinear GPR Target for BCJR Algorithm on Perpendicular HAMR Channel with Volterra Model.** *W. Wongtrairat*¹, *T. Sopon*¹, *S. Wongsuthavas*², *S. Sophan*¹ and *P. Supnithi*³ *1. Faculty of Engineering and Architecture, Rajamangala University of Technology Isan (RMUTI), Nakhonratchasima, Thailand; 2. Faculty of Science and Liberal Arts, Rajamangala University of Technology Isan (RMUTI), Nakhonratchasima, Thailand; 3. Faculty of Engineering, King Mongkut's Institute of Technology Ladkrabang (KMUTL), Bangkok, Thailand*

TUESDAY
AFTERNOON
1:30

SIMPOR/ROSELLE BALLROOM

Session BW TMR, VCMA AND MULTIFERROIC MATERIALS II (Poster Session)

Shiheng Liang, Chair
Institute of physics, Chinese Academy of Sciences, Beijing, China

- BW-01. Voltage control of perpendicular exchange bias in $\text{Pt/IrMn/Co}/(\text{Co/Pt})_2/\text{Ta/PMN-PT}(011)$ multiferroic heterostructures.** *Q. Yang*¹, *Z. Hu*¹, *Z. Zhou*¹, *S. Zhao*¹ and *M. Liu*¹ *1. Xi'an Jiaotong University, Xi'an, China*
- BW-02. Voltage switching of perpendicular magnetic anisotropy in $(\text{Co/Pt})_3/\text{PZN-PT}$ heterostructures at room temperature.** *B. Peng*¹, *M. Feng*¹, *Q. Yang*¹, *Y. Zhang*¹ and *M. Liu*¹ *1. Xi'an Jiaotong University, Xi'an, China*
- BW-03. High isotropic Terfenol-D/PZT magnetoelectric sensor based on ring nested structure.** *X. Wu*¹, *J. Ouyang*¹, *W. Wang*¹, *Y. Ren*¹, *S. Chen*¹ and *X. Yang*¹ *1. School of Optical and Electronic Information, Huazhong University of Science and Technology, WuHan, China*

BW-04. Preparation and Characterization of Permalloy and Cobalt Doped BiFeO₃ Hybrid Core-shell nanostructures. *K. Javed^{1,2}, N. Ahmad³, M. Shahzad¹ and S. Shah¹* 1. *Physics, Forman Christian College, Lahore, Pakistan;* 2. *Institute of Physics, Chinese Academy of Sciences, Beijing, China;* 3. *Department of Physics, FBAS, International Islamic University, Islamabad, Pakistan*

BW-05. Large Magnetoelectric coupling in a Y-type hexaferrite. *Y. Yang^{1,2}, K. Jiang¹, J. Li¹, C. Duan², X. Wang¹ and H. Ge¹* 1. *College of Materials Science and Engineering, Zhejiang Province Key Laboratory of Magnetism, China Jiliang University, Hangzhou, Hangzhou, China;* 2. *Key Laboratory of Polar Materials and Devices, Ministry of Education, East China Normal University, Shanghai, Shanghai, China*

BW-06. Resistive switching in Pt/BiFeO₃/SrRuO₃/SrTiO₃ heterostructures. *T. Wang¹, W. Cheng^{1,2}, C. Wang¹, H. Wang², Y. Hao¹ and X. Miao^{1,2}* 1. *School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan, China;* 2. *Wuhan National Research Center for Optoelectronics, Huazhong University of Science and Technology, Wuhan, China*

BW-07. Integrated Thin-Film Magnetoelectric Waveguide with Tunable Resonance Frequency. *A. El-Ghazaly², J. Evans³, N. Sato¹, N. Montross³, R.M. White⁴ and S.X. Wang^{1,4}* 1. *Electrical Engineering, Stanford University, Stanford, CA, United States;* 2. *Electrical Engineering and Computer Science, University of California Berkeley, Berkeley, CA, United States;* 3. *Radiant Technologies, Inc., Albuquerque, NM, United States;* 4. *Materials Science and Engineering, Stanford University, Stanford, CA, United States*

BW-08. Study of magneto-dielectric behaviour in Haldane spin chain Ho₂BaNiO₅. *S.K. Upadhyay¹ and E.V. Sampathkumaran¹* 1. *Department of Condensed Matter Physics and Material Science, Tata Institute of Fundamental Research, Mumbai, MUMBAI, India*

BW-09. Prediction of Room Temperature Oxygen Vacancy-mediated Multiferroicity in a Cobalt-substituted Perovskite. *M.C. Onbasli¹* 1. *Dept. of Electrical and Electronics Engineering, Koc University, Istanbul, Turkey*

BW-10. Magnetoelectric characteristics in three-phase magnetostrictive/piezoelectric composites with different high permeability materials. *L. Chen¹ and Y. Wang²* 1. *Key Lab of Computer Vision and Intelligent Information System, Chongqing University of arts and sciences, ChongQing, China;* 2. *School of Electronic Information and Electric Engineering, Shanghai Jiao Tong University, Shanghai, China*

BW-11. High-Performance Photovoltaic Readable Ferroelectric Nonvolatile Memory Based on La Doped BiFeO₃ Films. *D. Li¹, D. Zheng¹, C. Jin¹ and H. Bai¹* 1. *Tianjin University, Tianjin, China*

Session BR
MAGNETIC OXIDE AND ALLOY FILMS
(Poster Session)

Jiafeng Feng, Chair

Institute of Physics, Chinese Academy of Sciences, Beijing, China

- BR-01. Enhancement of magnetoresistance by cobalt substitution in double exchange ferromagnets: $\text{Pr}_{0.6}\text{Sr}_{0.4}\text{Mn}_{1-x}\text{Co}_x\text{O}_3$ ($x = 0, 0.05$ and 0.1).** *A. Chanda*¹ and *R. Mahendiran*¹ *1. Department of Physics, National University of Singapore, Singapore*
- BR-02. Increased Curie temperature induced by orbital ordering in $\text{La}_{0.67}\text{Sr}_{0.33}\text{MnO}_3/\text{BaTiO}_3$ superlattices.** *Z. Quan*¹, *F. Zhang*¹, *B. Wu*¹, *G. Zhou*¹ and *X. Xu*¹ *1. Shanxi Normal University, Linfen, China*
- BR-03. Electrical Conduction Mechanism for Investigation of Charge Ordering in $\text{Nd}_{0.5}\text{Ca}_{0.5}\text{MnO}_3$.** *A. Swain*¹ and *V. Gorige*¹ *1. School of Physics, University of Hyderabad, Hyderabad, India*
- BR-04. Withdrawn**
- BR-05. Large Magnetoresistance in Diode Assisted ZnCoO Device.** *K. Zhang*^{1,2}, *Y. Zhang*^{1,2}, *Z. Zhang*^{1,2}, *Z. Zheng*^{1,2}, *J. Nan*^{1,2}, *G. Wang*^{1,2}, *Y. Wang*^{1,2}, *W. Yun*^{1,2} and *W. Zhao*^{1,2} *1. Fert Beijing Institute, Beihang University, Beijing, China; 2. School of Electronics and Information Engineering, Beihang University, Beijing, China*
- BR-06. Negative spin Hall magnetoresistance in antiferromagnetic $\text{Cr}_2\text{O}_3/\text{Ta}$ bilayer at the low temperature region.** *Y. Ji*¹, *J. Miao*¹, *K. Meng*¹, *J. Chen*¹, *X. Xu*¹, *Y. Wu*¹ and *Y. Jiang*¹ *1. School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing, China*
- BR-07. Effect of sputtering conditions on the in plane and out of plane magnetic properties of tetragonal Mn_2VGa Heusler alloy films.** *P.V. Midhunlal*¹, *A. Chelvane*², *A. Talapatra*³, *J. Mohanty*³, *J. Joseph*⁴, *A. Rajani Kanth*⁴ and *N. Harish Kumar*¹ *1. Department of Physics, IIT Madras, Chennai, India; 2. Defense Metallurgical Research Laboratory, Hyderabad, India; 3. Department of Physics, IIT Hyderabad, Hyderabad, India; 4. School of Physics, Univesity of Hyderabad, Hyderabad, India*
- BR-08. Structural, magnetic and transport properties of half-metallic quaternary Heusler alloy CoRuMnSi : Theory and Experiment.** *V. Yenugonda*¹, *D. Rani*¹, *S. Samatham*¹, *A. Alam*¹ and *S. K. G.*¹ *1. Departmnet of Physics, Indian Institute of Technology Bombay, Mumbai, India*

BR-09. Possible spin gapless semiconductor type behaviour in CoFeMnSi epitaxial thin films. *V.K. Kushwaha¹, J. Rani¹, A. Tulapurkar² and C. Tomy¹* 1. *Physics Department, Indian Institute of Technology Bombay, Powai, India;* 2. *Department of Electrical Engineering, Indian Institute of Technology Bombay, Mumbai, India*

BR-10. Interplay between structure and anisotropic magnetoresistance in Ta/NiFe/Ta thin films. *H.W. Chang¹, M. Chan², D. Wei², C. Wang³ and C. Ouyang⁴* 1. *Department of Physics, National Chung Cheng University, Taichung, Taiwan;* 2. *National Taipei University of Technology, Taipei, Taiwan;* 3. *Department of Applied Physics, Tunghai University, Taichung, Taiwan;* 4. *Department of Materials Science and Engineering, National Tsing Hua University, Hsinchu, Taiwan*

BR-11. Different Phase Mn₂Ga films introduced by varying the Cr buffer thickness. *Y. Zheng¹, Y. Liu¹, L. Ren¹ and K. Teo¹* 1. *Electrical and Computer Department, National University of Singapore, Singapore*

BR-12. Generation of Néel field in anti-ferromagnetic nanowire by a sloped electric field. *K. Kubota¹, K. Yamada² and Y. Nakatani¹* 1. *Graduate school of Informatics and Engineering, University of Electro-Communications, Chofu, Japan;* 2. *Faculty of Engineering, Gifu University, Gifu, Japan*

BR-13. XMCD study of ultra-thin Co₂FeAl film. *X. Zhang¹, W. Liu², L. He¹ and Y. Xu^{1,2}* 1. *Nanjing University, Nanjing, China;* 2. *University of York, York, United Kingdom*

TUESDAY
AFTERNOON
1:30

SIMPOR/ROSELLE BALLROOM

Session BS
PERMANENT MAGNET AND RELUCTANCE
MACHINES III
(Poster Session)

Xiao Liu, Co-Chair
Hunan University, Changsha, China
Xiaofeng Ding, Co-Chair
Beihang University, Beijing, China

BS-01. Reliability Comparison of Stator-Permanent Magnet Machine and Rotor Permanent Magnet Machine. *W. Li¹ and M. Cheng¹* 1. *School of Electrical Engineering, Southeast University, Nanjing, China*

BS-02. Torque Analysis and Improvement of Single-Phase Asymmetric-Stator-Pole Doubly Salient Permanent Magnet Machine. *M. He¹, W. Xu¹ and C. Ye¹* 1. *School of Electrical and Electronic Engineering, Huazhong University of Science and Technology, Wuhan, China*

- BS-03. Suppression of Irreversible Demagnetization under Motor Operation by Preliminarily Demagnetizing of Neodymium Bonded Magnet in In-Wheel Axial-Gap Motor.** *S. Nagano¹, M. Takemoto¹, S. Ogasawara¹, K. Orikawa¹, W. Hino² and K. Takezaki²* 1. Graduate School of Information Science and Technology, Hokkaido University, Sapporo, Japan; 2. Dynax Corporation, Chitose, Japan
- BS-04. Study of Dual Airgap Stator and Rotor Permanent Magnet Machines with Halbach Array Configurations Using Phase-group Concentrated-coil Windings.** *D. Chen¹, L. Fang¹, Z. Feng¹ and B. Bai¹* 1. School of Electrical Engineering, Shenyang University of Technology, Shenyang, China
- BS-05. Unexpected Parasitic Torque Ripple Component Analysis in PMSM according to Parallel Winding Pattern Considering Eccentricity.** *D. Lee², C. Jeong², S. Lee² and J. Hur²* 2. Electrical Engineering Incheon National University, Incheon, China
- BS-06. A Study of New Design Process of Spoke Type Permanent Magnet Synchronous Motor Considering Post Assembly Magnetization Performance.** *S. Lee¹, H. Kong² and W. Kim³* 1. Intelligent Information Technology Fusion, Busan University of Foreign Studies, Busan, The Republic of Korea; 2. Gachon University, Seongnam, The Republic of Korea; 3. Gachon University, Seongnam, The Republic of Korea
- BS-07. Development of IE4 Class Line-Start Permanent Magnet Motor from a Small Three Phase Induction Motor.** *S. Rhyu¹, S. Khaliq¹, K. Lee¹ and R. Kim¹* 1. Intelligent Mechatronics Research Center, Korea Electronics Technology Institute, Bucheon, The Republic of Korea
- BS-08. Design and Analysis of a Two-phase BLDC Motor with Hybrid Permanent Magnet Material for Only-pull Drive Technique.** *T. Yazdan¹ and B. Kwon¹* 1. Electronic Systems Engineering, Hanyang University, Ansan-si, The Republic of Korea
- BS-09. Comparative Studies of Modular PMSMs with Symmetrical or Asymmetrical Six-Phase Windings.** *L. Cheng¹, Y. Sui¹, P. Zheng¹, Z. Yin¹ and R. Ma¹* 1. Harbin Institute of Technology, Harbin, China
- BS-10. Reaserch on Flux Density Fluctuation for Brushless Double Rotor Flux-Switching Permanent Magnet Motor Considering Low Magnetic Coupling.** *Z. Xiang¹* 1. School of electrical and information engineering, Jiangsu University, Zhen Jiang, China
- BS-11. Development of Differing Extent Mesh Adaptive Direct Search applied for Optimal Design of Spoke-Type PMSM.** *D. Lee² and S. Jung¹* 1. Sungkyunkwan University, Suwon, The Republic of Korea; 2. Department electrical and computer engineering, University of Illinois at Urbana-Champaign, Champaign, IL, United States

- BS-12. Comparative Study of Serial and Parallel PM Axial Field Flux-switching Memory Machines.** N. Li^{1,2}, M. Lin¹, J. Zhu², G. Yang¹ and Y. Kong¹ *1. School of Electrical Engineering, Southeast University, Nanjing, China; 2. School of Electrical and Data Engineering, University of Technology Sydney, Sydney, NSW, Australia*
- BS-13. Magnetic and Mechanical Characteristics of Electric Motor according to the Weld-laminated Core and the Bond-laminated Core.** D. Kim¹, M. Park¹, M. Yoon¹, J. Sim¹ and J. Hong¹ *1. Automotive engineering, Hanyang University, Seoul, The Republic of Korea*
- BS-14. A Novel Demagnetization Fault Detection Technique for IPMSM using Voltage angle.** Z. Ullah¹ and J. Hur¹ *1. Department of electrical engineering, Incheon National University, Incheon, The Republic of Korea*
- BS-15. Design of IPMSM for Minimization of Electromagnetic Vibration.** I. Jang¹ *1. Hyundai Mobis, Yongin-si, The Republic of Korea*
- BS-16. Optimal Design of a Switched Reluctance Motor with Magnetically Disconnected Rotor Modules Using a Design of Experiments - Differential Evolution (DOE-DE) Finite Element Analysis (FEA) based Method.** V. Rallabandi¹, J. Wu¹, D.G. Dorrell², P. Zhou³ and D. Ionel¹ *1. Electrical and Computer Engineering, University of Kentucky, Lexington, KY, United States; 2. Discipline of Electrical, Electronics and Computer Engineering, University of KwaZulu-Natal, Durban, South Africa; 3. ANSYS Inc., Pittsburgh, PA, United States*

TUESDAY
AFTERNOON
1:30

SIMPOR/ROSELLE BALLROOM

Session BT
PERMANENT MAGNET AND RELUCTANCE
MACHINES IV
(Poster Session)

Zhejie Liu, Chair
ARTC, Singapore, Singapore

- BT-01. A novel variable flux permanent magnet synchronous machine with quasi-series magnet configuration and passive flux barrier.** S. Zhang¹, P. Zheng¹, Y. Liu¹, M. Wang¹, G. Qiao¹ and F. Liu¹ *1. School of Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, China*
- BT-02. Torque Improvement of External-Rotor Permanent Magnet Machine Using Flux Concentrated Rotor.** Q. Li¹ and T. Fan¹ *1. Institute of Electrical Engineering, Chinese Academy of Sciences, BeiJing, China*

- BT-03. Robust hybrid type permanent magnet traction motor against irreversible demagnetization at high temperature.** *C. Jeong¹ and J. Hur¹ 1. Incheon National University, Incheon, The Republic of Korea*
- BT-04. Elimination of Sub-harmonic in Stator MMF of 18-slot/10-pole PM Machines by Employing Unequal Slot and Uneven Turns per Coil.** *H. Sun¹ and X. Chen¹ 1. Electrical Engineering, Nanjing University of Aeronautics and Astronautics, NanJing, China*
- BT-05. A high continuous torque density external rotor surface permanent magnet machine for in-wheel application.** *Y. Li¹, T. Fan¹, Q. Li¹, X. Wen¹ and X. Zhuang² 1. Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China; 2. Beijing First-rate New Energydrive Technology, Beijing, China*
- BT-06. Design and Analysis a New Wide Speed Range Permanent Magnet Motor Capable of High Efficiency Over Wide Speed Ranges.** *X. Zhu¹ and L. Ge¹ 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*
- BT-07. Design method of permanent magnetic loop return magnetic system and application in vehicle relay.** *H. Liang¹, H. Yu¹, X. Ye¹ and G. Zhai¹ 1. Harbin Institute of Technology, Harbin, China*
- BT-08. Analysis on the starting and Synchronization Capabilities for a Novel 6/8 Pole Changing Line-Start Permanent Magnet Synchronous Motor.** *M. Tian¹, X. Wang¹, W. Zhao¹ and C. Li¹ 1. School of Electrical Engineering, Shandong University, Ji'nan, China*
- BT-09. Investigation of a Transverse-flux Flux-reversal Motor with Consequent-pole Configuration.** *B. Kou¹, X. Yang¹, Y. Zhou¹, J. Luo¹ and H. Zhang¹ 1. Harbin Institute of Technology, Harbin, China*
- BT-10. Torque Improvement of Five-Phase Halbach Permanent Magnet Machines Considering Third-Harmonic Flux Density.** *L. Zhang¹ and L. Liu¹ 1. Nanjing University of Aeronautics and Astronautics, Nanjing, China*
- BT-11. A High Power Factor Vernier Machine with Coil-Pitch of Two Slot Pitches.** *Y. Liu¹, H. Li¹ and Z. Zhu¹ 1. The University of Sheffield, Sheffield, United Kingdom*
- BT-12. A Study on Hall Sensor Fault Signal Compensation Algorithm to Prevent Irreversible Demagnetization of Hall Sensor Faults.** *D. Lee¹, B. Kim¹, S. Lee¹, J. Lee¹ and D. Kang¹ 1. Convergence System Engineering, keimyung university, Daegu, The Republic of Korea*
- BT-13. Efficiency Optimization for IPMSM Considering Hysteresis Loss.** *T. Ishikawa¹ 1. Electronics and Informatics, Gunma University, Kiryu, Japan*

BT-14. Comparison of the Power Factor of SMPM and SM Vernier Outer Runner Machines for Traction Applications.

D. Thyroff¹, C. Hittinger¹ and I. Hahn¹ 1. Institute of Electrical Machines and Drives, University of Erlangen-Nuremberg, Erlangen, Germany

BT-15. Comparative Parameters Investigation of Composite Solid Rotor Applied to Line-Start Permanent-Magnet Synchronous Motors.

B. Yan¹, Y. Yang¹ and X. Wang¹ 1. School of Electrical Engineering, Shandong University, Ji'nan, China

BT-16. Multi-sensor Fusion Based Permanent Magnet Demagnetization Detection in Permanent Magnet Synchronous Machines.

M. Zhu¹, W. Hu¹, S. Mukundan¹ and N. C. Kar¹ 1. Electrical and Computer Engineering, University of Windsor, Windsor, ON, Canada

TUESDAY
AFTERNOON
1:30

SIMPOR/ROSELLE BALLROOM

Session BU

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

Minggang Zhu, Co-Chair

Central Iron & Steel Res., Beijing, China

Satoshi Hirosawa, Co-Chair

National Institute for Materials Science, Tsukuba, Japan

BU-01. PLD-fabricated Nd-Fe-B film magnets on Si substrates with Si oxide layer.

Y. Yamaguchi¹, D. Shimizu¹, A. Yamashita¹, T. Yanai¹, M. Nakano¹ and H. Fukunaga¹ 1. Nagasaki University, Nagasaki, Japan

BU-02. Increase in nucleation field of nanocrystalline Nd-Fe-B magnets due to strengthening of exchange interaction - computer simulation -.

T. Harada¹, T. Yanai¹, M. Nakano¹ and H. Fukunaga¹ 1. Nagasaki University, Nagasaki, Japan

BU-03. Investigation on texture, magnetic properties and inhomogeneities of hot deformed Nd-Fe-B magnet.

H. Li¹, Q. Wu¹, M. Yue¹, X. Xu¹, J. Liang¹ and J. Zhang¹ 1. College of Materials Science and Engineering, Beijing University of Technology, Beijing, China

BU-04. The effect of ambient pressure of annealing process on magnetic properties and surface microstructure of sintered Nd-Fe-B magnet.

X. Yang^{1,2}, S. Guo¹, J. Zeng^{1,2}, Q. Zhang^{1,2}, G. Ding¹, J. Di^{1,2} and A. Yan¹ 1. Ningbo Institute of Industry Technology, CAS, Ningbo, China; 2. University of Chinese Academy of Sciences, Beijing, China

- BU-05. Improved coercivity enhancement of sintered Nd-Fe-B magnets by TbH₂ grain boundary diffusion with Al aiding.** J. Di^{1,2}, S. Guo¹, G. Ding¹, L. Cai³, X. Yang^{1,2}, K. Chen^{1,2}, R. Chen¹ and A. Yan¹ 1. Ningbo Institute of Material Technology and Engineering, Chinese Academy of Sciences, Ningbo, China; 2. University of Chinese Academy of Sciences, Beijing, China; 3. Ningbo Jinji Magnetic Material Co., Ltd, Ningbo, China
- BU-06. Thermal resistance of hot-deformed Nd-Fe-B magnets doped with Pr-Cu powders.** X. Tang¹, C. Jin¹, W. Yin¹, R. Chen¹ and M. Li¹ 1. Ningbo Institute of Industrial Technology, Chinese Academy of Science, Ningbo, China
- BU-07. Enhanced coercivity of Nd-Ce-Y-Fe-B sintered magnets by adding (Pr, Nd)-H powders.** B. Peng¹, Y. Liu¹, J. Jin¹ and M. Yan¹ 1. Department of Materials Science and Engineering, Zhejiang University, Hangzhou, China
- BU-08. Spin reorientation, magnetic viscosity and exchange coupling effects of the Nd-Ce-Fe-B sintered magnets prepared by single-main-phase and dual-main-phase alloy methods.** Z. Jiang¹, Y. Fang¹, R. Han¹, T. Liu¹, M. Zhu¹ and W. Li¹ 1. Functional Materials Research Institute, Central Iron and Steel Research Institute, Beijing, China
- BU-09. Effects of Ta doping and Ce reduction on the magnetic properties and thermal stability of Ce-Fe-B alloys.** J. Zhang¹, L. Zhao¹, X. Liao¹, H. Zeng¹ and Z. Liu¹ 1. South China University of Technology, Guangzhou, China
- BU-10. Coercivity enhancement of hot-deformed NdFeB magnets by doping R₈₀Ga₂₀ (R= Pr, Dy, Tb) alloys.** Y. Lee¹, Y. Wong¹, H.W. Chang¹ and W.C. Chang¹ 1. Department of physics, National Chung Cheng University, Chiayi, Taiwan
- BU-11. Distinctive diffusion behaviors observed in Dy-Fe-Ga intergranular added sintered Nd-Fe-B.** J. Zeng^{1,2}, S. Guo¹, X. Yang^{1,2}, G. Ding¹ and A. Yan¹ 1. Ningbo Institute of Industrial Technology, CAS, Ningbo, China; 2. University of Chinese Academy of Science, Beijing, China
- BU-12. Effects of La substitution on the crystal structure and intrinsic magnetic properties of MM-Fe-B alloy (MM = La, Ce, Pr, Nd).** W. Liu¹, Z. Zhang¹, Z. Li¹, D. Zhang¹, H. Zhang¹, M. Yue¹, Q. Lu¹, Q. Wu¹ and Y. Li¹ 1. Beijing University of Technology, Beijing, China
- BU-13. Effects of (Nd,Pr)H_x intergranular addition on the mechanical properties of Nd-Pr-Ce-Fe-B sintered magnets.** J. Jin¹, Z. Qian¹, G. Bai¹, B. Peng¹, Y. Liu¹ and M. Yan¹ 1. material science and engineering, Zhejiang University, Hangzhou, China
- BU-14. Study on recycling technology for waste MQ bonded Nd-Fe-B magnets.** M. Liu¹, Y. Zhang¹, W. Liu¹, D. Zhang¹ and M. Yue¹ 1. Beijing University of Technology, Beijing, China

Session BV
SPIN-ORBITRONICS II
(Poster Session)

Pan He, Chair
National University of Singapore, Singapore

BV-01. Negative spin Hall magnetoresistance effect in Pt/GdIG.

H. Zhao¹ and D. Wu¹ 1. Physics, Nanjing University, Nanjing, China

BV-02. Injection locking of constriction-based spin Hall

nano-oscillators. *T. Hache^{1,2}, T. Weinhold^{1,3}, S. Arekapudi², O. Hellwig^{1,2}, J. Fassbender^{1,3} and H. Schultheiss^{1,3}*

1. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden - Rossendorf, Dresden, Germany;

2. Institute of Physics, TU Chemnitz, Chemnitz, Germany;

3. TU Dresden, Dresden, Germany

BV-03. Vectorial Observation of the Spin Seebeck Effect in NiFe₂O₄

Thin Films. *Z. Li^{1,4}, A.V. Singh¹, J. Kriefft², A. Rastogi³, T. Mewes^{1,4}, T. Kuschel² and A. Gupta¹ 1. MINT Center, The University of Alabama, Tuscaloosa, AL, United States;*

2. Department of Physics, Bielefeld University, Center for Spinelectronic Materials and Devices, Bielefeld, Germany;

3. Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, United States;

4. Department of Physics & Astronomy, The University of Alabama, Tuscaloosa, AL, United States

BV-04. Amplification of spin waves in ultra-thin Yttrium Iron

Garnet microwaveguides by the spin-orbit torque. *M. Evelt¹, V.E. Demidov¹, V. Bessonov², S.O. Demokritov¹, J.L. Prieto³, M. Muñoz⁴, J.B. Youssef⁹, V. Naletov⁵, G. de Loubens⁶,*

O. Klein⁷, M. Collet⁸, K. Garcia-Hernandez⁸, P. Bortolotti⁸, V. Cros⁸ and A. Anane⁸ 1. Institut für Angewandte Physik, Westfälische Wilhelms-Universität Münster, Münster, Germany;

2. M.N. Miheev Institute of Metal Physics of Ural Branch of Russian Academy of Sciences, Yekaterinburg, Russian Federation; *3. Instituto de Sistemas Optoelectronicos y Microtecnologia (UPM), Ciudad Universitaria, Madrid, Spain;*

4. IMM-Instituto de Microelectrónica de Madrid (CNM-CSIC), Madrid, Spain; *5. Institute of Physics, Kazan Federal University, Kazan, Russian Federation;*

6. Service de Physique de l'État Condensé, Université Paris-Saclay, Gif-sur-Yvette, France; *7. INAC-SPINTEC, CEA/CNRS and Univ. Grenoble Alpes, Grenoble, France;*

8. Unité Mixte de Physique CNRS, Univ. Paris-Sud, Université Paris-Saclay, Palaiseau, France;

9. Laboratoire de Magnétisme de Bretagne CNRS, Université de Bretagne Occidentale, Brest, France

BV-05. A precise analytical method of harmonic Hall voltage measurement for spin-orbit torque.

S. Yun¹, E. Park², K. Lee^{1,2} and S. Lim¹ 1. Materials Science and Engineering, Korea University, Seoul, The Republic of Korea; 2. KU-KIST Graduate School of Converging Science and Technology, Korea University, Seoul, The Republic of Korea

- BV-06. Magnon dragged Magnetoresistance and Spin Seebeck Effect in YIG/IRMN bilayer.** Y. Cai¹, W. Li¹, Y. Wu¹, K. Meng¹, J. Miao¹, X. Xu¹ and Y. Jiang¹ *1. University of Science and Technology Beijing, Beijing, China*
- BV-07. Theory of capping layer effect on spin-orbit torque in multilayers.** C. Sun¹, Z. Siu¹, S. Tan², H. Yang¹ and M.B. Jalil¹ *1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore; 2. Department of Physics, National Taiwan University, Taipei, Taiwan*
- BV-08. Spin accumulation in asymmetric topological insulator thin films in out-of-plane magnetic fields.** Z. Siu¹, D. Chowdhury², B. Basu³ and M.B. Jalil¹ *1. National University of Singapore, Singapore; 2. Ben-Gurion University, Beer Sheva, Israel; 3. Indian Statistical Institute, Kolkata, India*
- BV-09. Tuning the spin orbit torque efficiency and Dzyaloshinskii-Moriya interaction by inserting a Pt spacer in Ta/CoFeB/MgO structures.** Y. Chen¹, J. Jia¹, Y. Zheng¹, Y. Wang¹ and J. Cao¹ *1. Lanzhou University, Lanzhou, China*
- BV-10. Spin-Orbit Torque Induced Magnetization Switching In Co/Pt Multilayer-based Synthetic Antiferromagnets.** L. Zhu¹, X. Xu¹, K. Meng¹, Y. Wu¹, J. Miao¹ and Y. Jiang¹ *1. School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing, China*
- BV-11. Impact of Hydrogen Gas on the Inverse Spin Hall Effect in Palladium-Cobalt Bi-Layer Films.** S.I. Watt¹, R. Cong^{1,2}, M. Sushruth¹, C. Lueng¹, P. Metaxas¹ and M. Kostylev¹ *1. University of Western Australia, Crawley, WA, Australia; 2. University of Science and Technology of China, Hefei, China*
- BV-12. The effect of inserting a Pt layer in Pt/Co/Ta structure on spin orbit torque.** S. Li¹, G.J. Lim¹ and W. Lew¹ *1. School of Physics and Physical Science, Nanyang Technological University, Singapore, Singapore*
- BV-13. Spin current pump-probe effect in Yttrium iron garnet plate with different thickness.** Y. Chen¹, J.G. Lin¹ and S. Huang² *1. Center for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan; 2. Department of Physics, National Taiwan University, Taipei, Taiwan*
- BV-14. Anomalous Nernst effect in Ir₂₂Mn₇₈/Co₂₀Fe₆₀B₂₀/MgO layers with perpendicular magnetic anisotropy.** S. Tu¹, J. Hu¹, G. Yu², H. Yu¹, C. Liu¹, F. Heimbach¹, X. Wang³, J. Zhang¹, Y. Zhang¹, A. Hamzic⁴, K. Wang², W. Zhao¹ and J. Ansermet⁵ *1. Beihang University, Beijing, China; 2. University of California, Los Angeles, CA, United States; 3. Hong Kong University Science & Technology, Kowloon, Hong Kong; 4. University of Zagreb, Zagreb, Croatia; 5. Ecole Polytechnique Federale de Lausanne, Lausanne, Switzerland*
- BV-15. Spin pumping effect via an evanescent state in ferromagnetic insulator.** K. Hoshi¹ and J. Ohe¹ *1. Physics, Toho University, Narashino-shi, Japan*

Session XA

**HOW TO GET A JOB IN INDUSTRY, ACADEMIA OR
GOVERNMENT LABORATORY
(SPECIAL SESSION)**

Albrecht Jander, Co-Chair

Oregon State University, Corvallis, OR, United States

Usha Varshney, Co-Chair

National Science Foundation, Arlington, VA, United States

Dr. Steve Hwang, *Vice President of Product Development, Seagate Technology, Fremont, CA, United States*

Dr. Liesl Folks, *Dean, School of Engineering and Applied Sciences, University at Buffalo, Buffalo, NY, United States*

Dr. Lucian Prejbeanu, *Executive Director, SPINTEC, CEA, Grenoble, France*

This special evening session will focus on jobs in magnetics research. The three panelists, with distinguished leadership positions in industry, academia and government laboratory, will provide perspectives and advice on how to prepare for, and apply to, research positions. An extended question-and-answer period will follow their presentations. Although this session is primarily intended for prospective and recent graduates, all conference attendees are encouraged to participate.

Session CA

SYMPOSIUM ON SKYRMIONS FOR THE FUTURE

Wei Han, Chair

Peking University, Beijing, China

9:00

CA-01. Skyrmions in magnetic multilayers at room temperature: electrical creation, detection and manipulation, 3D shaping. (Invited) *A. Fert^{1,2}, W. Legrand^{1,2}, D. Maccariello^{1,2}, J. Chauleau^{3,4}, N. Reyren^{1,2}, S. Collin^{1,2}, K. Bouzehouane^{1,2}, K. Garcia^{1,2}, N. Jaouen³ and V. Cros^{1,2} 1. UMP CNRS-Thales, CNRS, Palaiseau, France; 2. UMP CNRS-Thales, Université Paris-Saclay, Orsay, France; 3. Synchrotron SOLEIL, Gif-sur-Yvette, France; 4. SPEC, CEA, Gif-sur-Yvette, France*

9:30

CA-02. Atomic-Scale Observation and Manipulation of Individual Nanoscale Skyrmions by Local Spin Currents and Electric Fields. (Invited) *R. Wiesendanger¹ 1. Dept. of Physics, University of Hamburg, Hamburg, Germany*

10:00

CA-03. Skyrmion Dynamics – from thermal diffusion to ultra-fast motion. (Invited) *M. Kläui^{1,2} 1. Universität Mainz, Mainz, Germany; 2. Materials Science in Mainz, Johannes Gutenberg University, Mainz, Germany*

10:30

- CA-04. Skyrmions in magnetic multilayers. (Invited)** *W. Jiang¹, X. Zhang², P. P. Upadhyaya³, X. Wang^{4,5}, S. Zhang⁴, C. Phatak⁴, G. Yu³, Q. Wang⁴, Z. Wei⁴, M. Jungfleisch⁴, J. Pearson⁴, A. Petford-Long⁴, X. Cheng⁵, O. Heinonen⁴, Y. Tserkovnyak⁶, K. Wang³, Y. Zhou², S. te Velthuis⁴ and A. Hoffmann⁴*
1. Department of Physics, Tsinghua University, Beijing, China; 2. School of Science and Engineering, The Chinese University of Hong Kong at Shenzhen, Shenzhen, China; 3. Department of Electrical Engineering, University of California, Los Angeles, CA, United States; 4. Materials Sciences Division, Argonne National Laboratory, Lemont, IL, United States; 5. Department of Physics, Bryn Mawr College, Bryn Mawr, PA, United States; 6. Department of Physics, University of California, Los Angeles, CA, United States

11:00

- CA-05. Chiral Bobbers and Skyrmions in Epitaxial B20 Thin Films and Superlattices. (Invited)** *R. Kawakami¹, A.S. Ahmed¹, J. Rowland¹, B.D. Esser^{2,4}, S.R. Dunsiger^{3,5}, D.W. McComb^{2,4} and M. Randeria¹*
1. Physics, Ohio State University, Columbus, OH, United States; 2. CEMAS, Ohio State University, Columbus, OH, United States; 3. Physics, Simon Fraser University, Burnaby, BC, Canada; 4. Materials Science and Engineering, Ohio State University, Columbus, OH, United States; 5. Center for Emergent Materials, Ohio State University, Columbus, OH, United States

11:30

- CA-06. Magnetic antiskyrmions above room temperature in tetragonal Heusler materials. (Invited)** *S. Parkin¹*
1. NISE, Max Planck Institute for Microstructure Physics, Halle (Saale), Germany

WEDNESDAY
MORNING
9:00

ORCHID III

Session CB
SOFT MAGNETIC MATERIALS III: CRYSTALLINE MATERIALS

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

9:00

- CB-01. Magnetic properties and microstructure of newly developed iron-based soft magnetic powders. (Invited)** *N. Imaoka¹, S. Yamamoto¹ and K. Ozaki¹*
1. Magnetic Powder Metallurgy Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan

9:30

- CB-02. XAFS studies of the newly developed iron-based soft magnetic powders.** *S. Yamamoto*¹, *N. Imaoka*¹ and *K. Ozaki*¹
1. National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan

9:45

- CB-03. Irreversible permeability of Fe and Ni based soft magnetic powder compacts.** *P. Kollar*¹, *Z. Bircakova*¹, *J. Fuzer*¹, *D. Oleksakova*², *R. Bures*³ and *M. Faberova*³
1. Department of Condensed Matter Physics, Institute of Physics, Faculty of Science, P. J. Safarik University, Kosice, Slovakia;
2. Department of Sciences and Humanities, Institute of Manufacturing Management, Faculty of Manufacturing Technologies, Technical University of Kosice, Presov, Slovakia;
3. Institute of Material Research, Slovak Academy of Science, Kosice, Slovakia

10:00

- CB-04. Effect of ordering on the antiferromagnetic properties of near-equi-molar FeCr-based magnetic alloys.** *Z. Leong*¹, *S. Baco*¹ and *N. Morley*¹
1. University of Sheffield, Sheffield, United Kingdom

10:15

- CB-05. Anisotropy and demagnetizing effects on the magnetic behavior of polycrystalline gadolinium across the spin-reorientation revealed by a magneto-thermal protocol.** *V. Provenzano*², *R. Witte*⁴, *H. ElBidweihy*¹, *A. Arrott*³, *C. Radu*⁵ and *H. Hahn*⁴
1. Department of Electrical and Computer Engineering, United States Naval Academy, Annapolis, MD, United States;
2. National Institute of Standards and Technology (NIST), Gaithersburg, MD, United States;
3. Simon Fraser University, Burnaby, BC, Canada;
4. Institute of Nanotechnology, Eggenstein-Leopoldshafen, Germany;
5. Lake Shore Cryotronics Inc., Westerville, OH, United States

10:30

- CB-06. Design, Fabrication and Performance Evaluation of Magneto-Dielectric Based Electromagnetic Wave Absorbers Optimized Using Biologically Inspired Optimization Strategies.** *R. Panwar*¹ and *D. Singh*²
1. Electronics & Communication Engineering, IIIT Jabalpur, India;
2. IIT Roorkee, India

10:45

- CB-07. The influence of cobalt content on structure and magnetic properties of Fe-Si soft magnetic composites.** *C. Zhou*¹, *C. Wu*¹ and *M. Yan*¹
1. Zhejiang University, Hangzhou, China

11:00

- CB-08. The effect of mechanical stress on the static hysteresis loop shape in NO electrical steel.** *B. Schauerte*¹, *S. Steentjes*¹, *N. Leuning*¹ and *K. Hameyer*¹
1. Institute of electrical machines (IEM), RWTH Aachen University, Aachen, Germany

11:15

- CB-09. Improvement of Grain-Oriented Electrical Steel Sheet by Hyperfine Processing Magnetic Domain Structure on Vector Magnetic Characteristics.** *M. Enokizono*¹, *D. Wakabayashi*³, *T. Sato*² and *Y. Mamiduka*¹ 1. *Vector Magnetic Characteristic Technical Laboratory, Usa-city, Japan*; 2. *Faculty of Science and Technology, Oita University, Oita, Japan*; 3. *Mechanical and Electrical Engineering, Nippon Bunri University, Oita, Japan*

11:30

- CB-10. Improvement of Grain-oriented Electrical Steel Sheet by Hyperfine Technique on Two-dimensional Magnetostriction.** *D. Wakabayashi*¹ and *M. Enokizono*¹ 1. *Nippon Bunri University, Oita, Japan*

11:45

- CB-11. Evolution of Residual Magnetic Field of U75V Steel Induced by Uniaxial Tensile Load with Increasing Amplitudes.** *M. Fu*¹, *S. Bao*¹ and *Z. Zhao*¹ 1. *College of Civil Engineering and Architecture, Zhejiang University, Hangzhou, China*

WEDNESDAY
MORNING
9:00

ORCHID IV

Session CC
MICROSCOPY, IMAGING AND
CHARACTERIZATION II

Yaohua Liu, Chair
Oak Ridge National Laboratory, Oak Ridge, TN, United States

9:00

- CC-01. Nanoscale Magnetic Imaging using Circularly Polarized High-Harmonic Radiation. (Invited)** *O. Kfir*^{1,2}, *S. Zayko*¹, *C. Nolte*³, *M. Sivils*¹, *M. Möller*¹, *B. Hebler*⁴, *S. Arekapudi*⁴, *D. Steil*³, *S. Schäfer*¹, *M. Albrecht*⁴, *O. Cohen*², *S. Mathias*^{3,5} and *C. Ropers*^{1,5} 1. *IV. Physical Institute, University of Göttingen, Göttingen, Germany*; 2. *Department of Physics and Solid State Institute, Technion - Israel Institute of Technology, Haifa, Germany*; 3. *I. Physical Institute, University of Göttingen, Göttingen, Germany*; 4. *Institute of Physics, University of Augsburg, Augsburg, Germany*; 5. *International Center for Advanced Studies of Energy Conversion (ICASEC), University of Göttingen, Göttingen, Germany*

9:30

- CC-02. Exploring magnetism at the nanoscale with a single spin microscope. (Invited)** *V. Jacques*¹ 1. *Laboratoire Charles Coulomb, UMR5221, CNRS and Université de Montpellier, Montpellier, France*

10:00

- CC-03. Atomic scale magnetic and structural imaging by achromatic electron microscopy.** X. Zhong¹, Z. Wang¹, L. Jin², J. Rusz³, H. Jiang¹, Y. Moritomo⁴, J. Mayer^{2,5}, R. Dunin-Borkowski⁵, R. Yu¹ and J. Zhu¹ *1. National Center for Electron Microscopy in Beijing, School of Materials Science and Engineering, Tsinghua University, Beijing, China; 2. Ernst Ruska-Centre for Microscopy and Spectroscopy with Electrons and Peter Grünberg Institute, Forschungszentrum Jülich GmbH, Jülich, Germany; 3. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden; 4. Graduate School of Pure & Applied Science and Faculty of Pure & Applied Science, University of Tsukuba, Ibaraki, Japan; 5. Central Facility for Electron Microscopy, RWTH Aachen University, Aachen, Germany*

10:15

- CC-04. Smart Magnetic Probes with Controllable States for Quantitative MFM.** O. Kazakova¹, V. Panchal¹, H. Corte-León¹, R. Puttock¹, L. Rodríguez² and V. Neu³ *1. National Physical Laboratory, Teddington, United Kingdom; 2. Universidad del Valle, Cali, Colombia; 3. IFW Dresden, Germany*

10:30

- CC-05. Single Atom Magnets at Surfaces – State-of-the-art and Future Perspectives. (Invited)** H. Brune¹ *1. Physics, Swiss Federal Institute of Technology Lausanne (EPFL), Lausanne, Switzerland*

11:00

- CC-06. Investigation of anisotropic quadratic magneto-optic Kerr ellipticity of Fe(100) grown on Ir(100).** A.V. Pradeep^{1,2}, K.G. Ajesh¹, S. Ghosh^{1,3} and P. Kumar¹ *1. Department of Physics, Indian Institute of Science, Bangalore, India; 2. Dept. of Collegiate Education Kerala, RWPC, Kannur, India; 3. Department of Physics, Cornell University, Ithaca, NY, United States*

11:15

- CC-07. Spatially-resolved electric-field manipulation of magnetism in multiferroic heterostructures.** Y. Ba¹, Y. Zhao¹, Y. Liu¹, P. Li¹, L. Wu², J. Unguris³, D. Pierce³, D. Yang⁴, C. Feng¹, Y. Zhang¹, H. Wu⁵, D. Li⁵, Y. Chang⁵, J. Zhang⁴, X. Han⁵, J. Cai⁵ and C. Nan² *1. Department of Physics and State Key Laboratory of Low-Dimensional Quantum Physics, Tsinghua University, Beijing, China; 2. School of Materials Science and Engineering, Tsinghua University, Beijing, China; 3. National Institute of Standards and Technology, Gaithersburg, MD, United States; 4. Beijing Normal University, Beijing, China; 5. Beijing National Laboratory for Condensed Matter Physics, Chinese Academy of Sciences, Beijing, China*

11:30

- CC-08. An Apparatus and Method for Full-Vector Inductive Mapping of Radio Frequency Magnetic Field Distributions in the Vicinity of RFID Tags.** P.S. Stamenov¹, K. Ackland¹, M. Lotya² and D.J. Finn^{2,1} *1. School of Physics and CRANN, Trinity College Dublin, Ireland; 2. Amatech Group Limited, Galway, Ireland*

- CC-09. A Sensitive AC Magnetometer using A Resonant Excitation Coil for Characterization of Magnetic Fluid in Nonlinear Magnetization Region.** *M. Saari*¹, N. Suhaimi¹, N. Che Lah², K. Sakai³, T. Kiwa³ and K. Tsukada³ *1. Faculty of Electrical & Electronic Engineering, Universiti Malaysia Pahang, Pekan, Malaysia; 2. Faculty of Manufacturing Engineering, Universiti Malaysia Pahang, Pekan, Malaysia; 3. Graduate School of Natural Science and Technology, Okayama University, Okayama, Japan*

WEDNESDAY
MORNING
9:00

PEONY IV

Session CD DOMAIN WALL DYNAMICS

Tiejun Zhou, Co-Chair
Hangzhou Dianzi University, Hangzhou, China
Dunhui Wang, Co-Chair
Nanjing University, Nanjing, China

9:00

- CD-01. Domain wall properties and spin transfer torque in perpendicularly magnetized Mn_4N ferrimagnet thin films.** *T. Gushi*¹, L. Vila², J. Attané², O. Fruchart², A. Marty², S. Pizzini³, J. Vogel³, F. Takata¹, A. Anzai¹ and T. Suemasu¹ *1. Institute of Applied Physics, University of Tsukuba, Tsukuba, Japan; 2. INAC/SPINTEC, CEA, Grenoble, France; 3. Institut Néel, CNRS, Grenoble, France*

9:15

- CD-02. Anomalous Nernst effect related to magnetic domains in a microfabricated thermoelectric element made of noncollinear antiferromagnet Mn_3Sn .** *H. Narita*¹, M. Ikhlas¹, M. Kimata², A.A. Nugroho³, S. Nakatsuji^{1,4} and Y. Otani^{1,4} *1. Institute for Solid State Physics, The University of Tokyo, Kashiwa, Japan; 2. Tohoku University, Sendai, Japan; 3. Faculty of Mathematics and Natural Sciences, Institut Teknologi Bandung, Bandung, Indonesia; 4. JST CREST, Tokyo, Japan*

9:30

- CD-03. Direct observation of domain wall surface tension by deflating or inflating a magnetic bubble.** *X. Zhang*^{1,2*}, N. Vernier², W. Zhao¹, L. Vila³ and D. Ravelosona² *1. Fert Beijing Institute, School of Electronic and Information Engineering, Beihang University, Beijing, China; 2. Center for Nanoscience and Nanotechnology, Université Paris-Sud, Orsay, France; 3. Université Grenoble Alpes, Grenoble, France*

- CD-04. Tailoring the Current Driven Domain Wall Motion by Engineering Two Heavy Metal Underlayers.** *Y. Liu*^{1,3}, *X. Liu*^{2,3} and *J. Zhu*^{2,3} *1. Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, PA, United States; 2. Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA, United States; 3. Data Storage Systems Center, Carnegie Mellon University, Pittsburgh, PA, United States*

10:00

- CD-05. Magnetic domain wall dynamics and its application.** *(Invited) T. Ono*^{2,1} *1. CSRN, Osaka University, Toyonaka, Japan; 2. ICR, Kyoto University, Uji, Japan*

10:30

- CD-06. Field- and current-driven motion of domain walls in cylindrical nanowires.** *A. Wartelle*², *B. Trapp*², *S. Bochmann*³, *C. Thirion*², *S. Martin*^{1,2}, *M. Stano*², *M. Schöbitz*^{1,2}, *M. Foerster*⁴, *L. Aballe*⁴, *T.O. Montes*⁵, *A. Locatelli*⁵, *A. Sala*⁵, *L. Cagnon*², *J. Toussaint*², *J. Bachmann*³ and *O. Fruchart*¹ *1. SPINTEC, Univ. Grenoble Alpes, CNRS, CEA, Grenoble, France; 2. Institut Néel, Univ. Grenoble Alpes, CNRS, Grenoble, France; 3. Friedrich-Alexander Universität Erlangen-Nürnberg, Erlangen, Germany; 4. Alba Synchrotron Light Facility, Barcelona, Spain; 5. Elettra-Sincrotrone Trieste, S.C.p.A., Trieste, Italy*

10:45

- CD-07. Inertial and Supermagnonic Dynamics of Domain Walls driven by Spin-Orbit Fields in an Antiferromagnet.** *R. Otxoa*^{1,2}, *P. Roy*¹ and *J. Wunderlich*^{1,3} *1. Hitachi, Ltd., Cambridge, United Kingdom; 2. Donostia International Physics Center, Donostia, Spain; 3. Institute of Physics ASCR, Prague, Czechia*

11:00

- CD-08. Current-induced domain-wall motion in pinned magnetic wires.** *M. Samiepour*¹, *J. Kim*¹, *I. Polenciuc*¹, *T. Hayward*², *D. Allwood*², *G. Vallejo-Fernandez*¹, *K. O'Grady*¹ and *A. Hirohata*¹ *1. University of York, York, United Kingdom; 2. University of Sheffield, Sheffield, United Kingdom*

11:15

- CD-09. Action of current on ferrimagnetic domain wall: 2 propagation regimes in creep and influence of domain wall structure.** *E. Haltz*¹, *J. Sampaio*¹, *R. Weil*¹, *Y. Dumont*² and *A. Mougin*¹ *1. CNRS, Univ. Paris-Sud, Université Paris-Saclay, Laboratoire de Physique des Solides, Orsay, France; 2. Université de Versailles St-Quentin-en-Yvelines, Versailles, France*

11:30

- CD-10. Asymmetric domain wall motion in Pt/Co/Pt induced by electric current.** *M. Nsibi*¹, *J. Nath*¹, *I. Joumard*¹, *S. Auffret*¹, *I. Miron*¹ and *G. Gaudin*¹ *1. SPINTEC, CEA-INAC/CNRS/ Université Grenoble Alpes, Grenoble, France*

- CD-11. Influence of the Tb layer on current driven domain wall motion in Pt / Co / Tb magnetic wire.** *H. Awano¹, W.C. Ying¹, R. Yoshimura¹, S. Sumi¹ and P.V. Thach¹* *1. Graduate School, Toyota Technological Institute, Nagoya, Japan*

WEDNESDAY
MORNING
9:00

ROSELLE II

Session CE
HIGH FREQUENCY MAGNETIC MATERIALS AND DEVICES II

Jianbo Wang, Co-Chair
Lanzhou University, Lanzhou, China
Masahiro Yamaguchi, Co-Chair
Tohoku University, Sendai, Japan

9:00

- CE-01. Dispersion Engineering of Nonreciprocal Composite Right/Left Handed Metamaterials Using Ferrite Materials in Microwave Region. (Invited)** *T. Ueda¹ and T. Itoh²*
1. Electrical Engineering and Electronics, Kyoto Institute of Technology, Kyoto, Japan; 2. Electrical Engineering Department, University of California, Los Angeles, CA, United States

9:30

- CE-02. AlN Interlayers Allow Robust Hexagonal Barium Ferrite Heteroepitaxy on 6H-SiC.** *A.S. Sokolov¹, C. Yu¹, E. Beam², X. Gu², Y. Obi³ and V. Harris¹* *1. ECE, Northeastern University, Burlington, MA, United States; 2. Qorvo, Richardson, TX, United States; 3. Metamagnetics, Inc., Westborough, MA, United States*

9:45

- CE-03. Thin-Film Magnetic Inductors for Gigahertz Integrated Applications.** *A. El-Ghazaly², R.M. White³ and S.X. Wang^{1,3}*
1. Electrical Engineering, Stanford University, Stanford, CA, United States; 2. Electrical Engineering and Computer Science, University of California Berkeley, CA, United States; 3. Materials Science and Engineering, Stanford University, Stanford, CA, United States

10:00

- CE-04. Ultra-wide Band (10 MHz- 26 GHz) Permeability Measurements of Magnetic Films.** *Y. Chen¹, X. Wang², H. Chen², Y. Gao¹ and N. Sun²* *1. Winchester Technologies, Burlington, MA, United States; 2. Northeastern University, Boston, MA, United States*

10:15

- CE-05. In-site measurement of permeability and magnetostriction constant of magnetic films deposited on Si wafers.** *O. Mori*¹, *Y. Endo*^{2,3}, *Y. Shimada*¹, *S. Yabukami*⁴ and *R. Utsumi*¹ *1. Toei Scientific Industrial Co., LTD, Natori, Japan; 2. Graduate School of Engineering, Tohoku University, 6-6-04 Aoba, Aramaki, Aoba-ku, Sendai, Japan; 3. Center for Spintronics Research Networks, Tohoku University, Sendai, Japan; 4. Tohoku Gakuin University, 1-13-1 Chuo, Tagajo, Japan*

10:30

- CE-06. Skin Effect Suppressed NiFe/Cu Electroplated Multilayer Wiring for High Data-Rate and Low Delay-Time I/O Interface Board.** *M. Yamaguchi*^{1,4}, *T. Yanai*², *H. Nakayama*³, *R. Sai*⁴, *H. Fujiwara*⁵, *Y. Kitai*⁵, *M. Sato*⁵ and *U. Sangawa*⁵ *1. Department of Electrical Engineering, Tohoku University, Sendai, Japan; 2. Division of Electrical Engineering and Computer Science, Graduate school of Engineering, Nagasaki University, Nagasaki, Japan; 3. Department of Electronics and Control Engineering, National Institute of Technology, Nagano College, Nagano, Japan; 4. New Industry Creation Hatchery Center, Tohoku University, Sendai, Japan; 5. Electronic Materials Business Division, Automotive & Industrial Systems Company, Panasonic Corporation, Kadoma, Japan*

10:45

- CE-07. Angular dependence of single sideband generation in spin torque nano-oscillators.** *R. Sharma*¹, *N. Sisodia*¹ and *P.K. Muduli*¹ *1. Physics, Indian Institute of Technology Delhi, Delhi, India*

11:00

- CE-08. Broadband antenna using strain-mediated spin Hall nano-oscillator. (Invited)** *Q. Wang*¹, *J. Domann*², *J. Hu*¹ and *G.P. Carman*¹ *1. Department of Mechanical and Aerospace Engineering, University of California, Los Angeles, Los Angeles, CA, United States; 2. Department of Biomedical Engineering and Mechanics, Virginia Tech, Blacksburg, VA, United States*

11:30

- CE-09. Experimental demonstration of broadband spintronic diodes for harvesting of sub- μ Watt microwave energy.** *B. Fang*¹, *M. Carpentieri*², *A.N. Slavin*⁵, *P. Khalili Amiri*³, *G. Finocchio*⁴ and *Z. Zeng*¹ *1. Key Laboratory of Nanodevices and Applications, Suzhou Institute of Nano-tech and Nanobionics, CAS, Suzhou, China; 2. Department of Electrical and Information Engineering, Politecnico di Bari, Bari, Italy; 3. Northwestern University, Evanston, IL, United States; 4. University of Messina, Messina, Italy; 5. Oakland University, Rochester, MI, United States*

11:45

- CE-10. Intrinsic permeability of composites filled with nickel powders.** *S.N. Starostenko*¹, *K.N. Rozanov*¹ and *A.O. Shiryayev*¹ *1. Theoretical, Institute for Theoretical and Applied Electromagnetics, Moscow, Russian Federation*

Session CF
MAGNETISATION DYNAMICS I

Zongzhi Zhang, Chair
Fudan University, Shanghai, China

9:00

- CF-01. Magnetic damping in metallic and half-metallic Co₂MnGe thin films.** *J.M. Shaw*¹, *E.K. Delczeg-Czirjak*², *E.R. Edwards*¹, *Y. Kvashnin*², *D. Thonig*², *M. Schoen*¹, *M. Pufall*¹, *M. Schneider*¹, *T. Silva*¹, *O. Karis*², *K. Rice*³, *O. Eriksson*² and *H. Nembach*¹ *1. Quantum Electromagnetics Division, NIST, Boulder, CO, United States; 2. Department of Physics, Uppsala University, Uppsala, Sweden; 3. CAMECA Instruments, Madison, WI, United States*

9:15

- CF-02. Enhanced magnetostatic and dynamic properties in Fe/Co substituted Ni-Mn-In alloy films.** *R. Modak*¹ and *A. Srinivasan*¹ *1. Department of Physics, Indian Institute of Technology Guwahati, India*

9:30

- CF-03. Manipulation of Gilbert Damping Parameter by Annealing Sputtered Deposited Co/Pt Bilayer Thin Films.** *A. Kumar*¹, *N. Pandey*², *D.K. Gupta*², *M. Gupta*², *S. Chaudhary*¹ and *P.K. Muduli*¹ *1. Department of Physics, IIT Delhi, New Delhi, India; 2. UGC-DAE Consortium for Scientific Research, Indore, India*

9:45

- CF-04. Spin-orbit-torque and magnetic damping in ferromagnetic bilayers.** *D. Lee*¹, *J. Kim*¹, *K. Lee*¹, *B. Ju*¹, *H. Koo*¹, *B. Min*¹ and *O. Lee*¹ *1. Korea Institute of Science and Technology, Seoul, The Republic of Korea*

10:00

- CF-05. Tetragonally Distorted Ultrathin Fe₅₀Co₅₀ Epitaxial Film with High Magnetic Anisotropy and Gilbert Damping.** *R. Mandal*¹, *J. Jung*¹, *Y. Takahashi*¹, *Y. Sakuraba*¹, *S. Kasai*¹, *T. Ohkubo*¹ and *K. Hono*¹ *1. Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science (NIMS), Tsukuba, Japan*

10:15

- CF-06. Magnetic field dependence of ferromagnetic resonance of Ni wires fabricated on ferroelectric LiNbO₃ substrate for studying magnetic anisotropy induced by the heterojunction.** *A. Yamaguchi*¹, *A. Nakao*², *Y. Utsumi*¹, *T. Saiki*³, *Y. Takizawa*³ and *K. Yamada*⁴ *1. Laboratory of Advanced Science and Technology for Industry, University of Hyogo, Ako-gun, Japan; 2. RIKEN, Wako, Japan; 3. Hyogo Prefectural Institute of Technology, Kobe, Japan; 4. Gifu University, Gifu, Japan*

10:30

- CF-07. Spin orbit torque switching process with nonuniform micromagnetic states in three terminal devices.** *J. Zhang*^{1,2}, *C. Garg*^{2,3}, *T. Phung*², *C. Rettner*², *B. Hughes*², *S. Yang*², *Y. Jiang*¹ and *S. Parkin*^{2,3} *1. University of Science and Technology Beijing, Beijing, China; 2. IBM Almaden Research Center, San Jose, CA, United States; 3. Max Planck Institute for Microstructure Physics, Halle, Germany*

10:45

- CF-08. Tuning interfacial Dzyaloshinskii-Moriya interaction and Gilbert damping parameter with Py/Cu_{1-x}Pt_x layers.** *H. Bouloussa*¹, *R. Ramaswamy*², *Y. Roussigné*¹, *M. Belmeguenai*¹, *A. Stashkevich*¹, *H. Yang*² and *S. Chérif*¹ *1. LSPM (CNRS-UPR 3407), Université Paris 13, Sorbonne Paris Cité, Villetaneuse, France; 2. Department of Electrical and Computer Engineering, National University of Singapore, Singapore*

11:00

- CF-09. Microresonator-ferromagnetic resonance investigation of thermal spin-transfer torque in Co₂FeAl/MgO/CoFeB magnetic tunnel junctions.** *H. Cansever*^{1,2}, *R. Narkowicz*¹, *K. Lenz*¹, *C. Fowley*¹, *L. Ramasubramanian*¹, *O. Yildirim*^{1,4}, *A. Niesen*³, *T. Huebner*³, *J. Lindner*¹, *J. Fassbender*^{1,2} and *A. Deac*¹ *1. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden Rossendorf, Dresden, Germany; 2. Institute of Solid State Physics, Technical University of Dresden, Dresden, Germany; 3. Center for Spinelectronic Materials and Devices, Bielefeld University, Bielefeld, Germany; 4. EMPA-Swiss Federal Laboratories for Materials Science and Technology, Dübendorf, Switzerland*

11:15

- CF-10. Gilbert Damping Enhancement in Ion-Beam Sputtered Co₂FeAl/Mo Bilayer thin films.** *S. Husain*¹, *A. Kumar*², *V. Barwal*¹, *N. Behera*², *S. Akansel*², *P. Svedlindh*² and *S. Chaudhary*¹ *1. Physics, Indian Institute of Technology, New Delhi, India; 2. Material Science and Engineering, Uppsala University, Uppsala, Sweden*

11:30

- CF-11. Study of Static and Dynamic Properties of Dumbbell Shaped Structures.** *P.N. Sherpa*¹, *S. Khanal*¹ and *L. Spinu*¹ *1. Physics/Advanced Materials Science Institute, University of New Orleans, New Orleans, LA, United States*

11:45

- CF-12. Magnetization and FMR studies of Si/Ni multilayers with varying Ni layer thickness.** *D. Singh*¹, *R. Roy*¹ and *M. Senthil Kumar*¹ *1. Department of Physics, Indian Institute of Technology Bombay, Mumbai, India*

Session CG
MODELLING OF MACHINES I

Ping Zheng, Chair
Harbin Institute of Technology, Harbin, China

9:00

- CG-01. An Improved Core-Loss Calculation Method with Variable Coefficients Based on Equivalent Frequency.** *W. Jia¹ and X. Lan¹ 1. Nanjing University of Aeronautics and Astronautics, Nanjing, China*

9:15

- CG-02. Design of a High Power density Halbach BLDC Motor for Electric Vehicle Propulsion.** *V.R. Bommadevara¹ 1. Electrical Engineering, IIT Hyderabad, India*

9:30

- CG-03. High Frequency Characterization of Magnetic Rod Cores with Anisotropic Power Loss.** *B.A. Reese¹ and C.R. Sullivan¹ 1. Dartmouth College, Lebanon, NH, United States*

9:45

- CG-04. Freeze-Cast Magnetic Composites for High Frequency Power Conversion.** *B.A. Reese¹, C.R. Sullivan¹ and U.G. Wegst¹ 1. Dartmouth College, Lebanon, NH, United States*

10:00

- CG-05. Electromagnetic Torque Analysis for All-Harmonic-Torque Permanent Magnet Synchronous Motor.** *J.W. Zhang¹ 1. Changsha University, Changsha, China*

10:15

- CG-06. Performance Optimization of a Novel DC Fault Current Limiter Combining Different Magnetic Materials and Topologies.** *H. Zhou¹, J. Yuan¹, L. Wei^{1,2}, P. Gan¹, F. Chen¹, Y. Zhong¹, C. Tian¹, B. Chen¹, Y. Gao³ and K. Muramatsu³ 1. School of Electrical and Engineering, Wuhan University, Wuhan, China; 2. Department of Electrical Engineering, Graduate School of Engineering, Kyoto University, Kyoto, Japan; 3. Department of Electrical and Electronic Engineering, Saga University, Saga, Japan*

10:30

- CG-07. Dynamic Modeling and Control of Three-Degree-of-Freedom Electromagnetic Actuator for Image Stabilization.** *A. Heya¹, K. Hirata¹ and N. Niguchi¹ 1. Department of Adaptive Machine Systems, Osaka University, Suita, Japan*

10:45

- CG-08. Investigation of a High Corner-Power Modular Fault-Tolerant Permanent-Magnet In-Wheel Motor.** *Y. Tang¹, F. Chai¹, Z. Song¹ and P. Liang¹ 1. Department of Electrical Engineering, Harbin Institute of Technology, Harbin, China*

11:00

- CG-09. An Effective Method with Copper Ring for Vibration Reduction in Permanent Magnet Brush DC Motors.** *J. Hong¹, S. Wang¹, Y. Sun¹ and J. Li¹ 1. Tsinghua University, Beijing, China*

11:15

- CG-10. High Transmission Capacity P.U.A. Wireless Power Transfer for AUV Using an Optimized Magnetic Coupler.** *C. Cai¹, Z. Yang¹, M. Qin¹ and S. Wu¹ 1. School of Information and Electrical Engineering, Harbin Institute of Technology at Weihai, Weihai, China*

11:30

- CG-11. An Economical Three-Phase Fault Current Limiter Considering Different Types of Fault.** *J. Yuan¹, P. Gan¹, L. Wei^{1,2}, H. Zhou¹, Y. Zhong¹, Z. Zhang¹, C. Tian¹, Y. Gao³, K. Muramatsu³ and B. Chen¹ 1. Electrical and Engineering, Wuhan University, Wuhan, China; 2. Department of Electrical Engineering, Graduate School of Engineering, Kyoto University, Kyoto, Japan; 3. Department of Electrical and Electronic Engineering, Saga University, Saga, Japan*

11:45

- CG-12. Electromagnetic Vibration Analysis of Surface-Mounted Permanent Magnet Synchronous Machine.** *Z. Xing¹, X. Wang¹ and W. Zhao¹ 1. School of Electrical Engineering, Shandong University, Ji'nan, China*

WEDNESDAY
MORNING
9:00

PEONY II

Session CH TRANSFORMERS AND INDUCTORS

Yasushi Endo, Chair
Tohoku University, Sendai, Japan

9:00

- CH-01. Reduced EMI Noise with the Consideration of Magnetic Material Design in the Grid-Connected Inverter for More Electric Aircraft.** *Y. Liu¹, Y. Liu², H. Wang¹, G. Wang¹ and J. Peng¹ 1. Shenzhen University, Shenzhen, China; 2. Nanyang Technological University, Singapore, Singapore*

9:15

- CH-02. All-Metal Domestic Induction Heating Using Single-Frequency Double-Layer Coils.** *W. Han¹, K. Chau¹, C. Jiang¹ and W. Liu¹* 1. *Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong*

9:30

- CH-03. Analytic Computation of Power-Line Voltage Drop Produced by Magnetic Energy Harvesting Device.** *K. Kim¹, B. Park¹, J. Kim¹, J. Koo² and S. Ahn¹* 1. *Korea Advanced Institute of Science and Technology (KAIST), Daejeon, The Republic of Korea*; 2. *Ferrarispower, Seongnam, The Republic of Korea*

9:45

- CH-04. Matrix formulation of Cauer Ladder Network Method for Efficient Eddy-Current Analysis.** *T. Matsuo¹, A. Kameari², K. Sugahara³ and Y. Shindo⁴* 1. *Kyoto University, Kyoto, Japan*; 2. *Science Solutions International Laboratory, Inc., Tokyo, Japan*; 3. *Kindai University, Higashiosaka, Japan*; 4. *Kawasaki Heavy Industries, Ltd., Akashi, Japan*

10:00

- CH-05. Design of Rotary Transformer Based on Transient Field-Circuit Coupled Model.** *H. Zhong¹, Y. Wang¹, B. Peng¹ and Y. Yang¹* 1. *Electrical Engineering School, Shandong University, Jinan, China*

10:15

- CH-06. Benefits of Synthetic Polymer Bonded Soft Magnetic Composites for Inductive Wireless Power Transfer Receivers in Electric Vehicles.** *D. Barth¹, B. Klaus¹ and T. Leibfried¹* 1. *Institute of Electric Energy Systems and High-Voltage Technology (IEH), Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany*

10:30

- CH-07. Winding Losses Analysis of a 4 KVA High Frequency Coaxial Transformer Used in the Bi-Directional DC-DC Converter.** *W. Water¹ and J. Lu¹* 1. *Griffith University, South Brisbane, QLD, Australia*

10:45

- CH-08. Leakage Flux based turn-to-turn Fault Detection for Shunt Inductor.** *B. Chen¹, J. Dong¹, C. Tian¹ and Q. Chen¹* 1. *Wuhan University, Wuhan, China*

11:00

- CH-09. Auto-transformer and Magnetic Control Soft Start Method of Super Large Capacity and High Voltage Motor Considering the Cost and Performance Optimization.** *J. Yuan¹, C. Wang¹, Y. Zhu¹, H. Zhou¹, L. Wei^{1,2}, C. Tian¹, Y. Gao³, K. Muramatsu³ and B. Chen¹* 1. *Electrical and Engineering, Wuhan University, Wuhan, China*; 2. *Department of Electrical Engineering, Graduate School of Engineering, Kyoto University, Kyoto, Japan*; 3. *Department of Electrical and Electronic Engineering, Saga University, Saga, Japan*

- CH-10. Fast Three-dimensional Optimization of Magnetic Cores for Loss and Volume Reduction.** *S. Shimokawa*¹, *H. Oshima*¹, *K. Shimizu*², *Y. Uehara*², *J. Fujisaki*², *A. Furuya*² and *H. Igarashi*³ *1. Fujitsu Laboratories Ltd., Atsugi, Japan; 2. Fujitsu Limited, Kawasaki, Japan; 3. Hokkaido University, Sapporo, Japan*

WEDNESDAY
MORNING
8:30

SIMPOR/ROSELLE BALLROOM

Session CP
MAGNETIC THERAPIES AND NANOMEDICINE I
(Poster Session)

Yuko Ichiyanagi, Chair
Yokohama National University, Yokohama, Japan

- CP-01. Alteration in motor cortical excitability induced by peripheral stimulation with magnetic stimulation.** *A. Sato*¹, *T. Torii*¹, *M. Iwahashi*¹ and *K. Iramina*² *1. Medical Care and Welfare Engineering, Tokai University, Kumamoto, Japan; 2. Graduate School of Systems Life Sciences, Kyushu University, Fukuoka, Japan*
- CP-02. Transcranial magnetic stimulation: design of a high current magnetic pulse generator with custom coil for the application on small animals.** *J. Selvaraj*¹, *P. Rastogi*¹, *N. Prabhu Gaunkar*¹, *R.L. Hadimani*^{2,1} and *M. Mina*^{1,3} *1. Department of Electrical and Computer Engineering, Iowa State University, Ames, IA, United States; 2. Dept. of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States; 3. Department of Industrial Design, Iowa State University, Ames, IA, United States*
- CP-03. Effects of Pulsed Magnetic Field on the Flowing Red Blood Cells using Microvascular Model.** *Y. Jo*¹, *H. Ahn*¹, *K. Shin*¹ and *H. Lee*¹ *1. Sangji University, Wonju, The Republic of Korea*
- CP-04. Transcranial magnetic stimulation: comparison of 15 coils with 50 MRI derived head models.** *P. Rastogi*¹, *Y. Tang*¹, *B. Zhang*¹, *E.G. Lee*², *R.L. Hadimani*^{3,1} and *D.C. Jiles*¹ *1. Department of Electrical and Computer Engineering, Iowa State University, Ames, IA, United States; 2. Department of Psychiatry, Massachusetts General Hospital, Harvard Medical School, Charleston, MA, United States; 3. Department of Mechanical and Nuclear engineering, Virginia Commonwealth University, Richmond, VA, United States*
- CP-05. Magnetohydrodynamic Approach to Effective Blood-Flow Control Utilizing ELF fields.** *H. Nakagawa*¹ and *M. Ohuchi*¹ *1. Department of Electrical and Electronic Engineering, Tokyo Denki University, Adachi-ku, Japan*

- CP-06. High Focality Stimulation on Primary Auditory Cortex.** J.R. Germick¹, Y. Alkheder², P. Rastogi¹, A. Pandurangi³, D.C. Jiles¹ and R.L. Hadimani² 1. *Dept. of Electrical and Nuclear Engineering, Iowa State University, Ames, IA, United States*; 2. *Dept. of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States*; 3. *Dept. of Psychiatry, School of Medicine, Virginia Commonwealth University, Richmond, VA, United States*
- CP-07. Efficacy of Investigating Mirror Neuron Activity in Schizophrenics Using Transcranial Magnetic Stimulation.** J.R. Germick¹, E. Cheng², P. Rastogi¹, R.L. Hadimani^{3,1}, U. Mehta⁴, A. Pandurangi⁵ and D.C. Jiles¹ 1. *Dept. of Electrical and Nuclear Engineering, Iowa State University, Ames, IA, United States*; 2. *Dept. of Biomedical Engineering, Virginia Commonwealth University, Richmond, VA, United States*; 3. *Dept. of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States*; 4. *Department of Psychiatry, National Institute of Mental Health and Neurosciences, Bangalore, India*; 5. *Dept. of Psychiatry, School of Medicine, Virginia Commonwealth University, Richmond, VA, United States*
- CP-08. Simulation study of Magnetic Response of Magnetic Nanoparticles for different temperature under different selection gradient field.** J. Zhu¹, X. Lu¹, S. Wei¹, Z. Wang¹ and W. Yang¹ 1. *School Electronic, Electrical and Communication Engineering, University of Chinese Academy of Sciences, Beijing, China*
- CP-09. Gradient/ELF magnetic Field Affects Metamorphic Behaviors in T₄-Administrated Axolotls: Regulation of Amphibian Metamorphosis Depending on Field Strength and Exposure Timing.** H. Nakagawa¹ and M. Ohuchi¹ 1. *Department of Electrical and Electronic Engineering, Tokyo Denki University, Adachi-ku, Japan*
- CP-10. Reaserch on Influence of the Electric Vehicle on Body During the Wireless Charging Process.** S. Jiang¹ 1. *Tianjin Polytechnic University, Tianjin, China*
- CP-11. Biogenic micro-mirrors of aquatic species display enhanced light reflection upon exposure to a magnetic field.** H. Kashiwagi¹, H. Asada² and M. Iwasaka³ 1. *Graduate School of AdSM, Hiroshima University, Higashihiroshima, Japan*; 2. *Graduate School of Science and Technology for Innovation, Yamaguchi University, Ube, Japan*; 3. *RNBS, Hiroshima University, Higashihiroshima, Japan*
- CP-12. Numerical investigation of biconical transcranial magnetic stimulation coil.** Y. Wu¹ and Z. Liu¹ 1. *School of Materials Science and Engineering, South China University of Technology, Guangzhou, China*
- CP-13. Effects of Magnetic Stimulation on Insomnia Based on Brain Functional Networks.** H. Yu¹, W. Zheng¹, W. Xia¹, W. Ding², G. Xu¹ and L. Guo¹ 1. *Hebei University of Technology, Tianjin, China, Tianjin, China*; 2. *Tianjin Beichen District Chinese Medicine Hospital, Tianjin, China*

CP-14. Effects of Magnetic Stimulation on the Proliferation of Dopaminergic Neuronal Cells Grown in Extracellular Matrix. X. Zhong¹, J.C. Boldrey¹, I.C. Schneider², L. Que¹ and D.C. Jiles¹ *1. Electrical and Computer Engineering, Iowa State University, Ames, IA, United States; 2. Chemical and Biological Engineering, Iowa State University, Ames, IA, United States*

CP-15. Computational Safety Study of Combination Treatment: Deep Brain Stimulation and Transcranial Magnetic Stimulation. F. Syeda¹, C.H. Serrate¹, H. Magsood¹, K. Holloway^{2,3} and R.L. Hadimani¹ *1. Mechanical and Nuclear Engineering, Virginia Commonwealth University, Glen Allen, VA, United States; 2. McGuire Research Institute, Hunter Holmes McGuire Veterans Affairs Medical Center, Richmond, VA, United States; 3. Department of Neurosurgery, Virginia Commonwealth University Health System, Richmond, VA, United States*

CP-16. Study on the Effects of Magnetic Stimulation on K-Ras-Driven Lung Cancer in Mice. N. Zhang^{1,2}, S. Ning³, S. Wang¹, C. Zhang², S. Wang¹ and P. Hao¹ *1. State Key Laboratory of Electrical Insulation and Power Equipment, Faculty of Electrical Engineering, Xi'an Jiaotong University, Xi'an, China; 2. Department of Oncology, Johns Hopkins University School of Medicine, Baltimore, MD, United States; 3. College of Electrical and Information Engineering, Shaanxi University of Science and Technology, Xi'an, China*

WEDNESDAY
MORNING
8:30

SIMPOR/ROSELLE BALLROOM

Session CQ
DOMAIN WALLS AND SKYRMIONS
(Poster Session)

Yan Zhou, Chair
The Chinese University of Hong Kong, Shatin, Hong Kong

CQ-01. Measurement of tilted magnetic anisotropy of quasi-perpendicularly magnetized Ta/Pt/CoFeB/Pt multilayers. S. Guddeti¹ and P. Kumar¹ *1. Department of Physics, Indian Institute of Science, Bangalore, India*

CQ-02. Pinning sites with tilted magnetization for domain wall motion control in racetrack memory. T. Jin¹, F. Tan¹, C.C. Ang¹, W. Gan¹, J. Cao², W. Lew¹ and S. Piramanayagam¹ *1. Nanyang University, Division of Physics and Applied Physics, School of Physical and Mathematical Sciences, Singapore, Singapore; 2. Lanzhou University, Lanzhou, China*

CQ-03. Role of Effective Anisotropy in Temperature Gradient-induced Skyrmion Motion. X. Wang¹, W. Gan², T. Jin² and W. Lew² *1. School of Science, Lanzhou University of Technology, Lanzhou, China; 2. School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore*

- CQ-04. Multilevel Storage Based on Magnetic Skyrmion.** S. Luo¹ and L. You¹ 1. School of Optical and Electronic Information, Huazhong University of Science & Technology, Wuhan, China
- CQ-05. Spin-hall effect-driven motion of chiral skyrmions in an anisotropy gradient.** R. Tomasello¹, S. Komineas², G. Siracusano³, M. Carpentieri⁴ and G. Finocchio⁵
1. Department of Engineering, University of Perugia, Terni, Italy; 2. Department of Mathematics and Applied Mathematics, University of Crete, Heraklion, Greece; 3. Department of Electric, Electronic and Computer Engineering, University of Catania, Catania, Italy; 4. Department of Electrical and Information Engineering, Politecnico di Bari, Bari, Italy; 5. Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina, Messina, Italy
- CQ-06. Spectroscopic Evaluation of Non-Adiabatic Spin Transfer Torque Using Coupled Oscillation of Magnetic Vortices.** T. Horaguchi¹, T. Tanazawa¹ and Y. Nozaki^{1,2} 1. Department of Physics, Keio University, Yokohama, Japan; 2. Center for Spintronics Research Network, Keio University, Yokohama, Japan
- CQ-07. Over 100,000-times variation of domain-wall speed with respect to ferromagnetic layer thickness.** D. Kim¹, M. Park¹, Y. Park^{1,2}, J. Yu¹, J. Kim¹, D. Kim^{1,3}, B. Min² and S. Choe¹
1. Physics, Seoul National University, Seoul, The Republic of Korea; 2. Korea Institute of Science and Technology, Seoul, The Republic of Korea; 3. Kyoto University, Kyoto, Japan
- CQ-08. Coherent terahertz spin-wave emission associated with ferrimagnetic domain wall dynamics.** S. Oh¹, S. Kim², D. Lee³, G. Go³, K. Kim^{4,5}, T. Ono⁵, Y. Tserkovnyak² and K. Lee^{1,3} 1. Department of Nano-Semiconductor and Engineering, Korea University, Seoul, The Republic of Korea; 2. Department of Physics and Astronomy, University of California, Los Angeles, CA, United States; 3. Department of Materials Science and Engineering, Korea University, Seoul, The Republic of Korea; 4. Department of Physics, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, The Republic of Korea; 5. Institute for Chemical Research, Kyoto University, Kyoto, Japan
- CQ-09. Domain wall configurations in amorphous ferromagnetic nanowires with cylindrical symmetry.** C. Rotarescu¹, H. Chiriac¹, N. Lupu¹ and T.A. Ovari¹ 1. National Institute of Research and Development for Technical Physics, Iasi, Romania
- CQ-10. Thermally assisted domain wall motion in the presence of spin torque.** J. Chureemart² and P. Chureemart¹ 1. Physics department, Mahasarakham University, Kantarawichai, Thailand; 2. Physics department, Mahasarakham University, Kantarawichai, Thailand
- CQ-11. Magnetic skyrmion motion in the presence of defect.** I. Hong¹ and K. Lee^{1,2} 1. KU-KIST graduate school of converging science and technology, Korea University, Seoul, The Republic of Korea; 2. Department of materials science and engineering, Korea University, Seoul, The Republic of Korea

CQ-12. Mechanism of skyrmionium nucleation by local spin-orbit torque. *A. Kolesnikov¹, M. Stebliy¹, A. Ognev¹, A.S. Samardak¹ and L. Chebotkevich¹ 1. School of Natural Science, Far Eastern Federal University, Vladivostok, Russian Federation*

CQ-13. Controllable transport of a skyrmion in a ferromagnetic narrow channel with voltage-controlled magnetic anisotropy. *J. Wang¹, J. Xia², X. Zhang², G. Zhao³, J. Wu⁴, Y. Xu², L. Ye⁵, Z. Zou⁶ and Y. Zhou¹ 1. Department of Electronic Engineering, University of York, York, United Kingdom; 2. School of Science and Engineering, The Chinese University of Hong Kong, Shenzhen, Shenzhen, China; 3. College of Physics and Electronic Engineering, Sichuan Normal University, Chengdu, China; 4. Department of Physics, University of York, York, United Kingdom; 5. College of Communication Engineering, Chongqing University, Chongqing, China; 6. Department of Physics, Nanjing University, Nanjing, China*

CQ-14. Current-induced skyrmion dynamics in a frustrated magnetic film. *X. Zhang^{1,2}, J. Xia¹, Y. Zhou¹, X. Liu², H. Zhang³ and M. Ezawa⁴ 1. School of Science and Engineering, The Chinese University of Hong Kong, Shenzhen, Shenzhen, China; 2. Department of Electrical and Computer Engineering, Shinshu University, Nagano, Japan; 3. College of Optoelectronic Engineering, Shenzhen University, Shenzhen, China; 4. Department of Applied Physics, The University of Tokyo, Tokyo, Japan*

CQ-15. Bidirectional propagation of tilting domain wall due to the interfacial Dzyaloshinskii-Moriya interaction in perpendicularly magnetized T-junction. *J. Kwon¹, H. Hwang¹, J. Hong¹ and C. You¹ 1. Department of Emerging Materials Science, Daegu Gyeongbuk Institute of Science and Technology, Daegu, The Republic of Korea*

WEDNESDAY
MORNING
8:30

SIMPOR/ROSELLE BALLROOM

Session CR

FUNDAMENTAL PROPERTIES AND COOPERATIVE PHENOMENA I

(Poster Session)

Baomin Wang, Chair

Ningbo Institute of Materials Technology and Engineering,
Ningbo, China

CR-01. Mechanism of spin re-orientation phase transition in SmCrO₃. *M. Tripathi¹, T. Chatterji², R.J. Choudhary¹, D.M. Phase¹ and H.E. Fischer² 1. Thin film magnetization, UGC DAE Consortium for Scientific research, Indore, India; 2. Institut Laue-Langevin, Grenoble, France*

- CR-02. Unusual Critical Behaviors in $\text{La}_{1.2}\text{Sr}_{1.8}\text{Mn}_2\text{O}_7$ Single Crystal.** *D. Tran*^{1,2}, *X. Kieu*¹, *D. Pham*¹, *V. Tien*¹, *S. Yu*¹, *T. Phan*³, *A. Telegin*⁴ and *S. Naumov*⁴ *1. Chungbuk National University, Cheongju, The Republic of Korea; 2. Institute of Materials Science, Vietnam Academy of Science and Technology, Hanoi, Vietnam; 3. Hankuk University of Foreign Studies, Yongin, The Republic of Korea; 4. Institute of Metal Physics, RAS, Russian Federation*
- CR-03. Critical behavior in $\text{La}_{0.75}\text{Ca}_{0.2}\text{Ag}_{0.05}\text{MnO}_3$ Exhibiting the Griffiths Phase.** *D. Tran*^{1,2}, *D. Pham*¹, *X. Kieu*¹ and *S. Yu*¹ *1. Chungbuk National University, Cheongju, The Republic of Korea; 2. Vietnam Academy of Science and Technology, Hanoi, Vietnam*
- CR-04. Observation of Griffiths like phase above room temperature in antiferromagnetic double perovskite $\text{Pr}_2\text{CoFeO}_6$.** *A. Pal*¹, *V. Gangwar*¹ and *S. Chatterjee*¹ *1. Physics, Indian Institute of Technology BHU, Varanasi, India*
- CR-05. Low Temperature Magnetic Properties of Pyrochlore $\text{Nd}_2\text{Ru}_2\text{O}_7$.** *D. Kumar*¹, *S.T. Ku*¹, *M.R. Lees*², *W.T. Lee*³, *R.J. Aldus*³, *A. Studer*³, *I. Paolo*³, *S. Asai*⁴, *T. Masuda*⁴, *S.W. Chen*⁵, *J.M. Chen*⁵ and *L.J. Chang*^{1,6} *1. Department of Physics, National Cheng Kung University, Tainan, Taiwan; 2. Department of Physics, University of Warwick, Coventry, United Kingdom; 3. Australian Nuclear Science and Technology Organization, Kirrawee, NSW, Australia; 4. Institute of Solid State Physics, The University of Tokyo, Chiba, Japan; 5. National Synchrotron Radiation Research Center, Hsinchu, Taiwan; 6. Advanced Science Research Center, Japan Atomic Energy Agency, Ibaraki, Japan*
- CR-06. Magnetic excitation, partial gap opening and chemical pressure effect in CeNiGe_2 .** *K. Singh*¹ and *K. Mukherjee*¹ *1. School of Basic Sciences, Indian Institute of Technology Mandi, India*
- CR-07. Orthorhombic Ti_2O_3 : A Polymorph-Dependent Narrow-Bandgap Ferromagnetic Oxide.** *Y. Li*^{2,1}, *Y. Weng*³, *X. Yin*⁴, *X. Yu*⁴, *S. Kumar*², *N. Wehbe*⁵, *H. Wu*¹, *H. Alshareef*², *S.J. Pennycook*¹, *M.B. Breese*⁴, *J. Chen*¹, *S. Dong*³ and *T. Wu*² *1. Material Science and Engineering, National University of Singapore, Singapore; 2. Material Science and Engineering, King Abdullah University of Science and Technology (KAUST), Jeddah, Saudi Arabia; 3. Department of Physics, Southeast University, Nanjing, China; 4. Singapore Synchrotron Light Source (SSLS), National University of Singapore, Singapore; 5. Imaging&Characterization Core Lab, King Abdullah University of Science and Technology (KAUST), Jeddah, Saudi Arabia*
- CR-08. Inverted magnetic hysteresis loop and strong magnetoelectric coupling in mixed ferrimagnetic-multiferroic phases of a double perovskite.** *D. Oh*¹, *M. Kim*¹, *J. Moon*¹, *S. Oh*¹, *Y. Choi*¹ and *N. Lee*¹ *1. Yonsei University, Seoul, The Republic of Korea*

- CR-09. Study of Spin Polarized Tunneling in Magnetoresistance and Low Temperature Anomaly in Nanoparticles of $\text{La}_{0.5}\text{Ca}_{0.5}\text{MnO}_3$.** A.K. Saw¹, G. Channagoudra¹, H. Fu², R.L. Hadimani³ and V. Dayal¹ *1. Department of Physics, Maharaja Institute of Technology-Mysore, Mandya, India; 2. University of Electronic Science and Technology of China, Chengdu, China; 3. Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States*
- CR-10. Non-collinear spin structure at ultrathin magnetic interfaces and its evolution by the oxygen adsorption.** T. Chuang¹, C. Huang², C. Lu¹ and D. Wei^{1,2} *1. National Synchrotron Radiation Research Center, Hsinchu, Taiwan; 2. National Sun Yat-sen University, Program for Synchrotron Radiation and Neutron Beam Applications, Kaohsiung, Taiwan*
- CR-11. Role of Fe-doped effect in two-dimensional MoS_2 magnetic semiconductor.** C. Kao², C. Yang², H. Kao², Y. Tung², T. Hsu², W. Wu² and K. Lin¹ *1. Chemical Engineering and Material Science, Yuan Ze University, Taoyuan City, Taiwan; 2. Physics, Chung Yuan Christian University, Taoyuan City, Taiwan*
- CR-12. Reversible 90-Degree Rotation of Fe Magnetic Moment Using Hydrogen.** W. Lin¹, C. Hsu¹, P. Chang¹, Y. Chen¹ and C. Liu¹ *1. Department of Physics, National Taiwan Normal University, Taipei, Taiwan*
- CR-13. The Role of Graphene Oxide Precursor on Magnetic and Microwave Properties of Nitrogen-doped Graphene.** L. Quan¹, F. Qin¹, H. Wang¹ and H. Peng¹ *1. Zhejiang University, Hangzhou, China*

WEDNESDAY
MORNING
8:30

SIMPOR/ROSELLE BALLROOM

**Session CS
HARD MAGNETS I
(Poster Session)**

Aru Yan, Chair
Ningbo Institute of Materials Technology & Engineering,
Ningbo, China

- CS-01. Magnetic properties of Fe-Pt thick-film magnets electroplated on Cu substrates.** Y. Omagari¹, J. Honda¹, R. Hamamura¹, H. Yamada², N. Fujita², K. Takashima¹, T. Yanai¹, M. Nakano¹ and H. Fukunaga¹ *1. Nagasaki University, Nagasaki, Japan; 2. National Institute of Technology, Nara College, Nara, Japan*

- CS-02. Mossbauer studies and magnetic properties of Fe-doped MnAl(C) alloys.** *V. Nguyen*^{1,2}, *F. Calvayrac*¹ and *N. Randrianantoandro*¹ *1. Institut des Molécules et Matériaux du Mans – UMR CNRS n°6283, Le Mans Université, Le Mans, France; 2. Advanced Materials Science and Nanotechnology, University of Science and Technology of Hanoi, Vietnam Academy of Science and Technology, Hanoi, Vietnam*
- CS-03. Magnetic properties and morphologies of synthesized strontium ferrite powders by the molten salt method.** *M. Kim*¹, *K. Lee*¹, *M. Choi*¹ and *J. Kim*¹ *1. Materials Science and Chemical Engineering, Hanyang University, Ansan, The Republic of Korea*
- CS-04. Synthesis of high-purity spherical core-shell α -Fe₁₆N₂/SiO₂ magnetic nanoparticles.** *J. Li*¹, *L. Guo*¹, *X. Peng*¹, *Y. Yang*¹, *X. Wang*¹ and *H. Ge*¹ *1. Department of Materials Science & Engineering, China Jiliang University, Hangzhou, China*
- CS-05. Coercivity and phase evolution in mechanically milled (FeCo)₂B-type hard magnetic alloy.** *K. Kim*¹, *H. Kwon*¹, *M. Kang*³, *C. Yang*³, *J. Lee*² and *J. Yu*² *1. Pukyong National University, Pusan, The Republic of Korea; 2. Korea Institute of Materials Science, Changwon, The Republic of Korea; 3. Sungkyunkwan University, Suwon, The Republic of Korea*
- CS-06. Hard magnetic property improvement of melt spun PrCo₅ ribbons by Fe and C doping.** *H.W. Chang*¹, *H. Wang*¹, *Y. Lee*¹, *C. Shih*¹, *W.C. Chang*¹, *C. Shaw*² and *C. Yang*³ *1. Department of Physics, National Chung Cheng University, Chia-Yi, Taiwan; 2. Superrite Electronics Co. Ltd., Taipei, Taiwan; 3. Chung-Yuan Christian University, Chungli, Taiwan*
- CS-07. First-principles study of spin-wave dispersion in Sm(FeCo)₁₂.** *T. Fukazawa*^{1,2}, *H. Akai*^{3,2}, *Y. Harashima*^{1,2} and *T. Miyake*^{1,2} *1. National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan; 2. ESICMM, National Institute for Materials Science (NIMS), Tsukuba, Japan; 3. ISSP, The University of Tokyo, Kashiwa, Japan*
- CS-08. Site probability of substituted Titanium in 1:12 phase structures SmFe₁₂, NdFe₁₂, and SmCo₁₂.** *C. Skelland*¹, *G. Hrkac*^{1,6}, *T. Schrefl*³, *T. Ostler*⁴, *S. Westmoreland*⁵, *R.W. Chantrell*⁵, *R.F. Evans*⁵, *M. Yano*², *T. Shoji*², *A. Kato*² and *A. Manabe*² *1. University of Exeter, Exeter, United Kingdom; 2. Toyota Motor Corporation, Toyota City, Japan; 3. Danube University Krems, Austria; 4. Sheffield Hallam University, Sheffield, United Kingdom; 5. University of York, York, United Kingdom; 6. TU Vienna, Vienna, Austria*
- CS-09. Magnetic properties of (Sm,Zr)₅(Fe,Co)_{17-x}Ti_x melt-spun ribbons.** *T. Saito*¹, *T. Horita*¹ and *D. Nishio-Hamane*² *1. Chiba Institute of Technology, Chiba, Japan; 2. Institute for Solid State Physics, The University of Tokyo, Kashiwa, Japan*
- CS-10. Coercivity Mechanism of SrO•6Fe₂O₃ Ferrite Magnets.** *Y. Matsuura*¹ *1. Research Institute for Applied Sciences, Kyoto, Japan*

- CS-11. Electronic structure and magnetic property of $\text{Ba}_{1-x}\text{Sr}_x\text{CoFe}_{11}\text{O}_{19}$ hexaferrites.** *N. Tran¹, D. Kim¹, H. Kim¹, S. Lee¹, T. Phan¹ and B. Lee¹ 1. Department of Physics and Oxide Research Center, Hankuk University of Foreign Studies, Yongsil-si, The Republic of Korea*

**WEDNESDAY
MORNING
8:30**

SIMPOR/ROSELLE BALLROOM

**Session CT
LINEAR MOTORS II
(Poster Session)**

Fei Zhao, Chair

Harbin Institute of Technology (Shenzhen), Shenzhen, China

- CT-01. Characteristic Analysis and Design of a Novel Ironless Halbach-magnetized Permanent Magnet Linear Synchronous Motor.** *L. Zhang¹ and B. Kou¹ 1. Department of Electrical Engineering, Harbin Institute of Technology, Harbin, China*
- CT-02. Power Factor Improvement of Linear Permanent-Magnet Vernier Motor by Using Dual-Inverter.** *D. Xu¹, W. Zhao¹ and P. Zhao¹ 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*
- CT-03. Detent Force Investigation in Long-stator PM Linear Machines with Non-ideal Mechanical Airgap Condition.** *M. Ma¹ 1. School of Electrical Engineering and Automation, Hefei University of Technology, Hefei, China*
- CT-04. Algorithm of Linear Induction Motor Control Considering End-effect of Magnetic Levitation Train Propulsion System.** *H. Seo², J. Jeong¹, G. Choe³ and J. Lim⁴ 1. Dept. of Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea; 2. EV Team, R&D Center, VCTech, Gunpo, The Republic of Korea; 3. Dept. of Electrical Engineering, Konkuk University, Seoul, The Republic of Korea; 4. Dept. of Magnetic Levitation and Linear Drive, Korea Institute of Machinery & Materials, Daejeon, The Republic of Korea*
- CT-05. Experimental Verification of Characteristic Analysis and Performance Verification of Double-Sided Permanent Magnet Linear Synchronous Generator Designed with Three-Dimensional Effects for Ocean Wave Energy Converter.** *S. Seo¹, G. Jang¹, M. Koo¹, K. Kim², K. Hong² and J. Choi¹ 1. Electrical Engineering, Chung-nam National University, Daejeon, The Republic of Korea; 2. Offshore Plant Research Division, Korea Research Institute of Ships & Ocean Engineering, DaeJeon, The Republic of Korea*

- CT-06. Novel Propulsion Control Algorithm considering Magnetic Field Analysis Results of Linear Induction Motor for High Performance Operating.** *J. Jeong*¹, *H. Seo*², *J. Lim*³ and *J. Choi*¹ *1. Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea; 2. EV Team, R&D Center, VCTech, Gunpo, The Republic of Korea; 3. Magnetic Levitation and Linear Drive, Korea Institute of Machinery & Materials, Daejeon, The Republic of Korea*
- CT-07. Design and Reduction of Thrust Ripple in Transverse Flux Permanent Magnet Linear Machine.** *M. Zhao*^{1,2}, *K. Liu*³, *H. Yang*¹, *N. Feng*¹, *D. Hou*¹, *P. Zhang*¹ and *M. Xu*¹ *1. Ludong University, Yantai, China; 2. Harbin Institute of Technology, Harbin, China; 3. Southeast University, Nanjing, China*
- CT-08. Design and Implementation of Amorphous Magnetic Material-Based Common Magnetic-Bus for the Replacement of Common DC-Bus.** *M. Islam*¹, *K. Muttaqi*¹, *D. Sutanto*¹ and *J. Zhu*² *1. Faculty of Engineering and Information Sciences, University of Wollongong, Wollongong, NSW, Australia; 2. Faculty of Engineering and Information Technologies, University of Technology Sydney, NSW, Australia*
- CT-09. Research on Detent Force for Tubular Permanent Magnet Linear Motor with Skewed Core End.** *G. Zhao*¹, *Y. Wang*¹, *B. Bai*¹ and *X. Gao*¹ *1. Shenyang University of Technology, Shenyang, China*
- CT-10. Thermal Design of a Toroidally Wound Mover Linear Switched Reluctance Machine using 3D Equivalent Thermal Network.** *D. Zhang*¹, *X. Du*¹, *D. Wang*¹ and *C. Peng*¹ *1. Shandong University, Jinan, China*
- CT-11. A New Decoupled RotLin Motor with Fuzzy Sliding Mode Control.** *Y. Zou*¹ and *E. Cheng*¹ *1. Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*
- CT-12. Design of VCM actuator with optical zoom for smartphone cameras.** *Y. Chang*¹, *C. Hu*¹, *C. Hsieh*¹ and *C. Liu*¹ *1. National Chung Cheng University, Chiayi County, Taiwan*
- CT-13. Design and Analysis of a Tubular Hybrid-Excited Flux-Modulated PM Motor with Improved Power Factor.** *H. Zhou*¹, *J. Zhang*¹, *W. Tao*¹ and *G. Liu*¹ *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*
- CT-14. Design a Spherical Motor and Its Drive.** *Y. Zou*¹ and *N. Cheung*¹ *1. Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, China*
- CT-15. Proposal and Design of Primary-PM Transverse-Flux Linear Motor with Enhanced Secondary-PM Structure for High Power Density.** *J. Luo*¹, *B. Kou*¹, *X. Yang*¹, *L. Zhang*¹ and *H. Zhang*¹ *1. Electrical Engineering, Harbin Institute of Technology, Harbin, China*

CT-16. Improvement of the self-propelled rotary actuator in consideration of shape and rolling direction of steel sheets.

N. Soda¹, T. Kawano¹ and M. Enokizono² 1. College of Engineering, Ibaraki University, Hitachi, Japan; 2. Vector Magnetic Characteristic Technical Laboratory, Usa, Japan

WEDNESDAY
MORNING
8:30

SIMPOR/ROSELLE BALLROOM

**Session CU
LINEAR MOTORS III
(Poster Session)**

Wei Xu, Co-Chair

Huazhong University of Science and Technology, Wuhan, China

Feng Chai, Co-Chair

Harbin Institute of Technology, Harbin, China

CU-01. Design and Analysis of a Novel Modular Linear Double Stator Biased Flux Machine. Y. Mao¹ and S. Niu¹ *1. Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

CU-02. Experimental investigation of a new type of oscillation based linear capsule actuator. L. Wu¹, K. Lu¹ and Y. Xia¹
1. Department of Energy Technology, Aalborg University, Aalborg, Denmark

CU-03. Dry Run Test of the In-vessel CEDM. J. Park¹, M. Baek², W. Lee¹, M. Lee¹, Y. Cho¹, H. Kim¹, C. Maeng¹ and C. Chung¹
1. KEPCO E&C, Daejeon, The Republic of Korea; 2. Woojin Inc., Hwaseong, The Republic of Korea

CU-04. Design and Analysis of Linear Hybrid-Excited Slot Permanent Magnet Machines. Y. Shen¹ and Q. Lu¹
1. College of Electrical Engineering, Zhejiang University, Hangzhou, China

CU-05. Investigation of Novel Linear Multi-tooth Variable Flux Reluctance Machines. Y. Shen¹ and Q. Lu¹ *1. College of Electrical Engineering, Zhejiang University, Hangzhou, China*

CU-06. A Study of Non-symmetric Double-sided Linear Induction Motor for Hyperloop All-in-one system(Propulsion, Levitation, Guidance). W. Ji¹, G. Jeong², H. Kim² and H. Lee¹
1. Railway Vehicle System Engineering, Korea National University of Transportation, Incheon, The Republic of Korea; 2. Hanyang University, Seoul, The Republic of Korea

CU-07. Design and analysis of a novel rotary-linear motor with voice coil structure. F. Xing¹ and B. Kwon¹ *1. Hanyang University, Ansan, The Republic of Korea*

- CU-08. Design and Experimental Analysis of a 3kW Single-Phase Linear Permanent Magnet Generator for Stirling Engines.** K. Lee^{1,2}, S. Lee¹, J. Park¹, J. Choi² and K. Sim³ 1. Korea Institute of Industrial Technology, Gwangju, The Republic of Korea; 2. Electrical engineering, Chungnam National University, Daejeon, The Republic of Korea; 3. Seoul National University of Science and Technology, Seoul, The Republic of Korea
- CU-09. Cost and detent force reduction in a permanent magnet linear motor by using different PM materials.** X. Liu^{1,2}, D. Gerada^{2,3}, Z. Xu^{2,3}, C. Gerada^{2,3} and H. Yu¹ 1. Department of Electrical Engineering, Southeast University, Nanjing, JiangSu, China; 2. Power Electronics, Machines and Control Group, The University of Nottingham, Nottingham, United Kingdom; 3. Department of Electrical and Electronic Engineering, University of Nottingham, Ningbo, China
- CU-10. Torque Analysis and Optimal Design of a Three-Degrees-of-Freedom Maglev Permanent Magnet Linear Motor.** F. Xing¹, B. Kou¹, T. Wang¹, C. Zhang¹ and Y. Zhou¹ 1. Harbin Institute of Technology, Harbin, China
- CU-11. A Robust Multimodal Optimization Strategy for a Tubular Voice Coil Motor Design in Linear Slit Stage.** J. Lim¹ and D. Lim² 1. Magnetic Levitation and Linear Drive, Korea Institute of Machinery & Materials (KIMM), Daejeon, The Republic of Korea; 2. Electrical Engineering, University of Ulsan, Ulsan, The Republic of Korea
- CU-12. A Study on Performance Improvement of Spherical Multi-DOF Motor.** S. Cho¹, J. Lim¹, K. Joo¹, S. Oh¹, D. Kang² and J. Lee¹ 1. Electrical Engineering, Hanyang University, Seoul, The Republic of Korea; 2. Keimyung University, Daegu, The Republic of Korea
- CU-13. A novel Switched Halbach Electro-magnetic linear actuating valve for Aerospace vehicle.** V.R. Bommadevara¹ 1. Electrical Engineering, IIT Hyderabad, India
- CU-14. Electromagnetic optimization and minimization of detent force for linear permanent magnet vernier motor.** Y. Shao¹, H. Zhang¹ and B. Kou¹ 1. Harbin Institute of Technology, Harbin, China
- CU-15. Design Optimization of High Force Density Linear Switched Reluctance Motor with Segmental Stator for Long Distance Propulsion Applications.** H. Zheng¹, X. Du¹, D. Zhang¹, D. Wang¹, L. Wang¹ and X. Wang¹ 1. Shandong University, Tsinan, China
- CU-16. Design of 2-Phase Slotless Actuator with New Winding Structure for Position Control of Multi-DOF Motor.** H. Hong¹, H. Kim¹, S. Oh¹ and J. Lee¹ 1. Hanyang University, Seoul, The Republic of Korea

Session CV
SENSORS: FRONTIER APPLICATIONS II
(Poster Session)

Yuan-Chieh Tseng, Chair
National Chiao Tung University, Hsin-chu, Taiwan

- CV-01. Nondestructive Testing for Shallow Defect of Ferromagnetic Objects Based on Magnetic Probe Structure.** *S. Pan¹, D. Zhang¹ and E. Zhang¹ 1. Power Electronic and Motion Control Research Center, Harbin Institute of Technology Shenzhen Graduate School, Shenzhen, China*
- CV-02. DC-arcing detection by noise measurement with magnetic sensing by TMR sensors.** *W. Miao¹, X. Liu¹, S.K. Lam¹ and P. Pong¹ 1. The University of Hong Kong, Hong Kong*
- CV-03. Structural Health Monitoring using magnetostrictive sensors.** *Z. Leong¹, L. Chan¹, W. Holmes¹, J. Clarke¹, N. Walters¹, S. Hayes¹ and N. Morley¹ 1. Materials Science and Engineering, University of Sheffield, Sheffield, United Kingdom*
- CV-04. Serial MTJ sensors for detection back-side defects by eddy current testing.** *Z. Jin¹, M. Oogane¹, M.B. Mohd Noor Sam¹, K. Fujiwara¹ and Y. Ando¹ 1. Applied Physics, Tohoku University, Sendai, Japan*
- CV-05. Detection of Slit Defects on Backside of Steel Plate Using Low-Frequency Eddy-Current-Testing.** *W. Yoshimura¹, R. Tanaka¹, T. Sasayama¹ and K. Enpuku¹ 1. Kyushu University, Fukuoka, Japan*
- CV-06. Detection and identification of object based on a magnetostrictive tactile sensing system.** *B. Zhang¹, B. Wang¹, Y. Li¹, W. Huang¹ and L. Weng¹ 1. Hebei University of Technology, Tianjin, China*
- CV-07. Strategy for determining a magnet position in a 2D space using 1D sensors.** *P.M. Ribeiro¹, M. Neto¹ and S. Cardoso de Freitas¹ 1. INESC - Microsistemas e Nanotecnologias and IN, Lisbon, Portugal*
- CV-08. Analysis of a Defect Signal Deformations Induced by Eddy Current in RFECT System for Pipeline Inspection.** *H. Kim¹, H. Yoo² and G. Park³ 1. Electrical and Computer Engineering, Pusan National University, Busan, The Republic of Korea; 2. Korea Gas Corporation, Incheon, The Republic of Korea; 3. Electrical Engineering, Pusan National University, Busan, The Republic of Korea*
- CV-09. Fault Line Identification of HVDC Transmission Line by Frequency Spectrum Correlation Based on Capacitive-Coupling and Magnetic-Field-Sensing.** *K. Zhu¹, W. Lee¹ and P. Pong¹ 1. Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong*

- CV-10. Searching an avalanche victim using a transmitter with a rotating magnetic dipole.** *A. Chiba¹ and T. Nara¹*
1. The University of Tokyo, Tokyo, Japan
- CV-11. Determination Scheme for Accurate Defect Depth in Underground Pipeline Inspection by Using Magnetic Flux Leakage Sensors.** *H. Kim¹, C. Heo¹, S. Cho³ and G. Park²*
1. Electrical and Computer Engineering, Pusan National University, Busan, The Republic of Korea; 2. Electrical Engineering, Pusan National University, Busan, The Republic of Korea; 3. Korea Gas Corporation, Incheon, The Republic of Korea
- CV-12. Detecting method of hardened depth in surface hardened steel by magnetic field on steel.** *Y. Gotoh¹, S. Onita², T. Horino² and Y. Misaka²* *1. Innovative Engineering, Faculty of Science and Technology, Oita University, Oita, Japan; 2. Research and Development Center, Neturen Co., Ltd., Hiratsuka, Japan*
- CV-13. Electromagnetic inspection for detecting defect of underground part in road sign pillar.** *Y. Gotoh¹, M. Tohara² and R. Nakamura³* *1. Innovative Engineering, Faculty of Science and Technology, Oita University, Oita, Japan; 2. Mechanical and Energy Systems Engineering, Oita University, Oita, Japan; 3. Division of Technical administration, Japan Non-Destructive Inspection Inc., Kurashiki, Japan*
- CV-14. Investigation of Magnetic Tunnel Junction Sensor for Magnetic Flux Leakage Testing of Reinforced Concrete.** *M.B. Mohd Noor Sam¹, Z. Jin¹, M. Oogane¹, K. Fujiwara¹ and Y. Ando¹* *1. Applied Physics, Tohoku University, Sendai, Japan*
- CV-15. A New Design of MFL Sensors for Self-Driving NDT Robot to Avoid Getting Stuck in Curved Underground Pipelines.** *H. Kim¹, H. Yoo² and G. Park³* *1. Electrical and Computer Engineering, Pusan National University, Busan, The Republic of Korea; 2. Korea Gas Corporation, Incheon, The Republic of Korea; 3. Electrical Engineering, Pusan National University, Busan, The Republic of Korea*
- CV-16. A High-Field Tunneling Magnetoresistive Angle Sensor.** *J. Deak¹ and I. Jin²* *1. R&D, MultiDimension Technology Co., Ltd, Zhangjiagang, China; 2. Wafer Front End, MultiDimension Technology Co., Ltd, San Jose, CA, United States*

Session CW

**SENSORS: FUNDAMENTAL DEVELOPMENTS AND
MATERIALS II
(Poster Session)**

Alexander Samardak, Chair

Far Eastern Federal University, Vladivostok, Russian Federation

CW-01. Frequency Characteristics of an Optical Current Sensor

Based on Rare Earth Materials. W. Sima¹, Y. Wang¹,
M. Yang¹ and R. Zheng¹ *1. State Key Laboratory of Power
Transmission Equipment & System Security and New
Technology, Chongqing University, Chongqing, China*

**CW-02. Current annealing of glass-coated amorphous wire for noise
reduction of low-offset fundamental mode orthogonal**

fluxgate. N. Murata^{1,2} and R. Nomura¹ *1. Environmental Test
Technology Unit, Japan Aerospace Exploration Agency (JAXA),
Tsukuba, Japan; 2. Department of Space and Astronautical
Science, The Graduate University for Advanced Studies,
Sagamihara, Japan*

**CW-03. High frequency and sensitivity magnetic core with
amorphous HB1-M operate at electromagnetic interface**

characteristic. C. Hsu¹, C. Chang³ and C. Tseng²
*1. Department of Mechanical Engineering, Oriental Institute of
Technology, New Taipei city, Taiwan; 2. Division of Physics,
Institute of Nuclear Energy Research, Taoyuan, Taiwan;
3. Department of Information and Telecommunications
Engineering, Ming Chuan University, Taoyuan, Taiwan*

**CW-04. Noise suppression and sensitivity manipulation of magnetic
tunnel junction sensors with soft magnetic Co_{70.5}Fe_{4.5}Si₁₅B₁₀**

layer. L. Huang¹, Z. Yuan¹, B. Tao¹, C. Wan¹, P. Guo¹,
Q. Zhang¹, L. Yin¹, J. Feng¹, T. Nakano², H. Naganuma²,
H. Liu¹, Y. Yan³ and X. Han¹ *1. State Key Lab of Magnetism,
Institute of Physics, Beijing, China; 2. Tohoku University,
Sendai, Japan; 3. Jilin University, Changchun, China*

**CW-05. Tuning antiparallel pinned spin valves with modified
artificial antiferromagnetic layer for full-bridge magnetic**

sensors. V. Luong¹, A. Nguyen¹ and H. Tran Thi¹
*1. International Training Institute for Materials Science, Hanoi
University of Science and Technology, Ha Noi, Vietnam*

**CW-06. Hybrid planar hall effect and giant magnetoresistance
sensors based on ferromagnetic/nonmagnetic/ferromagnetic**

multi-domain structures. A. Elzwawy^{1,2}, A. Talantsev^{1,3} and
C. Kim¹ *1. Emerging materials science, Daegu Gyeongbuk
Institute of Science & Technology (DGIST), Daegu, The
Republic of Korea; 2. Ceramics Department, National Research
Centre, Cairo, Egypt; 3. Institute of Problems of Chemical
Physics, Moscow, Russian Federation*

- CW-07. Anisotropy control of magnetostrictive film using thermal stress and its application for sensor device.** *S. Hashi¹, D. Sora¹, Y. Kubo¹, K. Arai¹ and K. Ishiyama¹* *1. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan*
- CW-08. A Self-biased Anisotropic Magnetoresistive (AMR) Magnetic Field Sensor on Flexible Kapton.** *C. Wang¹, W. Su¹, J. Pu¹, Z. Hu¹ and M. Liu¹* *1. Electronic Materials Research Laboratory, Key Laboratory of the Ministry of Education & International Center for Dielectric Research, Xi'an Jiaotong University, Xi'an, China*
- CW-09. A flexible magnetoelectric transducer based on FeCuNbSiB/poly (vinylidene fluoride) (PVDF) laminate composites for wearable magnetic sensors.** *X. He¹, J. Qiu¹, Y. Long¹, Q. Chang¹, Z. Hu¹ and H. Liu¹* *1. College of Optoelectronic Engineering, Chongqing University, Chongqing, China*
- CW-10. Flat bandwidth expansion for spin-valve GMR magnetic field sensors.** *Y. Chiang¹, X. Trinh¹ and J. Jeng¹* *1. Mechanical Engineering, National Kaohsiung University of Applied Sciences, Kaohsiung, Taiwan*
- CW-11. High isotropic magnetic sensor based on ring Terfenol-D / PZT composites.** *W. Wang¹, J. Ouyang¹, X. Wu¹, Y. Ren¹, J. Liang¹, S. Chen¹ and X. Yang¹* *1. School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan, China*
- CW-12. Incident power dependence on magnetoimpedance element with domain wall resonance.** *C. Sumida¹ and H. Kikuchi¹* *1. Iwate University, Morioka, Japan*
- CW-13. Influence of substrate material and geometry on giant magnetoimpedance of NiFe composite wires.** *K. Roy¹ and V. Srinivas¹* *1. Department of Physics, Indian Institute of Technology Madras, Chennai, India*
- CW-14. Fabrication of ferromagnetic Co-MgF₂ granular film with high transmittance and large Faraday-effect for optical magnetic field sensor.** *M. Miyamoto^{1,2}, T. Kubo², Y. Fujishiro¹, K. Shiota¹, M. Sonehara¹ and T. Sato¹* *1. Shinshu University, Nagano, Japan; 2. Citizen Finedevice Co., Ltd., Kitasaku-gun, Japan*
- CW-15. Effect of Annealing Temperature on GMI in NiFe Thin Films.** *L. Zhu¹, F. Jin¹, K. Dong¹, W. Mo¹ and J. Song¹* *1. China University of Geosciences, Wuhan, China*
- CW-16. Effect of amorphous wire core diameter on the noise of an orthogonal fluxgate.** *M. Butta¹, M. Janosek¹, B. Schutte¹, M. Vázquez², R. Perez del Real², E. Calle² and A. Jimenez²* *1. Faculty of Electrical Engineering, Czech Technical University in Prague, Praha, Czechia; 2. Institute of Materials Science of Madrid (ICMM-CSIC), Madrid, Spain*

Session DA
SYMPOSIUM ON MAGNETISM IN BIOMEDICINE:
WHERE NEXT?

Montserrat Rivas, Chair
Universidad de Oviedo, Gijón, Spain

2:00

DA-01. In-situ Studies of the Dynamical Magnetic Response of Iron Oxide Nanoparticles in Cellular Environments. (Invited)

D. Cabrera^{1,2}, N. Telling¹, A. Coene³, J. Leliaert⁴, E. Artés-Ibáñez², L. Dupré³ and F. Teran² *1. Institute for Science and Technology in Medicine, Keele University, Stoke-on-Trent, United Kingdom; 2. Campus Universitario de Cantoblanco, iMdea Nanociencia, Madrid, Spain; 3. Department of Electrical Energy, Metals, Mechanical Constructions and Systems, Ghent University, Zwijnaarde, Belgium; 4. Department of Solid State Sciences, Ghent University, Ghent, Belgium*

2:30

DA-02. Design and Medical Applications of a Platform for Image-Guided Non-Invasive Brain Delivery of Magnetic Particles. (Invited) J. Benlloch¹, I. Weinberg¹ *1. I3M, Valencia, Spain*

3:00

DA-03. Magnetoelectric biomaterials for advanced tissue engineering applications. (Invited) S. Lanceros-Mendez¹, C. Ribeiro², S. Ribeiro², M. Fernandes², N. Castro¹ and V. Correia² *1. BCMaterials, Leioa, Spain; 2. Universidade do Minho, Braga, Portugal*

3:30

DA-04. In Vivo Magnetic Recording of Neuronal Activity. (Invited) M. Pannetier-Lecoeur¹, V. Trauchessec¹, T. Wunderle², L. Caruso¹, J. Trejo-Rosillo¹, C.M. Lewis², J. Valadeiro³, J. Ni², P. Jendritza², C. Fermon¹, S. Cardoso de Freitas³, P. Freitas³ and P. Fries² *1. SPEC, CEA Saclay, Gif sur Yvette, France; 2. Ernst Strüngmann Institute (ESI) for Neuroscience in Cooperation with Max Planck Society, Frankfurt, Germany; 3. Instituto de Engenharia de Sistemas e Computadores – Microsistemas e Nanotecnologias, Lisbon, Portugal*

Session DB
MAGNETIC FLUIDS AND ORGANIC MAGNETIC MATERIALS I

Guoqiang Yu, Chair
Institute of physics, Chinese Academy of Sciences, Beijing, China

2:00

- DB-01. Organic Ligand Induced Ferromagnetism in Ni doped ZnO films.** *S. Nallusamy¹ and G. Nammalvar¹ 1. Physics, National Institute of Technology, Tiruchirappalli, India*

2:15

- DB-02. Uniaxial 2D Superlattice of Fe₄ Molecular Magnets on Graphene.** *M. Fonin¹, F. Paschke¹, L. Gagnaniello¹, P. Erler¹, H. Brune² and S. Rusponi² 1. University of Konstanz, Konstanz, Germany; 2. EPFL, Lausanne, Switzerland*

2:30

- DB-03. Spin dependent charge trapping in a MnO₂/C₆₀ heterojunction.** *T. Moorsom¹, M. Rogers¹, G. Teobaldi², M. Valvidares³, S. Lee⁴, R. Stewart⁴, T. Prokscha⁵, H. Leutkens⁵, P. Gargiani³, D. Bromley¹, M. Ali¹, F. Al Ma'Mari⁶, G. Burnell¹, B. Hickey¹ and O. Cespedes¹ 1. University of Leeds, Leeds, United Kingdom; 2. Stephenson Institute of Renewable Energy, University of Liverpool, Liverpool, United Kingdom; 3. ALBA Synchrotron, Barcelona, Spain; 4. University of St Andrews, St Andrews, United Kingdom; 5. Paul Scherrer Institut, Villigen, Switzerland; 6. Sultan Qaboos University, Muscat, Oman*

2:45

- DB-04. Carbon-coated nanoparticles of zinc-doped iron oxides for magnetic separation of organic pollutants: structure, magnetism and separation performance.** *L. Kubickova^{1,2}, J. Koktan¹, T. Korinkova¹, M. Klementova¹, T. Kmjec², J. Kohout², P. Rezanka³ and O. Kaman¹ 1. Department of Magnetism and Superconductors, Academy of Sciences of the Czech Republic, Prague, Czechia; 2. Department of Low-Temperature Physics, Charles University, Prague, Czechia; 3. Department of Analytical Chemistry, University of Chemistry and Technology, Prague, Czechia*

3:00

- DB-05. Singlet ground state in the spin-1/2 weakly coupled dimer compound NH₄[(V₂O₃)₂(4,4'-bpy)₂(H₂PO₄)(PO₄)₂].0.5H₂O.** *A. Unnikrishnan¹, V. Kumar⁴, P. Anjana², A. Thirumurugan², J. Sichelschmidt³, A. Mahajan⁴ and R. Nath¹ 1. School of Physics, Indian Institute of Science Education and Research, Thiruvananthapuram, India; 2. School of Chemistry, Indian Institute of Science Education and Research, Thiruvananthapuram, India; 3. Max Planck Institute for Chemical Physics of Solids, Dresden, Germany; 4. Department of Physics, Indian Institute of Technology Bombay, Mumbai, India*

- DB-06. Spininterface induced magnetic properties in Fe or Co thin films.** S. Mallik¹, S. Mattauch², M.K. Dalai³, T. Brückel² and S. Bedanta¹ *1. Physics, National Institute of Science Education and Research (NISER), Bhubaneswar, India; 2. Jülich Centre for Neutron Science (JCNS), Munich, Germany; 3. CSIR–National Physical Laboratory, New Delhi, India*

- DB-07. Evaluation of Local Anisotropy of Magnetic Response from Non-oriented Electrical Steel by Magnetic Barkhausen Noise.** Y. He², M. Mehdi^{1,2}, E. J. Hilinski³, A. Edrisky¹, S. Mukundan⁴, A. Mollaeian⁴ and N. C. Kar⁴ *1. Mechanical, Automotive, and Materials Engineering, University of Windsor, Windsor, ON, Canada; 2. CanmetMATERIALS, Hamilton, ON, Canada; 3. Tempel Steel Co, Chicago, IL, United States; 4. Electrical and computer engineering, University of Windsor, Windsor, ON, Canada*

- DB-08. 5% Superelasticity in Ferromagnetic FeNiCoAl Cold-Drawn Rapidly Quenched Microwires for Medical Applications.** F. Borza¹, V. Dobrea¹, L. Bujoreanu², M. Grigoras¹, G. Ababei¹ and N. Lupu¹ *1. National Institute of Research and Development for Technical Physics, Iasi, Romania; 2. Faculty of Materials Science and Engineering, “Gheorghe Asachi” Technical University of Iasi, Iasi, Romania*

WEDNESDAY
AFTERNOON
2:00

ORCHID IV

Session DC SPIN-TRANSPORT WITH TOPOLOGICAL MATERIALS

Kyung-Jin Lee, Chair
Korea University, Seoul, The Republic of Korea

- DC-01. Bilinear magnetoelectric resistance for spin texture detection in topological insulators.** P. He¹, S. Zhang^{2,3}, D. Zhu¹, Y. Liu¹, Y. Wang¹, G. Vignale² and H. Yang¹ *1. National University of Singapore, Singapore; 2. Department of Physics and Astronomy, University of Missouri, Columbia, MO, United States; 3. Materials Science Division, Argonne National Laboratory, Lemont, IL, United States*

- DC-02. Ultra-low-power spin-orbit-torque switching using the colossal spin Hall effect in BiSb topological insulator.** K.H. Nguyen¹, Y. Ueda¹ and N. Pham^{1,2} *1. Electronic and Electrical Engineering, Tokyo Institute of Technology, Tokyo, Japan; 2. Center for Spintronics Research Network (CSRN), The University of Tokyo, Tokyo, Japan*

2:30

- DC-03. Role of surface states in the generation of the colossal spin Hall effect in BiSb topological insulator.** *K. Yao¹, T. Shirokura¹ and N. Pham^{1,2}* *1. Electrical&Electronic Engineering course, Tokyo Institute of Technology, Tokyo, Japan; 2. Center for Spintronics Research Network, The University of Tokyo, Tokyo, Japan*

2:45

- DC-04. High spin-orbit torque efficiency of *in-situ* fabricated Bi₂Se₃/Fe heterostructures.** *D. Zhu¹, Y. Wang¹, S. Shi¹, K. Teo¹, Y. Wu¹ and H. Yang¹* *1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore*

3:00

- DC-05. Spin and charge conversion in topological surface states and oxide interface states. (Invited)** *W. Han¹* *1. International Center for Quantum Materials, Peking University, Beijing, China*

3:30

- DC-06. Highly efficient spin-to-charge current conversion at room temperature in strained HgTe surface states. (Invited)** *P. Noel¹, C. Thomas^{2,3}, L. Vila¹, T. Meunier³, P. Ballet² and J. Attané¹* *1. INAC, Spintec, Université Grenoble Alpes, Grenoble, France; 2. Leti/Dopt, CEA, Grenoble, France; 3. Institut Néel, C.N.R.S. and Université Grenoble Alpes, Grenoble, France*

WEDNESDAY
AFTERNOON
2:00

PEONY IV

Session DD

NEUROMORPHIC COMPUTING

Susana Cardoso de Freitas, Co-Chair
INESC-MN, Lisbon, Portugal

Myriam Pannetier-Lecoeur, Co-Chair
CEA Saclay, Gif sur Yvette, France

2:00

- DD-01. Neuromorphic computing with spintronic devices. (Invited)** *J. Grollier¹* *1. Unité Mixte CNRS/Thales, Palaiseau, France*

2:30

- DD-02. Low energy implementation of feedforward neural network with backpropagation algorithm using a spin orbit torque driven skyrmionic device.** *U. Saxena¹, D. Kaushik¹, M. Bansal¹, H. Chandel¹, U. Sahu¹ and D. Bhowmik¹* *1. Electrical Engineering, Indian Institute of Technology Delhi, New Delhi, India*

2:45

- DD-03. Circuit-level Design and Evaluation of STT-MRAM based Binary Winner-Takes-All Network for Image Recognition.** C. Wang^{1,2}, D. Zhang^{1,2}, Y. Hou^{1,2}, L. Zeng^{1,2}, J. Klein³ and W. Zhao^{1,2} *1. Fert Beijing Institute, BDBC, Beihang University, Beijing, China; 2. School of Electrical and Information Engineering, Beihang University, Beijing, China; 3. Centre de Nanoscience et de Nanotechnologies (C2N-Orsay), University of Paris-Sud, Orsay, France*

3:00

- DD-04. AFM-based artificial neurons for ultrafast neuromorphic computing. (Invited)** O. Sulymenko³, R. Khymyn², V.S. Tiberkevich¹, J. Åkerman² and A.N. Slavin¹ *1. Physics, Oakland University, Rochester Hills, MI, United States; 2. Physics, University of Gothenburg, Gothenburg, Sweden; 3. Radiophysics, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*

3:30

- DD-05. Domain wall based Mackey-Glass oscillator for neuromorphic applications.** J. Williams¹ and J. Kim¹ *1. Centre de Nanosciences et de Nanotechnologies, CNRS, Université Paris-Sud, Université Paris-Saclay, Orsay, France*

3:45

- DD-06. Neuromorphic computing using spin-transfer torque magnetic random access memory (STT-MRAM).** J. Moon¹ and K. Lee^{1,2} *1. Department of Materials Science and Engineering, Korea University, Seoul, The Republic of Korea; 2. KU-KIST Graduate School of Converging Science and Technology, Korea University, Seoul, The Republic of Korea*

WEDNESDAY
AFTERNOON
2:00

ROSELLE II

Session DE ANTIFERROMAGNETIC SPINTRONICS

Young Sun, Chair

Institute of Physics, Chinese Academy of Sciences, Beijing, China

2:00

- DE-01. Role of thermal activation in the electrical switching of antiferromagnetic Mn₂Au and CuMnAs.** T. Matalla-Wagner¹, D. Graulich¹, M. Rath¹ and M. Meinert¹ *1. Faculty of Physics, Bielefeld University, Bielefeld, Germany*

2:15

- DE-02. Spin transport thru antiferromagnetic NiO in Bi₂Se₃/NiO/Py heterostructures.** Y. Wang¹, D. Zhu¹, J. Lee¹, Y. Yang¹, R. Ramaswamy¹, K. Teo¹, Y. Wu¹ and H. Yang¹ *1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore*

2:30

- DE-03. Giant Spin-Hall Angle in Epitaxial L1₀-IrMn.** *J. Zhou*¹, *X. Wang*³, *J. Yu*¹, *Q. Qin*¹, *L. Liu*¹, *S. Chen*¹, *J. Deng*¹, *H. Yoong*¹, *P. Yang*², *X. Han*³ and *J. Chen*¹ *1. Material Science & Engineering, National University of Singapore, Singapore; 2. Singapore Synchrotron Light Source, National University of Singapore, Singapore; 3. Institute of Physics and Beijing National Laboratory for Condensed Matter Physics, Chinese Academy of Sciences, Beijing, China*

2:45

- DE-04. Spin-Hall and Anisotropic Magnetoresistance effects in Layered Structures with Ferrimagnetic Co-Gd alloys.** *T. Seki*¹, *W. Zhou*¹, *T. Kubota*¹ and *K. Takanashi*¹ *1. Tohoku University, Sendai, Japan*

3:00

- DE-05. Spin-orbit torque in antiferromagnets.** *C. Song*¹, *X. Zhou*¹, *X. Chen*¹, *P. Zhang*¹, *G. Shi*¹ and *F. Pan*¹ *1. Department of Materials Science and Engineering, Tsinghua University, Beijing, China*

3:15

- DE-06. Micromagnetic simulations of spin-Hall driven dynamics in an antiferromagnet.** *V. Puliafito*¹, *M. Carpentieri*², *B. Azzerboni*¹, *V.S. Tiberkevich*³, *A.N. Slavin*³ and *G. Finocchio*⁴ *1. Department of Engineering, University of Messina, Messina, Italy; 2. Department of Electrical and Information Engineering, Politecnico di Bari, Bari, Italy; 3. Department of Physics, Oakland University, Rochester, MI, United States; 4. Department of Mathematical and Computer Science, Physical Sciences and Earth Sciences, University of Messina, Messina, Italy*

3:30

- DE-07. Terahertz-frequency AC signal source based on antiferromagnetic tunnel junction.** *O. Sulymenko*¹, *O. Prokopenko*¹, *A.N. Slavin*² and *V.S. Tiberkevich*² *1. Faculty of Radio Physics, Electronics and Computer Systems, Taras Shevchenko National University of Kyiv, Kiev, Ukraine; 2. Department of Physics, Oakland University, Rochester, MI, United States*

3:45

- DE-08. Injection-locking of a nonlinear sub-THz antiferromagnetic spin-Hall oscillator.** *R. Khymyn*¹, *V.S. Tiberkevich*², *A.N. Slavin*² and *J. Åkerman*^{1,3} *1. Department of Physics, University of Gothenburg, Gothenburg, Sweden; 2. Department of Physics, Oakland University, Rochester, MI, United States; 3. Department of Applied Physics, KTH Royal Institute Technology, Stockholm, Sweden*

Session DF
HEAT ASSISTED RECORDING PHYSICS

Kaizhong Gao, Chair
Argonne National Laboratory, North Oaks, MN, United States

2:00

DF-01. Thermally induced magnetisation switching: basic physics and potential for a new storage technology. (Invited)

R.F. Evans¹, T. Ostler³, O. Chubykalo-Fesenko² and R.W. Chantrell¹ *1. Physics, The University of York, York, United Kingdom; 2. Institute of Materials Science of Madrid (ICMM-CSIC), Madrid, Spain; 3. Faculty of Arts, Computing, Engineering and Sciences, Sheffield Hallam University, Sheffield, United Kingdom*

2:30

DF-02. Micromagnetics at Finite Temperature. (Invited) D. Wei¹

1. School of Materials Science and Engineering, Tsinghua University, Beijing, China

3:00

DF-03. Impact of intergrain spin transfer torques due to huge thermal gradients on the performance of heat assisted magnetic recording. (Invited) B. Dieny¹, M. Chshiev¹, B. Charles¹, N. Strelkov^{1,2}, A. Truong¹, O. Fruchart¹, A. Hallal¹, J. Wang³, Y. Takahashi³, T. Mizuno⁴ and K. Hono³

1. SPINTEC, Grenoble Alpes Univ/CEA/CNRS, Grenoble, France; 2. Physics Department, Lomonosov Moscow State University, Moscow, Russian Federation; 3. National Institute for Materials Science, Tsukuba, Japan; 4. Headway Technologies, Milpitas, CA, United States

3:30

DF-04. Effect of Recording Conditions on the Downtrack Thermal Gradient in Heat Assisted Magnetic Recording.

S. Hernandez¹, Z. Liu¹, S.D. Granz¹, P. Huang², I. Gilbert¹, D. Mader¹, M. Blaber³, C.J. Rea³, G. Ju², T. Rausch¹ and E. Gage¹ *1. Seagate Research Group, Seagate Technology, Shakopee, MN, United States; 2. Recording Media Operations, Seagate Technology, Fremont, CA, United States; 3. Recording Head Operations, Seagate Technology, Bloomington, MN, United States*

3:45

DF-05. Understanding of Different Noises in HAMR. Y. Jiao¹ and R.H. Victora¹

1. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States

Session DG

ENERGY HARVESTERS AND GENERATORS I

Christopher H. T. Lee, Chair

Massachusetts Institute of Technology, Cambridge, MA, United States

2:00

- DG-01. Design and analysis of an integrated electromagnetic energy harvester from water flow.** *T. Wang¹, Y. Zhang¹ and S. Zhu¹*
1. Zhejiang University, Zhoushan, China

2:15

- DG-02. Investigation of a Novel Dual-PM Partitioned-primary Hybrid-excited Flux-switching Linear Machine.** *Z. Zeng¹ and Q. Lu¹*
1. College of Electrical Engineering, Zhejiang University, Hangzhou, China

2:30

- DG-03. A novel two-degree-of-freedom electromagnetic vibration energy harvester: design, modeling and experiments.** *Z. Wang¹, S. Wu¹, T. Yao², D. Lv¹ and H. Zhang¹*
1. State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin Municipality, China; 2. School of Mechanical Engineering, Hebei University of Technology, Tianjin Municipality, China

2:45

- DG-04. A planar translational permanent magnet generator for an inertial wave energy converter.** *M. Trapanese¹*
1. DEIM, Palermo University, Palermo, Italy

3:00

- DG-05. Ultra small and thin energy-harvesting device based on electromagnetic induction.** *K. Morii¹ and S. Koganezawa²*
1. Kansai University Graduate School, Suita-shi, Japan; 2. Kansai University, Suita-shi, Japan

3:15

- DG-06. Performance Analysis of a Novel Fall-Back Transverse-Flux Permanent-Magnet Generator with Outer Rotor Design Suitable for Direct-Coupling Wind Turbine.** *M.A. Patel¹ and S.C. Vora¹*
1. Department of Electrical Engineering, Institute of Technology, Nirma University, Ahmedabad, India

3:30

- DG-07. Magnetic field modelling of an Ironless Wind Power Microgenerator.** *V. Verdum¹, R.P. Homrich¹, A.F. Flores Filho¹, M.A. Silveira² and D.G. Dorrell³*
1. Engenharia Elétrica, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil; 2. Engenharia Elétrica, Universidade Luterana do Brasil, Canoas, Brazil; 3. University of KwaZulu-Natal, Durban, South Africa

- DG-08. Multiple-Objective-Based Optimal Energy Distribution for Wireless Power Transfer.** Z. Zhang¹, H. Pang¹, R. Tong¹, W. Ai¹, S. Chang¹ and J. Wang¹ *1. School of Electrical and Information Engineering, Tianjin University, Tianjin, China*

WEDNESDAY
AFTERNOON
2:00

PEONY II

Session DH
PERMANENT MAGNET AND RELUCTANCE MACHINES V

E.A. Lomonova, Chair
Technische Universiteit Eindhoven, Eindhoven, Netherlands

2:00

- DH-01. Design and Analysis for Torque Ripple Reduction in Synchronous Reluctance Machine.** D. Yan¹, C. Xia^{1,2}, L. Guo¹, H. Wang² and T. Shi¹ *1. School of Electrical and Information Engineering, Tianjin University, Tianjin, China; 2. Tianjin Engineering Center of Electric Machine System Design and Control, Tianjin, China*

2:15

- DH-02. Printed Circuit Axial-Flux Permanent Magnet Machines: A Comparative Analysis of Their PCB Topologies and Performance Characteristics.** S. Paul^{2,1}, M. Farshadnia¹, A. Pouramin¹, J. Fletcher¹ and J. Chang² *1. Electrical Engineering and Telecommunications, University of New South Wales, Kensington, NSW, Australia; 2. Electrical Engineering, Dong-A University, Busan, The Republic of Korea*

2:30

- DH-03. Electromagnetic Performance Analysis of a New Hybrid Excitation Synchronous Machine for Electric Vehicle Applications.** Y. Liu¹, Z. Zhang¹, C. Wang¹ and W. Geng¹ *1. Nanjing University of Aeronautics and Astronautics, Nanjing, China*

2:45

- DH-04. A New Variable Step Skew Approach for Minimizing Torque Pulsations in Permanent Magnet Synchronous Motors.** O. Ocak^{1,2} and M. Aydin² *1. R&D, Akim Metal A.S., Kocaeli, Turkey; 2. Department of Mechatronics Engineering, Kocaeli University, Kocaeli, Turkey*

3:00

- DH-05. Suppression of Even-Order Harmonics and Torque Ripple in Outer Rotor Consequent-Pole PM Machine with Multilayer Windings.** F. Li¹ and H. Zhang¹ *1. Institute of automation, Nanjing University of Aeronautics and Astronautics, Nan Jing, China*

3:15

DH-06. A Unified Design Approach of a Direct Drive External-Rotor Switched Reluctance Motor (Ex-R SRM) and its Implementation for a Low-Speed Domestic Appliance with R-dump Converter. *R. Azhagar¹ and A. Kavitha¹ 1. Electrical and Electronics Engineering, College of Engineering, Anna University, Chennai, India*

3:30

DH-07. Characteristic Analysis of Turn-to-turn Short Circuit Current Mitigation Method for Concentrated Winding Permanent Magnet Machines. *Y. Jiang¹, Z. Zhang¹, W. Jiang¹, J. Huang¹ and Y. Xu¹ 1. Nanjing University of Aeronautics and Astronautics, Nanjing, China*

3:45

DH-08. Design and Performance Assessments of a Surface-mounted Permanent-magnet Vernier Motor for Exoskeleton System Application. *C. Liu¹, K. Yang¹, Z. Cai¹, P. Shih¹ and C. Hwang² 1. Department of Electrical Engineering, National Sun Yat-Sen University, Kaohsiung, Taiwan; 2. Department of Electrical Engineering, Feng Chia University, Taichung, Taiwan*

WEDNESDAY
AFTERNOON
4:00

ORCHID I-II

**Session PL
PLENARY**

Sara Majetich, Chair
Carnegie Mellon University, Pittsburgh, PA, United States

4:00

Awards Ceremony

5:00

PL-01. Spintronics Nanodevices. (Invited) *H. Ohno^{1,2} 1. Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 2. Center for Spintronics Integrated Systems, Tohoku University, Sendai, Japan*

Session EA
**SYMPOSIUM ON NOVEL HARD MAGNETIC
MATERIALS AND THEIR APPLICATIONS**

Jinbo Yang, Chair
Peking University, Beijing, China

9:00

- EA-01. Heavy rare earth free, free rare earth and rare earth free magnets - vision and reality. (Invited) O. Gutfleisch¹ and K. Skokov¹** *1. Material Science, TU Darmstadt, Darmstadt, Germany*

9:30

- EA-02. Fe₁₆N₂: from a 40-year mystery of magnetic materials to one of promises for rare-earth-free magnets. (Invited) J. Wang^{1,2}, Y. Jiang¹, M.A. Mehedi², J. Liu¹, Y. Wu³ and B. Ma¹**
1. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States; 2. Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN, United States; 3. Niron Magnetics, Minneapolis, MN, United States

10:00

- EA-03. Rare earth permanent magnets with ultimate hard magnetic properties. (Invited) K. Hono^{1,2}** *1. Elements Strategy Initiative Center for Magnetic Materials, National Institute for Materials Science (NIMS), Tsukuba, Japan; 2. Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science (NIMS), Tsukuba, Japan*

10:30

- EA-04. Recent developments in melt-spun Nd-Fe-B bonded magnets for automotive applications. (Invited) Z. Chen¹, W. Zhao¹, N.K. Sheth¹, A. Meerani¹ and J. Herchenroeder¹**
1. Magnequench Technology Center, Neo Performance Materials (S) Pte Ltd, Singapore, Singapore

11:00

- EA-05. Effects of Cerium on Magnetic Properties of Sintered R-Fe-B Permanent Magnets. (Invited) X. Rao¹, E. Niu¹, F. Du¹ and B. Hu¹** *1. Zhong Ke San Huan Research, Beijing, China*

11:30

- EA-06. The advances of high-performance permanent magnets by microstructure designing. (Invited) W. Cui¹** *1. Northeastern University, Shenyang, China*

Session EB
MAGNETO-ELASTIC AND MAGNETO-OPTIC
MATERIALS

Victorino Franco, Chair
University of Sevilla, Sevilla, Spain

9:00

- EB-01. Polymer-based magnetoelectric materials: from fundamentals to applications.** *P. Martins*¹ and *S. Lanceros-Mendez*^{2,3} *1. Physics, University of Minho, Braga, Portugal; 2. BCMaterials, Leioa, Spain; 3. Ikerbasque, Basque Foundation for Science, Bilbao, Spain*

9:15

- EB-02. MR Elastomers for Energy Harvesting System.** *G. Diguët*¹, *G. Sebald*¹, *M. Nakano*^{2,1} and *M. Lallart*³ *1. ELYTMAX UMI 3757, International Joint Unit, Tohoku University, CNRS, Université de Lyon, Tohoku University, Sendai, Japan; 2. Intelligent Fluid Control Systems Laboratory, Institute of Fluid Science, Tohoku University, Sendai, Japan; 3. LGEF EA682, Université de Lyon, INSA-Lyon, Lyon Villeurbanne, France*

9:30

- EB-03. Dynamic Characterization of a Magnetostrictive-based Sensor for Fast Force Profile Detection.** *V. Apicella*¹, *C.S. Clemente*¹, *D. Davino*¹, *D. Leone*¹ and *C. Visone*¹ *1. Department of Engineering, University of Sannio, Benevento, Italy*

9:45

- EB-04. Effect of substrate temperature driven magnetic anisotropies on the magnetostrictive behaviour of Tb-Fe-Co thin films.** *U. K.*^{1,2}, *A. Talapatra*³, *A. Chelvane*¹, *J. Mohanty*³ and *J. V.*² *1. Defence Metallurgical Research Laboratory, Hyderabad, India; 2. Physics, National Institute of Technology Warangal, Warangal, India; 3. Physics, Indian Institute of Technology Hyderabad, Kandi, Sangareddy, India*

10:00

- EB-05. Investigating the magnetization process of Ni-Mn-Ga films with different types of microstructure.** *F. Casoli*¹, *S. Fabbri*¹, *M. Takhsha Ghahfarokhi*¹, *L. Nasi*¹, *R. Cabassi*¹, *G. Varvaro*², *F. Celegato*³, *P. Tiberto*³ and *F. Albertini*¹ *1. IMEM-CNR, Parma, Italy; 2. ISM-CNR, Roma, Italy; 3. INRIM, Torino, Italy*

10:15

- EB-06. Magnetostrictive Behaviors of fcc-Co Single-Crystal Films under Rotating Magnetic Fields.** *T. Kawai*¹, *K. Serizawa*¹, *M. Ohtake*² and *M. Futamoto*¹ *1. Chuo Univ., Tokyo, Japan; 2. Kogakuin University, Tokyo, Japan*

10:30

- EB-07. Microstructure and elastocaloric effect in as-undercooled $\text{Pd}_{59.3}\text{In}_{23.2}\text{Fe}_{17.5}$ magnetic shape memory alloys.** *Q. Shen*¹ and *J. Liu*¹ *1. Key laboratory of Magnetic Materials and Devices, Ningbo Institute of Material Technology and Engineering, Ningbo, China*

10:45

- EB-08. FDTD simulation of enhanced Faraday effect in plasmonic composite structures with rectangularly arranged Au particles.** *J. Schlipf*^{1,2}, *Y. Itabashi*¹, *T. Goto*¹, *H. Takagi*¹, *P.B. Lim*¹, *Y. Nakamura*¹, *I.A. Fischer*², *J. Schulze*², *H. Uchida*¹ and *M. Inoue*¹ *1. Toyohashi University of Technology, Toyohashi, Japan; 2. Institut für Halbleitertechnik, University of Stuttgart, Stuttgart, Germany*

11:00

- EB-09. Helicity dependent photovoltaic conversion at nonmagnetic interface with inversion asymmetry.** *F.V. Auvray*¹, *J. Puebla*², *M. Xu*¹ and *Y. Otani*^{1,2} *1. Advanced Materials Science, The University of Tokyo, Kashiwa, Japan; 2. CEMS, RIKEN, Wako, Japan*

11:15

- EB-10. Broadband Magneto-Optical Response of Magnetoplasmonic Quasicrystals.** *A. Kalish*^{2,1}, *R. Komarov*², *M. Kozhaev*^{1,3}, *V. Achanta*⁴, *S. Dagesyan*², *A. Shaposhnikov*⁵, *V. Berzhansky*⁵, *A. Zvezdin*^{1,3} and *V. Belotelov*^{1,2} *1. Russian Quantum Center, Skolkovo, Russian Federation; 2. Faculty of Physics, Lomonosov Moscow State University, Moscow, Russian Federation; 3. Prokhorov General Physics Institute of Russian Academy of Sciences, Moscow, Russian Federation; 4. Tata Institute of Fundamental Research, Mumbai, India; 5. V.I. Vernadsky Crimean Federal University, Simferopol, Russian Federation*

11:30

- EB-11. Investigation of amorphous SmFe_2 thin films with giant negative magnetostriction and perpendicular magnetic anisotropy.** *M. Tomita*¹, *Y. Ishitani*¹, *S. Ishiyama*¹, *Y. Takamura*¹ and *S. Nakagawa*¹ *1. Electrical and Electronic Engineering, Tokyo Institute of Technology, Tokyo, Japan*

11:45

- EB-12. Smart Shape Memory Actuator based on Monocrystalline Ni_2FeGa glass-coded microwire.** *L. Frolova*¹, *T. Ryba*², *P. Diko*³, *V. Kavecansky*³, *J. Kravcak*⁴, *Z. Vargova*⁵ and *R. Varga*^{1,2} *1. Cond. Matt. Phys., Inst. Phys., Fac. Sci., UPJS, Kosice, Slovakia; 2. RVmagnetics a.s., Hodkovce, Slovakia; 3. Inst. Exp. Phys., SAS, Kosice, Slovakia; 4. Dept. Phys., FEEL TUKE, Kosice, Slovakia; 5. Dept. Inorg. Chem., Inst. Chem., Fac. Sci., UPJS, Kosice, Slovakia*

Session EC

GMR, TMR, AND MULTIFERROIC MATERIALS

Liang Liu, Co-Chair

National University of Singapore, Singapore

Hao Wu, Co-Chair

University of California, Los Angeles, CA, United States

9:00

EC-01. Very large voltage-controlled magnetic anisotropy and extremely reliable voltage-induced switching. (Invited)

T. Nozaki¹, A. Koziol-Rachwal^{1,2}, M. Tsujikawa³, Y. Shiota¹, T. Yamamoto¹, T. Ikeura¹, X. Xu⁵, T. Ohkubo⁵, T. Tsukahara⁴, S. Miwa⁴, M. Suzuki⁶, H. Imamura¹, S. Tamaru¹, H. Kubota¹, A. Fukushima¹, K. Hono⁵, M. Shirai³, Y. Suzuki^{1,4} and S. Yuasa¹ *1. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan; 2. Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, Al. Mickiewicza 30, 30-059, Poland; 3. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 4. Graduate School of Engineering Science, Osaka University, Toyonaka, Japan; 5. Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science (NIMS), Tsukuba, Japan; 6. Japan Synchrotron Radiation Research Institute (JASRI), Sayo, Japan*

9:30

EC-02. Flexible MgO-based Magnetic Tunnel Junctions on Silicon Substrate.

S. Amara¹, G. A. Torres Sevilla¹, I. Ivanov¹, J. Gerhard², S. Jaiswal^{2,3}, H. Muhammad Mustafa¹, M. Kläui² and J. Kosel¹ *1. CEMSE, King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia; 2. Institut für Physik, Johannes Gutenberg Universität Mainz, Mainz, Germany; 3. Singulus Technologies AG, Kahl am Main, Germany*

9:45

EC-03. Tunneling anisotropic magnetoresistance driven by magnetic phase transition.

X. Chen¹, C. Song¹, J. Feng², X. Zhong¹ and F. Pan¹ *1. Tsinghua University, Beijing, China; 2. Institute of Physics, Chinese Academy of Sciences, Beijing, China*

10:00

EC-04. Ionic liquid gating control of magnetism in ultrathin magnetic multilayers. (Invited)

M. Liu¹ and Z. Zhou¹ *1. Electronic Materials Research Laboratory, Key Laboratory of the Ministry of Education & International Center for Dielectric Research, Xi'an Jiaotong University, Xi'an, China*

10:30

- EC-05. Tailoring magnetic properties of giant magnetoresistance spin-valves by inserting ultrathin noble metals between pinned and pinning layers.** *S. Kim*¹, *J. Choi*² and *S. Lim*¹
1. Materials Science and Engineering, Korea University, Seoul, The Republic of Korea; 2. Center for Spintronics Research, Korea Institute of Science and Technology, Seoul, The Republic of Korea

10:45

- EC-06. Giant magnetoresistance effects in interface-tailored current-perpendicular-to-plane type junctions using Heusler alloy electrodes.** *T. Kubota*^{1,2}, *Y. Ina*¹, *Z. Wen*^{1,2} and *K. Takanashi*^{1,2}
1. Institute for Materials Research, Tohoku University, Sendai, Japan; 2. Center for Spintronics Research Network, Tohoku University, Sendai, Japan

11:00

- EC-07. Perpendicular Anisotropy in $\text{Co}_2\text{FeAl}_{0.5}\text{Si}_{0.5}$ for CPP-GMR devices.** *W.J. Frost*¹, *M. Samiepour*¹ and *A. Hirohata*¹
1. Department of Electronic Engineering, University of York, York, United Kingdom

11:15

- EC-08. Mn-composition dependence of strength of bi-quadratic interlayer exchange coupling in Co_2MnSi -based pseudo spin-valves.** *M. Inoue*¹, *D. Mouri*¹, *K. Inubushi*², *K. Nakada*², *M. Yamamoto*¹ and *T. Uemura*¹
1. Division of Electronics for Informatics, Hokkaido University, Sapporo, Japan; 2. Technical Center, TDK Corporation, Ichikawa, Japan

11:30

- EC-09. Control ferromagnets all electrically at room temperature without external magnetic field. (Invited)** *K. Wang*¹
1. Institute of Semiconductors, Chinese Academy of Sciences, Beijing, China

Session ED
SPIN-ORBITRONICS III

Shunsuke Fukami, Co-Chair
Tohoku University, Sendai, Japan

Xuepeng Qiu, Co-Chair
Tongji University, Shanghai, China

9:00

- ED-01. Hybrid strain-mediated spin-orbit torque switching for magnetic memory.** *Q. Wang⁴, J. Domann¹, G. Yu^{2,3}, H. Wu³, A. Barra⁴, K. Wang³ and G.P. Carman⁴* *1. Department of Biomedical Engineering and Mechanics, Virginia Tech, Blacksburg, VA, United States; 2. Institute of Physics, Chinese Academy of Sciences, Beijing, China; 3. Department of Electrical and Computer Engineering, University of California, Los Angeles, CA, United States; 4. Department of Mechanical and Aerospace Engineering, University of California, Los Angeles, CA, United States*

9:15

- ED-02. Switching of exchange-coupled perpendicular magnetized layers driven by spin orbital torque with low power consumption.** *S. Wang¹ and J. Luo¹* *1. Institute of Microelectronics, UCAS, Beijing, China*

9:30

- ED-03. Spin orbit torque via interfacial oxidation in magnetic heterostructures. (Invited)** *X. Qiu¹ and H. Yang²*
1. Department of Physics Science and Engineering, Tongji University, Shanghai, China; 2. Department of Electrical and Computer Engineering, National University of Singapore, Singapore

10:00

- ED-04. Spin Hall magnetoresistance in Co / transparent-conductive-oxide bilayers.** *S. Isogami² and M. Hayashi^{1,2}* *1. The University of Tokyo, Tokyo, Japan; 2. Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science (NIMS), Tsukuba, Japan*

10:15

- ED-05. Direct optical observation of spin accumulation at nonmagnetic metal / oxide interface.** *J. Puebla¹, F.V. Auvray², M. Xu², B. Rana¹, K. Kondou¹ and Y. Otani^{1,2}* *1. CEMS, RIKEN, Wako, Japan; 2. The University of Tokyo, Kashiwa, Japan*

10:30

- ED-06. Enhancement of Spin Orbit Torques by Oxygen Implantation.** *J. Nath^{1,2}, A.V. Trifu^{1,2}, S. Auffret^{1,2}, G. Gaudin^{1,2} and I. Miron^{1,2}* *1. SPINTEC/CEA/CNRS, Grenoble, France; 2. Université Grenoble Alpes, Grenoble, France*

10:45

- ED-07. Reliable Estimation of TaB Spin Hall Angle by Incorporating the Interfacial Transparency and Isolating Inverse Spin Hall Effect in ST-FMR Analysis.** *A. Tiwari¹, H. Yoda¹, Y. Kato¹, K. Koi¹, M. Ishikawa¹, S. Oikawa¹, Y. Saito², T. Inokuchi¹, N. Shimomura¹, M. Shimizu¹, S. Shirotori¹, A. Buyandalai¹, H. Sugiyama¹, Y. Ohsawa¹ and A. Kurobe¹* *1. Corporate Research and Development, Toshiba Corporation, Kawasaki, Japan; 2. Center for Innovative Integrated Electronic System, Tohoku University, Sendai, Japan*

11:00

- ED-08. Spin-orbit-torque switching in an exchange-biased ferromagnetic system.** *P. Lin¹, M. Tsai¹, K. Huang¹, H. Lin² and C. Lai¹* *1. Department of Materials Science and Engineering, National Tsing Hua University, Hsinchu, Taiwan; 2. Department of Physics, National Tsing Hua University, Hsinchu, Taiwan*

11:15

- ED-09. Enhanced spin orbit torques in Pt/Co/Pt films with inserting Ru layers.** *Y. Wu¹, K. Meng¹, Y. Wu¹, J. Chen¹, J. Miao¹, X. Xu¹ and Y. Jiang¹* *1. Materials Science and Engineering institute, University of Science and Technology Beijing, Beijing, China*

11:30

- ED-10. Harmonic measurement of current induced spin-orbit torques in high-resistivity-W/CoFeB/MgO.** *Y. Takeuchi¹, C. Zhang¹, A. Okada¹, H. Sato¹, S. Fukami¹ and H. Ohno¹* *1. Tohoku University, Sendai, Japan*

11:45

- ED-11. Enhancement of Spin-Orbit Torques through Material Engineering: The Role of Boron.** *Y. Du¹, P. Chen¹, B. Yang¹, P. Lin¹, G. Guo² and C. Lai¹* *1. Department of Materials Science and Engineering, National Tsing Hua University, Hsinchu, Taiwan; 2. Department of Physics, National Taiwan University, Taipei, Taiwan*

THURSDAY
MORNING
9:00

ROSELLE II

Session EE

SYMPOSIUM ON RECENT ADVANCES AND FUTURE CHALLENGES OF COMPUTATIONAL MAGNETICS

Jan Sykulis, Chair

University of Southampton, Southampton, United Kingdom

9:00

- EE-01. Steady state solution of periodically excited nonlinear eddy current problems. (Invited)** *O. Biro¹ and G. Koczka²* *1. TU Graz, Graz, Austria; 2. Siemens AG Österreich – Transformers Weiz, Weiz, Austria*

9:30

- EE-02. Advanced soft- and hard-magnetic material models for the numerical simulation of electrical machines. (Invited)** *K. Hameyer¹, S. Steentjes¹, N. Leuning¹, G. Bravendiek¹ and S. Elfgén¹ 1. IEM, RWTH Aachen University, Aachen, Germany*

10:00

- EE-03. Modern Finite-Element Discretization Techniques for Electromagnetic Field Simulation. (Invited)** *H. De Gersem¹ and S. Schöps¹ 1. Technische Universität Darmstadt, Darmstadt, Germany*

10:30

- EE-04. Advanced constitutive laws for computational magnetics: The case of magneto-mechanical behaviour. (Invited)** *L. Daniel¹ 1. GeePs-CentraleSupélec, Gif sur Yvette, France*

11:00

- EE-05. High Resolution Modeling of Magnetic Field Exposure Scenarios in the Vicinity of Inductive Wireless Power Transfer Systems. (Invited)** *M. Clemens¹, M. Zang¹, M. Alsayegh² and B. Schmuelling² 1. Chair of Electromagnetic Theory, University of Wuppertal, Wuppertal, Germany; 2. E-Mobility Research Group, University of Wuppertal, Wuppertal, Germany*

11:30

- EE-06. Design and Optimisation of Magnetic Devices. (Invited)** *D. Lowther¹ 1. Elec and Comp Eng, McGill University, Montreal, QC, Canada*

THURSDAY
MORNING
9:00

PEONY I

Session EF

ENERGY ASSISTED RECORDING

Yuepeng Zhang, Chair

Argonne National Laboratory, Argonne, WI, United States

9:00

- EF-01. Micromagnetics of FePt-L1₀ Media with Thermally Insulating Magnetic Grain Boundaries.** *J. Zhu¹ and Y. Qin¹ 1. Data Storage Systems Center, Carnegie Mellon University, Pittsburgh, PA, United States*

9:15

- EF-02. Sources and Impact of Media Thermal Fluctuations in Heat Assisted Magnetic Recording.** *P. Jubert¹ and C. Papusoi¹ 1. Western Digital, San Jose, CA, United States*

9:30

- EF-03. A Split Pole and Gap-NFT Write Head Design for Transition Curvature Reduction in Heat Assisted Magnetic Recording.** *C. Chow¹ and J.A. Bain¹ 1. Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA, United States*

9:45

- EF-04. Design of field generating layer in all-in-plane spin-torque-oscillator.** *H. Sepehri-Amin¹, C. Abert², D. Suess² and K. Hono¹ 1. Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science, Tsukuba, Japan; 2. Christian Doppler Laboratory, Advanced Magnetic Sensing and Materials, University of Vienna, 1090, Vienna, Austria*

10:00

- EF-05. Magnetization Switching of a Co/Pt-Multilayer Perpendicular Nanomagnet Assisted by a Microwave Field with Time-Varying Frequency. (Invited)** *H. Suto¹, T. Kanao¹, T. Nagasawa¹, K. Mizushima¹ and R. Sato¹ 1. Corporate Research & Development Center, Toshiba Corporation, Kawasaki, Japan*

10:30

- EF-06. Heat Assisted Magnetic Recording – Next Generation Mass Storage Technology. (Invited)** *G. Ju¹, J. Thiele¹, Y. Peng¹, T. Klemmer¹, Y. Ding¹, Y. Kubota¹, A.Q. Wu¹, X. Zhu¹, E.K. Chang¹, L. Gao¹, F. Zavaliche¹, P. Huang¹, H. Amini¹, S.D. Granz², C.J. Rea³, J. Qiu³, H. Yin³, M.A. Seigler³, T. Rausch², Y. Chen³, E. Gage³, S. Hwang¹ and M.E. Re¹ 1. Seagate Technology, Fremont, CA, United States; 2. Seagate Technology, Shakopee, MN, United States; 3. Seagate Technology, Bloomington, MN, United States*

11:00

- EF-07. Spin torque oscillator with in-plane magnetized spin-injection layer for microwave assisted magnetic recording.** *W. Zhou¹, H. Sepehri-Amin¹, Y. Sakuraba¹, S. Kasai¹, S. Bosu¹ and K. Hono¹ 1. Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science (NIMS), Tsukuba, Japan*

11:15

- EF-08. Systemic Evaluation of Microwave Assisted Magnetic Recording.** *Z. Liu¹, P. Huang², S. Hernandez¹, G. Ju², T. Rausch¹ and E. Gage¹ 1. Seagate Technology, Shakopee, MN, United States; 2. Seagate Technology, Fremont, CA, United States*

Session EG
**SHIELDING, ELECTROMAGNETIC COMPATIBILITY,
MOTORS AND GENERATORS I**

Shunsuke Ohashi, Chair
Kansai University, Osaka, Japan

9:00

EG-01. Withdrawn

9:15

EG-02. Fast Surrogate-Assisted Design of Multilayered Magnetic Shields. *H. Chen^{1,2}, Y. Du² and Q. Cheng¹ 1. Department of Electrical and Electronic Engineering, Southern University of Science and Technology, Shenzhen, China; 2. Department of Building Service Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

9:30

EG-03. Research on Common Mode Current and Electromagnetic Radiation in PWM Motor System. *F. Niu^{1,2}, S. Cao¹, X. Huang², J. Zhang², J. Ma², K. Li¹ and Y. Fang² 1. School of Electrical Engineering, Hebei University of Technology, Tianjin, China; 2. College of Electrical Engineering, Zhejiang University, Hangzhou, China*

9:45

EG-04. Dual Mode Dual Stator Wound Rotor Synchronous Machine for Variable Speed Applications. *A. Hussain¹, M. Ayub¹, T. Yazdan¹ and B. Kwon¹ 1. Electronic Systems Engineering, Hanyang University, South Korea, Ansan, The Republic of Korea*

10:00

EG-05. Radial Force and Vibration Calculation for Modular Permanent Magnet Synchronous Machine with Symmetrical and Asymmetrical Open-circuit Faults. *Y. Pei¹, Z. Song¹, F. Chai¹ and Y. Li¹ 1. Harbin Institute of Technology, Harbin, China*

10:15

EG-06. Weighted Average Efficiency Optimization for Permanent Magnet Synchronous Generators Used in Hybrid Electric Special Vehicles. *J. Gao¹, L. Dai¹ and W. Zhang² 1. College of Electrical and Information Engineering, Hunan University, Changsha, China; 2. Department of Electronic and Electrical Engineering, Changsha University, Changsha, China*

10:30

EG-07. Modeling Induction Motors under Mixed Radial-Axial Asymmetry of Air Gap Produced by Oil Whirl in a Sleeve Bearing. *M. Ojaghi¹ and R. Akhondi¹ 1. Electrical Engineering, University of Zanjan, Zanjan, The Islamic Republic of Iran*

10:45

- EG-08. PM Vernier Machine with Multiple Working Harmonics and Enhanced Flux Modulation Effect.** T. Zou¹, D. Li¹ and R. Qu¹ *1. School of Electrical and Electronic Engineering, Huazhong University of Science & Technology, Wuhan, China*

11:00

- EG-09. Design and Analysis of A Novel PMSM with Single Stator and Contra-rotating Rotors.** D. Luo¹, X. Su¹, J. Gao¹, R. He¹ and S. Huang¹ *1. College of Electrical and Information Engineering, Hunan University, Changsha, China*

11:15

- EG-10. Characteristics Verification of a Novel Motor with Two Controllable Rotors.** H. Suzuki¹, K. Hirata¹, N. Niguchi¹ and A. Kohara¹ *1. Graduate School of Engineering, Osaka University, Suita, Japan*

11:30

- EG-11. A New Structure of Stator Pole to Reduce Torque Ripple and Acoustic Noise in Switched Reluctance Motor.** M. Babaei¹ and A. Ahmarinejad¹ *1. Electrical Engineering Department, Yadegare Imam Khomeini (RAH) Shahr-e-Rey Branch, Islamic Azad University, Tehran, The Islamic Republic of Iran*

THURSDAY
MORNING
9:00

PEONY II

Session EH

MAGNETIC SEMICONDUCTORS AND OXIDES

Chen Ge, Chair

Institute of Physics, Chinese Academy of Sciences, Beijing, China

9:00

- EH-01. Giant Magnetoelectric Effects in Multiferroic Hexaferrites. (Invited)** Y. Sun¹, K. Zhai¹, J. Shen¹, D. Shang¹ and Y. Chai¹ *1. Institute of Physics, Chinese Academy of Sciences, Beijing, China*

9:30

- EH-02. The atomic-scale magnetism of Cr-doped Bi₂Se₃ topological insulators.** W. Liu¹, D. West², L. He³, S. Zhang², Y. Xu⁴, R. Zhang⁵ and K. Wang³ *1. Department of Electronics Engineering, Royal Holloway University of London, Egham, United Kingdom; 2. Department of Physics, Rensselaer Polytechnic Institute, Troy, NY, United States; 3. Department of Electrical Engineering, University of California Los Angeles, LA, CA, United States; 4. Electronics Department, University of York, York, United Kingdom; 5. Nanjing University, Nanjing, China*

9:45

- EH-03. Role of R^{3+} ion on structural and magnetic properties of $R_2\text{NiMnO}_6$ double perovskites.** *M. Nasir¹, S. Ayaz² and S. Sen^{1,2} 1. Physics, IIT Indore, INDORE, India; 2. MEMS, IIT Indore, Indore, India*

10:00

- EH-04. Enhancing the low-field magnetoresistance by ac current excitation in $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$.** *P. Kumar¹, U. Chadhuri¹ and R. Mahendiran¹ 1. Physics Department, 2 Science Drive 3, National University of Singapore, Singapore*

10:15

- EH-05. Suppression of charge and antiferromagnetic ordering in Ru substituted $\text{Bi}_{0.5}\text{Ca}_{0.5}\text{MnO}_3$ probed by electrical, magnetic and thermoelectric transport.** *M. Kumari¹, A. Chanda¹ and R. Mahendiran¹ 1. Physics, National University of Singapore, Singapore*

10:30

- EH-06. Anisotropic Electronic Transport Properties in Low-Temperature Phase Fe_3O_4 Epitaxial Films.** *X. Liu¹, W. Mi¹, Q. Zhang² and X. Zhang² 1. Department of Applied Physics, Tianjin University, Tianjin, China; 2. PSE Division, King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia*

10:45

- EH-07. Effect of CaCO_3 and V_2O_5 on the microstructure and magnetic property of MnZn ferrites.** *G. Wu¹, Z. Yu¹, Z. Tang², K. Sun¹, R. Guo¹, X. Zou¹, X. Jiang¹ and Z. Lan¹ 1. University of Electronic Science and Technology of China, Chengdu, China; 2. China Aerospace Components Engineering Center, Beijing, China*

11:00

- EH-08. Magnetically driven insulating behavior in monoclinic antiferromagnetic Ni-Mn-In Heusler alloys.** *H. Yang^{1,2}, B. Wang^{1,2} and R. Li^{1,2} 1. Key Laboratory of Magnetic Materials and Devices, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, Ningbo, China; 2. Laboratory of Magnetic Materials and Application Technology, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, Ningbo, China*

11:15

- EH-09. Valley polarized tunneling through magnetic and electrical barriers in Weyl semimetals.** *C. Yesilyurt¹, Z. Siu¹, S. Tan¹, G. Liang¹ and M.B. Jalil¹ 1. Electrical and Computer Engineering, National University of Singapore, Singapore*

11:30

- EH-10. Nucleation and annihilation of skyrmions in spin gapless semiconductor Mn_2CoAl .** *S. Granville*^{1,2}, *B. Ludbrook*^{1,2}, *G. Dubuis*^{1,2}, *A. Puichaud*^{1,2} and *B.J. Ruck*^{1,2} *1. Victoria University of Wellington, Lower Hutt, New Zealand; 2. MacDiarmid Institute for Advanced Materials and Nanotechnology, Wellington, New Zealand*

11:45

- EH-11. Anomalous Hall effect in a wide range of conductivity in Co_2FeSi Heusler-alloy thin films.** *B.K. Hazra*¹, *S.N. Kaul*¹, *S. Srinath*¹, *M. Raja*², *R. Rawat*³ and *A. Lakhani*³ *1. School of Physics, University of Hyderabad, Hyderabad, India; 2. Defence Metallurgical Research Laboratory, Hyderabad, India; 3. UGC-DAE Consortium for Scientific Research, Indore, India*

THURSDAY
MORNING
9:00

ORCHID II

Session EI

MAGNETIC THERAPIES AND NANOMEDICINE II

Irving Weinberg, Chair

Weinberg Medical Physics, Bethesda, MD, United States

9:00

- EI-01. Magnetic Nanoparticles for Theranostics. (Invited)** *Y. Ichiyang*¹, *H. Takeuchi*¹, *K. Fujiwara*¹, *T. Ide*¹ and *A. Oshima*¹ *1. Yokohama National University, Yokohama, Japan*

9:30

- EI-02. Magneto-photothermal effects of pegylated superparamagnetic iron-oxide nanoparticles for multimodal cancer therapy.** *S.A. Shah*^{1,2}, *M. Hashmi*³, *K. Javed*², *N. Ahmad*⁴ and *M. Arshad*⁵ *1. Materials Science & Engineering, University of Washington, Seattle WA, USA, Seattle, WA, United States; 2. Physics, Forman Christian College (University), Lahore, Pakistan; 3. Superior University, Lahore, Pakistan; 4. Physics, International Islamic University, Lahore, Pakistan; 5. National Center for Physics, Islamabad, Pakistan*

EI-03. Properties of Permalloy nanodiscs in magnetic vortex state and magneto-mechanical treatment of cancer cells.

M. Goiriena-Goikoetxea^{1,2}, I. Orue³, K. Guslienکو⁴, E. Berganza⁵, M. Jaafar⁵, A. Asenjo⁵, D. Muñoz⁶, A. Muela^{6,7} and A. García-Arribas^{2,7} 1. *Electrical Engineering and Computer Science, University of California, Berkeley, CA, United States*; 2. *Departamento de Electricidad y Electrónica, Universidad del País Vasco, UPV/EHU, Leioa, Spain*; 3. *SGIKER Medidas Magnéticas, Universidad del País Vasco, UPV/EHU, Leioa, Spain*; 4. *IKERBASQUE and Depto. de Física de Materiales, Universidad del País Vasco, UPV/EHU, San Sebastián, Spain*; 5. *Instituto de Ciencia de Materiales de Madrid, CSIC, Cantoblanco, Spain*; 6. *Depto. de Inmunología, Microbiología y Parasitología, Universidad del País Vasco, UPV/EHU, Leioa, Spain*; 7. *Basque Center for Materials, Applications and Nanostructures, BCMaterials, Leioa, Spain*

10:00

EI-04. In silico testing of clinical magnetic hyperthermia: progresses and future directions. (Invited)

I. Rubia-Rodríguez¹, H. Verdaguer², T. Macarulla² and D. Ortega Ponce¹ 1. *IMDEA Nanoscience, Madrid, Spain*; 2. *Medical Oncology, Vall d'Hebron University Hospital, Barcelona, Spain*

10:30

EI-05. Magnetic hysteresis, cellular uptake and cytotoxicity of sub-micron magnetic nanodisks for biomedical applications.

P. Tiberto¹, G. Barrera¹, F. Celegato¹, M. Coisson¹, C. Divieto¹ and M. Sassi¹ 1. *INRIM, Torino, Italy*

10:45

EI-06. Fe-Cr-Nb-B magnetic nanoparticles - a good solution for cancer cell destruction by magneto-mechanical effect.

H. Chiriac¹, E. Radu^{1,2}, M. Tibu¹, D. Herea¹, L. Labusca¹ and N. Lupu¹ 1. *National Institute of Research and Development for Technical Physics, 47 Mangeron Boulevard, 700050 Iasi, Romania, Iasi, Romania*; 2. *Physics, Alexandru Ioan Cuza University of Iasi, Iasi, Romania*

11:00

EI-07. Twin Coil Design Considerations for Depth and Focality in Transcranial Magnetic Stimulation.

S. Chang¹, X. Wei¹, Z. Zhang¹, S. Li¹, J. Wang¹ and G. Yi¹ 1. *School of Electrical and Information Engineering, Tianjin University, Tianjin, China*

11:15

EI-08. Development of Angular Coil for Transcranial Magnetic Stimulation.

M.A. Yedeas¹, Y. Kawasaki², S. Liu¹, J. Gu¹, Y. Saitoh³ and M. Sekino¹ 1. *Department of Electrical Engineering and Information Systems, Graduate School of Engineering, The University of Tokyo, Tokyo, Japan*; 2. *Department of Bioengineering, Graduate School of Engineering, The University of Tokyo, Tokyo, Japan*; 3. *Department of Neuromodulation and Neurosurgery, Graduate School of Medicine, Osaka University, Osaka, Japan*

- EI-09. Flexibility of Micro-magnetic Flagella in the Presence of an Oscillating Field.** *Y. Li¹ and C. Yen¹ 1. Department of Mechanical and Aerospace Engineering, National Defense University, Taoyuan, Taiwan*

- EI-10. Novel Electromagnetic Targeting System for Navigating Surgery in Endobronchoscopy.** *C. Chen¹, C. Lin^{1,2}, Y. Cheng¹, T. Chung¹, C. Chang¹, S. Tsai¹, J. Chen¹ and X. Lin¹ 1. National Chiao Tung University, Hsinchu, Taiwan; 2. National Taiwan University Hospital, Taipei, Taiwan*

THURSDAY
MORNING
8:30

SIMPOR/ROSELLE BALLROOM

Session EP

EXCHANGE COUPLING, SUPERCONDUCTIVITY AND ELECTRONIC STRUCTURE I (Poster Session)

Xiaolin Wang, Chair

University of Wollongong, Wollongong, NSW, Australia

- EP-01. Thickness dependence of spin polarization in Co₂FeAl thin films.** *X. Zhang¹, L. He¹, Y. Xu^{1,2} and W. Liu² 1. Nanjing University, Nanjing, China; 2. University of York, York, United Kingdom*
- EP-02. Levitation Force Computation of HTS/PM system by H-formulation.** *W. Chen¹, J. Shi¹ and Y. Xu¹ 1. Huazhong University of Science & Technology, Wuhan, China*
- EP-03. Key features of the magnetic and magnetoelectric properties of rare-earth langasite Ho_{0.09}La_{2.91}Ga₅SiO₁₄.** *N. Kostyuchenko^{1,2}, A. Mukhin³, A. Pimenov², L. Weymann² and A. Zvezdin^{1,3} 1. Moscow Institute of Physics and Technology (State University), Moscow, Russian Federation; 2. Institut für Festkörperphysik, Technische Universität Wien, Vienna, Austria; 3. A. M. Prokhorov General Physics Institute of Russian Academy of Sciences, Moscow, Russia, Moscow, Russian Federation*
- EP-04. Anomalous magnetic and Electrical properties of Fe₂V_{2-x}Al_x (x=0-1) alloys.** *S. Hari¹ and V. Srinivas¹ 1. Department of Physics, IIT Madras, Chennai, India*
- EP-05. Spininterface Properties and Magnetic Coupling of Tris(8-hydroxyquinoline)iron(III) on Cobalt Surface.** *L. Yu¹, J. Lin^{1,2}, Y. Lai¹, H. Shiu¹ and Y. Hsu¹ 1. National Synchrotron Radiation Research Center, Hsinchu, Taiwan; 2. Program for Science and Technology of Accelerator Light Source, National Chiao Tung University, Hsinchu, Taiwan*

- EP-06. Observation of superconductivity in $\text{LaNiO}_3/\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ superlattice.** G. Zhou¹, Z. Quan¹ and X. Xu¹ *1. Shanxi Normal University, Linfen, China*
- EP-07. Enhanced Spin Ordering Temperature in Ultrathin FeTe Films Grown on a Topological Insulator.** J. Warmuth¹, U. Singh¹, L. Cornils¹, A. Kamlapure¹, P. Hofmann², J. Wiebe¹ and R. Wiesendanger¹ *1. Institute of Applied Physics, University of Hamburg, Hamburg, Germany; 2. Department of Physics and Astronomy, Aarhus University, Aarhus, Denmark*
- EP-08. The long-range exchange bias in ultrathin paramagnetic LaNiO_3 -based heterostructure.** X. Xu¹, G. Zhou¹ and Z. Quan¹ *1. Shanxi Normal University, Linfen, China*
- EP-09. Comparative magnetic properties of Ag/Fe bilayer and nano-dot arrays.** B. Alkadour², W. Chuang¹, S. Ciou³, J. Wu³, P. Manna², K. Lin¹ and J. van Lierop² *1. National Chung Hsing University, Taichung, Taiwan; 2. University of Manitoba, Winnipeg, MB, Canada; 3. National Changhua University of Education, Changhua, Taiwan*
- EP-10. Exchange bias induced asymmetry in the magnetization reversal process of Fe/GaAs/GaMnAs hybrid structure.** S. Lee^{1,2}, S. Choi², S. Bac², K. Lee², J. Chang², S. Choi², P. Chongthanaphisut², S. Lee², M. Dobrowolska³, X. Liu³ and J. Furdyna³ *1. Korea Institute of Science and Technology, Seoul, The Republic of Korea; 2. Physics, Korea University, SEOUL, The Republic of Korea; 3. Physics, University of Notre Dame, Notre Dame, IN, United States*
- EP-11. Giant perpendicular exchange bias in a sub-nanometer inverted $(\text{Co/Pt})_n/\text{Co/IrMn}$ structure.** J. Feng¹, H. Wei¹, H. Liu¹, X. Zhang², Y. Ren³, X. Li³, J. Wang⁴ and X. Han¹ *1. Institute of Physics, Chinese Academy of Sciences, Beijing, China; 2. Department of Physics and Quantum Theory Project, University of Florida, Gainesville, FL 32611, American Samoa; 3. Institute of Nuclear Physics and Chemistry, China Academy of Engineering Physics, Mianyang, 621999, China; 4. The Center for Micromagnetics and Information Technologies (MINT) and Department of Electrical and Computer Engineering, University of Minnesota, 200 Union St SE, Minneapolis, Minnesota 55455, MN, United States*
- EP-12. Tunable exchange bias field, damping, and misalignment anisotropies of FeCo/IrMn multilayers tailored by MgO-dilution in antiferromagnets.** Z. Zhang¹, Z. Xu¹, F. Hu¹, E. Liu¹ and F. Xu¹ *1. Nanjing University of Science and Technology, School of Materials Science and Engineering, Nanjing, China*
- EP-13. Exchange Bias in LaMnO_3 film Induced by Electron Beam Irradiation.** M. Xue¹, X. Chen², H. Chen³, S. Ding¹, Y. Lai¹, L. Zha¹, Y. Men⁴, Z. Xu⁴, X. Kong⁴, L. Han⁴, K. Li¹, Z. Shao¹, G. Qiao¹, X. Li¹, Y. Zhang¹, H. Zhao¹, X. Wen¹, W. Yang¹, H. Du¹, J. Han¹, Y. Yang¹, S. Liu¹, C. Wang¹ and J. Yang¹ *1. Peking University, Beijing, China; 2. University of Nebraska-Lincoln, Lincoln, GA, United States; 3. University of International Business and Economics, Beijing, China; 4. Chinese Academy of Sciences, Beijing, China*

EP-14. Perpendicular exchange bias effect in CoFeB/Pt/MnIr multilayers. W. Li¹, J. Yan¹, Y. Lu¹, S. Lou¹, Z. Zhang², X. Zhang¹ and Q. Jin^{1,2} *1. State Key Laboratory of Precision Spectroscopy, East China Normal University, Shanghai, China; 2. Department of Optical Science and Engineering, Fudan University, Shanghai, China*

EP-15. Vectorial mapping of exchange anisotropy in [NiFe/FeMn] bilayers through angular resonant absorption curves. D. Adams^{1,2}, P. Kern³ and L. Spinu^{1,2} *1. Advanced Materials Research Institute, University of New Orleans, New Orleans, LA, United States; 2. Physics, University of New Orleans, New Orleans, LA, United States; 3. Física, Universidade Federal de Santa Maria, Santa Maria, Brazil*

EP-16. Extraordinary Optical Transmission of sub-waveleghth metallic grating with mirror symmetric cavities. Y. Qi¹, H. Gong¹ and X. Zhang¹ *1. College of Physics and Electronic Engineering, Northwest Normal University, Lanzhou, China*

THURSDAY
MORNING
8:30

SIMPOR/ROSELLE BALLROOM

Session EQ
FERRITE MATERIALS AND APPLICATIONS
(Poster Session)

Haizhong Guo, Chair
Zhengzhou University, Zhengzhou City, China

EQ-01. Ferromagnetic resonance linewidth and magnetic property of cobalt-substituted NiCuZn ferrites. K. Li¹, K. Sun¹, C. Chen², X. Liu², R. Guo¹, H. Liu¹, Z. Yu¹, X. Jiang¹ and Z. Lan¹ *1. University of Electronic Science and Technology of China, Chendu, China; 2. Global Energy Interconnection Research Institute, Beijing, China*

EQ-02. Fabrication of Magnetic Ultrafine Particles-Insulator Composite Film Using the LbL Assisted Composite Plating Method. N. Fujita¹, M. Takeuchi¹, Y. Watanabe¹, N. Matsumoto² and H. Muto² *1. Electrical Engineering, National Institute of Technology, Nara College, Yamatokoriyama, Japan; 2. Electrical and Electronic Information Engineering, Toyohashi University of Technology, Toyohashi, Japan*

EQ-03. A Rotational Hysteresis Model of the Soft Magnetic Composite Material. N. Duan¹, W. Xu², Y. Li³, S. Wang¹ and J. Zhu⁴ *1. Xi'an Jiaotong University, Xi'an, China; 2. State Grid Shaanxi Electric Power Company Economic Research Institute, Xi'an, China; 3. Hebei University of Technology, Tianjin, China; 4. University of Technology Sydney, Sydney, NSW, Australia*

EQ-04. Influence of Al doping on the magnetic and magnetodielectric properties of GaFeO₃ nanoparticles. T. Han¹, Z. Tu¹, Y. Huang¹ and Y. Su¹ *1. Department of Applied Physics, National University of Kaohsiung, Kaohsiung, Taiwan*

- EQ-05. Analysis of magnetic properties of electrical steel sheets under the coupling of temperature and pressure.** *L. Xiao¹, G. Yu¹, J. Zou¹, Y. Xu¹, H. Lan¹, M. Wang¹ and F. Gao¹*
1. Harbin Institute of Technology, Harbin, China
- EQ-06. Influence of In-plane Stress on 1D Magnetic Property of Silicon Steel.** *J. Chen¹, D. Wang¹, Y. Jiang¹, X. Teng¹ and X. Zhang¹*
1. Naval University of Engineering, Wuhan, China
- EQ-07. Voltage Control of Two-Magnon Scattering in MnZn Ferrite thin film.** *W. Hou¹, Z. Zhou¹ and M. Liu¹*
1. Xi'an Jiaotong University, Xi'an, China
- EQ-08. Numerical Modeling on B-H Characteristics of Fe-Based Soft Magnetic Composites Considering Saturation.**
D. Zhang¹, W. Guan¹, M. Yang¹, Y. Gao² and K. Muramatsu²
1. School of Electrical Engineering, Wuhan University, Wuhan, China; 2. Department of Electrical and Electronic Engineering, Saga University, Saga, Japan
- EQ-09. Systematic Experimental and Simulation Studies of Dimensional Resonance in Mn-Zn Ferrite Toroidal Cores.**
H. Kawano¹, H. Oshima¹, K. Shimizu², A. Furuya², Y. Uehara², J. Kato³, M. Kitaoka³ and K. Hakamata³
1. Fujitsu Laboratories Ltd., Atsugi, Japan; 2. Fujitsu Limited, Kawasaki, Japan; 3. FDK Corporation, Kosai, Japan
- EQ-10. Gel-casting Hexagonal Ferrites for High Density and Low Loss Microwave Devices.** *J. Adams¹, A.S. Sokolov¹ and V. Harris¹*
1. Electrical & Computer Engineering, Northeastern University, Medway, MA, United States
- EQ-11. Correlation of calcination temperature and flux doping on the microstructure and magnetic properties of low-temperature-fired NiCuZn ferrites.** *H. Su¹, Q. Luo¹, Y. Jing¹, Y. Li¹, H. Zhang¹ and X. Tang¹*
1. University of Electronic Science and Technology of China, Chengdu, China
- EQ-12. Mn-Zn ferrite thin films with anomalously large magnetic moments.** *P. Rajagiri¹, B. Sahu¹, N. Venkataramani², S. Prasad¹ and R. Krishnan³*
1. Physics, Indian Institute of Technology Bombay, Mumbai, India; 2. Department of Metallurgical Engineering and Materials Science, Indian Institute of Technology Bombay, Mumbai, India; 3. Retired scientists, CNRS/Universite de Versailles-St-Quentin, Versailles, France
- EQ-13. Ion diffusion and microwave electromagnetic characteristics of LiZn/NiCuZn ferrites.** *R. Guo¹, K. Sun¹, X. Liu², C. Chen², Z. Yu¹, X. Jiang¹, C. Wu¹, W. Wang¹, G. Wu¹, Y. Liu¹, H. Liu¹ and Z. Lan¹*
1. State Key Laboratory of Electronic Thin Films and Integrated Devices, University of Electronic Science and Technology of China, Chengdu, China; 2. Global Energy Interconnection Research Institute, Beijing, China
- EQ-14. Fingerprinting the intra-wire interactions within the arrays of NiFe/Cu multisegmented nanowires using FORC analysis.**
S. Shojaie Mehr¹, A. Ramezani^{1,2} and M. Almasi Kashi^{1,2}
1. Nanoscience and Nanotechnology Research Center, University of Kashan, Kashan, The Islamic Republic of Iran; 2. Department of Physics, University of Kashan, Kashan, The Islamic Republic of Iran

- EQ-15. Fabrication of Fe-Ga Alloy Particle based Magnetorheological Fluid and Its Viscoelastic Characteristics.** *H. Choi*¹, *S. Kwon*¹, *S. Na*² and *A.B. Flatau*²
1. Dept. of Polymer Science and Engineering, Inha University, Incheon, The Republic of Korea; 2. Department of Aerospace Engineering, University of Maryland, College Park, MD, United States

THURSDAY
MORNING
8:30

SIMPOR/ROSELLE BALLROOM

Session ER
MAGNETIC BEARINGS, AND LEVITATION
(Poster Session)

Jang-Young Choi, Co-Chair
Chungnam National University, Daejeon, The Republic of Korea
Myounggyu Noh, Co-Chair
Chungnam National University, Daejeon, The Republic of Korea

- ER-01. Study of characteristics on stability of the yoke equipped magnetic rotor in the HTS Magnetic Bearing.** *T. Arai*¹, *T. Minami*¹, *S. Hiraoka*¹ and *S. Ohashi*¹ *1. Electrical and Electronic Engineering, Kansai University, Suita, Japan*
- ER-02. A Proposal of Noncontact Baton-pass System for a Thin Steel Plate Based on Magnetic Levitation Technique.** *Y. Sudo*¹, *Y. Arita*¹, *M. Yamada*¹ and *T. Nakagawa*¹ *1. Electrical and Electronic Engineering, Tokyo City University, Setagaya, Japan*
- ER-03. A study on Optimal Operating Point of Linear Induction Motor considering Normal Force and Efficiency in MAGLEV Vehicle.** *J. Lim*², *J. Jeong*¹ and *D. Park*² *1. Electrical Engineering, Chung Nam National University, Daejeon, The Republic of Korea; 2. Magnetic Levitation and Linear Drive, Korea Institute of Machinery & Materials (KIMM), Daejeon, The Republic of Korea*
- ER-04. Improvement of damping factor on the lateral guideway displacement by using weight-reduced damper coil on superconducting magnetically levitation bogie.** *R. Nakakita*¹, *E. Shin*¹, *T. Takeuchi*¹ and *S. Ohashi*¹ *1. Electrical and Electronic Engineering, Kansai University, Suita, Japan*
- ER-05. A Novel Bearingless Switched Reluctance Machine with Axial Split Phase Inner Stator Permanent Magnet Structure.** *Z. Zhu*^{1,2}, *Y. Jiang*² and *Y. Sun*¹ *1. School of Electric Power Engineering, Nanjing Institute of Technology, NANJING, China; 2. School of Electrical and Engineering, Southeast University, NANJING, China*
- ER-06. Analysis of a Multi-Phase Bearingless PMSM With Double-Winding Based on MMF.** *Y. Qin*¹ and *H. Zhu*¹ *1. Jiangsu University, Zhenjiang, China*

- ER-07. Design and Control of Radial Homopolar Hybrid Magnetic Bearing.** *A. Roshanzamir¹ and B. Kwon¹ 1. Electronic Systems Engineering, Hanyang University, Ansan-si, The Republic of Korea*
- ER-08. Study on propulsion force characteristics by improving distance between the coils and excitation method in permanent magnet-HTS hybrid magnetically levitated conveyance system.** *T. Inui¹, Y. Takaki¹, H. Sasaki¹ and S. Ohashi¹ 1. Electrical and Electronic Engineering, Kansai University, Suita, Japan*
- ER-09. Novel Heteropolar Hybrid Radial Magnetic Bearing with Double-Layer Stator for Flywheel Energy Storage System.** *W. Xu¹, R. Zhu¹, C. Ye¹ and J. Zhu² 1. School of electrical and Electronic Engineering, Huazhong University of Science and Technology, Wuhan, China; 2. Faculty of Engineering and Information Technology, University of Technology Sydney, Sydney, NSW, Australia*
- ER-10. Exploration of a floating magnet rotor in diamagnetic levitation system.** *K. Zhang¹, Y. Su¹, J. Gao¹, Z. Duan² and J. Ding¹ 1. School of Mechanical Engineering, Zhengzhou University, Zhengzhou, China; 2. School of Physical Engineering, Zhengzhou university, Zhengzhou, China*
- ER-11. Design and analysis of a centripetal force type-magnetic bearing for a flywheel battery system.** *W. Zhang¹, L. Cheng¹ and H. Yang¹ 1. Jiangsu University, Zhenjiang, China*
- ER-12. Proposal of New Superconducting Magnetic Bearing Using High Tc Superconducting Bulk and Coil.** *M. Komori¹, K. Yamanaka¹, K. Asami¹ and N. Sakai¹ 1. Kyushu Institute of Technology, Kitakyushu, Japan*
- ER-13. Design and Analysis of a Magnetic Levitation Voice Coil Actuator for Multi-Degree-of-Freedom High-Precision Positioning System.** *Y. Zhou¹, B. Kou¹, H. Zhang¹, F. Xing¹ and X. Yang¹ 1. School of Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, China*
- ER-14. Radial Suspension Forces Modeling for Bearingless Flux-Switching Permanent Magnet Motor.** *C. Zhao¹ and H. Zhu¹ 1. Jiangsu University, Zhenjiang, China*
- ER-15. Multi-Optimal Design of Novel Bearingless Switched Reluctance Motor Based on Artificial Bee Colony Particle Swarm Optimizer.** *Y. Sun¹ and Z. Binbin² 1. School of Automation, Nanjing University of Science and Technology, Nanjing, China; 2. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*

Session ES
MAGNETIC GEARS
(Poster Session)

Byungtaek Kim, Chair

Kunsan National University, Gunsan, The Republic of Korea

- ES-01. Comparison of the Magnetic Field and Torque Characteristics for Axial Magnetic Gears with Various Permanent Magnet arrays.** *X. Liu¹, Y. Zhou¹, D. Wan¹ and Z. Chen²* *1. College of Electrical and Information Engineering, Hunan University, Changsha, China; 2. Department of Energy Technology, Aalborg University, Aalborg, Denmark*
- ES-02. Investigation of the Torsion and Vibration Characteristics of a Dual-Flux-Modulator Coaxial Magnetic Gear.** *X. Liu¹, Y. Zhao¹, Z. Chen², D. Luo¹ and S. Huang¹* *1. College of Electrical and Information Engineering, Hunan University, Changsha, China; 2. Department of Energy Technology, Aalborg University, Aalborg, Denmark*
- ES-03. Torque Parameter Characteristics of Non-contact Magnetic Coupling considering Rotor Volumetric Modeling.** *J. Park^{1,2}, K. Lee¹, S. Lee¹ and S. Jung²* *1. Korea Institute of Industrial Technology, Gwangju, The Republic of Korea; 2. School of Electronics and Electrical Engineering, Sungkyunkwan University, Gwangju, The Republic of Korea*
- ES-04. New Magnetic Gear with Transmission Ratio in Steps.** *D. Fodorean¹* *1. Electrical Machines and Drives, Technical University of Cluj-Napoca, Cluj-Napoca, Romania*
- ES-05. Modeling and Transmission Characteristics Analysis of Dual-Mechanical-Port Magnet-Geared Machine Using Control Block Diagrams.** *C. Chen¹ and M. Tsai¹* *1. Mechanical Engineering Department, National Cheng Kung University, Tainan, Taiwan*
- ES-06. Analytical and Experimental Study for Electromagnetic Performance Analysis of Magnetic Geared Permanent Magnet Machines.** *K. Shin¹, H. Cho³, D. You² and J. Choi¹* *1. Dept. of Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea; 2. Dept. of Fire Safety Engineering, Chungnam Provincial Cheongyang College, Chungnam, The Republic of Korea; 3. Dept. of Electric, Electronic and Comm. Eng. Edu., Chungnam National University, Daejeon, The Republic of Korea*
- ES-07. Design of Doubly Fed Magnetic Geared Motor Considering Inherent Characteristics.** *H. Shin¹ and J. Chang¹* *1. Electrical engineering, University of Dong-A, Busan, The Republic of Korea*

- ES-08. Analysis on Torque Characteristics of Magnetic-Geared Machine with Sandwiched Armature Stator according to Pole Pair Combination.** *D. Kang¹, J. Song¹, D. Kim¹, Y. Kim² and S. Jung¹* 1. *Electronic, Electrical & Computer Engineering, Sungkyunkwan University, Suwon, The Republic of Korea;* 2. *Department of Electronical Engineering, Chosun University, Gwangju, The Republic of Korea*
- ES-09. Efficiency Improvement of Magnetic-Geared Motor by Open-Slot and Interior Permanent Magnet Structure.** *K. Nakamura¹, T. Kadomatsu¹ and Y. Hane¹* 1. *Graduate School of Engineering, Tohoku University, Sendai, Japan*
- ES-10. Comparative Study on the Characteristics of Magnetic-geared Permanent Magnet Synchronous Motor for Electric Vehicles according to Gear Ratio Variation.** *C. Park¹ and G. Jeong²* 1. *Korea National University of Transportation, Uiwang-si, The Republic of Korea;* 2. *Hanyang University, Seoul, The Republic of Korea*
- ES-11. Comparative Study and Analysis of Two Different Types of Coaxial Magnetic Gears Considering Magnetic Losses and Magnet Volume.** *J. Lee¹, T. Bang¹, K. Shin¹, S. Cho¹ and J. Choi¹* 1. *Dept. of Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea*
- ES-12. Comparative Study of Axial Flux Magnetically Geared Machine with Conventional Axial Flux YASA Machine.** *M.F. Khatab¹, Z. Zhu¹, H. Li¹ and Y. Liu¹* 1. *The University of Sheffield, Sheffield, United Kingdom*
- ES-13. Design of Marine Current Power Generation System Based on a Magnetic Gear.** *N. Feng^{2,1}, H. Yu¹, X. Liu¹ and R. Guo¹* 1. *School of Electrical Engineering, Southeast University, Nanjing, China;* 2. *School of information and electrical engineering, Ludong University, Yantai, China*
- ES-14. Analysis of Doubly Fed Magnetic Geared Motor with Maximum Efficiency Operation by Individual Frequency Control.** *H. Shin¹ and J. Chang¹* 1. *Electrical engineering, University of Dong-A, Busan, The Republic of Korea*
- ES-15. Performance Evaluation of Magnetic Lead Screws Equipped with Segmented Arc Magnets Instead of Helical Ones.** *F. Gao¹, Q. Wang¹ and J. Zou¹* 1. *Department of Electrical Engineering, Harbin Institute of Technology, Harbin, China*

Session ET
MAGNETISATION DYNAMICS II
(Poster Session)

Jiangwei Cao, Chair
Lanzhou University, Lanzhou, China

- ET-01. Unravelling the effects associated with ferromagnetic dynamics in non-magnet/ferromagnet metallic multilayers.** O. Gladii¹, L. Frangou¹, G. Forestier¹, S. Auffret¹, U. Ebels¹, S. Gambarelli² and V. Baltz¹ *1. SPINTEC (Univ. Grenoble Alpes / CNRS / INAC-CEA / GINP), Grenoble, France; 2. SYMMES (Univ. Grenoble Alpes / CNRS / INAC-CEA), Grenoble, France*
- ET-02. Temperature dependence of spin-torque driven ferromagnetic resonance in MgO-based magnetic tunnel junction with a perpendicularly free layer.** X. Wang¹, J. Feng¹, P. Guo¹, H. Wei¹, B. Fang², Z. Zeng² and X. Han¹ *1. State Key Lab of Magnetism, Institute of Physics, Beijing, China; 2. Institute of Nano-tech and Nano-bionics, Chinese Academy of Sciences, Suzhou, China*
- ET-03. Role of intersublattice coupling in current-induced spin torque in Rashba antiferromagnet.** C. Ho¹ and M.B. Jalil¹ *1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore*
- ET-04. Quasi-oscillating transition between magnetic states in Pt/Co/Ir/Co/Pt/GaAs spin valves.** G. L'vova^{1,2}, R. Morgunov^{1,2}, T. Fache³ and S. Mangin³ *1. Institute of Problems of Chemical Physics, Chernogolovka, Russian Federation; 2. Tambov State Technical University, Tambov, Russian Federation; 3. Institut Jean Lamour, Nancy, France*
- ET-05. Exchange coupling induced giant damping enhancement in $\text{Y}_3\text{Fe}_5\text{O}_{12}/\text{Co}_2\text{FeAl}_{0.5}\text{Si}_{0.5}$ bilayers.** M. Li¹, L. Jin¹, Y. Rao¹, H. Zhang¹, C. Hong¹, Z. Zhong¹ and Q. Yang¹ *1. University of Electronic Science and Technology of China, Chengdu, China*
- ET-06. Threshold field of Resonance Frequency in Permalloy Films with stripe domains.** L. Pan¹, C. Zhao¹, X. Cheng¹, D. Cao², J. Wang^{1,3} and Q. Liu¹ *1. Key Laboratory for Magnetic and Magnetic Materials of the Ministry of Education, Lanzhou University, Lanzhou, China; 2. College of Physics, Qingdao University, Qingdao, China; 3. Key Laboratory of Special Function Materials and Structure Design of the Ministry of Education, Lanzhou University, Lanzhou, China*
- ET-07. Effect of absorption of hydrogen on the linewidth of the ferromagnetic resonance response of Co/Pd bilayer films.** T. Schefer^{1,2} and M. Kostylev¹ *1. University of Western Australia, Perth, WA, Australia; 2. University of Basel, Basel, Switzerland*

- ET-08. Angle-dependent static and dynamic magnetic properties of B2 ordered Co₂FeSi film.** Z. Xu¹, Z. Zhang¹, X. Li¹, J. Tang¹, F. Hu¹, E. Liu¹ and F. Xu¹ *1. School of Materials Science and Engineering, Nanjing University of Science and Technology, Nanjing, China*
- ET-09. Voltage control of two magnon scattering and an enhanced ME coupling in multiferroic heterostructures.** X. Xue¹, Z. Zhou¹ and M. Liu¹ *1. Xi'an Jiaotong University, Xi'an, China*
- ET-10. Magnetic anisotropy and damping constant in CoFeB/Ir and CoFeB/Ru systems.** M. Belmeguenai¹, D. Apalkov², M. Gabor³, F. Zighem¹, G. Feng² and X. Tang² *1. LSPM, Université Paris 13, Villetaneuse, France; 2. New Memory Technology Lab, Samsung Semiconductor Inc, San Jose, CA, United States; 3. Center for Superconductivity, Spintronics and Surface Science, Technical University of Cluj-Napoca, Cluj-Napoca, Romania*
- ET-11. Detection sensitivity exceeding 10⁵ mV/mW in spin-torque diode.** B. Fang¹, J.L. Cai¹, P. Khalili Amiri², G. Finocchio³ and Z. Zeng¹ *1. Suzhou Institute of Nano-tech and Nano-bionics, Chinese Academy of Sciences, Suzhou, China; 2. Department of Physics and Astronomy, University of California, Los Angeles, CA, United States; 3. Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina, Messina, Italy*
- ET-12. Proximity effect induced enhanced spin pumping in Py/Gd at room temperature.** R. Bansal¹, N. Chowdhury¹ and P.K. Muduli¹ *1. Physics, Indian Institute of Technology, New Delhi, Delhi, India*
- ET-13. Bias Field Tunable Spin Configuration and Spin Dynamics in Arrays of Ni₈₀Fe₂₀ Nano-Cross Structures.** K. Adhikari¹, S. Choudhury¹, S. Barman², Y. Otani³ and A. Barman¹ *1. S. N. Bose National Centre for Basic Sciences, Kolkata, India; 2. Institute of Engineering & Management, Management House, Kolkata, India; 3. Institute for Solid State Physics, University of Tokyo, Riken, Japan*
- ET-14. Losses Modeling Based on Domain Wall Processes and Validation Considering Rotational Excitation of Electrical Steel Sheets.** J. Li¹, Q. Yang^{2,3}, S. Wang¹ and Y. Li² *1. State Key Laboratory of Control and Simulation of Power System and Generation Equipments, Tsinghua University, Beijing, China; 2. State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China; 3. Municipal Key Laboratory of Advanced Technology of Electrical Engineering and Energy, Tianjin Polytechnic University, Tianjin, China*
- ET-15. Withdrawn**
- ET-16. Switching of Skyrmion chirality by local heating.** Y. Nakatani¹, K. Yamada² and A. Hirohata³ *1. University of Electro-Communications, Chofu, Japan; 2. Gifu University, Gifu, Japan; 3. University of York, York, United Kingdom*

Session EU
MICROMAGNETICS I
(Poster Session)

Zhuo Bin Siu, Chair
National University of Singapore, Singapore

- EU-01. Magnetic properties of $L 1_0$ FePt thin film influenced by strains stemmed from the polarization of PMN-PT substrate.** *L. Liu¹, C. Hu², Y. Xu¹ and W. Rao¹ 1. Department of Materials Physics, and IEMM, Nanjing University of Information Science and Technology, Nanjing, China; 2. College of Materials Science and Engineering, Liaocheng University, Liaocheng, China*
- EU-02. Voltage controlled spin torque nano-oscillator based on magnetic skyrmion.** *C. Song¹, C. Jin¹, H. Xia¹, J. Wang¹, J. Wang^{1,2} and Q. Liu¹ 1. Key Laboratory for Magnetism and Magnetic Materials of the Ministry of Education, Lanzhou University, Lanzhou, China; 2. Key Laboratory for Special Function Materials and Structural Design of the Ministry of Education, Lanzhou University, Lanzhou, China*
- EU-03. Effects of Anisotropy Field and easy axis dispersions on squareness ratio for HDDR-processed NdFeB powders.** *F. Akagi¹, T. Shirai¹ and R. Kariya¹ 1. Kogakuin Univ., Shinjuku-ku, Japan*
- EU-04. Numerical analysis of write current reduction in magnetic tri-layer structure with low-T_c interlayer for MRAM.** *Y. Kayama¹, K. Machida¹, S. Greaves², Y. Sonobe³ and Y. Nakatani¹ 1. University of Electro-Communications, Chofu, Japan; 2. RIEC, Tohoku University, Sendai, Japan; 3. Samsung Research Institute of Japan, Yokohama, Japan*
- EU-05. Multiscale Modeling of Magnetic Distribution in a Magnetic Core of high-frequency transformer.** *H. Li¹, S. Wang¹ and J. Zhu² 1. Xi'an Jiaotong University, Xi'an, China; 2. The University of Technology, Sydney, Sydney, NSW, Australia*
- EU-06. The effect of easy axis deviations on the magnetic property of Co nanowire.** *Y. Peng¹, M. Yue¹, H. Li¹, Y. Li¹, C. Li¹, H. Xu¹ and Q. Wu¹ 1. College of Materials Science and Engineering, Beijing University of Technology, Beijing, China*
- EU-08. An optimal design of an electromagnetic actuator for targeting magnetic micro/nano-carriers in a desired region.** *T. Le¹ and J. Yoon¹ 1. School of Integrated technology, Gwangju Institute of Science and Technology, Gwangju, The Republic of Korea*
- EU-09. AC Loss Database Built with Numerical Multi-scale Model and Status Prediction of a 150 kJ SMES.** *Z. Zhang¹ 1. State Key Laboratory of Advanced Electromagnetic Engineering and Technology, School of Electrical and Electronic Engineering, Huazhong University of Science and Technology, Wuhan, China*

EU-10. Analytical functions of magnetization curves for high magnetic permeability materials. *M. Mirzaei*¹ and *P. Ripka*¹
1. Czech Technical University, Prague, Czechia

EU-11. Size effect on the magnetic behavior of rapidly solidified cylindrical amorphous nanowires. *C. Rotarescu*¹, *H. Chiriac*¹, *N. Lupu*¹ and *T.A. Ovari*¹ *1. National Institute of Research and Development for Technical Physics, Iasi, Romania*

**THURSDAY
MORNING
8:30**

SIMPOR/ROSELLE BALLROOM

**Session EV
MICROSCOPY, IMAGING AND
CHARACTERIZATION III
(Poster Session)**

Haifeng Du, Co-Chair

**High Magnetic Field Laboratory of Chinese Academy of Sciences,
Hefei, China**

**Yonggang Zhao, Co-Chair
Tsinghua University, Beijing, China**

EV-01. High resolution magnetic field energy imaging of the magnetic recording head by A-MFM with superparamagnetic tip. *P. Kumar*¹, *Y. Suzuki*¹, *Y. Cao*², *S. Yoshimura*¹ and *H. Saito*¹ *1. Graduate School of Engineering Science, Akita University, Akita City, Japan; 2. Regional Innovation Center, Akita University, Akita City, Japan*

EV-02. Rotatable magnetic anisotropy in Fe-based thin films with stripe domains by Field-Dependent Magnetic Force Microscopy. *P. Tiberto*¹, *G. Barrera*¹, *F. Celegato*¹, *M. Cialone*², *M. Coisson*¹ and *P. Rizzi*² *1. INRIM, Torino, Italy; 2. Chemistry, Università di Torino, Torino, Italy*

EV-03. Observation of superconducting vortices and vortex clusters in S/F hybrids. *C. Di Giorgio*^{1,2}, *F. Bobba*¹, *D. D'Agostino*¹, *S.A. Moore*², *I. Maria*², *G. Karapetrov*³, *N. Valentyn*⁴, *V. Yefremenko*⁴ and *A. Cucolo*¹ *1. Physics, Università degli studi di Salerno, Fisciano, Italy; 2. Physics, Temple University, Philadelphia, PA, United States; 3. Physics, Drexel University, Philadelphia, PA, United States; 4. Material Science Division, Argonne National Laboratory, Chicago, IL, United States*

EV-04. Resolution enhancement of magneto-optical Kerr images using modern image processing algorithms. *N. Gorn*², *I. Soldatov*¹, *R. Schäfer*^{1,3} and *D. Berkov*² *1. Institute for Metallic Materials, Leibniz Institute for Solid State and Materials Research (IFW) Dresden, Dresden, Germany; 2. General Numerics Research Lab, Jena, Germany; 3. Institute for Materials Science, Technical University Dresden, Dresden, Germany*

- EV-05. Machine-Learning Assisted X-Ray Spectroscopy for High-Throughput Characterization of Magnetic Materials.** T. Ueno¹, H. Hino² and K. Ono³ 1. *Quantum Beam Science Research Directorate, National Institutes for Quantum and Radiological Science and Technology, Sayo, Japan;* 2. *Department of Computer Science, University of Tsukuba, Tsukuba, Japan;* 3. *Institute of Materials Structure Science, High Energy Accelerator Research Organization, Tsukuba, Japan*
- EV-06. Revealing complex magnetic order in nanostructure patterns via nuclear X-ray scattering.** K. Schlage¹, D. Erb^{1,2}, L. Bocklage^{1,3}, H. Wille¹, L. Dzemiantsova^{1,3}, G. Meier^{3,4}, R. Rüffer⁵ and R. Roehlsberger^{1,3} 1. *Deutsches Elektronen-Synchrotron (DESY), Hamburg, Germany;* 2. *Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany;* 3. *The Hamburg Centre for Ultrafast Imaging, Hamburg, Germany;* 4. *Max Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany;* 5. *European Synchrotron Radiation Facility, Grenoble, France*
- EV-07. Spin-orbit torque magnetometry by wide-field magneto-optical Kerr effect.** T. Tsai¹ and C. Pai¹ 1. *Materials Science and Engineering, National Taiwan University, Taoyuan City, Taiwan*
- EV-08. Combined FORC and Kerr Microscopy Domain Analysis.** I. Soldatov², J. Garcia², A. Volegov³, P. Dhagat⁴, A. Jander⁴ and R. Schäfer^{2,1} 1. *Institute for Materials Science, TU Dresden, Dresden, Germany;* 2. *Institute for Metallic Materials, Leibniz Institute for Solid State and Materials Research (IFW) Dresden, Dresden, Germany;* 3. *Institute of Natural Science, Ural Federal University, Ekaterinburg, Russian Federation;* 4. *School of EECS, Oregon State University, Corvallis, OR, United States*
- EV-09. Improvement of the measurement method of rock magnetic properties based on the scanning SQUID microscope with an in-situ magnetization/demagnetization field.** J. Du^{1,2}, Q. Wang¹ and T. Song^{1,2} 1. *Institute of Electrical Engineering, Chinese Academy of Science, Beijing, China;* 2. *University of the Chinese Academy of Sciences, Beijing, China*
- EV-10. Implementation of 16-channel AMR sensor array for quantitative mapping of two-dimension current distribution.** G. Huang¹ and J. Jeng¹ 1. *Mechanical Engineering, National Kaohsiung University of Applied Sciences, KAOHSIUNG, Taiwan*
- EV-11. Magnetic control of guanine-vesicle hybrid and its possible application in live cell imaging.** A. Mootha¹, K. Suzuki³ and M. Iwasaka¹ 1. *Research institute of Nanodevice ad Biosystems, Hiroshima University, Higashihiroshimashi, Japan;* 3. *Kanagawa University, Hiratsuka, Japan*
- EV-12. Modifying coercivity via growth rate on domain wall pinning (001) FePd thin film.** C. Hsiao¹, H. Chang² and C. Ouyang¹ 1. *Materials science and engineering, National Tsing Hua University, Hsinchu, Taiwan;* 2. *National Chung Cheng University, Chia-Yi, Taiwan*

- EV-13. Design and Simulation of a Double Tuned RF Coil for ^1H and ^{31}P MR imaging at 7T.** *F. Du^{1,2}, S. Liu¹, N. Li^{1,2}, Y. Dou², X. Zhang^{3,4} and Y. Li²* 1. *Department of Biomedical Engineering, Chongqing University of Technology, Chongqing, China;* 2. *Lauterbur Research Center for Biomedical Imaging, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China;* 3. *Department of Radiology and Biomedical Imaging, University of California, San Francisco, San Francisco, CA, United States;* 4. *UCSF/UC Berkeley Joint Graduate Group in Bioengineering, San Francisco, CA, United States*
- EV-14. Effect of synthesis method on particle size and magnetic and structural properties of Co-Ni ferrites.** *S. Sharmin¹, M. Kishimoto¹, E. Kita¹, H. Latiff¹ and H. Yanagihara¹* 1. *Applied Physics, University of Tsukuba, Nagareyama, Japan*
- EV-15. Effect of Sputtered Flux Direction on Damping Properties in Magnetic Bilayers.** *S. Nayak¹, S. Mallick¹, B.B. Singh¹ and S. Bedanta¹* 1. *LNMM, School of Physical Sciences, NISER, Bhubaneswar, India*

THURSDAY
MORNING
8:30

SIMPOR/ROSELLE BALLROOM

Session EW
SENSORS: NEW SENSING PRINCIPLES
(Poster Session)

Jai Lin Tsai, Chair
National Chung Hsing University, Taichung, Taiwan

- EW-01. Hall effect spintronics for gas detection.** *A. Gerber¹ and G. Kopnov¹* 1. *School of Physics, Tel Aviv University, Tel Aviv, Israel*
- EW-02. Design of a Hall-Effect Current Sensor using Integrated Magnetic Concentrator and Magnetic Shield.** *H. Hwang¹, J. Cho¹, Y. Choo¹, C. Kim¹ and C. Lee¹* 1. *Electrical and Computer Engineering, Pusan National University, Pusan, The Republic of Korea*
- EW-03. Magnetoimpedance strain gage sensors on FeNi alloys.** *E. Fernandez Martin¹, I. Orue³, J. Feuchtwanger² and A. García-Arribas^{2,1}* 1. *BCMaterials, Leioa, Spain;* 2. *Electricity and electronics, University of the Basque Country (UPV/EHU), Leioa, Spain;* 3. *SGIKER Magnetic Measurements, University of the Basque Country (UPV/EHU), Leioa, Spain*
- EW-04. Magnetic non-destructive materials characterization of non-ferromagnetic materials using magnetic susceptibility.** *B. Gupta^{1,2}, B. Ducharne¹, G. Sebald² and T. Uchimoto²* 1. *INSA LYON, Laboratoire de Génie Electrique et Ferroélectricité, Villeurbanne, France;* 2. *ELyTMaX, Sendai, Japan*

- EW-05. Low noise fundamental mode orthogonal fluxgate (FM-OFG) magnetometer built with an amorphous ribbon core.** *I. Sasada*¹ *1. Sasada Magnetics & Sensors Laboratory, Fukuoka, Japan*
- EW-06. Accuracy Analysis of Sensing Coils in 2D Magnetic Properties Measurement.** *X. Ding*¹ and *S. Ren*¹ *1. Beihang University, Beijing, China*
- EW-07. Magnetic Properties and Detection Methods of the Metal Wear Particles under Harmonic Magnetic Field.** *R. Jia*¹, *B. Ma*¹, *C. Zheng*¹, *L. Wang*² and *Q. Du*¹ *1. Beijing Institute of Technology, Beijing, China; 2. Beijing Information Science and Technology University, Beijing, China*
- EW-08. Graphene-Co Nanoparticle Composites: Sensor Applications.** *C.G. ünülü*¹, *A. Tekgül*^{3,4}, *M. Acet*², *M. Ak*¹ and *M. Farle*² *1. Department of Chemistry, Pamukkale University, Denizli, Turkey; 2. Department of Physics, Duisburg-Essen University, Duisburg, Germany; 3. Department of Physics, Akdeniz University, Antalya, Turkey; 4. Department of Physics, Uludag University, Bursa, Turkey*
- EW-09. Force sensors based on magnetic amorphous wires.** *C. Hlenschi*^{1,2}, *S. Corodeanu*¹, *H. Chiriac*¹ and *N. Lupu*¹ *1. National Institute of Research and Development for Technical Physics, Iasi, Romania; 2. Alexandru Ioan Cuza University, Iasi, Romania*
- EW-10. Rotating magnetoelectric sensor for DC magnetic field measurement.** *Y. Ren*¹, *J. Ouyang*¹, *X. Wu*¹, *W. Wang*¹, *J. Liang*¹, *S. Chen*¹ and *X. Yang*¹ *1. School of Optics and electronic information, Huazhong University of Science and Technology, Wuhan, China*
- EW-11. Development of the Technique for Measuring the Magnetic Flux in the Motor Core under Operating Conditions.** *Y. Maeda*¹, *S. Urata*¹ and *H. Nakai*¹ *1. Toyota Central R&D Labs., Inc., Nagakute, Japan*
- EW-12. The perceptually-inspired model of tactile texture sensor based on the inverse magnetostrictive effect.** *L. Wan*¹ and *B. Wang*¹ *1. Hebei University of Technology, Tianjin, China*
- EW-13. A magnetoresistive sensor based on the elasticity of domain walls.** *X. Zhang*^{2,3}, *N. Vernier*³, *Z. Cao*^{2,1}, *Q. Leng*², *A. Cao*^{1,2}, *D. Ravelosona*³ and *W. Zhao*^{1,2} *1. Fert Beijing Institute, School of Electronic and Information Engineering, Beihang University, Beijing, China; 2. Beihang-Goertek Joint Microelectronics Institute, Qingdao Research Institute, Beihang University, Qingdao, China; 3. Center for nanoscience and nanotechnology, Université Paris-Sud, Orsay, France*
- EW-14. Determination of the strain-impedance gauge factor of Si-cantilever-based giant magnetoimpedance sensors.** *G. Büttel*¹, *J. Joppich*¹ and *U. Hartmann*¹ *1. Institute of Experimental Physics, Saarland University, Saarbrücken, Germany*

EW-15. MgO-based Magnetoresistive Biosensor for Magnetically labeled Cells Detection. *S. Amara*¹, *R. Bu*², *M. Alawein*¹ and *H. Fariborzi*¹ *1. CEMSE, King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia; 2. Computer School of Physics. Shandong University, Jinan, China*

EW-16. Detection of magnetic nanoparticles by variation of magnetization dynamics of Co/Ni multilayer. *Y. Otaki*¹, *T. Kato*¹, *S. Okamoto*², *N. Kikuchi*², *D. Oshima*³, *S. Iwata*³ and *O. Kitakami*² *1. Department of Electronics, Nagoya University, Nagoya, Japan; 2. Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan; 3. Institute of Materials and Systems for Sustainability, Nagoya University, Nagoya, Japan*

THURSDAY
AFTERNOON
2:00

ORCHID I

Session FA
**SYMPOSIUM ON TOPOLOGICAL AND COLLECTIVE
MAGNETIC PHENOMENA**

Fusheng Ma, Co-Chair
Nanyang Technological University, Singapore
Anjan Soumyanarayanan, Co-Chair
Data Storage Institute, Singapore, Singapore

2:00

FA-01. Topology of magnonic bands: From chiral edge modes to spin superfluidity. (Invited) *Y. Tserkovnyak*¹ *1. Physics and Astronomy, UCLA, Los Angeles, CA, United States*

2:30

FA-02. Topological Magnon Materials. (Invited) *I. Mertig*^{1,2}, *A. Mook*¹ and *J. Henk*¹ *1. Physics, Martin-Luther-Universität Halle-Wittenberg, Halle, Germany; 2. Max Planck Institute for Microstructure Physics, Halle, Germany*

3:00

FA-03. Quantum anomalous Hall effect and topological Hall effect in magnetic topological insulators. (Invited) *Y. Wang*¹ *1. Tsinghua University, Beijing, China*

3:30

FA-04. Mixed semimetals for magnetization and momentum space topology control. (Invited) *J. Hanke*¹, *C. Niu*¹, *F. Freimuth*¹, *G. Bihlmayer*¹, *S. Bluegel*¹ and *Y. Mokrousov*¹ *1. IAS-I, Forschungszentrum Jülich, Jülich, Germany*

4:00

FA-05. Topological bands and topological phase transitions in electronic and magnonic systems. (Invited) *S. Murakami*^{1,2} *1. Department of Physics, Tokyo Institute of Technology, Tokyo, Japan; 2. TIES, Tokyo Institute of Technology, Tokyo, Japan*

FA-06. Magnonic Topological Materials and Devices. (Invited)

*X. Wang^{1,2} and X. Wang^{3,1} 1. Physics, The Hong Kong University of Science and Technology, Kowloon, China;
2. HKUST Shenzhen Research Institute, Shenzhen, China;
3. University of Electronic Science and Technology of China, Chengdu, China*

THURSDAY
AFTERNOON
2:00

ORCHID III

Session FB**HARD MAGNETIC MATERIALS AND PROCESSING I**

Alberto Bollero, Chair
IMDEA Nanoscience, Madrid, Spain

2:00

FB-01. Remanence enhancement melt-spun Nitroquench $\text{Sm}_2\text{Fe}_{17}\text{N}_3$.

M. Coey¹, P.S. Stamenov¹, M. Venkatesan¹, S.B. Porter¹ and T. Iriyama² 1. School of Physics, Trinity College Dublin, Dublin, Ireland; 2. Daido Electronics Company, Nagoya, Japan

2:15

FB-02. Preparation and characterization of phenol formaldehyde bonded Nd-Fe-B magnets with high strength and heat resistance. W. Xi¹, W. Liu¹, M. Yue¹, D. Zhang¹, Q. Lu¹, H. Zhang¹, Q. Wu¹ and Y. Li¹ *1. College of Materials Science and Engineering, Beijing University of Technology, Beijing, China*

2:30

FB-03. Effects of initial alloy on microstructure and magnetic properties during hot-deformation of Nd-Fe-B HDDR powder. J. Lee¹, J. Yoo^{1,2}, Y. Baek¹, D. Lee² and H. Kwon³ *1. Korea Institute of Materials Science, Changwon, The Republic of Korea; 2. Pusan National University, Pusan, The Republic of Korea; 3. Pukyong National University, Pusan, The Republic of Korea*

2:45

FB-04. Comparison of two Magnetizing Fixture Designs to Achieve Radial Magnetization Profile for Isotropic Bonded Neo Magnets. R.C. Angara¹, K.W. Hsu¹, P.J. Villar¹ and N.K. Sheth¹ *1. R&D Magnequench, Magnequench Neo Powders Pte Ltd, Singapore, Singapore*

3:00

FB-05. Desirable Measurement on Accurate Hysteresis Curve for Large Nd-Fe-B Sintered Magnets at Elevated Temperatures. H. Nishio^{1,2} and K. Machida¹ *1. Division of Applied Chemistry, Osaka University, Suita, Japan; 2. Research Institute for Measurement of Magnetic Materials, Yokohama, Japan*

3:15

- FB-06. High performance magnetic properties of CoFe₂O₄ nanoparticles for rare earth free permanent magnet applications.** *Y. Kumar*¹ and *P.M. Shirage*^{1,2} *1. Metallurgy Engineering and Materials Science, Indian institute of Technology Indore, Indore, India; 2. Discipline of Physics, Indian Institute of Technology Indore, Indore, India*

3:30

- FB-07. 3-D Magnetic Field Analysis of a Permanent Magnet Spherical Actuator Using Spherical Harmonics.** *X. Li*^{1,2}, *J. Liu*¹ and *W. Chen*¹ *1. School of Automation Science and Electrical Engineering, Beihang University, Beijing, China; 2. Department of Materials and Production, Aalborg University, Aalborg, Denmark*

3:45

- FB-08. Influence of Soft Magnetic Material type in Fixture Components on the Magnetization of Bonded Neo Magnet and Motor Performance.** *R.C. Angara*¹, *K.W. Hsu*¹, *P.J. Villar*¹ and *N.K. Sheth*¹ *1. R&D Magnequench, Magnequench Neo Powders Pte Ltd, Singapore, Singapore*

4:00

- FB-09. A hybrid coercivity mechanism for exchange-coupled nanocomposite permanent magnets.** *G. Zhao*¹ *1. Physics, Sichuan Normal University, Chengdu, China*

4:15

- FB-10. The corrosion behavior with sintered (Ce,Nd)-Fe-B in the presence of pressurised vapour.** *X. Shi*¹, *M. Zhu*¹, *D. Zhou*¹, *L. Song*¹, *Y. Fang*¹ and *W. Li*¹ *1. Division of Functional Materials, Central Iron & Steel Research Institute, Beijing, China*

4:30

- FB-11. Element-specific characterization of Co:FePt nanocomposite magnet films.** *F. Wilhelm*¹, *V. Dupuis*², *D. Le Roy*², *N. Dempsey*³ and *A. Rogalev*¹ *1. ESRF, Grenoble, France; 2. Institut Lumière Matière, Villeurbanne, France; 3. Institut Néel, Grenoble, France*

4:45

- FB-12. Effect of residue hydrogen content on microstructure and magnetic properties of Sm(Co_{bal}Fe_{0.28}Cu_{0.053}Zr_{0.02})_{7.84}.** *C. Zhang*¹, *Z. Liu*¹, *L. Liu*¹, *T. Li*¹, *R. Chen*¹, *D. Lee*² and *A. Yan*¹ *1. Key Laboratory of Magnetic Materials and Devices, Ningbo Institute of Industrial Technology, Chinese Academy of Sciences, Ningbo, China; 2. University of Dayton, Dayton, OH, United States*

Session FC
TMR, VCMA AND SWITCHING

Caihua Wan, Chair
Institute of Physics, Chinese Academy of Sciences, Beijing, China

2:00

- FC-01. Voltage-driven precessional switching at zero bias magnetic field in a conically magnetized free layer.** *R. Matsumoto¹, T. Nozaki¹, S. Yuasa¹ and H. Imamura¹ 1. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan*

2:15

- FC-02. Field-Free Switching of Perpendicular Magnetization through Voltage-Gated Spin Hall Effect.** *S. Peng^{1,2}, W. Kang¹, X. Li², H. Zhang¹, Z. Wang¹, Y. Zhang¹, K. Wang² and W. Zhao¹ 1. Fert Beijing Institute, BDBC, School of Electronic and Information Engineering, Beihang University, Beijing, China; 2. Department of Electrical Engineering, University of California, Los Angeles, CA, United States*

2:30

- FC-03. Atomic layer number dependence of voltage-controlled magnetic anisotropy in Cr/Fe/MgAl₂O₄ heterostructure.** *Q. Xiang^{1,2}, H. Sukegawa¹, M. Al-Mahdawi¹, M. Belmoubarik¹, S. Kasai¹, Y. Sakuraba¹, S. Mitani^{1,2} and K. Hono^{1,2} 1. Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science (NIMS), Tsukuba City, Japan; 2. Graduate School of Pure and Applied Sciences, University of Tsukuba, Tsukuba, Japan*

2:45

- FC-04. The lower bound of the write error rate of a voltage-torque MRAM.** *H. Imamura¹ and R. Matsumoto¹ 1. Spintronics RC, AIST, Tsukuba, Japan*

3:00

- FC-05. Study of voltage-controlled perpendicular magnetic anisotropy in Ta/FeB/MgO and W/FeB/MgO nanowires by the Hall effect measurements.** *V. Zayets¹, T. Nozaki¹, A. Fukushima¹ and S. Yuasa¹ 1. Spintronics Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan*

3:15

- FC-06. Electric-field effect on the exchange stiffness in CoFeB/MgO stacks.** *N. Ichikawa¹, T. Dohi¹, A. Okada¹, H. Sato^{1,2}, S. Fukami^{1,2} and H. Ohno^{1,2} 1. RIEC, Tohoku University, Sendai, Japan; 2. CSIS, Tohoku University, Sendai, Japan*

- FC-07. Voltage-Controlled Magnetic Tunnel Junctions for Processing-In-Memory Implementation.** *L. Wang^{1,2}, K. Wang¹, F. Ebrahimi², X. Li², Y. Huang¹, C. Zhao³, K. Wang² and W. Zhao¹* 1. *Beihang University, Beijing, China*; 2. *UCLA, LA, CA, United States*; 3. *Institute of Microelectronics, Chinese Academy of Sciences, Beijing, China*

- FC-08. Ultrafast random number generator based on voltage-controlled switching.** *A. Fukushima¹, T. Yamamoto¹, T. Nozaki¹, K. Yakushiji¹, H. Kubota¹ and S. Yuasa¹* 1. *Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan*

- FC-09. High Voltage-Controlled Magnetic Anisotropy by Tuning Seed Layers of Magnetic Tunnel Junctions for Embedded Applications.** *X. Li^{1,2}, T. Sasaki³, L. Wang⁴, C. Grezes¹, D. Wu^{1,5}, S. Kwon⁶, H. Wu^{1,7}, K. Wong¹, T. Ohkubo³, Z. Zhang⁵, X. Han⁷, W. Zhao⁴, N.G. Kioussis⁶, K. Hono³, P. Khalili^{1,8} and K. Wang¹* 1. *Electrical Engineering, University of California, Los Angeles, Los Angeles, CA, United States*; 2. *Inston Inc., Los Angeles, CA, United States*; 3. *National Institute for Materials Science (NIMS), Tsukuba, Japan*; 4. *Electronic and Information Engineering, Beihang University, Beijing, China*; 5. *Optical Science and Engineering, Fudan University, Shanghai, China*; 6. *Physics and Astronomy, California State University, Northridge, Northridge, CA, United States*; 7. *Institute of Physics, Chinese Academy of Sciences, Beijing, China*; 8. *Electrical Engineering and Computer Science, Northwestern University, Evanston, IL, United States*

- FC-10. Effect of insertion layer on the properties of $\text{Mn}_2\text{Ru}_x\text{Ga}$ in magnetic tunnel junctions.** *A. Titova^{1,2}, C. Fowley¹, Y. Lau³, D. Betto³, N. Thiagarajah³, G. Atcheson³, C. Xu¹, M. Coey³, P.S. Stamenov³, K. Rode³, J. Lindner¹, J. Fassbender^{1,2} and A. Deac¹* 1. *Institute of Ion Beam Physics and Materials Research, Helmholtz - Zentrum Dresden - Rossendorf, Dresden, Germany*; 2. *Institute for Physics of Solids, Technische Universität Dresden, Dresden, Germany*; 3. *AMBER and School of Physics, Trinity College Dublin, Dublin, Ireland*

- FC-11. Current-induced magnetization switching in atom-thick tungsten engineered perpendicular magnetic tunnel junctions with large tunneling magnetoresistance.** *M. Wang¹, W. Cai¹, K. Cao¹, J. Zhou¹, J. Wrona², S. Peng¹, H. Yang¹, J. Wei¹, W. Kang¹, Y. Zhang¹, J. Langer², B. Ocker², A. Fert^{1,3} and W. Zhao¹* 1. *Fert Beijing Institute, BDBC, and School of Electronic and Information Engineering, Beihang University, HaiDian District, China*; 2. *Singulus Technologies, Kahl am Main, Germany*; 3. *Unité Mixte de Physique, CNRS, Thales, Univ. Paris-Sud, Université Paris-Saclay, Palaiseau, France*

- FC-12. Highly (001)-textured MgAl₂O₄-based magnetic tunnel junctions with large magnetoresistance over 240%.** I. Tiar¹, H. Sukegawa¹, X. Xu¹, M. Belmoubarik¹, H. Lee¹, S. Kasai¹ and K. Hono¹ *1. Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science (NIMS), Tsukuba, Japan*

THURSDAY
AFTERNOON
2:00

PEONY IV

Session FD

MAGNETO-CALORIC MATERIALS I

Ramanathan Mahendiran, Co-Chair
National University of Singapore, Singapore

R. Nirmala, Co-Chair
IIT Madras, IIT Madras, India

2:00

- FD-01. Finding the separation between first- and second-order phase transitions in La(Fe,Ni,Si)₁₃ magnetocaloric materials.** L.M. Moreno-Ramírez¹, J. Law¹, C. Romero-Muñoz², V. Franco¹, A. Conde¹, F. Maccari³, I.A. Radulov³, K. Skokov³ and O. Gutfleisch³ *1. University of Sevilla, Sevilla, Spain; 2. Universidad Autónoma de Madrid, Madrid, Spain; 3. TU Darmstadt, Darmstadt, Germany*

2:15

- FD-02. Magnetocaloric effect in melt-spun rare earth high entropy alloy YGdTbDyHo.** N. R¹, A. Sankar¹, A. Chelvane², A. Morozkin³, A.K. Nigam⁴, S. Quezado⁵ and S.K. Malik⁵ *1. Physics, Indian Institute of Technology Madras, Chennai, India; 2. DMRL, Hyderabad, India; 3. Lomonosov Moscow State University, Moscow, Russian Federation; 4. TIFR, Mumbai, India; 5. UFRN, Natal, Brazil*

2:30

- FD-03. Pressure-Dependent Magnetic Transition Temperatures in Magnetocaloric High Entropy Alloys.** A.E. Perrin¹, S. McCall³, M. Sorescu², D. Laughlin¹ and M. McHenry¹ *1. Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, PA, United States; 2. Physics, Duquesne University, Pittsburgh, PA, United States; 3. Lawrence Livermore National Lab, Livermore, CA, United States*

2:45

- FD-04. Magnetocaloric Behavior of Fe_{75-x}Mn_xAl₂₅ Alloys for Near Room Temperature Cooling.** V.K. Sharma¹, V. Chaudhary¹ and R.V. Ramanujan¹ *1. School of Materials Science and Engineering, Nanyang Technological University, Singapore, Singapore*

- FD-05. Magnetocaloric effect in diluted magnetic ferroelectric: $\text{Ba}_{0.6}\text{Eu}_{0.4}\text{TiO}_3$.** K. Rubi¹ and R. Mahendiran¹ 1. *Physics, National University of Singapore, Singapore*

- FD-06. $\text{Gd}_5(\text{Si},\text{Ge})_4$ nanoparticles produced by pulsed laser deposition.** V.M. Andrade¹, N. Checca², J. Belo³, B. Almeida⁴, M.S. Reis^{2,5}, A. Pereira¹ and J. Araujo¹ 1. *Department of Physics and Astronomy, IFIMUP-IN, Porto, Portugal;* 2. *Departamento de Física, Instituto de Física da Universidade Federal Fluminense, Rio de Janeiro, Brazil;* 3. *Department of Physics and CICECO, Aveiro University - CICECO, Aveiro, Portugal;* 4. *Physics Department, Minho University, Braga, Portugal;* 5. *Physics Department, Aveiro University - I3N, Aveiro, Portugal*

- FD-07. Influence of overlapping transitions on the MCE response of a series of $\text{Ni}_{0.49-x}\text{Mn}_{0.36+x}\text{In}_{0.15}$ Heusler alloys.** J. Law¹, V. Franco¹, A. Conde¹ and A. Giri² 1. *Condensed Matter Physics, Sevilla University, Sevilla, Spain;* 2. *Weapons and Materials Research Directorate, US Army Research Laboratory, Aberdeen, MD, United States*

- FD-08. Magnetocaloric effect in $\text{MnNiSi-Fe}_2\text{Ge}$ and MnNiSi-Fe-Sn alloys.** D. Kamble^{1,2} and R.V. Ramanujan^{1,2} 1. *Materials Science and Engineering, Nanyang Technological University, Singapore, Singapore;* 2. *Singapore-HUJ Alliance for Research and Enterprise (SHARE), Nanomaterials for Energy and Energy-Water Nexus (NEW), Campus for Research Excellence and Technological Enterprise (CREATE), Singapore, Singapore*

- FD-09. Entropy Change and Hysteresis Losses in $\text{Ni}_{45}\text{Co}_5\text{Mn}_{(37-x)}\text{In}_{(13+x)}$ Alloy Family.** M. Ghahremani¹, A. Aslani², M. Hosseinnia³, L.H. Bennett² and E. Della Torre² 1. *Computer Science, Mathematics, and Engineering, Shepherd University, Shepherdstown, WV, United States;* 2. *Electrical and Computer Engineering, The George Washington University, Washington, DC, United States;* 3. *Beatson Institute, University of Glasgow, Glasgow, United Kingdom*

- FD-10. Low field and large magnetocaloric effect in Ni-Mn-Sn (Fe-B) alloys.** K. Srikanti¹, R. V.V¹, G. Anusha¹ and G. Raghavan¹ 1. *CAEM, International Advanced Research Centre for Powder Metallurgy, Chennai, India*

- FD-11. Thermal stability, magnetic and magnetocaloric properties of $\text{Gd}_{55}\text{Co}_{35}\text{M}_{10}$ (M=Si, Zr and Nb) amorphous alloys.** X. Zhong¹, X. Huang¹, D. Jiao¹, H. Zhang¹, W. Qiu¹, Z. Liu¹ and R.V. Ramanujan^{2,3} *1. School of Materials Science and Engineering, South China University of Technology, Guangzhou, China; 2. School of Materials Science and Engineering, Nanyang Technological University, Singapore, Singapore; 3. Singapore-HUI Alliance for Research and Enterprise (SHARE), Nanomaterials for Energy and Energy-Water Nexus (NEW), Campus for Research Excellence and Technological Enterprise (CREATE), Singapore, Singapore*

- FD-12. Table-like Magnetocaloric Effect in $\text{Ho}_{36}\text{Co}_{48}\text{Al}_{16}$ Multiphase Alloy.** E.A. Balfour¹, Y. Shang¹, Y. Cao¹, H. Fu¹, A.A. El-Gendy² and R.L. Hadimani³ *1. Applied Physics, School of Physical Electronics, University of Electronic Science and Technology of China, Chengdu, China; 2. Department of Physics, University of Texas at El Paso, El Paso, TX, United States; 3. Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States*

THURSDAY
AFTERNOON
2:00

ROSELLE II

Session FE PATTERNED FILMS AND ELEMENTS

Olivier Fruchart, Chair
Univ. Grenoble Alpes, CNRS, CEA, Grenoble, France

- FE-01. Peculiarities of disorder-induced ferromagnetism phenomena in $\text{Fe}_{60}\text{Al}_{40}$ films on a local scale.** A. Smekhova¹, E. La Torre², T. Szyjka², B. Eggert², B. Cöster², K. Ollefs^{2,3}, D. Walecki², S. Salamon², R. Bali⁴, J. Lindner⁴, F. Wilhelm³, A. Rogalev³, E. Weschke⁵, D. Többsen⁵, R. Banerjee⁶, B. Sanyal⁶, C. Schmitz-Antoniak¹ and H. Wende² *1. PGI-6, FZ Juelich, Berlin, Germany; 2. University of Duisburg-Essen and CENIDE, Duisburg, Germany; 3. ESRF, Grenoble, France; 4. HZDR, Dresden, Germany; 5. HZB (BESSY II), Berlin, Germany; 6. Uppsala University, Uppsala, Sweden*

- FE-02. Anomalous Nernst and Hall Effects in $\text{Co}_x(\text{MgO})_{1-x}$ Granular Thin Films.** P. Sheng¹ and M. Mizuguchi^{1,2} *1. Institute for Materials Research, Tohoku University, Sendai, Japan; 2. CREST, Japan Science and Technology Agency, Kawaguchi, Japan*

- FE-03. Zero Field Cooled Exchange Bias Effect in Nano-Crystalline Mg-Ferrite Thin Film.** H. Roy Daku^{1,2}, N. Venkataramani³ and S. Prasad⁴ 1. Physics, Indian Institute of Technology, Mumbai, India; 2. Physics, National University of Singapore, Singapore; 3. Metallurgical Engineering and Materials Science, Indian Institute of Technology, Mumbai, India; 4. Physics, Indian Institute of Technology, Mumbai, India

- FE-04. Growth and Characterisation of Antiferromagnetic Polycrystalline Mn₃Ga and Mn₃Ge Films.** H. Wu¹, L. Sudoh², R. Xu³, W. Si³, T. Takahashi², C.A. Vaz⁴, J. Kim¹, G. Vallejo-Fernandez¹ and A. Hirohata¹ 1. University of York, YORK, United Kingdom; 2. Nagaoka University of Technology, Nagaoka, Japan; 3. City University of Hong Kong, Hong Kong; 4. Paul Scherrer Institute, Villigen, Switzerland

- FE-05. Emergent dynamic chirality in a thermally driven artificial spin ratchet. (Invited)** S. Gliga¹ 1. Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom

- FE-06. Long-range multi-modal ordering in artificial spin ice.** R. Puttock^{1,2}, V. Neu³, A. Manzin⁴, F. Garcia-Sanchez⁴, A. Fernandez-Scarioni⁵, V. Antonov² and O. Kazakova¹ 1. Quantum Science, National Physical Laboratory, Teddington, United Kingdom; 2. Department of Physics, Royal Holloway University of London, Egham, United Kingdom; 3. Leibniz Institute for Solid State and Materials Research (IFW) Dresden, Dresden, Germany; 4. Istituto Nazionale di Ricerca Metrologica, Turin, Italy; 5. Physikalisch-Technische Bundesanstalt, Braunschweig, Germany

- FE-07. Phase domain development in nanopatterned FeRh islands.** R.C. Temple¹, T.P. Almeida², J. Massey¹, K. Fallon², S. Morley^{1,3}, F. Maccherozzi⁴, S. Dhesi⁴, T.A. Moore¹ and C.H. Marrows¹ 1. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 2. School of Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom; 3. Physics Department, University of California, Santa Cruz, Santa Cruz, CA, United States; 4. Surfaces and Interfaces, Diamond Light Source Ltd, Didcot, United Kingdom

- FE-08. Nonlinear Response of Patterned Ferromagnets with Spin Vortex Ground State. (Invited)** M.P. Nikitin^{1,2}, A.V. Orlov³, I. Sokolov², A. Minakov³, P.I. Nikitin³, J. Ding¹, S.D. Bader¹, E.A. Rozhkova⁴ and V. Novosad¹ 1. Materials Science Division, Argonne National Laboratory, Argonne, IL, United States; 2. Moscow Institute of Physics and Technology (State University), Dolgoprudny, Russian Federation; 3. Prokhorov General Physics Institute, Moscow, Russian Federation; 4. Center for Nanoscale Materials, Argonne National Laboratory, Argonne, IL, United States

FE-09. Interpreting FORC diagrams beyond the Preisach model: an experimental permalloy micro array investigation.

F. Gross¹, S. Ilse¹, G. Schütz¹, J. Gräfe¹ and E. Goering¹
1. Modern Magnetic Systems, Max Planck Institute for Intelligent Systems, Stuttgart, Germany

FE-10. Ion Irradiation Induced Cobalt/Cobalt Oxide

Heterostructures: From Materials to Devices. D. Hilliard^{1,2}, O. Yildirim^{1,3}, C. Fowley¹, S. Arekapudi², H. Cansever^{1,4}, R. Böttger¹, G. Hlawacek¹, O. Hellwig², J. Lindner¹, J. Fassbender^{1,4} and A. Deac¹ *1. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. Institute of Physics, Chemnitz University of Technology, Chemnitz, Germany; 3. Empa-Swiss Federal Laboratories for Materials Science and Technology, Dübendorf, Switzerland; 4. Institute of Physics of Solids, Dresden University of Technology, Dresden, Germany*

THURSDAY
 AFTERNOON
 2:00

PEONY I

Session FF
SPIN WAVES I

Mathias Kläui, Co-Chair
 Universität Mainz, Mainz, Germany
 Olivier Klein, Co-Chair
 CEA-SPINTEC, Grenoble, France

FF-01. All-electrical detection of spin-wave interference in CoFeB waveguides.

G. Talmelli^{1,2}, T. Devolder³, M. Heyns¹, I.P. Radu¹, C. Adelmann¹ and F. Ciubotaru¹ *1. IMEC, Leuven, Belgium; 2. Department of Materials Engineering, KU Leuven, Leuven, Belgium; 3. Centre de Nanosciences et de Nanotechnologies, Université Paris-Sud, Orsay, France*

FF-02. Voltage-controlled reconfigurable spin wave nanochannels and logic devices.

B. Rana¹ and Y. Otani^{1,2} *1. Center for Emergent Matter Science, RIKEN, Wako, Japan; 2. Institute for Solid State Physics, The University of Tokyo, Kashiwa, Japan*

FF-03. Spin wave interference in vortex stacks.

C. Behncke^{1,2}, C.F. Adolff^{1,2}, N. Lenzing¹, M. Hänze^{3,4}, B. Schulte⁴, M. Weigand⁵ and G. Meier^{2,4} *1. Institute of Applied Physics, University of Hamburg, Hamburg, Germany; 2. The Hamburg Centre for Ultrafast Imaging, Hamburg, Germany; 3. Max Planck Institute for Solid State Research, Stuttgart, Germany; 4. Max Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany; 5. Max Planck Institute for Intelligent Systems, Stuttgart, Germany*

- FF-04. Protected Chiral Spin-Wave Modes for Backscattering-Immune Magnonic Transport.** M. Mohseni¹, T. Brächer¹, Q. Wang¹, D.A. Bozhko¹, B. Hillebrands¹ and P. Pirro¹
1. Physics, TU Kaiserslautern, Kaiserslautern, Germany

- FF-05. Excitation of Coherent Heterosymmetric Spin Waves with Ultrashort Wavelengths.** G. Dieterle³, J. Förster³, H. Stoll³, A.S. Semisalova², S. Finizio¹, A. Gangwar⁴, M. Weigand³, M. Noske³, M. Fähnle³, I. Bykova³, D.A. Bozhko⁵, H.Y. Musiienko-Shmarova⁵, V.S. Tiberkevich⁶, A.N. Slavin⁶, C. Back⁴, J. Raabe¹, G. Schütz³ and S. Wintz^{1,2} *1. Paul Scherrer Institut, Villigen PSI, Switzerland; 2. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 3. Max Planck Institute for Intelligent Systems, Stuttgart, Germany; 4. Universität Regensburg, Regensburg, Germany; 5. Technische Universität Kaiserslautern, Kaiserslautern, Germany; 6. Oakland University, Rochester, MI, United States*

- FF-06. Direct observation of sub-100 nm spin wave propagation in magnonic wave-guides.** N.A. Träger¹, P. Gruszecki², F. Lisiecki³, J. Förster¹, M. Weigand¹, P. Kuswik^{3,4}, J. Dubowik³, G. Schütz¹, M. Krawczyk² and J. Gräfe¹
1. Modern Magnetic Systems, Max Planck Institute for Intelligent Systems, Stuttgart, Germany; 2. Faculty of Physics, Adam Mickiewicz University, Poznan, Poland; 3. Institute of Molecular Physics, Polish Academy of Sciences, Poznan, Poland; 4. Centre for Advanced Technology, Adam Mickiewicz University, Poznan, Poland

- FF-07. Long Distance Lateral Spin Transport in Antiferromagnetic Insulators.** R. Lebrun¹, A. Ross^{1,2}, A. Qaiumzadeh³, S. Bender⁴, L. Baldrati¹, J. Cramer^{1,2}, O. Gomonay¹, J. Sinova¹, R. Duine⁵, A. Brataas³ and M. Kläui^{1,2} *1. Johannes Gutenberg University, Mainz, Germany; 2. Graduate School of Excellence Materials Science in Mainz, Mainz, Germany; 3. Norges teknisk-naturvitenskaplige universitet (NTNO), Trondheim, Norway; 4. University of California, Los Angeles, CA, United States; 5. Utrecht University, Utrecht, Netherlands*

- FF-08. Variable effective magnetization and spin wave velocity in low magnetic damping metallic multilayers.** J.M. Shaw¹, E.R. Edwards¹, T. Silva¹ and H. Nembach^{1,2} *1. Quantum Electromagnetics Division, NIST, Boulder, CO, United States; 2. JILA, University of Colorado, Boulder, CO, United States*

- FF-09. Finite Speed of Propagation of Spin Waves in the Inertial Regime.** C. Serpico², M. d'Aquino¹, V. Scalera² and M. Lo Bue³ *1. Dipartimento di Ingegneria, Università degli Studi di Napoli "Parthenope", Napoli, Italy; 2. DIETI, University of Naples Federico II, Naples, Italy; 3. SATIE, CNRS, ENS Paris-Saclay, Université Paris-Saclay, Cachan, France*

4:15

- FF-10. The general Boltzmann method for magnon transport with full scattering process.** Y. Li¹, T. Liu¹, W. Wang¹ and J. Zhang¹ *1. School of Physics, Tongji University, Shanghai, China*

4:30

- FF-11. Bose-Einstein Condensation of Quasi-Particles in a Dynamically Cooled System.** T. Brächer¹, M. Schneider¹, V. Lauer¹, P. Pirro¹, O. Serga¹, B. Heinz¹, Q. Wang¹, H. Musienko-Shmarova¹, T. Meyer¹, F. Heussner¹, S. Keller¹, B. Lägel¹, T. Löber¹, V.S. Tiberkevich², A.N. Slavin², C. Dubs³, B. Hillebrands¹ and A. Chumak¹ *1. Physics, TU Kaiserslautern, Kaiserslautern, Germany; 2. Oakland University, Rochester, MI, United States; 3. INNOVENT e.V. Technologieentwicklung, Jena, Germany*

4:45

- FF-12. A Magneto-elastic Correlator Using Acoustic Wave Pumping of Spin Waves.** I. Lisenkov¹, M. Hansen¹, J. Davies², P. Dhagat¹ and A. Jander¹ *1. Electrical Engineering and Computer Science, Oregon State University, Corvallis, OR, United States; 2. NVE Corporation, Minneapolis, MN, United States*

THURSDAY
AFTERNOON
2:00

PEONY III

Session FG

MAGNETIC BEARINGS, GEARS AND LEVITATION

Mochimitsu Komori, Co-Chair

Kyushu Institute of Technology, Kitakyushu, Japan

Will Robertson, Co-Chair

Adelaide University, The University of Adelaide, SA, Australia

2:00

- FG-01. Design and Analysis of a Hybrid Stator Permanent Magnet Biased Bearingless Switched Reluctance Motor.** Y. Yuan¹, Y. Sun¹, Y. Huang¹, J. Yan² and F. Yang¹ *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China; 2. School of Automation, Nanjing University of Science and Technology, Nanjing, China*

2:15

- FG-02. Weight reduction of the damper coils in the superconducting magnetically levitated bogie.** S. Ohashi¹ *1. Electrical and Electric Engineering, Kansai University, Osaka, Japan*

2:30

- FG-03. Analysis of a Coaxial Magnetic Gear without Rotor Iron Yoke.** E. Göbl¹, G. Jungmayr², E. Marth¹ and W. Amrhein¹ *1. Johannes Kepler University, Linz, Austria; 2. Linz Center of Mechatronics GmbH, Linz, Austria*

2:45

FG-04. Investigating the Performance of a Halbach Rotor Magnetic Gearbox with 3-D Printed Structural Components.

D.H. Wong¹ and J.Z. Bird¹ 1. *Portland State University, Portland, OR, United States*

3:00

FG-05. A Disc-type Contra-rotating Permanent Magnet Synchronous Motor for Marine Electrical Propulsion System.

Z. Rao¹, S. Huang¹ and C. Luo¹ 1. *College of Electrical and Information Engineering, Hunan University, Changsha, China*

3:15

FG-06. Comparative Analysis of a Coaxial Magnetic Gearbox with a Flux Concentration Halbach Rotor and Consequent Pole Rotor Typology.

D.H. Wong¹, S. Modaresahmadi², J.Z. Bird¹ and W. Williams² 1. *Portland State University, Portland, OR, United States*; 2. *University of North Carolina at Charlotte, Charlotte, NC, United States*

3:30

FG-07. A Novel Design Philosophy for Low-Stiffness Magnetic Levitation Gravity Compensation.

H. Zhang¹, Y. Zhou¹, B. Kou¹ and Z. Zhu² 1. *Harbin Institute of Technology, Harbin, China*; 2. *University of Sheffield, Sheffield, United Kingdom*

3:45

FG-08. Design of a Novel Halbach-Array Permanent Magnet Motor for Electric Submersible Pumps.

S.F. Rabbi¹ and M. Rahman² 1. *Electrical and Computer Engineering, Memorial University of Newfoundland, St. John's, NL, Canada*; 2. *Electrical and Computer Engineering, Memorial University of Newfoundland, St. John's, NL, Canada*

4:00

FG-09. Modeling and Analysis of Suspension Force of a New Bearingless Reluctance Machine with Independent DC Bias Winding.

L. Yu¹, Z. Zhang¹, Y. Shi¹ and W. Lu¹ 1. *Department of Electrical Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing, China*

4:15

FG-10. The influences of lever arm on the stability of a quasi-zero stiffness magnetic levitation vibration isolation system.

N. Kamaruzaman¹, M. Ghayesh¹, B. Cazzolato¹, A. Zander¹ and W. Robertson¹ 1. *School of Mechanical Engineering, The University of Adelaide, Adelaide, SA, Australia*

4:30

FG-11. Design and Analysis of a Double Stator Halbach Permanent Magnet Bearingless Brushless DC Motor.

Y. Yuan¹, Y. Sun², F. Yang¹ and Y. Huang¹ 1. *School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*; 2. *School of Power Engineering, Nanjing Institute of Technology, Nsnjing, China*

Session FH
ANALYSIS AND OPTIMISATION OF ELECTRICAL MACHINES I

Chunhua Liu, Co-Chair
City University of Hong Kong, Hong Kong
Li Zhu, Co-Chair
Shanghai Jiao Tong University, Shanghai, China

2:00

- FH-01. Development of a Radial Flux Permanent Magnet Machine with an Amorphous Metal Stator Core.** *W. Tong¹, R. Sun¹, S. Wu¹ and R. Tang¹* *1. School of Electrical Engineering, Shenyang University of Technology, Shenyang, China*

2:15

- FH-02. Optimal Design of a Novel Five-phase SPM Machine with Electronic Pole-Changing Effects.** *J. Gong¹, T. Tong¹ and N. Bracikowski²* *1. School of Electrical Engineering, Shandong University, Jinan, China; 2. IREENA Laboratory, Nantes University, Saint Nazaire, France*

2:30

- FH-03. Analysis and Control of the Permanent Magnet Synchronous Motor with Auxiliary Modular Design.** *H. Lin², F. Zhao¹ and B. Kwon³* *1. Harbin Institute of Technology Shenzhen Graduate School, Shenzhen, China; 2. Chang'an University, Xi'an, China; 3. Hanyang University, Ansan, The Republic of Korea*

2:45

- FH-04. Experimental Results and Parameter Identification of a Permanent Magnet Assisted Synchronous Reluctance Machine with a Ribless Rotor.** *M. Zimmermann¹, A. Lange¹ and B. Piepenbreier¹* *1. Institute of Electrical Drives and Machines, University of Erlangen-Nuremberg, Erlangen, Germany*

3:00

- FH-05. Magnetic materials and technologies enabling an even brighter future for electrical machines. (Invited)** *P. Upadhyay¹* *1. US Corporate Research, ABB Inc., Raleigh, NC, United States*

3:30

- FH-06. Analysis of a Novel Double-sided Dual-PM Hybrid-excitation Switched-flux Linear machine.** *Z. Zeng¹ and Q. Lu¹* *1. College of Electrical Engineering, Zhejiang University, Hangzhou, China*

3:45

- FH-07. Study of efficiency characteristics of Interior Permanent Magnet Synchronous Motors.** *S. Feng¹, W. Jiang¹, Z. Zhang¹, J. Zhang¹, Y. Li² and Y. Wang¹* *1. Department of Electrical Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing, China; 2. Nanjing YueBoo Power System Co.,Ltd, Nanjing, China*

4:00

- FH-08. Consequent Pole Hybrid Brushless Wound Rotor Synchronous Machine.** *A. Hussain¹ and B. Kwon¹* *1. Electronic Systems Engineering, Hanyang University, South Korea, Ansan, The Republic of Korea*

4:15

- FH-09. An Innovative Dual-Rotor Axial-Gap Flux Switching Permanent Magnet Machine Topology with Hybrid Excitation.** *E. Yildiriz¹, M. Gulec² and M. Aydin²* *1. Electrical and Electronics Engineering, Duzce University, Düzce, Turkey; 2. Mechatronic Engineering, Kocaeli University, Kocaeli, Turkey*

4:30

- FH-10. Design of a ,+U shape Interior PM Machines for Electric Vehicle Applications.** *M. Sheng¹* *1. Nanjing University of Aeronautics and Astronautics, Nanjing, China*

4:45

- FH-11. Optimal Design and Experimental Test of Surface-Mounted Permanent Magnet Motors with Cost-Effective Magnet Utilization to Suppress Torque Pulsations.** *W. Zhao¹, H. Shen¹, W. Chai², X. Wang¹ and B. Kwon²* *1. School of Electrical Engineering, Shandong University, Jinan, China; 2. Department of Electronic Systems Engineering, Hanyang University, Ansan, The Republic of Korea*

THURSDAY
AFTERNOON
2:00

ORCHID II

Session FI
FUNDAMENTAL PROPERTIES AND COOPERATIVE PHENOMENA II

Solveig Felton, Chair
Queen's University Belfast, Belfast, United Kingdom

2:00

- FI-01. Recovery of long-range magnetic order by Rh substitution in spin glass compound $\text{Mn}_{0.7}\text{Fe}_{0.3}\text{NiGe}$.** *S. Samatham¹, A.K. Patel¹ and S. K. G.¹* *1. Department of Physics, Indian Institute of Technology Bombay, Mumbai, India*

- FI-02. Magnetization dynamics of weakly interacting sub-100 nm square artificial spin ices.** *J. Porro Azpiazu*^{1,2}, S. Morley^{3,4}, D. Alba Venero¹, R. Macêdo⁵, M. Rosamond³, R.L. Stamps⁵, C.H. Marrows³ and S. Langridge¹ *1. ISIS, the Neutron and Muon Source, Rutherford Appleton Laboratory, Didcot, United Kingdom; 2. BCMaterials, the Basque Center for Materials, Applications and Nanostructures, Leioa, Spain; 3. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 4. Department of Physics, University of California, Santa Cruz, Santa Cruz, CA, United States; 5. School of Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom*

- FI-03. Electron Accumulation and Emergent Magnetism in LaMnO₃/SrTiO₃ Heterostructures.** *Z. Liu*¹ *1. School of Materials Science & Engineering, Beihang University, Beijing, China*

- FI-04. Complex Magnetic Structure of Tb₃Ni.** *S. Goswami*¹, P. Babu¹ and R. Rawat² *1. Magnetism, UGC-DAE Consortium for Scientific Research, Mumbai Centre, Mumbai, India; 2. UGC-DAE Consortium for Scientific research, Indore, India*

- FI-05. Universal magnetic behavior of Ni₂Mn_{1-x}Fe_xIn (x = 0.0 and 0.1) through magnetization, magnetocaloric and magnetoresistance scaling methods.** *A.K. Patel*¹, S. Samatham¹ and K.G. Suresh¹ *1. Department of Physics, Indian Institute of Technology Bombay, Mumbai, India*

- FI-06. Signature of a Griffiths phase in layered canted antiferromagnet Sr₂IrO₄.** *A. Rathi*², P. Rout¹, S. Perween², R. Singh³, A. Gupta², R. Pant² and G. Basheed² *1. CSIR-National Physical Laboratory (NPL), New Delhi, India, New Delhi, India; 2. AcSIR, CSIR-National Physical Laboratory (NPL) Campus, New Delhi, India; 3. Indian Institute of Science Education and Research (IISER), Bhopal, India*

- FI-07. Modulation of spin dynamics across metal to insulator transitions in hybrid heterostructures.** *M. Zhu*¹, Z. Zhou¹, W. Ren¹ and M. Liu¹ *1. Xi'an Jiaotong University, Xi'an, China*

- FI-08. Alternating spin chain compound AgVOAsO₄ probed by ⁷⁵As NMR.** *N.A. Koodacadavan*¹ *1. Physics, Indian Institute of Science Education and Research, Thiruvananthapuram, India*

- FI-09. Suppression of the double exchange in 4d-5d transition metal compounds. (Invited)** *S. Streltsov*¹ and D. Khomskii² *1. Institute of Metal physics, Ekaterinburg, Russian Federation; 2. University of Cologne, Cologne, Germany*

- FI-10. Topological magnons and excitons.** *R. Shindou¹ 1. Physics, Peking University, Beijing, China*

- FI-11. Interface Effects on Coercivity and Training in Exchange Bias Systems.** *J. Gompertz¹, R. Carpenter², S.A. Cavill^{1,3}, G. Vallejo-Fernandez¹ and K. O'Grady¹ 1. Department of Physics, University of York, Heslington, York, UK, YO10 5DD, York, United Kingdom; 2. Seagate Technology, Springtown Industrial Estate, Londonderry, United Kingdom; 3. Diamond Light Source Ltd, Harwell Science and Innovation Campus, Fermi Ave, Didcot, United Kingdom*

THURSDAY
AFTERNOON
1:30

SIMPOR/ROSELLE BALLROOM

Session FP
CIRCUIT ANALYSIS OF TRANSFORMERS
(Poster Session)

Tetsuya Ueda, Chair
Kyoto Institute of Technology, Kyoto, Japan

- FP-01. Effect of annealing on magnetic and mechanical behavior of NANOPERM-type alloys.** *M. Hasiak¹ and A. Laszcz¹ 1. Wroclaw University of Science and Technology, Wroclaw, Poland*
- FP-02. Magnetic Force Analysis in a Gapped-Core Reactor Model under Harmonic Magnetizations by Efficient Frequency-Domain Decomposition.** *X. Zhao¹, Z. Jin¹, Z. Cheng², B. Forghani³, L. Li¹ and H. Zhang¹ 1. North China Electric Power University, Baoding, China; 2. Institute of Power Transmission and Transformation Technology, Baoding, China; 3. Infolytica Corporation, Montreal, QC, Canada*
- FP-03. Investigation into the Effect of Yoke Pressed Structure on Electromagnetic Performance of Transformer.** *X. Yan¹, Z. Peng², Y. Kang³, X. Yu⁴, Z. Ren¹ and Y. Zhang¹ 1. Shenyang University of Technology, Shenyang, China; 2. Shaoyang University, Shaoyang, China; 3. TEBA Shenyang Transformer Group Co. Ltd., Shenyang, China; 4. Shandong Power Equipment Co. Ltd., Jinan, China*
- FP-04. A Switched-capacitorless Energy-encrypted Transmitter for Roadway-charging Electric Vehicles.** *W. Liu¹, K. Chau¹, C. Lee², C. Jiang¹ and W. Han¹ 1. The University of Hong Kong, Hong Kong; 2. Massachusetts Institute of Technology, Boston, MA, United States*
- FP-05. Reduction of an Eddy Current Losses in Metallic Support of an Underground Power Cable.** *H. Song¹, S. IM¹ and G. Park¹ 1. Department of Electrical and Computer Engineering, Pusan National University, Busan, The Republic of Korea*

- FP-06. Calculation of AC Resistance in a Multi-strand Coil Considering Proximity Effect with Eddy Current Induced Magnetic Fields.** *D. Um¹ and G. Park¹ 1. School of Electrical and Computer Engineering, Pusan National University, Busan, The Republic of Korea*
- FP-07. Copper Loss Reduction of Planar Transformer Using Magnetic Cap and Plate.** *T. Yamamoto¹, Y. Bu¹ and T. Mizuno¹ 1. Shinshu university, Nagano, Japan*
- FP-08. Determination Approach for the Parameters of Equivalent Circuit Model of Deep Saturated Three-phase Integrative Transformers.** *Y. Wang¹, Y. Shangguan¹ and J. Yuan¹ 1. Dept. of Electrical Engineering, Tsinghua University, Beijing, China*
- FP-09. Research on Split-Core Reactor Vibration Reduction Method Based on Magnetostrictive Effect.** *L. Zhu¹, R. Sha¹, X. Zhang¹, B. Wang¹ and T. Han¹ 1. Key Laboratory of Advanced Electrical En, Tianjin Polytechnic University, Tianjin, China*
- FP-10. Research on Transformer Inductance Parameter Calculation Model for High Frequency Characteristic Analysis.** *X.M. Zi¹, G. Jian¹ and Z. Ying¹ 1. Nanjing University of Aeronautics and Astronautics, Nanjing, China*
- FP-11. Inverse Updating Method of High-frequency Equivalent Circuit Model in Transformer for Winding Deformation Diagnosis.** *H. Zhang¹, S. Wang², S. Wang² and S. Wang² 1. Hubei Universitie of Arts and Science, Xiangyang, China; 2. Xi'an Jiaotong University, Xi'an, China*
- FP-12. The Integration of Energy-saving Transformer Possessing Variable Impedance.** *S. Wang¹, S. Wang¹, Y.H. He^{1,2}, M.N. Zhang¹ and S. Wang¹ 1. Xi'an Jiaotong University, Xi'an, China; 2. State Grid Yulin Electric Power Company, Yulin, China*
- FP-13. Analysis of a Novel Three-Coil Wireless Power Transfer System Applied in Biomedical Devices.** *X. Zhang¹, L. Wang² and X. Zhang¹ 1. Tianjin Normal University, Tianjin, China; 2. Chinese Academy of Medical Science & Peking Union Medical College Institute of Biomedical Engineering, Tianjin, China*

Session FQ
HARD MAGNETIC MATERIALS AND MOTOR
APPLICATIONS
(Poster Session)

Mi-Ching Tsai, Chair
National Cheng Kung University, Tainan, Taiwan

- FQ-01. Reduced magnetic response of Dy doped CoFe_2O_4 nanoparticles.** *H. Kumar¹ 1. H.A.S.(Physics), Rajkiya Engineering College Bijnor India, Bijnor, India*
- FQ-02. A Study on Optimal Design for Direct Drive Submerged Pump Actuator.** *Y. Kim¹, Q. Yan¹, D. Ryu¹ and J. Lee¹ 1. Hanbat National University, Daejeon, The Republic of Korea*
- FQ-03. Analytical Method for 3-D Overhang Effect of Surface-Mounted Permanent-Magnet Motor Using Conformal Mapping.** *Y. Ko¹, J. Song¹, M. Seo¹, Y. Kim² and S. Jung¹ 1. Sungkyunkwan University, Suwon, The Republic of Korea; 2. Chosun University, Gwangju, The Republic of Korea*
- FQ-04. Investigation of flux adjustment capability in hybrid excited switching flux permanent magnet machines.** *X. Liu^{1,2}, S. Wang^{1,2} and D. Dong^{1,2} 1. State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China; 2. School of Electrical Engineering, Hebei University of Technology, Tianjin, China*
- FQ-05. Multi-Objective Design Optimization of A New Cost Effective Axial Flux Permanent Magnet Assisted Eddy Current Brake.** *M. Gulec¹ and M. Aydin¹ 1. Mechatronics Engineering, Kocaeli University, Kocaeli, Turkey*
- FQ-06. The Influence of Magnetization on Modular Spoke-type Permanent-Magnet Machine for In-Wheel Traction Applications.** *H. Zhang¹ and W. Hua¹ 1. School of Electrical Engineering, Southeast University, Nanjing, China*
- FQ-07. Proposal of Maxwell Stress Tensor for Local Force Calculation in Magnetic Body.** *M.K. Ghosh¹, Y. Gao¹, H. Dozono¹, K. Muramatsu¹, W. Guan², J. Yuan², C. Tian² and B. Chen² 1. Department of Electrical & Electronic Engineering, Saga University, Sagacity, Japan; 2. Department of Electrical & Electronic Engineering, Wuhan University, Wuhan, China*
- FQ-08. Coercivity enhancement of Nd-Ce-Fe-B sintered magnets by the grain boundary diffusion process using Nd-Al-Cu alloys.** *Q. Zhou¹, R. Tang¹, F. Xiao¹ and Z. Liu² 1. GuangDong Research Institute of Rare Metals, Guangzhou, China; 2. School of Materials Science and Engineering, South China University of Technology, Guangzhou, China*

FQ-09. An Improved Analysis Method of Irreversible Demagnetization for Single-Phase Line Start Permanent Magnet Motor. *J. Jung*¹, *B. Lee*², *M. Lim*¹ and *J. Hong*³
1. Hyundai Mobis, Yongin, The Republic of Korea; 2. Korea Automotive Technology Institute, Daegu, The Republic of Korea; 3. Hanyang University, Seoul, The Republic of Korea

FQ-10. Demagnetization and Permanent-Magnet Minimization Analyses of Less-Rare-Earth Interior Permanent-Magnet Synchronous Machines Used for Electric Vehicles.
*W. Wang*¹, *P. Zheng*^{1,2}, *M. Wang*¹, *Y. Liu*¹ and *Z. Fu*¹
1. Department of Electrical Engineering, Harbin Institute of Technology, Harbin, China; 2. State Key Laboratory of Robotics and System, Harbin Institute of Technology, Harbin, China

FQ-11. Structural and magnetic ordering in MnBi nanoclusters produced in a low energy cluster beam deposition system.
*D. Le Roy*¹, *F. Orlandini-Keller*², *J. Jacquot*³, *N. Blanchard*¹, *N. Dempsey*² and *V. Dupuis*¹
1. Institut Lumière Matière, Villeurbanne, France; 2. Institut Néel CNRS, Grenoble, France; 3. CEA, Grenoble, France

FQ-12. Novel Permanent Magnet Design and Materials Structures.
*Y. Zhang*¹ and *K. Gao*¹
1. Argonne National Laboratory, North Oaks, MN, United States

THURSDAY
AFTERNOON
1:30

SIMPOR/ROSELLE BALLROOM

Session FR
MAGNETIC FLUIDS AND ORGANIC MAGNETIC MATERIALS II
(Poster Session)

Mei Fang, Chair
Central South University, Changsha, China

FR-02. Reversible Control of Intrinsic Spins by Guest Molecules in a Layered Ferrimagnetic Metal-Organic Framework.
*J. Zhang*¹, *W. Kosaka*¹ and *H. Miyasaka*¹
1. Institute for Materials Research, Tohoku University, Sendai, Japan

FR-03. Magnetorheology of Core-Shell Structured Mesoporous Fe₃O₄@mSiO₂ Nanoparticle Added Carbonyl Iron Dispersion. *W. Han*¹ and *H. Choi*¹
1. Polymer Science and Engineering, Inha University, Incheon, The Republic of Korea

FR-01. Effect of Fe₃O₄/sepiolite Nanocomposite Additive on Carbonyl Iron Based Magnetorheological Fluid. *Y. Dong*¹, *S. Piao*¹ and *H. Choi*¹
1. Polymer Science and Engineering, Inha University, Incheon, The Republic of Korea

- FR-04. Synthesis of Organic-inorganic Poly(diphenylamine)/ magnetite Composite Particles and Their Magnetorheological Response.** *Y. Dong¹ and H. Choi¹*
1. Polymer Science and Engineering, Inha University, Incheon, The Republic of Korea
- FR-05. Synthesis and Viscoelastic Behavior of Non-stoichiometric Inverse Spinel Ferrite Nanoparticle Suspension with Controlled Morphology and Enhanced Magnetization.** *J. Han¹, W. Han¹, C. Gao¹, Y. Dong¹ and H. Choi¹*
1. Dept. of Polymer Science and Engineering, Inha University, Incheon, The Republic of Korea
- FR-06. Effect of Magnetic Nanoparticle Additive on Viscoelastic Behaviors of Carbonyl Iron-based Magnetorheological Suspension.** *C. Gao¹, Q. Lu¹ and H. Choi¹*
1. Polymer Science and Engineering, Inha University, Incheon, The Republic of Korea
- FR-07. Experimental Verification of Effectiveness of Magnetorheological Fluid Damper fixed to an Elevator in Case of Earthquake.** *K. Kawase¹, N. Kobayashi¹, M. Yamada¹ and T. Nakagawa¹*
1. Faculty of Engineering, Tokyo City University, Tmazutsumi, Japan
- FR-08. Characterization of Output Torque of a Permanent Magnet-based MRF Clutch with a Field Blocking Mechanism.** *M.A. Fernández¹, J. Chang¹ and C. Huang¹*
1. Power Mechanical Engineering, National Tsing Hua University, Hsinchu, Taiwan
- FR-09. Phenomenological magnetic hysteresis model of a polymer matrix filled with magnetic particles.** *Z. Xiang¹, B. Gupta¹, M. Le¹, G. Coativy¹ and B. Ducharne¹*
1. INSA LYON, Laboratoire de Génie Electrique et Ferroélectricité, Villeurbanne, France
- FR-10. Magnetically controlled light manipulating properties of biogenic and synthetic guanine crystals.** *H. Kashiwagi¹, M. Iwasaka², H. Asada³, T. Koyanagi³ and K. Kishimoto³*
1. Graduate School of AdSM, Hiroshima University, Higashihiroshima, Japan; 2. RNBS, Hiroshima University, Higashihiroshima, Japan; 3. Graduate School of Science and Technology for Innovation, Yamaguchi University, Ube, Japan
- FR-11. Cr and Fe substitution effects on magnetic properties and phase stabilities in tetragonal Mn₃(Ga,Ge).** *H. Okada¹, K. Moriya¹ and M. Doi¹*
1. Tohoku Gakuin University, Tagajo, Japan
- FR-12. Fabrication of biogenic guanine crystal/ferromagnetic film hybrid plate for micro-optical MEMS.** *T. Sogame¹, K. Deguchi¹, M. Inoue¹, T. Kimura¹, E. Muneyama¹, K. Kishimoto¹, T. Koyanagi¹, H. Asada¹ and M. Iwasaka²*
1. Graduate School of Sci. & Tech. for Innov., Yamaguchi University, Ube, Japan; 2. RNBS, Hiroshima University, Higashihiroshima, Japan
- FR-13. Magnetic Field Analysis and Optimization Design of Magneticrheological Fluid Brake.** *N. Yan¹, W. Li¹ and B. Zhang¹*
1. Shenyang University of Technology, Shenyang, China

FR-14. A Permanent Magnet-Excited Magneto-rheological Fluid Brake Manipulated by Mechanical Magnetic Shield. *P. Lee¹ and J. Chang¹ 1. Power Mechanical Engineering, National Tsing Hua University, Hsinchu, Taiwan*

FR-15. Fe₃O₄@Angelica Sinensis Polysaccharides Nanoparticles for Magnetic Resonance Imaging. *X. Xu¹, K. Wang¹, Y. Li¹, Y. Wang², J. Wang² and Y. Jiang¹ 1. School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing, China; 2. Department of molecular imaging, Peking Union Medical College Hospital, Chinese Academy of Medical Sciences, Beijing, China*

FR-16. Micro optical-interference-plate featuring highly efficient diamagnetic rotation of biogenic crystals. *T. Sogame¹, E. Muneyama¹, M. Inoue¹, T. Kimura¹, K. Kishimoto¹, T. Koyanagi¹, H. Asada¹ and M. Iwasaka² 1. Graduate School of Sci. & Tech. for Innov., Yamaguchi Univesity, Ube, Japan; 2. RNBS, Hiroshima University, Higashihiroshima, Japan*

THURSDAY
AFTERNOON
1:30

SIMPOR/ROSELLE BALLROOM

Session FS
MAGNETO-ELASTIC MATERIALS
(Poster Session)

Rastislav Varga, Chair
Faculty of Sciences, UPJS, Kosice, Slovakia

FS-01. Structural Dynamic Modeling and Optimization for Vibration Control of a Composite Cantilever with Magnetostrictive Shunt Damper. *J. Zheng¹, S. Cao¹ and R. Pan¹ 1. Hebei University of Technology, Tianjin, China*

FS-02. Determination of stress-coefficient of magnetoelastic anisotropy in flexible amorphous CoFeB film by anisotropic magnetoresistance. *X. Wen^{1,2}, B. Wang^{1,2} and R. Li^{1,2} 1. CAS Key Laboratory of Magnetic Materials and Devices, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, Ningbo, China; 2. Zhejiang Province Key Laboratory of Magnetic Materials and Application Technology, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, Ningbo, China*

FS-03. Modeling and analysis of bistable Galfenol cantilever energy harvester with dynamic elastic magnifier. *S. Cao¹, L. Liu¹ and J. Zheng¹ 1. Hebei University of Technology, Tianjin, China*

FS-04. Balancing negative and positive expansion effect in dual-phase La(Fe,Si)₁₃/α-Fe composite with improved mechanical property. *J. Wang¹ 1. School of Materials Science and Engineering, Nanjing University of Science and Technology, Nanjing, China*

- FS-05. Magneto-mechanical Optimization and Analysis of a Magnetostrictive Cantilever Beam for Energy Harvesting.** V. Apicella¹, C.S. Clemente¹, D. Davino¹, D. Leone¹ and C. Visone¹ *1. engineering, University of Sannio, Benevento, Italy*
- FS-06. Magnetoelastic Coupling Effect on Magnetization in FeGa Film Induced by Surface Acoustic Waves.** C. Zhao¹, L. Pan¹, X. Li¹, Q. Liu¹ and J. Wang¹ *1. Key Laboratory for Magnetic and Magnetic Materials of the Ministry of Education, Lanzhou University, Lanzhou 730000, People's Republic of China, Lanzhou University, Lanzhou, China*
- FS-07. Mössbauer investigation of magnetostrictive Fe₈₃Ga₁₇ with trace rare-earth doping.** P.S. Stamenov¹, Y. He², C. Jiang² and M. Coey¹ *1. School of Physics, Trinity College Dublin, Dublin, Ireland; 2. School of Materials Science and Engineering, Beihang University, Beijing, China*
- FS-08. High Frequency Vibration Model with Electromagnetic-Mechanical-Thermal Multi-Field Coupled Effects for Giant Magnetostrictive Transducer.** Y. Li¹, W. Huang¹, B. Wang¹, C. Gao¹, X. Wu¹ and Y. Xu¹ *1. State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China*
- FS-09. Concurrent inverse effects of magnetostriction and electrostriction in magnetoelectric layered structures.** B. Zadov², M. Auslender¹ and E. Liverts³ *1. Electrical and Computer Engineering, Ben Gurion University of the Negev, Beer Sheba, Israel; 2. Electrical and Computer Engineering, Ben Gurion University of the Negev, Beer Sheba, Israel; 3. Department of Mechanical Engineering, Ben Gurion University of the Negev, Beer Sheba, Israel*
- FS-10. Experimental and Calculating Analysis of High Frequency Magnetic Energy Losses for Terfenol-D Magnetostrictive Material.** W. Huang¹, C. Gao¹, B. Wang¹ and Y. Li¹ *1. Hebei University of Technology, Tianjin, China*
- FS-11. Magnetoelectric surface acoustic wave characteristics of the ScAlN/FeGa heterostructure with negative Poisson's ratio.** J. Jiang¹ and F. Bai¹ *1. State Key Laboratory of Electronic Thin Films and Integrated Devices, University of Electronic Science and Technology of China, Chengdu, China*
- FS-12. Tuning ferromagnetic properties of LaMnO₃ thin films by oxygen vacancies and strain.** Y. Liu¹, H. Wong¹, K. Lam¹, C. Mak¹ and C. Leung¹ *1. Department of Applied Physics, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

Session FT
MODELLING OF MACHINES II
(Poster Session)

Ronghai Qu, Chair
Huazhong University of Science and Technology, Wuhan, China

- FT-01. Analysis and Measurements of Interior Permanent Magnet Motor Based on Equivalent Magnetic Circuit Method.** *T. Bang¹, K. Shin¹, J. Lee¹, C. Han¹, H. Cho¹ and J. Choi¹*
1. Chungnam National University, Daejeon, The Republic of Korea
- FT-02. Coupled Finite Element Analysis of Magnetic and Thermal Fields Using Adaptive Single-Mesh Method.** *W. Chen¹ and Z. Li²*
1. Key Laboratory of Low-Voltage Apparatus Intellectual Technology of Zhejiang, Wenzhou University, Wenzhou, China;
2. College of Electrical Engineering, Zhejiang University, Hangzhou, China
- FT-03. Theoretical and Experimental Analysis of Transverse Flux Linear Machines Using Mutually Coupled Windings for High Force Density.** *J. Du^{1,2}, Q. Liu¹, Y. Long¹ and D. Yai¹*
1. State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, China; 2. Aviation Industry Corporation of Qing'an Group, Xi'an, China
- FT-04. Electromagnetic Analysis of a Balanced Armature Receiver Considering Fringing Flux Effect by Lumped Parameter Method.** *D. Xu^{1,2}, Y. Jiang² and S. Hwang²*
1. School of Mechanical Engineering and Automation, Shanghai University, Shanghai, China; 2. Mechanical Engineering, Pusan National University, Busan, The Republic of Korea
- FT-05. Iron loss characteristics of a nanocrystalline ring excited by Si-IGBT and GaN-FET inverters.** *A. Yao¹, T. Sugimoto¹ and K. Fujisaki¹*
1. Department of Engineering, Toyota Technological Institute, Nagoya, Japan
- FT-06. Analysis of Vibration of a Dual-stator Hybrid Excitation Permanent Magnet Motor for Electric Vehicles.** *Y. Fan¹, Z. Wu¹ and C. Tan¹*
1. School of Electrical Engineering, Southeast University, Nanjing, China
- FT-07. Thermal Effects on Magnetic Noise and Vibrations of Synchronous Motors.** *I. Ibrahim¹, H. Mohammadi¹, V. Ghorbanian¹ and D. Lowther¹*
1. Elec and Comp Eng, McGill University, Montreal, QC, Canada
- FT-08. Improvement of efficiency and vibration noise characteristics depending on excitation waveform of a brushless DC motor.** *S. Noguchi¹*
1. Motor Drive Laboratory, Tokyo City University, Setagaya-ku, Japan

- FT-09. Analysis and Comparison on Motor Core Losses with Si-IGBT and SiC-MOSFET Inverter Excitations.** *G. Nguyen¹, S. Odawara², K. Fujisaki³, F. Iwamoto⁴, T. Yamada⁴ and T. Sasaya⁴* 1. *Research Center for Smart Vehicles, Toyota Technological Institute, Nagoya, Japan;* 2. *Kitami Institute of Technology, Kitami, Japan;* 3. *Electromagnetic Energy System Laboratory, Toyota Technological Institute, Nagoya, Japan;* 4. *Advanced Research and Innovation Div. 3, Denso Corporation, Aichi, Japan*
- FT-10. Modeling Magnetic Holding Forces of Permanent Magnet Wheels.** *M.D. Noh¹, J. Kim¹ and Y. Park¹* 1. *Mechatronics Engineering, Chungnam Natl Univ, Daejeon, The Republic of Korea*
- FT-11. Analytical Modeling and Experimental Verification for Electromagnetic Analysis of Tubular Linear Synchronous Machines with Axially Magnetized Permanent Magnets accounting for Flux-Passing Iron Pole.** *K. Shin¹, H. Cho², D. You³ and J. Choi¹* 1. *Dept. of Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea;* 2. *Dept. of Electric, Electronic and Comm. Eng. Edu., Chungnam National University, Daejeon, The Republic of Korea;* 3. *Dept. of Fire Safety Engineering, Chungnam Provincial Cheongyang College, Chungnam, The Republic of Korea*
- FT-12. A Nonlinear Permanent Magnet Working Point Migration Model and its Application to Simulation of a Polarized Magnetic System.** *J. You^{1,2}, X. Liao¹, R. Wang¹, H. Liang¹ and J. Sykulski²* 1. *School of Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, China;* 2. *Electronics and Computer Science, University of Southampton, Southampton, United Kingdom*
- FT-13. Analysis of Multi-phase and Multi-layer Fractional-Slot Concentrated-Winding on PM Eddy Current Loss Considering Axial Segmentation and Load Operation.** *Q. Chen¹, D. Liang¹, S. Jia¹ and X. Wan¹* 1. *Xi'an Jiaotong University, Xi'an, China*
- FT-14. A study on the analytical methods for demagnetization characteristics of FEM-based permanent magnet synchronous motor.** *G. Jeong¹, D. Jung¹, H. Kim¹ and W. Kim²* 1. *Electrical Engineering, Hanyang university, Seoul, The Republic of Korea;* 2. *Gachon University, Seongnam-si, The Republic of Korea*
- FT-15. Determination of Solenoid Coil Size for Resonance-Based Magnetically Coupled Wireless Power Transfer with Rated Distance.** *H. Song¹ and Q. Xu¹* 1. *Key Laboratory of Image Processing and Intelligent Control of Education Ministry, Department of Control Science and Engineering, Huazhong University of Science and Technology, Wuhan, China*
- FT-16. Adagrad Algorithm based Optimal Slot-pole Selection for Reduced Inductance Harmonics in Concentrated Wound Multiphase PMSM.** *H. Dhulipati¹, E. Ghosh¹, S. Mukundan¹, J. Tjong¹ and N. C. Kar¹* 1. *University of Windsor, Windsor, ON, Canada*

Session FU
MODELLING OF MACHINES III
(Poster Session)

Jin Hur, Chair

Incheon National University, Seoul, The Republic of Korea

- FU-01. Performance Analysis of Squirrel Cage Induction Motors under Broken Rotor Bar and Stator Interturn Fault Conditions Using Analytical Modeling.** *M. Ojaghi¹, M. Sabouri¹ and J. Faiz²* *1. Electrical Engineering, University of Zanjan, Zanjan, The Islamic Republic of Iran; 2. University of Tehran, Tehran, The Islamic Republic of Iran*
- FU-02. Hybrid analytical modeling of saturated electromagnetic devices: Integration of Fourier modeling and magnetic equivalent circuits.** *J. Bao¹, B. Gysen¹ and E. Lomonova¹* *1. Eindhoven University of Technology, Eindhoven, Netherlands*
- FU-03. Convergence Analysis of SEM and FEM to an analytical field distribution in the airgap.** *M. Curti¹, J. Jansen¹ and E. Lomonova¹* *1. Electrical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands*
- FU-04. Reduction of Stator Core Loss in Interior PM Machines for Electric Vehicle Applications.** *Y. Hu¹ and S. Zhu¹* *1. Nanjing University of Aeronautics and Astronautics, Nanjing, China*
- FU-05. Vector Magnetic Characteristic Analysis of Induction Motor Considering Harmonic Wave by Slip Motion.** *M. Enokizono¹ and N. Kunihiro²* *1. Vector Magnetic Characteristic Technical Laboratory, Usa-city, Japan; 2. Oita University, Oita, Japan*
- FU-06. Elimination of Unipolar Leakage Flux in Consequent-Pole PM Machines by Employing Novel Pole Sequence.** *J. Li¹, K. Wang¹ and C. Liu¹* *1. Electrical Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing, China*
- FU-07. Indirect Analytical Method for Electromagnetic Performances Analysis of V-shaped Interior Permanent Magnet Synchronous Machine.** *L. Xu² and M. Lin¹* *1. Southeast University, Nanjing, China; 2. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*
- FU-08. Improved E&S Model for Core Loss Calculation of Brushless Doubly Fed Machine with Hybrid Rotor.** *F. Zhang¹, Y. Wang¹ and S. Yu¹* *1. School of Electrical Engineering, Shenyang University of Technology, Shenyang, China*

- FU-09. About Accuracy and Influence of the Pole Coverage for Eddy Current Losses within Permanent Magnets of Electrical Machines.** *E. Schmidt*¹ and *M. Kaltenbacher*²
1. Institute of Energy Systems and Electrical Drives, Vienna University of Technology, Vienna, Austria; 2. Institute of Mechanics and Mechatronics, Vienna University of Technology, Vienna, Austria
- FU-10. Non-conforming finite element method to simulate eddy currents due to motion using the $T, \Phi-\Phi$ formulation.** *G. Wallinger*¹ and *O. Biro*¹ *1. Institute of Fundamentals and Theory in Electrical Engineering, Graz University of Technology, Graz, Austria*
- FU-11. Analytical Method of the Cogging Torque in External Rotor Single-phase BLDC Motors applied Tapered Air-gap with notches.** *D. Kim*^{1,2}, *Y. Park*^{1,2} and *K. Woo*³ *1. Electrical Control Engineering, Sunchon National University, Suncheon, The Republic of Korea; 2. Green Energy Laboratory, Sunchon National University, Suncheon, The Republic of Korea; 3. Pukyong National University, Busan, The Republic of Korea*
- FU-12. Two-Level Surrogate-Assisted Differential Evolution Multi-objective Optimization of Electric Machines Using 3D Finite Element Analysis (FEA).** *N. Taran*¹, *D. Ionel*¹ and *D.G. Dorrell*² *1. Electrical and Computer Engineering, University of Kentucky, Lexington, KY, United States; 2. Discipline of Electrical, Electronics and Computer Engineering, University of KwaZulu-Natal, Durban, South Africa*
- FU-13. Comparison of Various Constraints in 3-D Adaptive Degrees-of-Freedom Finite Element Method.** *Y. Zhang*¹, *S. Ho*¹ and *W. Fu*¹ *1. Department of Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*
- FU-14. Finite-element Method with Topological Data Structure Mesh for Optimization of Electrical Device.** *X. Liu*¹ and *W. Fu*¹ *1. Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*
- FU-15. An equivalent circuit model for predicting core losses of a claw pole permanent magnet motor with molded soft magnetic composite core.** *X. Ba*^{1,2}, *C. Zhang*¹, *Y. Guo*² and *J. Zhu*² *1. Beijing Institute of Technology, BeiJing, China; 2. University of Technology, Sydney, Sydney, NSW, Australia*
- FU-16. Finite-element models for foil windings with an improved resolution of the electric field distribution.** *H. De Gersem*¹
1. Technische Universitaet Darmstadt, Darmstadt, Germany

Session FV
SPIN WAVES AND OPTICAL MAGNETISATION
SWITCHING
(Poster Session)

Kaiyou Wang, Chair

Institute of Semiconductors, Chinese Academy of Sciences, Beijing,
China

- FV-01. Excitation of spin waves by pure spin current.** *B. Divinskiy¹, V.E. Demidov¹, S.O. Demokritov¹ and S. Urazhdin²*
1. University of Muenster, Muenster, Germany; 2. Emory University, Atlanta, GA, United States
- FV-02. Spin wave coupling in strain-tuned magnonic waveguide and reconfigurable magnonic crystals.** *A.V. Sadovnikov^{1,2}, A. Grachev¹, S. Sheshukova¹, Y. Sharaevsky¹, A. Serdobintsev¹ and S. Nikitov^{1,2}*
1. Nonlinear Physics, Saratov State University, Saratov, Russian Federation; 2. Kotel'nikov Institute of Radioengineering and Electronics, Russian Academy of Sciences, Moscow, Russian Federation
- FV-03. Spin wave propagation in sputter-deposited YIG nanometer films.** *Y. Shiota¹, S. Kasukawa¹, T. Moriyama¹ and T. Ono^{1,2}*
1. Institute for Chemical Research, Kyoto University, Uji, Japan; 2. Center for Spintronics Research Network, Osaka University, Toyonaka, Japan
- FV-04. Suppression of spin-wave transport in antiferromagnets.** *J. Ohe¹ and N. Arakawa¹*
1. Department of Physics, Toho University, Funabashi, Japan
- FV-05. Antiferromagnetic magnonic crystals with alternating Dzyaloshinskii-Moriya interaction.** *S. Lee¹ and K. Lee¹*
1. Korea Univ., Seoul, The Republic of Korea
- FV-06. Motion of a skyrmionium driven by spin wave.** *M. Shen¹, Y. zhang¹, J. Ouyang¹, X. Yang¹ and L. You¹*
1. School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan, China
- FV-07. Bose-Einstein condensation of magnons in confined systems studied by micromagnetic simulations.** *M. Mohseni¹, T. Brächer¹, Q. Wang¹, O. Serga¹, B. Hillebrands¹ and P. Pirro¹*
1. Physics, TU Kaiserslautern, Kaiserslautern, Germany
- FV-08. Phase locking, intermittency and chaos, of an array of magnonic crystal cavities driven by spin torque nano oscillators.** *N. Kumar¹ and A. Prabhakar¹*
1. Electrical Engineering, IIT Madras, Chennai, India

- FV-09. Excitation of spin waves with controllable wavelength and spectrum by femtosecond laser pulses.** *I.V. Savochkin¹, M. Jäckl², V. Belotelov^{1,3}, I. Akimov^{2,4}, M. Kozhaev^{1,5}, D. Sylgacheva^{3,1}, A. Chernov^{1,5}, A. Shaposhnikov⁶, A. Prokopov⁶, V. Berzhansky⁶, D. Yakovlev^{2,4}, A. Zvezdin^{1,5} and M. Bayer^{2,4}* 1. Russian Quantum Center, Moscow, Russian Federation; 2. TU Dortmund, Dortmund, Germany; 3. Lomonosov Moscow State University, Moscow, Russian Federation; 4. Ioffe Institute, St. Petersburg, Russian Federation; 5. Prokhorov General Physics Institute, Moscow, Russian Federation; 6. Vernadsky Crimean Federal University, Simferopol, Russian Federation
- FV-10. Mechanism of Magnetic Orientation Reversal Induced by Ultrafast Laser.** *Y. Zou¹, H. Wang¹, Z. Zeng¹, T. Huang¹, Y. Xiao¹, W. Cheng³, K. Wang² and C. Xie¹* 1. Wuhan National Laboratory for Optoelectronics, Huazhong University of Science & Technology, Wuhan, China; 2. School of Physics, Huazhong University of Science & Technology, Wuhan, China; 3. School of Optical and Electronic Information, Huazhong University of Science & Technology, Wuhan, China
- FV-11. Hybrid characteristic of multi-shot circularly polarized laser pulses for magnetization switching process in L1₀-FePt nanoparticles.** *Y. Xiao¹, H. Wang², T. Huang¹, Y. Zou¹, Z. Zeng¹, K. Wang¹ and C. Xie¹* 1. Wuhan National Laboratory for Optoelectronics, Huazhong University of Science & Technology, Wuhan, China; 2. Wuhan National Laboratory for Optoelectronics, Huazhong University of Science & Technology, Wuhan, China
- FV-12. Roles of heating and helicity in ultrafast all-optical magnetization switching in TbFeCo.** *X. Lu^{1,2}, X. Zou¹, D. Hinzke³, T. Liu⁴, T. Cheng⁸, J. Wu^{1,2}, T. Ostler^{5,6}, J. Cai⁴, U. Nowak³, R.W. Chantrell¹, Y. Zhai⁷ and Y. Xu^{2,8}* 1. Department of Physics, University of York, York, United Kingdom; 2. York-Nanjing International Joint Center in Spintronics, Nanjing University, Nanjing, China; 3. Department of Physics, University of Konstanz, Konstanz, Germany; 4. Institute of Physics, Chinese Academy of Sciences, Beijing, China; 5. Computing, Engineering and Sciences, Sheffield Hallam University, Sheffield, United Kingdom; 6. Département de Physique, L'Université de Liège, Liège, Belgium; 7. Department of Physics, Southeast University, Nanjing, China; 8. Department of Electronics, University of York, York, United Kingdom
- FV-13. Femtosecond laser heating induced ultrafast magnetization reversal in TbCo films with different electron-phonon coupling interaction.** *W. Cheng^{1,2}, Y. Wang¹, Z. Liu¹, Y. Hui², H. Wang², J. Chen², Y. Hao¹ and X. Miao^{1,2}* 1. School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan, China; 2. Wuhan National Research Center for Optoelectronics, Huazhong University of Science and Technology, Wuhan, China
- FV-14. Photonic orbital angular momentum transfer and magnetic skyrmion rotation.** *W. Yang¹, H. Yang¹, Y. Cao¹ and P. Yan¹* 1. Microelectronics and Solid-State Electronics, University of Electronic Science and Technology of China, Chengdu, China

- FV-15. Dependency of Spin Pumping on Seed and Capping Layers in Co Ultrathin Films.** B.B. Singh¹, S. Jena¹ and S. Bedanta¹
1. Physical sciences, National Institute of science education and research, Bhubaneswar, India

THURSDAY
AFTERNOON
1:30

SIMPOR/ROSELLE BALLROOM

Session FW

TRANSFORMERS AND INDUCTORS: MODELLING II (Poster Session)

Makoto Sonehara, Co-Chair
Shinshu University, Nagano, Japan

Zhen Zhang, Co-Chair
Tianjin University, Tianjin, China

- FW-01. A Magnetic Integration Structure of Hybrid Distribution Transformer.** Y. Liu¹, D. Liang¹, M. Zhang¹, Y. Liang¹, X. Wan¹, Q. Chen¹, S. Wang¹ and S. Wang¹ *1. Xi'an Jiaotong University, Xi'an, China*
- FW-02. Analytical and FEM Calculation of Electrical Parameters of Carbon Steel Pipelines for DEH systems.** A. Chen¹, A. Nysveen¹, M. Høyer-Hansen² and J. Lervik² *1. Electrical power engineering, Norwegian University of Science and Technology, Trondheim, Norway; 2. SINTEF Energy Research, Trondheim, Norway*
- FW-03. Calculation method of armature commutation coil inductance in universal motor.** H. Jun¹, H. Kim¹, S. Oh¹ and W. Kim² *1. Electric Engineering Department, Hanyang University, Seoul, The Republic of Korea; 2. Energy IT department, Gachon University, Seongnam, The Republic of Korea*
- FW-04. Study the Effect of Inductor Nonlinear Behavior on the LCL Three Phase Grid- Connected Inverter.** S. Jiang¹, Y. Liu¹, H. Wang¹, G. Wang¹, J. Peng¹ and Y. Liu² *1. College of Mechatronics and Control Engineering, Shenzhen University, Shenzhen, China; 2. School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore, Singapore*
- FW-05. Prediction of Stray Loss in Transformer Wall Shunt due to Leakage Magnetic Flux.** K. Park¹, S. Hahn¹ and H. Ahn² *1. Electrical Engineering, Dong-A University, BUSAN, The Republic of Korea; 2. R&D Center, Power & Industrial Systems Performance Group, Hyosung Corporation, Changwon, The Republic of Korea*
- FW-06. A Novel Multi-unit Out-rotor Homopolar Inductor Machine for Flywheel Energy Storage System.** J. Yang¹, C. Ye¹, X. Liang¹, F. Xiong¹ and W. Xu¹ *1. State Key Laboratory of Advanced Electromagnetic Engineering and Technology (AEET), School of Electrical and Electronic Engineering (SEEE), Huazhong University of Science and Technology, Wuhan, China*

- FW-07. Fabrication and development of miniaturized efficient power converters using ultra-soft magnetic ribbons.** *H. Ahmadian Baghbaderani*¹, D.J. Cronin¹, P. McCloskey¹, S. Kulkarni¹, Z. Pavlovic¹, A. Masood¹, K. Ackland², P. Stamenov² and C. O'Mathuna¹ *1. Strategic Programs, Tyndall National Institute, Cork, Ireland; 2. School of Physics, Trinity College, Dublin, Ireland*
- FW-08. Prediction of Heating Power in Magnetic Pipe Conducting Large AC Current with High Frequencies Up to 200Hz.** *A. Chen*¹, A. Nysveen¹, J. Lervik² and M. Høyer-Hansen² *1. Electrical power engineering, Norwegian University of Science and Technology, Trondheim, Norway; 2. SINTEF energy, Trondheim, Norway*
- FW-09. A Novel Three Limb Topology of a Saturated Core Fault Current Limiter in HVDC System.** *H. Zhou*¹, J. Yuan¹, L. Wei^{1,2}, P. Gan¹, F. Chen¹, Y. Zhong¹, C. Tian¹, B. Chen¹, Y. Gao³ and K. Muramatsu³ *1. School of Electrical and Engineering, Wuhan University, Wuhan, China; 2. Department of Electrical Engineering, Graduate School of Engineering, Kyoto University, Kyoto, Japan; 3. Department of Electrical and Electronic Engineering, Saga University, Saga, Japan*
- FW-10. New Equivalent Circuit Model of UHVDC Converter Transformer Winding for the Calculation of Transient Potential Distribution.** *S. He*¹, C. Li¹, Y. Liu¹, Z. Zhao¹, J. Deng², J. Li¹ and H. Qian² *1. electrical engineering, xi'an jiaotong university, Xi'an, China; 2. Maintenance and Test Center of EHV Power Transmission Company, China Southern Power Grid, Guangzhou, China*
- FW-11. Dynamic Transformer Core Model Based on the Inverse Three-component Preisach Model.** *W. Sima*¹, D. Peng¹, M. Yang¹, M. Zou¹ and Y. Liu¹ *1. Chongqing University, Chongqing, China*
- FW-12. An Analytical and Numerical Hybrid Model for Static Characteristics of a Interior Permanent Magnet Machine.** *P. Jin*¹, Y. Guo¹ and Y. Zhu¹ *1. School of Energy and Electrical Engineering, Hohai University, Nanjing, China*
- FW-13. AC Loss Analysis of a Flux-coupling type Superconducting Fault Current Limiter.** *S. Yan*¹, Y. Tang¹, L. Ren¹ and Z. Wang¹ *1. Hua Zhong University of Science and Technology, Wuhan, China*

Session YA

**PANEL DISCUSSION: THE FUTURE OF INFORMATION
STORAGE AND MEMORY TECHNOLOGIES
(SPECIAL SESSION)**

Jingsheng Chen, Chair
National University of Singapore, Singapore

Dr. Ed Gage, *Vice President, Seagate Research Group, Minneapolis, MN, United States*

Dr. Thao A. Nguyen, *Senior Vice President of Head Operation, Western Digital Corporation, San Jose, CA, United States*

Dr. Danny Shum, *Fellow, Embedded Nonvolatile Memory Technology Development & Research, GLOBALFOUNDRIES, Singapore*

This special evening session features three executives from leading hard disk drive and memory companies discussing the state of the art and future directions of data storage and magnetic memory technology. Each will present their vision and roadmap of technology development. What revolutionary approaches will extend the dominance of the hard disk in mass data storage? How and when will magnetic random access memory (MRAM) become competitive? What breakthroughs are still anticipated to keep these technologies growing at historic trends? In particular, there will be description of recent demonstrations of hard disk drives with Heat Assisted Magnetic Recording (HAMR) and Microwave Assisted Magnetic Recording (MAMR). The current status of Spin Transfer Torque (STT) MRAM will also be presented along with discussions on the embedding of MRAM into contemporary CMOS circuits. Following the presentations of the panelists, there will be an extended period for questions from the audience and further discussion.

Session GA

**SYMPOSIUM ON THE PRESENT AND FUTURE OF
STT-MRAM**

Hyunsoo Yang, Chair
National University of Singapore, Singapore

9:00

GA-01. Highly Manufacturable Embedded STT-MRAM Technology. (Invited) *K. Nam¹ I. Samsung Electronics, Hawsung-City, The Republic of Korea*

9:30

GA-02. Embedded MRAM for Next-Generation Microcontroller Platform. (Invited) *K. Lee¹, S. Noh¹, V.B. Naik¹, J. Kwon¹, J. Lim¹, S. K¹, B. Behin-aein¹, K. Yamane¹, D. Zeng¹, K. Gan¹, H. Yang¹, N. Thiagarajah¹, S. Jang¹, L. Goh¹, R. Chao¹, N. Chung¹, T. Wee¹, T. Ling¹, J. Wong¹ and S. Woo¹ I. TD, GLOBALFOUNDRIES Singapore, Singapore*

10:00

- GA-03. STT-MRAM for embedded memory applications from eNVM to Last Level Cache. (Invited)** *L. Thomas¹, G. Jan¹, Y. Lee¹, H. Liu¹, J. Zhu¹, S. Le¹, S. Serrano-Guisan¹, J. Iwata-Harms¹, R. Tong¹, S. Patel¹, V. Sundar¹, D. Shen¹, J. Haq¹, Y. Yang¹, R. He¹, Z. Teng¹, V. Lam¹, P. Liu¹, H. Fukuzawa¹, Y. Wang¹, T. Zhong¹ and P. Wang¹* *I. TDK-Headway Technologies, Inc., Milpitas, CA, United States*

10:30

- GA-04. High Performance pMTJ with Ir as RKKY and PMA enhancing Layer. (Invited)** *Y. Huai¹* *1. Avalanche Technology, Fremont, CA, United States*

11:00

- GA-05. Advances in three-terminal spin-orbit torque MRAM devices. (Invited)** *R. Buhrman¹* *1. Cornell University, Ithaca, NY, United States*

11:30

- GA-06. The Pursuit of Saving Energy Consumption of Memory Systems by MRAMs, from STT-MRAM to Voltage-Control Spintronics Memory (VoCSM). (Invited)** *H. Yoda¹, N. Shimomura¹, Y. Ohsawa¹, Y. Kato¹, S. Shirotori¹, M. Shimizu¹, K. Koi¹, T. Inokuchi¹, H. Sugiyama¹, S. Oikawa¹, B. Altansargai¹, M. Ishikawa¹, A. Tiwari¹ and A. Kurobe¹* *1. R&D Center, Toshiba Corporation, Kawasaki, Japan*

FRIDAY
MORNING
9:00

ORCHID III

Session GB

NANOSTRUCTURED HARD MAGNETIC MATERIALS

Chih-huang Lai, Chair
National Tsing Hua University, HsinChu, Taiwan

9:00

- GB-01. Multicomponent nanostructured Nd-Fe-B permanent magnets prepared by Spark Plasma Sintering technique.** *T. Tomše^{1,2}, L.M. Scherf³, J. Jaćimović³, J. Dubois^{1,2} and S. Kobe^{1,2}* *1. Department for Nanostructured Materials, Jožef Stefan Institute, Ljubljana, Slovenia; 2. Jožef Stefan International Postgraduate School, Ljubljana, Slovenia; 3. ABB Corporate Research Center, Baden-Daettwil, Switzerland*

9:15

- GB-02. Ultra thin films of L1₀-MnAl on GaAs (001): tuning the properties of the Mn-Ga-As-Al interphase.** *C. Navío¹, M. Villanueva¹, E. Céspedes¹, F. Mompean², M. García-Hernández², J. Camarero^{3,1} and A. Bollero¹* *1. Division of Permanent Magnets and Applications, IMDEA Nanoscience, Madrid, Spain; 2. Instituto de Ciencia de Materiales de Madrid, ICMM-CSIC, Madrid, Spain; 3. Condensed Matter Physics, Universidad Autónoma de Madrid, Madrid, Spain*

9:30

- GB-03. Mechanochemical synthesis of Dy substituted $\text{Nd}_2(\text{Fe},\text{Co})_{14}\text{B}$ magnetic nanoparticles.** *Y. Zhong*¹, *V. Chaudhary*², *H. Parmar*², *X. Tan*¹ and *R.V. Ramanujan*¹ *1. School of Materials Science and Engineering, Nanyang Technological University, Singapore, Singapore; 2. Rolls-Royce@NTU Corporate Lab, Nanyang Technological University, Singapore, Singapore*

9:45

- GB-04. Large improvement in magnetic properties of hot deformed HREE-free Nd-Fe-B magnets using the rapid heating technique of the powder.** *Y. Nakazawa*¹, *R. Kato*¹, *Y. Shintani*¹ and *H. Shimizu*¹ *1. Honda R&D Co., Ltd. Automobile R&D Center, Haga-machi, Haga-gun, Japan*

10:00

- GB-05. Sustainability In The Production Of Sr-ferrite Magnets: Understanding Microstructure-Magnetic Correlation Translates To A Successful Recycling Case In Industry.** *A. Bollero*¹, *J. Rial*¹, *M. Villanueva*¹, *A. Seoane*², *J. Almunia*² and *R. Altimira*² *1. Permanent Magnets and Applications, IMDEA Nanoscience, Madrid, Spain; 2. Ingeniería Magnética Aplicada, IMA S.L., Barcelona, Spain*

10:15

- GB-06. Effects of Hot Pressing Temperature on Magnetic Properties of Hot Pressed Nanocrystalline Nd-Fe-B Magnets.** *Z. Jing*¹, *Z. Guo*¹, *M. Li*¹, *M. Zhu*¹ and *W. Li*¹ *1. Central Iron & Steel Research Institute, Division of Functional Materials, Beijing, China*

10:30

- GB-07. The effect of the presence of Ni/Cu coating residues on the recyclability of $\text{Sm}_2\text{Co}_{17}$ magnets.** *A. Eldosouky*^{1,2} and *I. Skulj*¹ *1. Magneti Ljubljana, d.d., Ljubljana, Slovenia; 2. Jozef Stefan International Postgraduate, Ljubljana, Slovenia*

10:45

- GB-08. Structural Evolution and Magnetic Properties of Bulk MnAl-C Prepared by High Pressure Compaction of Gas-atomized Powders.** *P. Si*^{1,2}, *H. Qian*¹, *J. Park*¹, *C. Choi*¹, *S. Han*¹ and *H. Ge*² *1. Korea Institute of Materials Science, Changwon, The Republic of Korea; 2. China Jiliang University, Hangzhou, China*

11:00

- GB-09. Additive Manufactured Magnetic Structures with Locally Varying Magnetization Direction in 3D.** *C. Huber*^{1,2}, *F. Bruckner*^{1,2}, *C. Abert*^{1,2}, *M. Groenefeld*³ and *D. Suess*^{1,2} *1. Physics of Functional Materials, University of Vienna, Vienna, Austria; 2. Christian Doppler Laboratory for Advanced Magnetic Sensing and Materials, Vienna, Austria; 3. Magnetfabrik Bonn GmbH, Bonn, Germany*

11:15

- GB-10. Magnetic Force Equations based on Computer Simulation and the Effect of Load Line.** *C. Chen^{1,3}, H. Meng² and M. Fan¹*
1. Quadrant at San Jose, San Jose, CA, United States;
2. Quadrant at Hangzhou, Hangzhou, China; 3. Magnet Energy LLC, San Jose, CA, United States

11:30

- GB-11. High (BH)_{max} (Nd,Dy)-(Fe,Co)-B Hard Magnetic Powders Synthesized by Microwave Processing.** *X. Tan¹, H. Parmar^{1,2}, V. Chaudhary^{1,2}, Y. Zhong¹ and R.V. Ramanujan¹*
1. Materials Science and Engineering, Nanyang Technological University, Singapore, Singapore; 2. Rolls-Royce@NTU Corporate Lab, Nanyang Technological University, Singapore, Singapore

11:45

- GB-12. Sintered Multicomponent Magnets for Electrical Machines.** *L.M. Scherf¹, D. Tremelling², J. Jaćimović¹, R. Kessler¹, T. Tomše³ and L. Herrmann¹*
1. Corporate Research Center, ABB, Baden-Dättwil, Switzerland; 2. Corporate Research Center, ABB, Raleigh, NC, United States; 3. Department for Nanostructured Materials, Jozef Stefan Institut, Ljubljana, Slovenia

FRIDAY
MORNING
9:00

ORCHID IV

Session GC
MAGNETISATION SWITCHING AND
MAGNON-PHOTON COUPLING

Philipp Pirro, Co-Chair
TU Kaiserslautern, Kaiserslautern, Germany
Sebastiaan van Dijken, Co-Chair
Aalto University, Espoo, Finland

9:00

- GC-01. Domain Wall Motion Driven by Laplace Pressure in CoFeB-MgO Nanodots with Perpendicular Anisotropy.** *Y. Zhang^{1,2}, X. Zhang¹, N. Vernier², Z. Zhang¹, G. Agnus², J. Coudevylle², X. Lin¹, Y. Zhang¹, Y. Zhang¹, W. Zhao¹ and D. Ravelosona²*
1. Beihang University, Beijing, China; 2. Centre de Nanosciences et de Nanotechnologies, CNRS, University of Paris-Sud, Orsay, France

9:15

- GC-02. Oscillatory spin-orbit torque switching due to field-like torques.** *J. Lee¹, J. Kwon¹, R. Ramaswamy¹, R. Mishra¹, S. Srivastava¹, K. Cai¹ and H. Yang¹*
1. Department of Electrical Engineering and Computer Engineering, National University of Singapore, Singapore

9:30

- GC-03. Magnetization damping in spin-orbit coupled magnetic textures.** C.A. Akosa¹, Z. Yuan³, A. Takeuchi² and G. Tatara¹
1. RIKEN Center for Emergent Matter Science (CEMS), Wako, Japan; 2. Department of Physics and Mathematics, Aoyama Gakuin University, Sagami-hara, Japan; 3. The Center for Advanced Quantum Studies and Department of Physics, Beijing Normal University, Beijing, China

9:45

- GC-04. Structural and magnetic study by nonmagnetic (Ti⁴⁺ and Ga³⁺) doping at Ru site in SrRuO₃.** R. Gupta¹ and A. Pramanik¹
1. School of Physical Science, Jawaharlal Nehru University, New Delhi, India

10:00

- GC-05. Plasmon-Induced Demagnetization and Magnetic Switching in Nickel Nanoparticle Arrays.** M. Kataja¹, F. Freire-Fernandez¹, J. Witteveen¹, T. Hakala¹, P. Törmä¹ and S. van Dijken¹
1. Department of Applied Physics, Aalto University, Espoo, Finland

10:15

- GC-06. Scaling of All-Optical Switching to Nanometer Dimensions.** A. El-Ghazaly¹, C. Lambert¹, B. Tran², A. Pattabi¹, J. Gorchon^{1,3}, S. Salahuddin¹, H. Wong⁴ and J. Bokor¹
1. Electrical Engineering and Computer Science, University of California Berkeley, Berkeley, CA, United States; 2. Physics, University of California Berkeley, Berkeley, CA, United States; 3. Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 4. Electrical Engineering, Stanford University, Stanford, CA, United States

10:30

- GC-07. Magnons in Photonic Cavities and Resonators. (Invited)** B. Rameshti¹, S. Sharma², Y. Blanter² and G. Bauer^{3,4}
1. Institute for Research in Fundamental Sciences, Tehran, The Islamic Republic of Iran; 2. Delft University of Technology, Delft, Netherlands; 3. Tohoku University, Sendai, Japan; 4. University of Groningen, Groningen, Netherlands

11:00

- GC-08. Cavity Spintronics. (Invited)** C. Hu¹
1. Department of Physics and Astronomy, University of Manitoba, Winnipeg, MB, Canada

11:30

- GC-09. Tunable magnon photon coupling using a BLIG ((LuBi)₃Fe₅O₁₂) film and a split ring resonator.** M. M¹, S. S², G. Venkat¹, K. Arunachalam² and A. Prabhakar¹
1. Electrical Engineering, Indian Institute of Technology Madras, Chennai, India; 2. Engineering Design, Indian Institute of Technology Madras, Chennai, India

- GC-10. Microwave to optical photon conversion by means of travelling-wave magnons in YIG films.** *M. Kostylev*¹ and *A. Stashkevich*² *1. University of Western Australia, Crawley, WA, Australia; 2. LSPM (CNRS-UPR 3407), Université Paris 13, Villetaneuse, France*

FRIDAY
MORNING
9:00

PEONY IV

Session GD
SPIN-ORBITRONICS IV

Yi Wang, Chair
National University of Singapore, Singapore

9:00

- GD-01. Modulation of spin-orbit torque efficiency in ultrathin ferromagnetic layer with different capping layers.** *Z.A. Bekele*¹, *K. Meng*¹, *J. Chen*¹, *Y. Wu*¹, *J. Miao*¹, *X. Xu*¹ and *Y. Jiang*¹ *1. School of Materials Science and Engineering, University of Science and Technology Beijing, China*

9:15

- GD-02. Charge-spin current interconversion in epitaxial systems: symmetric spin-torque ferromagnetic resonance scan but not infinity spin Hall angle.** *S. Petit-Watelot*¹, *C. Guillemard*¹, *S. Andrieu*¹ and *J. Rojas-Sánchez*¹ *1. Institut Jean Lamour - CNRS - Univ. Lorraine, Nancy, France*

9:30

- GD-03. Nonvolatile memory devices with magnetic nanowires controlled by spin-transfer and spin-orbit torques. (Invited)** *S. Fukami*¹ and *H. Ohno*¹ *1. Tohoku University, Sendai, Japan*

10:00

- GD-04. Magnon transport in multilayer magnetic system.** *Z. Fu*², *S. Ruta*¹, *T. Ostler*³, *A. Kimel*⁴, *R.F. Evans*¹ and *R.W. Chantrell*¹ *1. Physics, University of York, York, United Kingdom; 2. Tongji University, Shanghai, China; 3. Sheffield Hallam University, Sheffield, United Kingdom; 4. Institute for Molecules and Materials, Radboud University Nijmegen, Nijmegen, Netherlands*

10:15

- GD-05. Enhancement of Gilbert damping in NiFe/Pt bilayers with MgO capping layers.** *T. Zhu*¹ and *F. Chang*^{1,2} *1. State Key Lab for Magnetism, Institute of Physics, Chinese Academy of Sciences, Beijing, China; 2. Institute of high energy physics, Beijing, China*

10:30

- GD-06. Influence of W insertion layer in Ta and CoFeB on antidamping-like effective torque efficiency.** *I. Cha*¹, *Y. Kim*¹, *G. Kim*¹, *T. Kim*¹, *K. Garello*² and *Y.K. Kim*¹
1. Materials Science and Engineering, Korea University, Seoul, The Republic of Korea; 2. Imec, Leuven, Belgium

10:45

- GD-07. Optimize Fe/Pt bilayers as efficient spintronic terahertz emitters by tailoring the thickness of the layers and the interface structural properties.** *L. Scheuer*¹, *S. Keller*¹, *G. Torosyan*², *M. Battiato*³, *R. Beigang*¹ and *E. Papaioannou*¹
1. Physics, TU Kaiserslautern, Kaiserslautern, Germany; 2. Photonic Center Kaiserslautern, Kaiserslautern, Germany; 3. School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore

11:00

- GD-08. Spin Seebeck effect in a polycrystalline bulk-YIG fabricated by the sol-gel synthesis.** *M. Jang*¹ and *K. Lee*¹ *1. Materials Science and Engineering, Ulsan National Institute of Science and Technology (UNIST), Ulsan, The Republic of Korea*

11:15

- GD-09. Anomalous Nernst and Hall effects in ferromagnetic multilayers.** *M. Mizuguchi*^{1,2}, *H. Suzuki*¹, *H. Sharma*^{1,2} and *K. Takanashi*¹ *1. Tohoku University, Sendai, Japan; 2. JST-CREST, Kawaguchi, Japan*

11:30

- GD-10. Thermal contribution to the spin-orbit torque in metallic/ferrimagnetic systems: the switching temperature.** *J. Rojas-Sánchez*¹, *T. Pham*¹, *S. Je*^{2,1}, *P. Vallobrá*¹, *T. Fache*¹, *D. Lacour*¹, *G. Malinowski*¹, *M. Cyrille*³, *G. Gaudin*², *O. Boulle*², *M. Hehn*¹ and *S. Mangin*¹ *1. Institut Jean Lamour - CNRS - Univ. Lorraine, Nancy, France; 2. CNRS, SPINTEC, Grenoble, France; 3. Leti, technology research institute, CEA, Grenoble, France*

11:45

- GD-11. Anomalous hall effect in Ultrathin FePt ferromagnetic layer.** *J. Yu*^{1,2}, *L. Liu*¹, *J. Deng*¹, *H. Yoong*¹, *W. Lin*¹, *H. Wang*¹, *H. Liu*², *F. Poh*², *D. Shum*² and *J. Chen*¹ *1. Material Science and Engineering, National University of Singapore, Singapore; 2. GLOBALFOUNDRIES Singapore Pte Ltd., Singapore 738406, Singapore*

Session GE
EXCHANGE COUPLING, SUPERCONDUCTIVITY AND
ELECTRONIC STRUCTURES II

Xiaoxi Liu, Chair
Shinshu University, Nagano, Japan

9:00

- GE-01. Chiral Majorana Fermion Modes in a Quantum Anomalous Hall insulator-Superconductor Structure for Topological Quantum Computing. (Invited) K. Wang¹** *1. Departments of ECE, Physics and Astronomy, and MSE, University of California, Los Angeles, Los Angeles, CA, United States*

9:30

- GE-02. Superconducting exchange coupling and spin currents between ferromagnets. (Invited) M.G. Blamire¹** *1. Materials Science, University of Cambridge, Cambridge, United Kingdom*

10:00

- GE-03. Domain Imaging Across the Magneto-Structural Phase Transition in Fe_{1+y}Te . J. Warmuth³, M. Bremholm¹, P. Hofmann², J. Wiebe³ and R. Wiesendanger³** *1. Department of Chemistry, Aarhus University, Aarhus, Denmark; 2. Department of Physics and Astronomy, Interdisciplinary Nanoscience Center (iNANO), Aarhus University, Aarhus, Denmark; 3. Department of Physics, Hamburg University, Hamburg, Germany*

10:15

- GE-04. Coexistence of Ferromagnetism and Superconductivity in Zn-ion implanted and buffer-free InN films. W. Xie¹, Q. Xie², F. Duan¹, K. Wang¹, H. Tian¹ and X. Wu¹** *1. Physics, Nanjing University, Nanjing, China; 2. Nanjing University of Posts and Telecommunications, Nanjing, China*

10:30

- GE-05. Diamagnetically diluted iron borate-based single crystals: EMR and SQUID studies. J. Kliava¹, P. Rosa², K. Seleznyova³, M. Strugatsky³ and S. Yagupov³** *1. LOMA, UMR 5798, Université de Bordeaux-CNRS, Talence, France; 2. ICMCB, UPR 9048, Université de Bordeaux-CNRS, Pessac, France; 3. V.I. Vernadsky Crimean Federal University, Simferopol, Russian Federation*

10:45

- GE-06. Theory of Mn-containing high-magnetization permanent magnets. (Invited) A. Kashyap¹, D. Sellmyer² and R. Skomski²** *1. School of Basic Sciences, IIT Mandi, Mandi, India; 2. Department of Physics and Astronomy, NCMN, University of Nebraska-Lincoln, Lincoln, NE, United States*

11:15

- GE-07. Origin of perpendicular magnetic anisotropy in Co/Pd multilayers studied by x-ray magnetic circular dichroism and first-principles calculations.** *J. Okabayashi*¹, *Y. Miura*² and *H. Munekata*³ *1. The University of Tokyo, Bunkyo-ku, Japan; 2. Kyoto Institute of Technology, Kyoto, Japan; 3. Tokyo Institute of Technology, Yokohama, Japan*

11:30

- GE-08. Perpendicular exchange bias in CoPt/FeMn bilayers.** *C. Pan*^{1,2}, *T. Gao*³, *T. Harumoto*², *Z. Zhang*¹, *Y. Nakamura*² and *J. Shi*² *1. School of Materials Science and Engineering, Tsinghua University, Beijing, China; 2. School of Materials and Chemical Technology, Tokyo Institute of Technology, Tokyo, Japan; 3. Department of Applied Physics and Physicoinformatic, Keio University, Yokohama, Japan*

11:45

- GE-09. Additively Manufactured Functionally Graded FeNi based High Entropy Magnetic Alloys.** *V. Chaudhary*¹, *T. Borkar*^{2,3}, *C.V. Mikler*², *B. Gwalani*², *D. Choudhuri*², *V. Soni*², *T. Alam*², *R.V. Ramanujan*¹ and *R. Banerjee*² *1. Nanyang Technological University, Singapore, Singapore; 2. University of North Texas, Denton, TX, United States; 3. Cleveland State University, Cleveland, OH, United States*

FRIDAY
MORNING
9:00

PEONY I

Session GF
SPIN WAVES II
Florin Ciubotaru, Chair
IMEC, Leuven, Belgium

9:00

- GF-01. Crossover to subthermal magnons spin conductance in open YIG films driven by large spin-orbit torque. (Invited)** *O. Klein*¹, *N. Thiery*¹, *L. Vila*¹, *G. de Loubens*², *V. Naletov*², *V.E. Demidov*³ and *S.O. Demokritov*³ *1. CEA-SPINTEC, GRENOBLE, France; 2. CEA-SPEC, Gif-Sur-Yvette, France; 3. Physics department, University of Muenster, Muenster, Germany*

9:30

- GF-02. Mapping surface anisotropies in ferromagnetic (Ga,Mn)As films.** *X. Liu*¹, *M. Dobrowolska*¹, *J. Furdyna*¹, *H. Puzkarski*² and *P. Tomczak*² *1. Physics, University of Notre Dame, Notre Dame, IN, United States; 2. Faculty of Physics, Adam Mickiewicz University, ul. Umultowska, Poland*

- GF-03. Reconfigurable Spin Wave Propagation in Pseudo One-Dimensional Magnonic Crystal for High Frequency Nanoscale Devices.** C. Banerjee¹, S. Choudhury¹, J. Sinha¹ and A. Barman¹ *1. S. N. Bose National Centre for Basic Sciences, Kolkata, India*

10:00

- GF-04. Field Controlled Modulation of Magnetization Dynamics and Spin-Wave Mode Conversion in Two-Dimensional Nanoscale Antidot Lattices.** A. De¹, S. Mondal¹, S. Sahoo¹, S. Barman², Y. Otani³ and A. Barman¹ *1. S. N. Bose National Centre for Basic Sciences, Kolkata, India; 2. Institute of Engineering and Management, Kolkata, India; 3. The University of Tokyo, Chiba, Japan*

10:15

- GF-05. Propagating spin waves and reprogrammability in 1D Fibonacci magnonic quasicrystals.** F. Lisiecki¹, J. Rychly², P. Kuswik^{1,3}, H. Glowinski¹, M. Zelent², F. Gross⁴, I. Bykova⁴, M. Weigand⁴, G. Schütz⁴, J.W. Klos^{2,5}, M. Krawczyk², F. Stobiecki^{1,6}, J. Dubowik¹ and J. Gräfe⁴ *1. Institute of Molecular Physics Polish Academy of Sciences, Poznan, Poland; 2. Faculty of Physics, Adam Mickiewicz University, Poznan, Poland; 3. Centre for Advanced Technology, Adam Mickiewicz University, Poznan, Poland; 4. Max Planck Institute for Intelligent Systems, Stuttgart, Germany; 5. Institute of Physics, Ernst Moritz Arndt University, Greifswald, Germany; 6. NanoBioMedical Centre, Adam Mickiewicz University, Poznan, Poland*

10:30

- GF-06. 3D magnonic crystals.** E. Beginin¹, A.V. Sadovnikov^{1,2}, A. Sharaevskaia^{1,2}, A. Stognij³ and S. Nikitov^{1,2} *1. Nonlinear Physics, Saratov State University, Saratov, Russian Federation; 2. Kotel'nikov Institute of Radioengineering and Electronics, Russian Academy of Sciences, Moscow, Russian Federation; 3. Scientific-Practical Materials Research Center, National Academy of Sciences of Belarus, Minsk, Belarus*

10:45

- GF-07. Magnetization Dynamics of Ni₈₀Fe₂₀ Nanowires with Continuous Width Modulation.** L. Xiong¹, M. Kostylev² and A. Adeyeye¹ *1. National University of Singapore, Singapore; 2. University of Western Australia, Crawley, WA, Australia*

11:00

- GF-08. Efficient Modulation of Spin Wave Dynamics in two-dimensional Quasiperiodic magnonic crystals.** S. Choudhury¹, S. Barman², Y. Otani^{3,4} and A. Barman¹ *1. S. N. Bose National Centre for Basic Sciences, Kolkata, India; 2. Institute of Engineering and Management, Kolkata, India; 3. Institute for Solid State Physics, University of Tokyo, Kashiwa, Japan; 4. RIKEN-CEMS, Wako, Japan*

11:15

- GF-09. Low losses YIG based nano-magnonic crystals for tunable frequency filtering.** *H.P. Merbouche¹, M. Collet¹, L. Soumah¹, S. Xavier², V. Cros¹, P. Bortolotti² and A. Anane^{1,3}* *1. Unité Mixte de Physique CNRS/THALES, Palaiseau, France; 2. Thales Research & Technology, Palaiseau, France; 3. Université Paris-Sud, Orsay, France*

11:30

- GF-10. Integrated magnonic networks based on the lateral magnonic stripes and magnonic crystals.** *A.V. Sadovnikov^{1,2}, Y. Sharaevsky¹, S. Sheshukova¹, E. Beginin¹ and S. Nikitov^{2,1}* *1. Nonlinear Physics, Saratov State University, Saratov, Russian Federation; 2. Kotel'nikov Institute of Radioengineering and Electronics, Russian Academy of Sciences, Moscow, Russian Federation*

11:45

- GF-11. Tunable microwave properties of rhomboid shaped nanomagnet pairs.** *C. Tian¹ and A. Adeyeye¹* *1. Electrical and Computer Engineering, National University of Singapore, Singapore*

FRIDAY
MORNING
9:00

PEONY III

Session GG
MODELLING OF MACHINES V
Parag Upadhyay, Chair
ABB Inc., Raleigh, NC, United States

9:00

- GG-01. High-order methods applied to electrical machine modeling.** *L. Friedrich¹, M. Curti¹, B. Gysen¹, J. Jansen¹ and E. Lomonova¹* *1. EPE, TU/e, Eindhoven, Netherlands*

9:15

- GG-02. Reluctance Network Model of Permanent Magnet Synchronous Motor Considering Magnetic Hysteresis Behavior.** *Y. Hane¹ and K. Nakamura¹* *1. Tohoku University, Sendai, Japan*

9:30

- GG-03. Motor Core Losses Evaluation with PWM and PAM Inverter Excitations in Computational Analysis and Experiments.** *G. Nguyen¹, S. Odawara², T. Endo³, C. Taki³, K. Fujisaki³, F. Iwamoto⁴, T. Yamada⁴ and T. Sasaya⁴* *1. Research Center for Smart Vehicles, Toyota Technological Institute, Nagoya, Japan; 2. Kitami Institute of Technology, Kitami, Japan; 3. Electromagnetic Energy System Laboratory, Toyota Technological Institute, Nagoya, Japan; 4. Advanced Research and Innovation Div. 3, DENSO CORPORATION, Aichi, Japan*

9:45

- GG-04. Unity Power Factor Control Method for Permanent Magnet Synchronous Generator Based on Flux-Weakening Current Injection.** *Y. Xu¹, Z. Zhang¹, Y. Jiang¹, J. Huang¹ and Z. Miao¹*
1. Nanjing University of Aeronautics and Astronautics, Nanjing, China

10:00

- GG-05. Virtual Flux Direct Power and Voltage Balance Control of Dual-Stator Linear and Rotary Permanent Magnet Generator.** *C. Zhang¹, L. Xu¹ and X. Hu¹*
1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China

10:15

- GG-06. Computation of Cogging Force of a Linear Tubular Flux switching Permanent Magnet Machine Using a Hybrid Analytical Modeling.** *D. Lo¹, H. Lawali Ali¹, Y. Amara¹, G. Barakat¹ and F. Chabour¹*
1. GREAH, University of Le Havre, France, Le Havre, France

10:30

- GG-07. A fully magnetic multi-scale model dedicated to power grid planning.** *V.G. Mazauric^{1,2} and N. Maïzi²*
1. Strategy & Technology, Schneider Electric, Grenoble, France; 2. Centre for Applied Mathematics, MINES ParisTech, PSL Research University, Sophia-Antipolis, France

10:45

- GG-08. Electromechanical Analysis in Electromagnetic Rail Launcher With Different Cross Section Rails.** *X. Wan¹, J. Lou¹, J. Lu² and D. Liang¹*
1. School of Electrical Engineering, Xi'an Jiaotong University, Xi'an, China; 2. School of Electrical Engineering, Naval University of Engineering, China, Wuhan, China

11:00

- GG-09. Reduced Order Modeling of Axially Laminated Synchronous Reluctance Motors Based on Numerical Field Solutions.** *D. Lin¹, P. Zhou¹ and M. Rahman²*
1. Ansys Inc., Pittsburgh, PA, United States; 2. Memorial University of Newfoundland, St. John's, NL, Canada

11:15

- GG-10. Development of a New Approach to Core Quality Assessment of Modern Electrical Machines.** *H. Bahmani¹*
1. Ulster University, Londonderry, United Kingdom

11:30

- GG-11. Memory Efficient Harmonic Method for Electromagnetic Models Using Scattering Matrices.** *C. Custers¹, J. Jansen¹ and E. Lomonova¹*
1. Department of Electrical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands

- GG-12. Analysis of Temperature Field of High Power Permanent Magnet Driving Motor for Special Vehicle.** *C. Li¹ and J. Gao¹*
1. Hunan University, Chang Sha, China

FRIDAY
 MORNING
 9:00

PEONY II

Session GH
HIGH SPEED MACHINES II

Heyun Lin, Co-Chair
 Southeast University, Nanjing, China
 Vincent Mazauric, Co-Chair
 Schneider Electric, Grenoble, France

9:00

- GH-01. Exciting Force and Vibration Analysis of Stator Permanent Magnet Synchronous Motor.** *J. Hong¹, S. Wang¹, Y. Sun¹, J. Li¹ and H. Cao¹* *1. Tsinghua University, Beijing, China*

9:15

- GH-02. Loss Calculation and Thermal Analysis of a High Speed Permanent Magnet Synchronous Motor with an Amorphous Metal Stator Core.** *W. Tong¹, R. Sun¹, C. Zhang¹, S. Wu¹ and X. Ma¹* *1. School of Electrical Engineering, Shenyang University of Technology, Shenyang, China*

9:30

- GH-03. Investigation of Losses for a Concentrated Winding High Speed Permanent Magnet Assisted Synchronous Reluctance Motor for Washing Machine Application.** *O.F. Payza^{1,2}, Y. Demir^{1,3} and M. Aydin^{1,3}* *1. Kocaeli University, Kocaeli, Turkey; 2. Arcelik A.S, Istanbul, Turkey; 3. MDS Motor Design Ltd., Kocaeli, Turkey*

9:45

- GH-04. Design and Analysis of Halbach Array Flywheel Motor/Generators.** *M. Yin¹, K. Liu¹, Y. Kong¹ and M. Lin¹*
1. Southeast University, Nanjing, China

10:00

- GH-05. Eddy-Current Loss Measurement of Permanent Magnet Material at Different Frequency.** *C. Zhang¹, B. Jiang¹, R. Chen¹, Y. Li¹ and Q. Yang²* *1. Hebei University of Technology, Tianjin, China; 2. Tianjin Polytechnic University, Tianjin, China*

10:15

- GH-06. Reduction of Rotor Losses by Using Amorphous Rotor Core for Ultra-High-Speed Motors.** *Y. Liu¹, J. Ou¹, M. Schiefer¹, P. Breining¹ and M. Doppelbauer¹* *1. Karlsruhe Institute of Technology, Karlsruhe, Germany*

10:30

GH-07. Design and Optimize an external rotor Ironless BLDCM used in a Flywheel Energy Storage System. *K. Liu¹, M. Yin¹, X. Fu¹, M. Lin¹ and Y. Kong¹* *1. Institute of Electrical Engineering, Southeast University, Nanjing, China*

10:45

GH-08. Four Degrees of Freedom Self-decoupling Bearingless Motor for Direct-Driven Flywheel. *Y. Yuan¹, Y. Sun^{1,2}, Z. Zhu², G. Meng², Y. Huang¹ and F. Yang¹* *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China; 2. School of Power Engineering, Nanjing Institute of Technology, Nanjing, China*

11:00

GH-09. Comparison of Sleeve Types for Ultra-High-Speed Surface-Mounted PM Motors. *Y. Liu¹, J. Ou¹, M. Schiefer¹ and M. Doppelbauer¹* *1. Karlsruhe Institute of Technology, Karlsruhe, Germany*

11:15

GH-10. Simulation and Experimental Research on No-Load Losses of an IPM Motor under the Conditions of both Sinusoidal Supply and Converter Supply. *W. Tong¹, Y. Wang¹, R. Sun¹, S. Wu¹ and J. Jia¹* *1. School of Electrical Engineering, Shenyang University of Technology, Shenyang, China*

11:30

GH-11. A Novel Topology of Magnetic Gear. *O. Molokanov¹, P. Dergachev¹, S. Osipkin¹, E. Kuznetsova¹ and P. Kurbatov¹* *1. Moscow Power Engineering Institute, Moscow, Russian Federation*

FRIDAY
MORNING
9:00

ORCHID II

Session GI RECORDING SYSTEMS AND HEAD-DISK INTERFACE

Debashish Tripathy, Co-Chair
Western Digital, San Jose, CA, United States

Jun Zhang, Co-Chair
3M Singapore, R&D Center, Singapore, Singapore

9:00

GI-01. Channel modeling and multi-island recording scheme on bit patterned media with long-range island orientation fluctuations. *Y. Wang^{1,2}, V. Bhagavatula^{2,3}, Y. Wen¹ and P. Li¹* *1. School of Electronic Information and Electric Engineering, Shanghai Jiao Tong University, SHANGHAI, China; 2. Electrical and Computer Engineering Department, Carnegie Mellon University, Pittsburgh, PA, United States; 3. Carnegie Mellon University, Kigali, Rwanda*

9:15

- GI-02. A Bit-Flipping Technique Based on 2D Modulation Constraint in BPMR Systems.** *W. Busyatrak¹, N. Jongsawat¹, L.M. Myint³ and C. Warisarn²* 1. Faculty of Science and Technology, Rajamangala University of Technology Thanyaburi, Thailand, Thanyaburi, Thailand; 2. King Mongkut's Institute of Technology Ladkrabang (KMITL), Bangkok, Thailand; 3. Shinawatra University, Pathumthani, Thailand

9:30

- GI-03. Unbalanced Track Pitch Combined with 2D Modulation Code in TDMR Systems.** *K. Pituso¹, C. Warisarn¹ and D. Tongsomporn²* 1. College of Advanced Manufacturing Innovation (AMI), King Mongkut's Institute of Technology Ladkrabang, KMITL, Bangkok, Thailand; 2. Seagate Technology (Thailand), Samutprakarn, Thailand

9:45

- GI-04. Spatially-Coupled Codes for Channels with SNR Variation.** *H. Esfahanizadeh¹, A. Hareedy¹, R. Wu¹, R. Galbraith² and L. Dolecek¹* 1. Department of Electrical and Computer Engineering, University of California, Los Angeles, Los Angeles, CA, United States; 2. Hitachi Global Storage Technologies, a Western Digital Company, Rochester, MN, United States

10:00

- GI-05. The Effective Fuzzy Logic Equalizer Based Adaptive Nonlinear Equalization for the Nonlinear Perpendicular Magnetic Recording Channels.** *R. Wongsathan¹ and P. Supnithi¹* 1. Electrical Engineering, King Mongkut's Institute of Technology Ladkrabang (KMITL), Bangkok, Thailand

10:15

- GI-06. Flexible Inter-track Interference Cancellation for Generalized Interlaced Magnetic Recording.** *S. Yoon¹ and E. Hwang¹* 1. School of Mechatronics, Gwangju Institute of Science and Technology, Gwangju, The Republic of Korea

10:30

- GI-07. 1/f thermally excited noise in asymmetric oscillators.** *T. Pipathanapoompron^{1,5}, A. Stankiewicz², A. Grier⁴, K. Subramanian³ and A. Kaewrawang¹* 1. Electrical Engineering, Khon Kaen University, Khon Kaen, Thailand; 2. Seagate Technology, Bloomington, MN, United States; 3. Seagate Technology, Shakopee, MN, United States; 4. Seagate Technology, Spring Town, United Kingdom; 5. Seagate Technology, Korat, Thailand

10:45

- GI-08. Molecularly Structural Change of PFPE Lubricant Accumulated on Pin Surface at Laser Heating.** *H. Tani¹, Y. Shibahara², R. Lu¹, S. Koganezawa¹ and N. Tagawa¹* 1. Mechanical Engineering Dept., Kansai University, Suita-shi, Japan; 2. Graduate School of Kansai University, Suita-shi, Japan

11:00

- GI-09. HAMR Air Bearing, Water Monolayer Vaporization and Diffusion.** *O.J. Ruiz¹ 1. Advance Tribology, Western Digital, San Jose, CA, United States*

11:15

- GI-10. Modified MGL Equation Considering Both Effects of Surface Roughness and Accommodation Coefficient for Ultra-thin Gas Film Lubrication.** *B. Shi^{1,2}, K. Guo¹, Y. Sun¹ and Y. Feng¹ 1. School of Mechanical and Electrical Engineering, Shandong Jianzhu University, Jinan, China; 2. School of Mechanical Engineering, Hebei University of Technology, Tianjin, China*

11:30

- GI-11. Investigation into slider wear under high temperature.** *Y. Wang^{1,2} and X. Wei³ 1. University of California, Berkeley, Berkeley, CA, United States; 2. Xi'an Jiaotong University, Xi'an, China; 3. SAE Magnetics (H.K.) Ltd., Dongguan, China*

11:45

- GI-12. Effect of Pressure and Temperature on Lubricant Transfer from Disk to Slider in Helium-filled Hard Disk Drives.** *Z. Tang¹, D. Zhou¹, T. Jia¹, C. Zhang² and B. Shi³ 1. School of Mechanical Engineering, Guizhou University, Guiyang, China; 2. School of Mechatronics Engineering, Harbin Institute of Technology, Harbin, China; 3. School of Mechanical and Electrical Engineering, Shandong Jianzhu University, Jinan, China*

FRIDAY
MORNING
8:30

SIMPOR/ROSELLE BALLROOM

Session GP

ELECTRICAL MACHINES AND CONTROL II (Poster Session)

Mingyao Lin, Co-Chair

Southeast University, Nanjing, China

Po-Wei Huang, Co-Chair

National Cheng Kung University, Tainan, Taiwan

- GP-01. A Torque Compensation Control Scheme of PMSM Considering Wide Variation of Permanent Magnet Temperature.** *S. Cho¹ 1. Electric Power Train System R&D Center, Korea Automotive Technology Institute, Cheonan-si, The Republic of Korea*
- GP-02. Comparison of Unbalanced Forces in a BLDC Motor Considering Difference in Resistance According to the Number of Parallel Circuits and Winding Concept.** *H. Lee¹, K. Shin¹, S. Cho¹, T. Bang¹ and J. Choi¹ 1. Dept. of Electric, Electronic and Comm. Eng. Edu., Chungnam National University, 99 Daehak-ro, Yuseong-gu, Daejeon 34134, Korea, Daejeon, The Republic of Korea*

- GP-03. Improvement of torque ripple characteristics of double winding PMSM with using twin inverter.** *S. Noguchi¹*
1. Motor Drive Laboratory, Tokyo City University,
Setagaya-ku, Japan
- GP-04. Compensation of Imbalanced Current for Dual-Three PM Machine with Asymmetrical Windings by Three-Phase Decomposition.** *J. Zhang¹ and Z. Zong¹* *1. NanJing University of Aeronautics And Astronautics Graduate School, Nanjing, China*
- GP-05. Comparison of Electromagnetic Vibration of PM Motor Considering time and space Harmonics.** *I. Jang¹* *1. Hyundai Mobis, Yongin-si, The Republic of Korea*
- GP-06. Decoupling Control for Bearingless Synchronous Reluctance Motor Based on Exact Feedback Linearization.** *X. Diao¹*
and *H. Zhu¹* *1. Jiangsu University, Zhenjiang, China*
- GP-07. Tilting force Control method using lateral displacement force of permanent magnet synchronous motor for independent;y rotating vehicle.** *J. Won¹, Y. Oh¹, S. Oh¹ and S. Kim²* *1. Electrical Engineering, Hanyang university, Seoul, The Republic of Korea; 2. Korea Testing Certification, Gunpo, The Republic of Korea*
- GP-08. Rotor Position Estimation of Permanent Magnet Synchronous Motor Based on Hall-effect sensors.**
Y. Zhang^{1,2}, S. Chi^{1,2}, X. Li^{1,2} and H. Yang^{1,2} *1. Hebei University of Technology, Tianjin, China; 2. State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Tianjin, China*
- GP-09. Dynamic DC link Voltage Control Strategy of Electric Vehicles Considering the Cross Saturation Effect.** *H. Li¹, J. Gao¹, S. Huang¹ and P. Fan¹* *1. Hunan University, Changsha, China*
- GP-10. Brushless Wound Rotor Synchronous Machine with Third Harmonic Field Excitation using Single Inverter.** *M. Ayub¹, S. Bukhari², G. Sirewal¹ and B. Kwon¹* *1. Electronic Systems Engineering, Hanyang University ERICA Campus Ansan 15588, Korea, Ansan, The Republic of Korea; 2. Department of Electrical Engineering, Sukkur IBA University, Sukkur, Pakistan*
- GP-11. Investigations on the Sensorless Position Estimation of an IPMSM with Short-Circuited Rotor Windings.** *C. Hittinger¹, D. Thyroff¹ and I. Hahn¹* *1. Institute of Electrical Drives and Machines, University of Erlangen-Nuremberg, Erlangen, Germany*
- GP-12. Analysis of Pole-Slot Combination for Saliency-based Sensorless Controlled IPMSM Considering Noise and Vibration Characteristics.** *M. Lim^{2,1}, J. Jung², D. Ahn¹ and J. Hong¹* *1. Automotive Engineering, Hanyang University, Seoul, The Republic of Korea; 2. Hyundai Mobis, Yongin, Gyeonggi-do, The Republic of Korea*
- GP-13. Position Sensorless Control of Switched Reluctance Motors Eliminating Mutual Inductance Effect.** *H. Wang¹, H. Cai¹, M. Li¹ and S. Shen¹* *1. Hunan University, Chang Sha, China*

- GP-14. Maximum torque per ampere control for hybrid excited switching flux permanent magnet machines.** *X. Liu¹, D. Xing¹, Q. Wang¹ and S. Li¹ 1. State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China*
- GP-15. A Flexible Position Sensorless Control of Switched Reluctance Motors Considering Both Embrace Design and Magnetic Saturation.** *H. Cai¹, H. Wang¹, M. Li¹ and S. Shen¹ 1. Hunan University, Chang Sha, China*
- GP-16. Fault-Tolerant Design and Control of Hybrid Excitation Axial Field Flux-Switching Permanent Magnet Machines.** *W. Zhang¹ and X. Liang² 1. School of Electrical Engineering, Nantong University, Nantong, China; 2. School of Computer Science and Technology, Nantong University, Nantong, China*

FRIDAY
MORNING
8:30

SIMPOR/ROSELLE BALLROOM

Session GQ
EMERGING AND INTERDISCIPLINARY
APPLICATIONS II
(Poster Session)

Julie Grollier, Chair
Unité Mixte CNRS/Thales, Palaiseau, France

- GQ-01. Tribological and viscoelastic behaviors of core-shell structured carbonyl iron/polystyrene particle based Magnetorheological Fluid.** *Y. Dong¹, P. Zhang², H. Choi¹ and C. Lee³ 1. Polymer Science and Engineering, Inha University, Inchon, The Republic of Korea; 2. Nanjing Research Institute for Agricultural Mechanization Ministry of Agriculture, Nanjing, China; 3. Mechanical Engineering, Inha University, Incheon, The Republic of Korea*
- GQ-02. A Multi-Modular Helical Magnetic Millirobot Composed of Soft Modules Capable of Navigating and Anchoring in Curved Tubular Environments.** *S. Jeon¹, H. Lee¹, S. Lee¹, J. Oh¹ and J. Shin¹ 1. Mechanical and Automotive Engineering, Kongju National University, Cheonan, The Republic of Korea*
- GQ-03. Hybrid control of magnetic micro-robot using three-axis Helmholtz coil.** *I. Baek¹, G. Jeon¹, C. Yu² and S. Kim¹ 1. Department of Electronics Convergence Engineering, Wonkwang University, Iksan, The Republic of Korea; 2. Department of Convergence Technology Engineering, Chonbuk National University, Jeonju, The Republic of Korea*
- GQ-04. Experimental Verification of Transcranial Magnetic Stimulation Using Anatomically Accurate Brain Phantom.** *H. Magsood¹, F. Syeda¹ and R.L. Hadimani¹ 1. Virginia Commonwealth University, Henrico, VA, United States*

- GQ-05. Magnetically axial-coupled propeller-based portable electromangetic energy-harvesting device using air and water stream.** J. Lee¹, G. Jeon¹ and S. Kim¹ *1. Department of Electronics Convergence Engineering, Wonkwang University, Iksan, The Republic of Korea*
- GQ-06. Improved Performances of Micro-electromagnetic Energy Harvesting Devices by Minimizing the Demagnetization Field.** D. Mallick¹ and S. Roy¹ *1. Micro-nano-systems Center, Tyndall National Institute, Cork, Ireland*
- GQ-07. Characteristic Analysis of Periodic Electromagnetic Force in Wireless Power Transfer System.** X. Ni¹, X. Zhang¹, Q. Yang¹ and Y. Li¹ *1. School of Electrical Engineering and Automation, Tianjin Polytechnic University, Tianjin, China*
- GQ-08. Stress Induced Domain Wall Motion in Zig-zag shaped Microwires for Energy Harvesting in IOT devices.** C. Vaahsan¹, S. Bhatti¹, C. Ma², X. Liu² and S. Piramanayagam¹ *1. Division of Physics and Applied Physics, Nanyang Technological University, Singapore, Singapore; 2. Department of Electrical and Computer Engineering, Shinshu University, Nagano, Japan*
- GQ-09. Plasma Shape Optimization for EAST Tokamak Using Orthogonal Method.** Y. Chen¹, X. Bao¹, W. xu¹ and G. Gao² *1. School of Electrical Engineering and Automation, Hefei University Of Technology, Hefei, China; 2. Institute of Plasma Physics, Chinese Academy of Sciences, Hefei, China*
- GQ-10. Characteristics of Impulsive Force on coupler of Wireless Power Transfer.** Z. Yuan¹, X. Zhang¹, Q. Yang¹ and Y. Li¹ *1. Tianjin Key Laboratory of Advanced Electrical Engineering and Energy Technology, Tianjin Polytechnic University, Tianjin, China*
- GQ-11. Nanoscaled magnetic Cu-Co alloys with tuneable properties processed by high-pressure torsion deformation.** A. Bachmaier¹, H. Krenn², P. Knoll² and R. Pippan¹ *1. Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Austria; 2. Institute of Physics, University of Graz, Graz, Austria*
- GQ-12. Preparation and thermoelectric properties of Mn₂V(Al_{1-x}Si_x) full-Heusler compounds.** H. Li¹, K. Hayashi¹ and Y. Miyazaki¹ *1. Tohoku University, Sendai, Japan*
- GQ-13. A MLC STT-MRAM based Computing in-Memory Architecture for Binary Neural Network.** Y. Pan¹, P. Ouyang¹, Y. Zhao¹, W. Kang¹, S. Yin², Y. Zhang¹, W. Zhao¹ and S. Wei² *1. Beihang University, Beijing, China; 2. Tsinghua University, Beijing, China*
- GQ-14. Dual material ferroelectric gate stack Tunnel FET.** M. Zare¹ *1. Electrical Engineering department, Ferdowsi University of Mashhad, Mashhad, The Islamic Republic of Iran*

Session GR
HARD MAGNETIC MATERIALS AND PROCESSING II
(Poster Session)

Damien Le Roy, Chair
Institut Lumière Matière, Villeurbanne, France

- GR-01. Anisotropic SmCo₅ nanocrystalline magnet prepared by hot deformation with bulk amorphous precursors.** *J. Liang¹, M. Yue¹, D. Zhang¹, Y. Li¹ and H. Li¹ 1. Beijing University of Technology, Beijing, China*
- GR-02. Magnetic properties of Co-ferrite/FeCo bilayers.** *Y. Hara², S. Shirsath¹, D. Wang¹, A. Morisako² and X. Liu² 1. School of Materials Science and Engineering, University of New South Wales, Sydney, NSW, Australia; 2. Faculty of Engineering, Shinshu University, Nagano, Japan*
- GR-03. High Content Nd-Fe-B in Polymer Composite by Fused Deposition Modeling.** *T. Chang², J.K. Jyun³, W. Lee³, M. Tsai^{1,2} and C. Cheng⁴ 1. Mechanical Engineering Department, National Cheng Kung University, Tainan, Taiwan; 2. Electric Motor Technology Research Center, National Cheng Kung University, Tainan, Taiwan; 3. Department of Electrical Engineering, National Cheng Kung University, Tainan, Taiwan; 4. Department of Mechanical Engineering, National Chiao Tung University, Hsinchu, Taiwan*
- GR-04. Micro-Patterning of NdFeB Hard Magnetic Films for Micro Systems.** *A. Dias¹, G. Shaw¹, K. Hasselbach¹, M. Bonfim² and N. Dempsey¹ 1. Institut Neel, Grenoble, France; 2. Universidade Federal do Paraná, Curitiba, Brazil*
- GR-05. The magnetic properties of misch-metal partially substituted Nd-Fe-B magnets sintered by dual alloy method.** *J. Xiong¹, R. Shang¹, R. Li¹, Y. Zhang¹, J. Zhang¹, H. Zhang¹, Y. Liu¹, F. Hu¹, J. Sun¹, T. Zhao¹ and B. Shen¹ 1. State Key Laboratory of Magnetism, Institute of Physics, Chinese Academy of Sciences, Beijing, China., Beijing, China*
- GR-06. Nanocomposite Nd-Y-Fe-B-Mo bulk magnets prepared by injection casting technique.** *S. Tao¹ and M. Yan² 1. China Jiliang University, Hangzhou, China; 2. Zhejiang University, Hangzhou, China*
- GR-07. Modeling of piezomagnetic effect in magnetostrictive-electromagnetic hybrid vibration-powered generator.** *B. Yan¹, J. Hong¹ and C. Zhang² 1. Guangdong University of Technology, Guangzhou, China; 2. Harbin Institute of Technology, Harbin, China*
- GR-08. Novel thermal stability of coercivity in Alnico 8 alloys with thermomagnetic heat-treatment conditions.** *T.J. Zhao¹, L.Y. Sun¹, L. Liu¹, Z. Liu¹, X. Zhang¹ and C. Feng¹ 1. Ningbo Institute of Industrial Technology, Chinese Academy of Sciences, Ningbo, China*

- GR-09. Electromagnetic Transient Analysis and Inductance Characterization in Fractional-Slot Concentrated-Wound Interior Permanent Magnet Synchronous Machines under Rotor Demagnetization.** *A. Pouramin¹, M. Malekpour¹, R. Dutta¹ and F.M. Rahman¹ 1. School of Electrical Engineering and Telecommunications, University of New South Wales, NSW, Australia*
- GR-10. Effect of Temperature and Pressure on Electrical Resistivity of Permanent Magnet.** *L. Xiao¹, G. Yu¹, J. Zou¹, Y. Xu¹, H. Lan¹, M. Wang¹ and F. Gao¹ 1. Harbin Institute of Technology, Harbin, China*
- GR-11. Magnetic field annealing effect and superparamagnetic contributions in one-dimensional CoPt nanostructures.** *S. Ali¹, W. Li¹, K. Javed¹, M. Irfan¹ and X. Han¹ 1. State Key Lab of Magnetism, Institute of Physics, Beijing, China*
- GR-12. Simplified Magnetic Circuit for Analyzing Demagnetization of Permanent-magnets in PMSMs.** *S. Lee¹ and J. Hur¹ 1. Incheon National University, Incheon, The Republic of Korea*
- GR-13. Polar transformed subdomain modeling for double-stator permanent magnet linear synchronous machine.** *R. Guo¹, H. Yu¹, T. Xia¹, X. Liu¹ and G. Yang¹ 1. Southeast University, Nanjing, China*
- GR-14. An Analytical and Numerical Hybrid Model for Static Characteristics of a Radial Linear and Rotary Interior Permanent Magnet Actuator.** *P. Jin¹, Y. Guo¹ and Y. Zhu¹ 1. School of Energy and Electrical Engineering, Hohai University, Nanjing, China*
- GR-15. Magnetic characteristics of the ferromagnetic Fe-rich clusters in bulk amorphous Nd₆₀Fe₃₀Al₃₀ alloy.** *L. Zhao^{1,2}, H. Yu², W. Li², X. Liao², J. Zhang², X. Zhong², K. Su¹, Z. Liu² and J. Greneche³ 1. Innovative Center for Advanced Materials (ICAM), Hangzhou Dianzi University, Hangzhou, China; 2. South China University of Technology, Guangzhou, China; 3. Le Mans Université, Institut des Molécules et Matériaux du Mans CNRS UMR-6283, Le Mans, France*

FRIDAY
MORNING
8:30

SIMPOR/ROSELLE BALLROOM

Session GS
HIGH SPEED MACHINES I
(Poster Session)
Kenji Nakamura, Chair
Tohoku University, Sendai, Japan

- GS-01. Comparative study of magnet flux linkage influence on IPM synchronous machine for high-speed properties.** *W. Wu¹, X. Zhu¹ and S. Zheng¹ 1. Jiangsu University, Zhenjiang, China*

- GS-02. Improvement of Air Watt in Single-Phase BLDC Motor for 100,000 rpm Applications.** *H. Hwang¹, J. Cho¹, Y. Choo¹, C. Kim¹ and C. Lee¹* *1. Electrical and Computer Engineering, Pusan National University, Pusan, The Republic of Korea*
- GS-03. Multi-physics and multi-objective optimization of a high speed PMSM for aircraft electric propulsion.** *W. Zhao¹, X. Wang², C. Gerada^{3,1}, H. Zhang¹, C. Liu¹ and Y. Wang¹* *1. University of Nottingham Ningbo China, Ningbo, China; 2. Yusheng Group, Ningbo, China; 3. University of Nottingham, Nottingham, United Kingdom*
- GS-04. Design and Characteristic Analysis of High Speed Permanent Magnet Motor for High-speed and High-head Centrifugal Pump.** *G. Jang¹, S. Seo¹, C. Kim¹, K. Shin¹ and J. Choi¹* *1. Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea*
- GS-05. Investigation of Optimal Split Ratio for High-Speed Permanent Magnet Brushless Machines.** *Y. Wang¹, S. Guo², Y. Li², Z. Chen², Y. Wang² and Z. Zhu¹* *1. Department of Electronic and Electrical Engineering, University of Sheffield, Sheffield, United Kingdom; 2. CRRC Zhuzhou Institute Co. Ltd, Zhuzhou, China*
- GS-06. Design and Experimental Validation of High Speed Motor for Electric Turbo Charger Considering the Variation of L/D Ratio.** *D. Hong^{1,2} and Y. Jeong¹* *1. Electric Motor Research Center, Korea Electrotechnology Research Institute, Changwon, The Republic of Korea; 2. Energy and Power Conversion Engineering, National University of Science and Technology, Changwon, The Republic of Korea*
- GS-07. Trial of Superconducting Magnetic Bearings Applied to High Speed Turbine Rotor.** *M. Komori¹, K. Hara¹, K. Asami¹ and N. Sakai¹* *1. Kyushu Institute of Technology, Kitakyushu, Japan*
- GS-08. Fast Calculation of PM eddy current loss in IPMSM under PWM VSI supply.** *S. Zhu¹, M. Cheng² and Y. Zhu¹* *1. Department of Energy and Electrical Engineering, Hohai University, Nanjing, China; 2. Department of Electrical Engineering, Southeast University, Nanjing, China*
- GS-09. Thermal-Loss Coupled Analysis of an Electrical Machine Using Improved Temperature Dependent Iron Loss Model.** *S. Xue¹, J. Feng², S. Guo², Y. Li², Z. Chen², J. Peng² and Z. Zhu¹* *1. Electric and Electrical Engineering, The University of Sheffield, Sheffield, United Kingdom; 2. CRRC Zhuzhou Institute Co. Ltd, Zhuzhou, China*
- GS-10. Harmonic Iron Losses Reduction for Heat Capacity Improvement in Interior Permanent Magnet Synchronous Motor.** *M. Seo¹, Y. Ko¹, Y. Kim² and S. Jung¹* *1. Sungkyunkwan University, Suwon, The Republic of Korea; 2. chosun University, Gwangju, The Republic of Korea*
- GS-11. Sensitivity Analysis of Inverse Thermal Modelling to Determine Power Losses in Electrical Machines.** *D.G. Nair¹ and A. Arkkio¹* *1. School of Electrical Engineering, Aalto University, Espoo, Finland*

- GS-12. Analysis on the Number of Axial Segments of Permanent Magnet in SPMSM for Ultra-High-Speed Application.** *H. Lee¹, D. Jung² and J. Lee² 1. Electric Automatization, Busan Institute of Science and Technology University, Busan, The Republic of Korea; 2. Electrical Engineering, Hanyang University, Seoul, The Republic of Korea*

FRIDAY
MORNING
8:30

SIMPOR/ROSELLE BALLROOM

Session GT
HYSTERESIS MODELLING I
(Poster Session)

David Lowther, Chair
McGill University, Montreal, QC, Canada

- GT-01. Accurate Prediction of Dynamic Hysteresis Loops Using the Modified Jiles-Atherton Model.** *Z. Li¹, X. Huang¹, L. Wu¹, J. Ma¹ and Y. Fang¹ 1. College of Electrical Engineering, Zhejiang University, Hangzhou, China*
- GT-02. Hysteresis modeling of soft and hard multilayer magnetic thin film structure by Stoner-Wohlfart model.** *W. Tipcharoen¹, T. Pipathanapoompron¹, A. Kaewrawang¹ and A. Siritaratwat¹ 1. Electrical Engineering, Khon Kaen University, Khon Kaen, Thailand*
- GT-03. Characterization and local phenomenological model of Barkhausen noise under mechanical and magnetic excitations.** *B. Ducharne¹, B. Gupta¹, Y. Hebrard² and J. Coudert² 1. INSA LYON, Laboratoire de Génie Electrique et Ferroélectricité, Villeurbanne, France; 2. SKF aerospace, Valence, France*
- GT-04. Hysteresis Nonlinearity Modeling for Magnetics Shape Memory Alloy Actuator Based on a Novel Black-box Model with Least Squares Support Vector Machines.** *R. Xu¹, M. Zhou¹ and Y. Wang¹ 1. Department of control science and engineering, Jilin University, ChangChun, China*
- GT-05. Dynamic magnetic scalar hysteresis lump model, based on Jiles-Atherton quasi-static hysteresis model extended with dynamic fractional derivatives.** *B. Ducharne¹, B. Zhang², B. Gupta³, G. Sebald³ and T. Uchimoto⁴ 1. INSA LYON, Laboratoire de Génie Electrique et Ferroélectricité, Villeurbanne, France; 2. Shandong university, Weihai, China; 3. ELyTMax Tohoku University, Sendai, Japan; 4. IFS Tohoku University, Sendai, Japan*
- GT-06. An Improved Centered Cycle Method for Identifying the Preisach Distribution Function.** *D. Peng¹, W. Sima¹, M. Yang¹, M. Zou¹ and Y. Liu¹ 1. Chongqing University, Chongqing, China*

- GT-07. Simplified and algorithmic Preisach modeling for soft and hard magnetic hysteresis using general global basis functions.** *A. Bhattacharjee*², *A. Mohanty*¹ and *A. Chatterjee*²
1. Computational and Data Sciences, Indian Institute of Science, Bangalore, Bangalore, India; 2. Mechanical Engineering, Indian Institute of Technology Kanpur, Kanpur, India
- GT-08. A Scalar Hysteresis Model of Ferromagnetic Materials.** *W. Xu*², *N. Duan*¹, *Y. Li*³, *S. Wang*¹ and *J. Zhu*⁴ 1. *Xi'an Jiaotong University, Xi'an, China*; 2. *State Grid Shaanxi Electric Power Company Economic Research Institute, Xi'an, China*; 3. *Hebei University of Technology, Tianjin, China*; 4. *University of Technology Sydney, Sydney, NSW, Australia*
- GT-09. Magnetostrictive Characteristics of the Grain-Oriented Electrical Steel in an Epstein Frame Magnetized with a DC Biased Magnetic Field.** *Z. Wang*¹, *Y. Zhang*¹, *W. Jiang*², *D. Zhang*¹, *Z. Ren*¹ and *C. Koh*³ 1. *School of Electrical Engineering, Shenyang University of Technology, Shenyang, China*; 2. *School of Science, Shenyang University of Technology, Shenyang, China*; 3. *College of Electrical and Computer Engineering, Chungbuk National University, Cheongju, The Republic of Korea*
- GT-10. Study on Calculation Methods of AC Loss for a HTS Magnet with Iron Core.** *Y. Zhang*¹, *L. Ren*¹, *S. Yan*¹ and *Z. Wang*¹ 1. *Huazhong University of Science and Technology, Wuhan, China*
- GT-11. Examination of Temperature Dependent Iron Loss Models Using a Stator Core.** *J. Chen*¹, *D. Wang*¹, *Y. Jiang*¹, *X. Teng*¹ and *S. Cheng*¹ 1. *Naval University of Engineering, Wuhan, China*
- GT-12. Global Quantities Computation Using Mesh Based Generated Reluctance Networks.** *S. Asfirane*¹, *S. Hlioui*^{1,2}, *Y. Amara*^{3,4}, *O. De La Barriere*¹, *G. Barakat*^{3,4} and *M. Gabsi*¹
1. *SATIE, CNRS, ENS Cachan, Cachan, France*; 2. *CNAM, Paris, France*; 3. *GREAH, Le Havre, France*; 4. *Université du Havre, Le Havre, France*
- GT-13. Numerical Estimation of Iron Loss with Dual models for Electromagnetic Devices.** *X. Liu*¹ and *W. Fu*¹ 1. *Electrical Engineering, The hongkong Polytechnic University, Hong Hom, Hong Kong*
- GT-14. A Self-adaptive Play Model with Input-dependent Shape Functions for Hysteresis Loss of Electromagnetic Devices.** *X. Liu*¹ and *W. Fu*¹ 1. *Electrical Engineering, The HongKong Polytechnic University, Hong Hom, Hong Kong*
- GT-15. Skin Effect and Eddy Current Loss in Electrical Steel Sheets under Applied Excitation Fields.** *J. Li*¹, *Q. Yang*^{2,3}, *S. Wang*¹ and *Y. Li*² 1. *State Key Laboratory of Control and Simulation of Power System and Generation Equipments, Tsinghua University, Beijing, China*; 2. *State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China*; 3. *Municipal Key Laboratory of Advanced Technology of Electrical Engineering and Energy, Tianjin Polytechnic University, Tianjin, China*

GT-16. Efficient Deperming Protocols Considering Magnetic Coercivity Distributions in Magnetic Stealth of Warship. S. IM¹, H. Lee¹, H. Chung² and G. Park¹ *1. Electrical and Computer Engineering, Pusan National University, BUSAN, The Republic of Korea; 2. Agency for Defense Development, Changwon, The Republic of Korea*

FRIDAY
MORNING
8:30

SIMPOR/ROSELLE BALLROOM

Session GU
INDUCTORS
(Poster Session)

Lijian Wu, Chair
Zhejiang University, Zhejiang, China

GU-01. Electromagnetic-Mechanical Analysis of a Balanced Armature Receiver by Considering the Nonlinear Parameters as the Function of Displacement and Current. Y. Jiang¹, D. Xu¹ and S. Hwang¹ *1. Mechanical Engineering, Pusan National University, Busan, The Republic of Korea*

GU-02. Performance Analysis of Superconducting Coil Impregnated with Epoxy Resin. Z. Chen¹, G. Geng¹ and J. Fang¹ *1. Beijing Jiaotong University, School of Electrical Engineering, Beijing, China*

GU-03. Magnetic Properties of Simultaneously Excited Amorphous and Silicon Steel Hybrid-Cores for Higher-Efficiency Distribution Transformers. N. Kurita¹, A. Nishimizu¹, C. Kobayashi¹, Y. Tanaka¹, A. Yamagishi², M. Ogi², K. Takahashi² and M. Kuwabara³ *1. Research & Development Group, Hitachi, Ltd., Hitachi, Japan; 2. Power Business Unit, Hitachi Ltd., Hitachi, Japan; 3. Hitachi Industrial Equipment Systems Co. Ltd., Tainai, Japan*

GU-04. Inductance analysis for the multi-unit permanent magnet synchronous machine in different operating situations. D. Zeng¹, J. Zou¹, Y. Xu¹ and F. Liu¹ *1. Harbin Institute of Technology, Harbin, China*

GU-05. Characteristics Analysis of Electric Motor using Ring Core Test and its Experimental Verification. D. Kim¹, J. Chin¹, M. Lim¹ and J. Hong¹ *1. Department of Automotive, Hanyang University, Seoul, The Republic of Korea*

GU-06. Improving the transmission efficiency of wireless power transfer systems in electric vehicles by using magnetoplated aluminum pipes. Y. Bu¹, S. Endo¹ and T. Mizuno¹ *1. Shinshu University, Nagano, Japan*

GU-07. Accurate Calculation of Eddy Current Loss in Litz-Wired High Frequency Transformer Windings. Z. Liu¹, L. Zhu¹ and J. Zhu² *1. Tianjin Polytechnic University, Tianjin, China; 2. University of Technology Sydney, Sydney, NSW, Australia*

- GU-08. Applying Response Surface Method to Oil-immersed Transformer Cooling System for Design Optimization.** *Y. Zhang¹, S. Ho¹ and W. Fu¹ 1. Department of Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*
- GU-09. Improvement of output stability in magnetic resonance wireless power supply using Helmholtz type transmission coil.** *D. Sayama¹, S. Suzuki¹, Y. Akimoto¹, Y. Iijima¹, T. Kato¹, M. Ishihara¹ and Y. Kobayashi¹ 1. National Institute of Technology, Oyama College, Oyama, Japan*
- GU-10. Calculation of Magnetic Inductance of the Spiral Coils Including Ferrite Core for Remote Field Energy Transfer Devices.** *Y. Jang¹ and G. Park¹ 1. School of Electrical and Computer Engineering, Pusan National University, Busan, The Republic of Korea*
- GU-11. Magnetostriction impact noise and vibration on power transformer characteristic via PSO method.** *C. Hsu^{1,2} and Y. Huang² 1. Department of Mechanical Engineering, Oriental Institute of Technology, New Taipei city, Taiwan; 2. Department of Mechanical Engineering, National Central University, Taoyuan, Taiwan*
- GU-12. Electromagnetic characteristics of basic structure of wireless power transmission coil for electric vehicles.** *T. Chen¹ and J. Zhao^{1,2} 1. Xuji Power Co. Ltd., Xuchang, China; 2. School of Electronic and Electrical Engineering, Nanyang Institute of Technology, Nanyang, China*
- GU-13. Design and Analysis of Cubical Compact Coils for Wireless Power Transfer.** *C. Jiang¹, K. Chau¹, W. Han¹ and W. Liu¹ 1. The University of Hong Kong, Hong Kong*
- GU-14. Move-and-Charge System for Automatic Guided Vehicles.** *C. Jiang¹, K. Chau¹, C. Lee², W. Han¹ and W. Liu¹ 1. The University of Hong Kong, Hong Kong; 2. Research Laboratory of Electronics, Massachusetts Institute of Technology, Boston, MA, United States*
- GU-15. Design and Optimization of Quasi-constant Mutual Inductance for Asymmetric Two-Coil Wireless Power Transfer System With Lateral Misalignments.** *Z. Li¹ 1. College of Traffic Engineering, Hunan University of Technology, Zhuzhou, China*

Session GV
MODELLING OF MACHINES IV
(Poster Session)

Chao Bi, Co-Chair

University of Shanghai for Science & Technology, Shanghai, China

Jiang Quan, Co-Chair

University of Shanghai for Science & Technology, Shanghai, China

GV-01. Thinning Defect Evaluation and an Application for Thickness Measurement by Eddy Current Testing.

S. Nagata¹ 1. Faculty of Engineering, University of Miyazaki, Miyazaki city, Japan

GV-02. Seismic circuit breaker with electromagnetic contactor.

T. Mifune¹ and K. Nishimura¹ 1. National Institute of Technology, Suzuka College, Suzuka, Japan

GV-03. Marker-free coil-misalignment detection approach using TMR sensor array for dynamic wireless charging system of electric vehicles. *X. Liu¹, W. Han¹, C. Liu² and P. Pong¹*

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

GV-04. Effects of Heat Treatment under Strong Magnetic Field of 1T or Higher on Magnetic Properties of Non-oriented Electrical Steel Sheet. *T. Kinoshita^{1,2}, K. Kohara², H. Shimoji³, T. Sato² and T. Todaka² 1. Technology Research Center, Sumitomo Heavy Industries, Ltd., Yokosuka, Japan; 2. Oita university, Oita, Japan; 3. Oita Industrial Research Institute, Oita, Japan*

GV-05. Analytical Modeling of Multi-layer Permanent Magnet Eddy Current Brake With Hybrid Secondary. *B. Kou¹, W. Chen^{1,2}, Y. Jin¹ and X. Zhao¹ 1. Harbin Institute of Technology, Harbin, China; 2. Harbin University of Science and Technology, Harbin, China*

GV-06. Parametric Design of Vehicle Horn Employing Rolled Silicon Steel Sheets Based on Its Analytical Approach.

J. Sim¹, K. Jung¹, D. Kim¹ and J. Hong¹ 1. Automotive Engineering, Hanyang University, Seoul, The Republic of Korea

GV-07. Analytical Modeling of Angular Misalignment for Axial Flux PM Machines: Effects on Cogging Torque. *B. Guo¹ and Y. Huang¹ 1. School of Electrical Engineering, Southeast University, Nanjing, China*

- GV-08. Investigation of an Axial-Gap Electromagnet-Assisted Ferrite Magnet Motor.** K. Motoki¹, Y. Kobayashi¹, N. Jike¹, T. Fukami¹, M. Koyama¹, T. Mori², M. Yamada² and M. Nakano³ *1. Division of Electrical Engineering, Kanazawa Institute of Technology, Nonoichi, Japan; 2. Advanced Technology R&D Center, Mitsubishi Electric Corporation, Amagasaki, Japan; 3. Himeji Works, Mitsubishi Electric Corporation, Himeji, Japan*
- GV-09. Core loss properties of a permanent magnet synchronous motor with nanocrystalline stator and rotor cores under inverter excitation.** A. Yao¹, T. Sugimoto¹, S. Odawara² and K. Fujisaki¹ *1. Department of Engineering, Toyota Technological Institute, Nagoya, Japan; 2. Department of Electrical and Electronic Engineering, Kitami Institute of Technology, Kitami, Japan*
- GV-10. An Approach Combining Analytical Calculation and FEA for Evaluation of Rotor Strength of IPM Motors.** M. Hsieh¹, J. Lai¹ and C. Li¹ *1. National Cheng Kung University, Tainan, Taiwan*
- GV-11. 2D Analytical Subdomain Model of Surface-Mounted PM Machines Accounting for Step-skewed Magnets.** S. Zhang¹ and S. Guo² *1. Bangor College, Central South University of Forestry and Technology, Changsha, China; 2. State Grid Hunan Electric Power Research Institute, Changsha, China*
- GV-12. Design Strategy of 3-Times Magnetizer for Post-Assembly Magnetization of Spoke-Type Ferrite Magnet Motor.** H. Seol¹, H. Jun¹, D. Jung¹, H. Kim¹, D. Kang² and J. Lee¹ *1. Hanyang University, Seoul, The Republic of Korea; 2. Keimyung University, Daegu, The Republic of Korea*
- GV-13. Numerical Design and Validation of SPMSG for Efficiency Improvement of Engine-Generator System of PHEV compatible to Optimal Operating Line.** D. Lee², S. Cho¹ and H. Jung¹ *1. Advanced Power System R&D Center, Korea Automotive Technology Institute, Cheonan-si, The Republic of Korea; 2. Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, United States*
- GV-14. Development of enhanced magnetic equivalent circuit (eMEC) by considering dominant fringing fluxes in semi-high-speed Maglev train.** C. Ha¹, J. Jeong² and J. Lim¹ *1. Dept. of Magnetic Levitation and Linear Drive, KIMM, Daejeon, The Republic of Korea; 2. Dept. of Electrical Engineering, Chung Nam National University, Daejeon, The Republic of Korea*
- GV-15. Design of Double-Path Magnetic Circuit Structure Hybrid Fuel Injector Considering Demagnetization Characteristics.** H. Liu¹, S. Oh¹, Y. Oh¹, J. Lee¹ and H. Lee² *1. Hanyang Univ., Seoul, The Republic of Korea; 2. Busan Institute of Science and Technology University, Busan, The Republic of Korea*
- GV-16. Analytical Model for Axial Flux PM Machines with Halbach Arrays: Taking into Account of Rotor Iron.** B. Guo¹ and Y. Huang¹ *1. School of Electrical Engineering, Southeast University, Nanjing, China*

Session GW
ULTRATHIN FILMS AND SURFACE EFFECTS I
(Poster Session)

Sarah Thompson, Co-Chair
University of York, York, United Kingdom

Stephen McVitie, Co-Chair
The University of Glasgow, Glasgow, United Kingdom

- GW-01. XMCD study of Ru/Co/W/Ru films with strong Dzyaloshinskii-Moriya interaction.** *A.S. Samardak¹, A. Kolesnikov¹, A. Ognev¹, M. Platunov^{2,3} and A. Rogalev²*
1. School of Natural Sciences, Far Eastern Federal University, Vladivostok, Russian Federation; 2. European Synchrotron Radiation Facility (ESRF), Grenoble, France; 3. Kirensky Institute of Physics, Krasnoyarsk, Russian Federation
- GW-02. Tunable interfacial Dzyaloshinskii-Moriya interaction in Ta/W/CoFeB/MgO films.** *T. Kim¹, I. Cha¹, Y. Kim¹, G. Kim¹, A. Stashkevich³, Y. Roussigné³, M. Belmeguenai³, S.M. Chérif³, A.S. Samardak² and Y.K. Kim¹*
1. Materials Science and Engineering, Korea University, Seoul, The Republic of Korea; 2. School of Natural Sciences, Far Eastern Federal University, Vladivostok, Russian Federation; 3. LSPM (CNRS-UPR 3407), Université Paris 13, Sorbonne Paris Cité, Villetaneuse, France
- GW-03. Magnetic proximity effects in Co/Pt/Gd/Pt multilayers.**
A. Rogalev¹, F. Wilhelm¹ and N. Jaouen²
1. ESRF, Grenoble, France; 2. Synchrotron Soleil, Saint Aubin, France
- GW-04. XMCD Investigation of CoFeB/MgO Structure.** *Y. Yan¹, X. Lu¹, J. Wang¹, J. Wu¹ and Y. Xu¹*
1. University of York, York, United Kingdom
- GW-05. Splitting of Ferromagnetic Resonance Spectra in Periodically Modulated 1-D Magnonic Crystal - II.**
P.N. Sherpa¹, S. Khanal¹ and L. Spinu¹
1. Physics/ Advanced Materials Science Institute, University of New Orleans, New Orleans, LA, United States
- GW-06. Interface roughness driven magnetic anisotropy and Dzyaloshinskii-Moriya interaction in thin films with broken structural inversion symmetry.** *A. Ognev¹, A.S. Samardak^{1,6}, A. Samardak¹, L. Chebotkevich¹, A.V. Sadovnikov², S. Nikitov³, A. Gerasimenko⁴, I. Cha⁴, Y.J. Kim⁴, O. Tretiakov⁵ and Y.K. Kim⁴*
1. School of Natural Sciences, Far Eastern Federal University, Vladivostok, Russian Federation; 2. Saratov State University, Saratov, Russian Federation; 3. Kotelnikov Institute of Radioengineering and Electronics, Russian Academy of Sciences, Moscow, Russian Federation; 4. Department of Materials Science and Engineering, Korea University, Seoul, The Republic of Korea; 5. Institute for Materials Research, Tohoku University, Sendai, Japan; 6. Center for Spin-Orbitronic Materials, Korea University, Seoul, The Republic of Korea

- GW-07. Lattice distortion and thermal stability of $[\text{Fe}_2\text{CoSi/Pt}]_n$ multilayers with high perpendicular magnetic anisotropy.** Y. Liu¹, Y. Zheng¹, L. Ren¹, H. Yang¹ and K. Teo¹ 1. *Electrical and Computer Engineering, National University of Singapore, Singapore*
- GW-08. Atomic Layer Deposition of cobalt films.** M. Jullien¹, C. Chang¹, D. Barth¹, S. Robert¹, L. Badie¹, D. Lacour¹, C. Guillemard¹, S. Petit-Watelot¹ and F. Montaigne¹ 1. *Institut Jean Lamour, Université de Lorraine - CNRS, Vandoeuvre les Nancy, France*
- GW-09. Large Perpendicular Magnetic Anisotropy in Fe-Al/ $\text{MgAl}_2\text{O}_4(001)$ epitaxial heterostructures.** T. Scheike¹, H. Sukegawa¹, X. Xu¹, K. Hono^{1,2} and S. Mitani^{1,2} 1. *National Institute for Materials Science (NIMS), Tsukuba, Japan;* 2. *University of Tsukuba, Tsukuba, Japan*
- GW-10. In-depth structural analysis of MgO/Co(bcc) by XPS and XPD.** K. Shamout¹, P. Roese¹, P. Espeter¹, U. Berges¹ and C. Westphal¹ 1. *Experimentelle Physik I, Technical University Dortmund, Dortmund, Germany*
- GW-11. Perpendicular magnetic anisotropy in annealing-free La/CoFeB/MgO heterostructures.** Y. Iida^{1,2}, J. Okabayashi³, P. Sheng², M. Hayashi^{2,4} and S. Mitani^{1,2} 1. *Graduate School of Pure and Applied Sciences, University of Tsukuba, Tsukuba, Japan;* 2. *Research Center for Magnetic and Spintronic Materials (CMSM), National Institute for Materials Science (NIMS), Tsukuba, Japan;* 3. *Research Center for Spectrochemistry, The University of Tokyo, Bunkyo, Japan;* 4. *Department of Physics, The University of Tokyo, Bunkyo, Japan*
- GW-12. Structural and magnetic properties of CoMnO_3 -(0001) orbital ferrimagnet epitaxial thin films.** H. Koizumi¹, S. Sharmin¹ and H. Yanagihara¹ 1. *University of Tsukuba, Tsukuba, Japan*
- GW-13. Interlayer exchange coupling of FeCoB/(Ta,Mo)/FeCoB.** T.J. McKinnon¹, P. Omelchenko¹, B. Heinrich¹ and E. Girt¹ 1. *Physics, SFU, North Vancouver, BC, Canada*
- GW-14. Influence of inclined perpendicular anisotropy on the current-induced magnetization reversal.** M. Stebliy¹, A. Kolesnikov¹, A. Davydenko¹, A. Ognev¹ and L. Chebotkevich¹ 1. *Far Eastern Federal University, Vladivostok, Russian Federation*
- GW-15. Magnetization studies of obliquely sputtered CoFeB for TMR sensors.** S. Willing^{2,1}, K. Schlage¹, T. Guryeva¹ and R. Roehlsberger^{1,3} 1. *Deutsches Elektronen-Synchrotron (DESY), Hamburg, Germany;* 2. *PIER Helmholtz Graduate School, Hamburg, Germany;* 3. *Hamburg University, Hamburg, Germany*
- GW-16. Magneto-optical properties of Pt/TbCo heterostructure films.** S. Iemoto¹, S. Sumi¹, H. Awano¹ and M. Hayashi^{2,3} 1. *Toyota Technological Institute, Nagoya, Japan;* 2. *The University of Tokyo, Tokyo, Japan;* 3. *National Institute for Materials Science (NIMS), Tsukuba, Japan*

Session HA
SYMPOSIUM ON ATOMS, MOLECULES AND
INTERFACES FOR SPIN QUANTUM ENGINEERING

Ilaria Bergenti, Chair
ISMN-CNR, Bologna, Italy

2:00

- HA-01. Interface as key unit in molecular spintronic devices.**
(Invited) V.A. Dediu¹ 1. DSCTM, CNR-ISMN, BOLOGNA, Italy

2:30

- HA-02. Activating the molecular spinterface. (Invited) M. Cinchetti¹**
1. Experimentelle Physik VI, Technical University Dortmund, Dortmund, Germany

3:00

- HA-03. Under-barrier spin-phonon relaxation in molecular magnets. (Invited) A. Lunghi¹, F. Totti², R. Sessoli² and S. Stefano¹**
1. School of Physics and CRANN, Trinity College Dublin, Dublin, Ireland; 2. Dipartimento di Chimica "Ugo Schiff", Università degli Studi di Firenze, Firenze, Italy

3:30

- HA-04. Portraying the spin dynamics of molecular nanomagnets by four-dimensional inelastic neutron scattering. (Invited) S. Carretta¹**
1. University of Parma, Parma, Italy

4:00

- HA-05. Operating Quantum States in Single Magnetic Molecules: Implementation of Quantum Gates and Algorithm. (Invited) C. Godfrin¹, R. Ballou¹, E. Bonet¹, S. Klyatskaya³, M. Ruben³, W. Wernsdorfer^{3,1} and F. Balestro^{1,2}**
1. CNRS-UGA-Institut Néel, Grenoble, France; 2. Institut Universitaire de France, Paris, France; 3. Institute of Nanotechnology (INT), Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany

4:30

- HA-06. Electron spin resonance of single atoms in scanning tunneling microscopy. (Invited) A.J. Heinrich¹, Y. Bae¹ and P. Willke¹**
1. Center for Quantum Nanoscience, Institute for Basic Science, Seoul, The Republic of Korea

Session HB
HARD MAGNETS II

Yanglong Hou, Chair
Peking University, Beijing, China

2:00

- HB-01. Microstructure and magnetic properties of anisotropic polycrystalline $\text{Sm}(\text{Fe}_{0.8}\text{Co}_{0.2})_{12}$ thin films with ThMn_{12} structure.** D. Ogawa^{1,2}, Y. Takahashi^{1,2}, S. Hirose^{1,2} and K. Hono^{1,2} *1. Elements Strategy Initiative Center for Magnetic Materials (ESICMM), Tsukuba, Japan; 2. National Institute for Materials Science (NIMS), Tsukuba, Japan*

2:15

- HB-02. Intrinsic magnetic properties of $\text{Sm}(\text{Fe}_{1-x}\text{Co}_x)_{11}\text{Ti}$ and Zr-substituted $\text{Sm}_{1-y}\text{Zr}_y(\text{Fe}_{0.8}\text{Co}_{0.2})_{11.5}\text{Ti}_{0.5}$ compounds with ThMn_{12} structure toward the development of permanent magnets.** P. Tozma¹, H. Sepehri-Amin¹, Y. Takahashi¹, S. Hirose¹ and K. Hono¹ *1. National Institute for Materials Science (NIMS), Tsukuba, Japan*

2:30

- HB-03. Intrinsic Magnetic Properties of $\text{SmFe}_{12-x}\text{V}_x$ Alloys with reduced V-content.** A.M. Schönhöbel¹, R. Madugundo¹, J.M. Barandiarán^{1,3} and G.C. Hadjipanayis² *1. BCMaterials, Leioa, Spain; 2. Physics and Astronomy, University of Delaware, Newark, DE, United States; 3. Electricity and electronics, University of the Basque country, Leioa, Spain*

2:45

- HB-04. Solidification behavior and its effect on mechanical properties of $\text{Sm}_2\text{Co}_{17}$ -type sintered magnets.** K. Song¹, Y. Fang¹, S. Wang¹, H. Chen¹, N. Yu¹, M. Zhu¹ and W. Li¹ *1. Division of Functional Materials, Iron & Steel Research Institute, Beijing, China*

3:00

- HB-05. Microstructure and magnetic properties of casted strips $[(\text{La}_{0.352}\text{Ce}_{0.648})_x(\text{Nd}_{0.796}\text{Pr}_{0.204})_{1-x}]_{2.14}\text{Fe}_{14}\text{B}$ ($0.6 \leq x \leq 1.0$).** Y. Liu¹, B. Peng¹, J. Jin¹ and M. Yan¹ *1. Zhejiang University, Hangzhou, China*

3:15

- HB-06. YCo_5 and CeCo_5 thin films with perpendicular magnetic anisotropy grown by molecular beam epitaxy.** S. Sharma¹, E. Hildebrandt¹, M. Major¹, P. Komissinskiy¹, I.A. Radulov¹ and L. Alff¹ *1. Institute of Materials Science, Technische Universität Darmstadt, Darmstadt, Germany*

HB-07. Confirmation of hard magnetic $L1_0$ FeNi phase precipitated in FeNiSiBPCu alloy by anomalous X-ray diffraction.

*P. Sharma*¹, *S. Okamoto*², *H. Tajiri*³, *Y. Zhang*⁴, *O. Kitakami*² and *A. Makino*¹ 1. *New Industry Creation Hatchery Center (NICHe), Tohoku University, Sendai, Japan;* 2. *Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan;* 3. *Japan Synchrotron Radiation Research Institute (SPring-8), Sayo, Japan;* 4. *Institute for Materials Research, Tohoku University, Sendai, Japan*

HB-08. Magnetic and Structural Properties of $L1_0$ (MnAl)-Ga Epitaxially Grown Thin Films of Island Structure.

S. Zhao^{1,2}, *Y. Tanaka*³, *T. Satoh*^{1,3}, *K. Kamiya*^{1,3}, *G.J. Mankey*^{1,4} and *T. Suzuki*^{1,2} 1. *Center for Materials for Information Technology (MINT), University of Alabama, Tuscaloosa, AL, United States;* 2. *Metallurgical and Materials Engineering, University of Alabama, Tuscaloosa, AL, United States;* 3. *Materials Development Center & IP HQ, TDK Corporation, Ichikawa, Japan;* 4. *Physics and Astronomy, University of Alabama, Tuscaloosa, AL, United States*

HB-09. Synthesis of Phase-Pure τ -MnAlC Using Mechanical Alloying and a Single-Step Annealing Route.

*V. Øygarden*¹, *J. Rial*², *A. Bollero*² and *S. Deledda*¹ 1. *Institute for Energy Technology, Kjeller, Norway;* 2. *Permanent Magnets and Applications, IMDEA Nanoscience, Madrid, Spain*

HB-10. Tuning permanent magnet properties in MnAl nanocrystalline powder processed by ultrafast-milling with different milling media.

*J. Rial*¹, *P. Svec*², *E. Palmero*¹, *J. Camarero*¹, *P. Švec Sr*² and *A. Bollero*¹ 1. *Division of Permanent Magnets and Applications, IMDEA Nanoscience, Madrid, Spain;* 2. *Institute of Physics, Slovak Academy of Sciences, Bratislava, Slovakia*

HB-11. Spark Plasma Sintered MnGa-alloys for Permanent Magnet Applications.

S. Perween^{1,2}, *B. Gahtori*^{1,2}, *A. Rathi*², *R. Singh*³, *A. Bhattacharya*¹, *B. Sivaih*^{1,2}, *P. Rout*¹, *R. Pant*¹, *A. Dhar*^{1,2} and *G. Basheed*^{1,2} 1. *CSIR - National Physical Laboratory, Delhi, India;* 2. *CSIR - National Physical Laboratory, Academy of Scientific and Innovative Research, Delhi, India;* 3. *Department of Physics, Indian Institute of Science Education and Research (IISER), Bhopal, India*

HB-12. Tailoring Magnetic Properties of Al-substituted M-Type Strontium Hexaferrites.

*Y. Dai*¹, *Z. Lan*¹, *K. Sun*¹, *Z. Yu*¹, *R. Guo*¹ and *X. Jiang*¹ 1. *University of Electronic Science and Technology of China, Chengdu, China*

Session HC

MAGNETIC TUNNEL JUNCTIONS AND STT-MRAM

Bernard Dieny, Chair
Spintec, Grenoble, France

2:00

- HC-01. Resonance Spin Transfer Torque Magnetoresistive Memory.**
(Invited) J. Zhu¹ and A. Shadman¹ 1. Data Storage Systems Center, Carnegie Mellon University, Pittsburgh, PA, United States

2:30

- HC-02. Top-pinned STT-MRAM devices with high thermal stability hybrid free layers for high density memory applications.**
E. Liu^{1,2}, J. Swerts¹, A. Vaysset¹, Y. Wu^{1,2}, S. Couet¹, S. Mertens¹, S. Rao¹, W. Kim¹, S. Van Elshocht¹, J. De Boeck^{1,2} and G.S. Kar¹ 1. Imec, Leuven, Belgium; 2. Department of Electrical Engineering, KU Leuven, Leuven, Belgium

2:45

- HC-03. X nm Magnetic Tunnel Junctions with Perpendicular Anisotropy.** *K. Watanabe¹, B. Jinnai², S. Fukami^{1,2}, H. Sato^{1,2} and H. Ohno^{1,2} 1. RIEC, Tohoku University, Sendai, Japan; 2. CSIS, Tohoku University, Sendai, Japan*

3:00

- HC-04. Etch Process Technology for High Density STT-MRAM.**
(Invited) T. Endoh^{1,2}, S. Kang³, T. Kudo³ and Y. Yagi³ 1. Center for Innovative Integrated Electronic Systems (CIES), Tohoku University, Sendai, Japan; 2. Graduate School of Engineering, Tohoku University, Sendai, Japan; 3. Tokyo Electron Ltd., Yamanashi, Japan

3:30

- HC-05. High thermal tolerance synthetic ferrimagnetic reference layer with modified buffer layer by ion irradiation for perpendicular anisotropy magnetic tunnel junctions.**
H. Honjo^{1,2}, S. Ikeda^{1,3}, H. Sato^{1,3}, K. Nishioka^{1,2}, T. Watanabe^{1,2}, S. Miura^{1,3}, T. Nasuno^{1,2}, Y. Noguchi^{1,2}, H. Inoue^{1,2}, M. Yasuhira^{1,2}, T. Tanigawa^{1,2}, H. Koike^{1,2}, M. Muraguchi^{4,2}, M. Niwa^{1,2}, H. Ohno^{3,5} and T. Endoh^{1,4} 1. Center for Innovative Integrated Electronic Systems, Tohoku University, Sendai, Japan; 2. JST-ACCEL, Saitama, Japan; 3. Center for Spintronics Integrated Systems, Tohoku University, Sendai, Japan; 4. Graduate School of Engineering, Tohoku University, Sendai, Japan; 5. RIEC, Tohoku University, Sendai, Japan

3:45

- HC-06. Role of Curie temperature on thermal stability limits of perpendicular STT-MRAM.** *L. Tillie^{1,2}, R.C. Sousa², J. Chatterjee², N. Lamard², J. Guelfucci², E. Nowak¹, B. Dieny² and I.L. Prejbeanu² 1. CEA-Leti, Grenoble, France; 2. CEA-SPINTEC, Grenoble, France*

4:00

- HC-07. Back hopping in spin-transfer-torque devices, possible origin and counter measures.** C. Abert¹, H. Sepehri-Amin², F. Bruckner¹, C. Vogler¹, M. Hayashi² and D. Suess¹ *1. Physics of Functional Materials, University of Vienna, Vienna, Austria; 2. National Institute for Materials Science (NIMS), Tsukuba, Japan*

4:15

- HC-08. Spin Transfer Torque efficiency enhancement utilizing precessional spin current (PSC) structure for STT-MRAM application.** M. Pinarbasi¹, B. Kardasz¹, G. Wolf¹, J. Vasquez¹, S. Watts¹, T. Boone¹, J. Hernandez¹, K. Bozdag¹, D. Guarisco¹, M. Schabes¹, P. Manandhar¹, E. Dobisz¹, P. Shrivastava¹, Y. Chin¹, E. Ryan¹ and G. Jagtiani¹ *1. Spin Transfer Technologies Inc., Fremont, CA, United States*

4:30

- HC-09. Polar Coding for Spin-Torque Transfer Magnetic Random Access Memory (STT-MRAM).** Z. Mei¹, K. Cai¹ and B. Dai² *1. Singapore University of Technology and Design, Singapore, Singapore; 2. Beihang University, Beijing, China*

4:45

- HC-10. Effect of free-layer size on magnetic properties in nanoscale magnetic tunnel junctions.** M. Shinozaki¹, J. Igarashi¹, H. Sato^{2,3} and H. Ohno^{1,3} *1. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 2. Center for Spintronics Research Network, Tohoku University, Sendai, Japan; 3. Center for Spintronics Integrated Systems, Tohoku University, Sendai, Japan*

FRIDAY
AFTERNOON
2:00

PEONY IV

Session HD SPIN INJECTION AND TRANSPORT

Cheng Song, Chair
Tsinghua University, Beijing, China

2:00

- HD-01. Enhanced spin relaxation and spin-to-charge conversion at the surface of Cu thin film decollated with molecules.** S. Takizawa¹, K. Kondou², H. Isshiki¹, K. Shimose³, T. Kawabe³, S. Miwa³ and Y. Otani^{1,2} *1. ISSP, The University of Tokyo, Kashiwa, Japan; 2. CEMS, RIKEN, Wako, Japan; 3. Graduate School of Engineering Science, Osaka University, Suita, Japan*

2:15

- HD-02. TiO₂ as diffusion barrier at Co/Alq₃ spinterface studied by X-ray standing wave technique.** V. Phatak Londhe¹, D. Gupta² and N. Ponpandian¹ *1. Bharathiar University, Coimbatore, India; 2. Amity Center for Spintronic Materials, Amity University, Noida, India*

- HD-03. Creation and Control of Spin Current in 2D Materials Heterostructures. (Invited)** *S.P. Dash¹ 1. Microtechnology and Nanoscience, Chalmers University of Technology, Gothenburg, Sweden*

- HD-04. Quenching of Spin-Polarization Switching in Organic Multiferroic Tunnel Junctions by Ferroelectric “Ailing-Channel” in Organic Barrier.** *S. Liang¹, X. Devaux¹, A. Ferri², R. Desfeux², W. Huang³, X. Li³, D. Chaudhuri⁴, H. Yang⁴, M. Chshiev⁴, S. Migot¹, S. Mangin¹ and Y. Lu¹ 1. Institut Jean Lamour, Nancy, France; 2. Univ. Artois, Lens, France; 3. University of Science and Technology of China, Hefei, China; 4. CEA-SPINTEC, Grenoble, France*

- HD-05. Tuning Spin Injection Efficiency by Molecular Design.** *A.D. Wittmann¹, G. Schweicher¹, K. Broch², A. Marks³, C. Jellett³, I. McCulloch³, E. McNellis⁴, J. Sinova⁴, J. Wunderlich⁵ and H. Sirringhaus¹ 1. Physics, University of Cambridge, Cambridge, United Kingdom; 2. Institut für Angewandte Physik, Universität Tübingen, Tübingen, Germany; 3. Chemistry, Imperial College London, London, United Kingdom; 4. Physics, Johannes Gutenberg University, Mainz, Germany; 5. Hitachi Cambridge Laboratory, Cambridge, United Kingdom*

- HD-06. Large spin-valve effect in Si nano spin-valve devices.** *H.D. Duong¹, M. Tanaka^{2,3} and N. Pham^{1,3} 1. Department of Electrical and Electronic Engineering, Tokyo Institute of Technology, Tokyo, Japan; 2. Department of Electrical Engineering and Information Systems, The University of Tokyo, Tokyo, Japan; 3. Center for Spintronics Research Network, Graduate School of Engineering, The University of Tokyo, Tokyo, Japan*

- HD-07. Large local magnetoresistance at room temperature in Si<100> devices.** *M. Ishikawa^{1,2}, M. Tsukahara¹, M. Yamada¹, Y. Saito² and K. Hamaya^{1,3} 1. Graduate School of Engineering Science, Osaka University, Toyonaka, Japan; 2. Corporate Research & Development Center, Toshiba Corporation, Kawasaki, Japan; 3. Center for Spintronics Research Network, Osaka University, Toyonaka, Japan*

- HD-08. Nonlinear spin detection in a biased ferromagnetic tunnel contact.** *R. Jansen¹, A. Spiesser¹, H. Saito¹, Y. Fujita^{2,1}, S. Yamada², K. Hamaya² and S. Yuasa¹ 1. AIST, Tsukuba, Japan; 2. Osaka University, Toyonaka, Japan*

4:15

- HD-09. Observation and quantification of spin drift in non-local devices with a heavily-doped Si channel.** *A.M. Spiesser¹, H. Saito¹, Y. Fujita², S. Yamada^{2,3}, K. Hamaya^{2,3}, W. Mizubayashi⁴, K. Endo⁴, S. Yuasa¹ and R. Jansen¹*
1. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan;
2. Department of Systems Innovation, Graduate School of Engineering Science, Osaka University, Osaka, Japan;
3. Center for Spintronics Research Network, Graduate School of Engineering Science, Osaka University, Osaka, Japan;
4. Nanoelectronics Research Institute, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan

4:30

- HD-10. Intrinsic generation of propagating spin waves by a magnonic “black hole” in a current-driven nano-constricted wire.** *M. Dvornik¹, R. Khymyn¹, J. Åkerman^{1,3}, V.S. Tiberkevich² and A.N. Slavin²*
1. Department of Physics, University of Gothenburg, Gothenburg, Sweden;
2. Department of Physics, Oakland University, Rochester, MI, United States;
3. Department of Applied Physics, KTH Royal Institute of Technology, Stockholm, Sweden

4:45

- HD-11. Electrical spin injection into an AlGaAs/GaAs-based high-mobility two-dimensional electron system.** *Z. Lin¹, D. Pan², M. Rasly¹ and T. Uemura¹*
1. Graduate School of Information Science and Technology, Hokkaido University, Sapporo, Japan;
2. School of Engineering, Hokkaido University, Sapporo, Japan

FRIDAY
AFTERNOON
2:00

ROSELLE II

Session HE DYNAMICS OF SKYRMIONS

Christian Back, Chair
University of Regensburg, Regensburg, Germany

2:00

- HE-01. 140% voltage induced modification of interfacial DMI to tune skyrmionic bubbles in Ta/FeCoB/TaOx trilayers.** *T. Srivastava¹, M. Schott^{2,1}, M. Belmeguenai³, Y. Roussigné³, A. Bernard-Mantel², L. Ranno², V. Krizakova², S. Pizzini², S.M. Chérif³, A. Stashkevich³, S. Auffret¹, M. Chshiev¹, C. Baraduc¹ and H. Béa¹*
1. Univ. Grenoble Alpes, CEA, CNRS, Grenoble INP, INAC-Spintec 38000, Grenoble, France;
2. Univ. Grenoble Alpes, CNRS, Néel Institute, F-38042, Grenoble, France;
3. Laboratoire des Sciences des Procédés et des Matériaux, Univ. Paris 13 Nord, Villetaneuse, France

2:15

HE-02. Manipulating magnetic skyrmions in ultrathin Pt/Co/MgO_x nanostructures. *R. Juge*¹, *S. Je*¹, *D. de Souza Chaves*², *S. Pizzini*³, *L.D. Buda-Prejbeanu*¹, *L. Aballe*³, *M. Foerster*³, *A. Locatelli*⁴, *T.O. Mentès*⁴, *F. Maccherozzi*⁵, *S. Dhesi*⁵, *S. Auffret*¹, *G. Gaudin*¹, *J. Vogel*² and *O. Boulle*¹ *1. CEA-SPINTEC, Grenoble, France; 2. Institut Néel CNRS, Grenoble, France; 3. ALBA Synchrotron Light Facility, Barcelona, Spain; 4. Elettra Sincrotrone, Trieste, Italy; 5. Diamond Light Source Ltd, Didcot, United Kingdom*

2:30

HE-03. Dynamics of Skyrmions in Magnetic Multilayers at Room Temperature. (Invited) *S. Woo*¹ *1. Center for Spintronics, Korea Institute of Science and Technology, Seoul, The Republic of Korea*

3:00

HE-04. Hybrid Chiral Skyrmions in Multilayered Magnetic Stacks. *W. Legrand*¹, *J. Chauleau*^{1,2}, *D. Maccariello*¹, *N. Reyren*¹, *S. Collin*¹, *K. Bouzehouane*¹, *N. Jaouen*², *V. Cros*¹ and *A. Fert*¹ *1. Unité Mixte de Physique CNRS/Thales, Univ. Paris Sud, Université Paris-Saclay, Palaiseau, France; 2. Synchrotron SOLEIL, L'Orme des Merisiers, Gif-sur-Yvette, France*

3:15

HE-05. Skyrmion and antiskyrmion dynamics in ultrathin ferromagnetic films driven by spin-orbit torques. *U. Ritzmann*^{1,2}, *S. von Malottki*³, *J. Kim*⁴, *J. Sinova*¹, *S. Heinze*³ and *B. Dupé*¹ *1. Institut für Physik, Johannes Gutenberg Universität Mainz, Mainz, Germany; 2. Department for Physics and Astronomy, Uppsala University, Uppsala, Sweden; 3. Institute of Theoretical Physics and Astrophysics, Christian-Albrechts-Universität zu Kiel, Kiel, Germany; 4. Centre de Nanosciences et de Nanotechnologies, CNRS, Université Paris-Sud, Université Paris-Saclay, 91405 Orsay, France*

3:30

HE-06. Electrical detection of skyrmions in multilayer nanostructures. (Invited) *K. Zeissler*¹, *K. Shahbazi*¹, *J. Massey*¹, *S. Finizio*², *J. Raabe*², *M. Rosamond*³, *E. Linfield*³, *T.A. Moore*¹, *G. Burnell*¹ and *C.H. Marrows*¹ *1. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 2. Swiss Light Source, Paul Scherrer Institut, Villigen, Switzerland; 3. School of Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom*

4:00

HE-07. Dynamics of a magnetic skyrmionium driven by a spin wave. *S. Li*^{1,2}, *J. Xia*³, *X. Zhang*³, *W. Kang*¹, *M. Ezawa*⁴, *X. Liu*⁵, *Y. Zhou*³ and *W. Zhao*¹ *1. Fert Beijing Institute, BDBC, and School of Electronic and Information Engineering, Beihang University, Beijing, China; 2. Shenyuan Honors college, Beihang University, Beijing, China; 3. School of Science and Engineering, The Chinese University of Hong Kong, Shenzhen, China; 4. Department of Applied Physics, University of Tokyo, Tokyo, Japan; 5. Department of Electrical and Computer Engineering, Shinshu University, Nagano, Japan*

4:15

HE-08. A theory on skyrmion size and profile. *X. Wang^{1,2}, H. Yuan³ and X. Wang^{2,4}* *1. University of Electronic Science and Technology of China, Chengdu, China; 2. Physics, The Hong Kong University of Science and Technology, Hong Kong, Hong Kong; 3. Physics, Southern University of Science and Technology, Shenzhen, China; 4. HKUST Shenzhen Institute, Shenzhen, China*

4:30

HE-09. High speed bilayer skyrmion transport by voltage controlled magnetic anisotropy gradient. *C.C. Ang¹, W. Gan¹ and W. Lew¹* *1. School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore*

4:45

HE-10. Magnetic Skyrmion Dynamics in Wedge-shaped Nanotrack and Its Potential Applications. *X. Chen¹, W. Kang¹, D. Zhu¹, X. Zhang², Y. Zhang¹, Y. Zhou² and W. Zhao¹* *1. Beihang University, Beijing, China; 2. The Chinese University of Hong Kong, Shenzhen, China*

FRIDAY
AFTERNOON
2:00

PEONY I

Session HF

ULTRATHIN FILMS AND SURFACE EFFECTS II

Weisheng Zhao, Chair
Beihang University, Beijing, China

2:00

HF-01. Various ways to tune non-collinear magnetism in ultrathin films. (Invited) *A. Finco¹, P. Hsu^{1,2}, L. Rózsa^{1,3}, A. Kubetzka¹, E. Vedmedenko¹, K. von Bergmann¹ and R. Wiesendanger¹* *1. University of Hamburg, Hamburg, Germany; 2. Department of Physics, National Tsing Hua University, Hsinchu, Taiwan; 3. Institute for Solid State Physics and Optics, Wigner Research Centre for Physics, Budapest, Hungary*

2:30

HF-02. Electrical field induced directional motion of skyrmionic bubbles in a micro-racetrack. *X. Liu¹, X. Zhang^{2,1}, C. Ma¹, J. Xia², M. Ezawa³, W. Jiang⁴, Y. Zhou², S. Piramanayagam⁵ and T. Ono⁶* *1. Department of Electrical and Computer Engineering, Shinshu University, Nagano, Japan; 2. School of Science and Engineering, The Chinese University of Hong Kong, Shenzhen, China; 3. Department of Applied Physics, The University of Tokyo, Tokyo, Japan; 4. Department of Physics, Tsinghua University, Beijing, China; 5. School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore; 6. Institute for Chemical Research, Kyoto University, Kyoto, Japan*

- HF-03. Strong Dzyaloshinskii-Moriya interaction in symmetric crystalline [Co/Pd(111)]_n superlattices.** *A. Davydenko¹, A. Kozlov¹, M. Stebliy¹, A. Ognev¹ and L. Chebotkevich¹* *1. Far Eastern Federal University, Vladivostok, Russian Federation*

- HF-04. Magnetic domain texture and Dzyaloshinskii-Moriya interaction in systems with perpendicular exchange bias.** *R.A. Khan¹, H. Nembach², M. Ali¹, T.A. Moore¹ and C.H. Marrows¹* *1. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 2. Quantum Electromagnetics Division, National Institute of Standards and Technology, Boulder, CO, United States*

- HF-05. In-situ Annealing Study of Pt/Co Interface and its Effect on Perpendicular Magnetic Anisotropy of Pt/Co/MgO.** *H. Xie¹, Y. Yang¹, M. Zhang¹ and Y. Wu¹* *1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore*

- HF-06. Exploring interfacial Dzyaloshinskii-Moriya interaction for in-plane thin film permalloy nanostructures using micromagnetic simulations and Lorentz microscopy.** *K. Fallon¹, S. Azzawi², D. Atkinson² and S. McVitie¹* *1. University of Glasgow, Glasgow, United Kingdom; 2. Durham University, Durham, United Kingdom*

- HF-07. Enhancement of perpendicular magnetic anisotropy in Co/Ni multilayer by inserting MoS₂ under layer.** *Q. Xie^{1,2}, B. Yang³, S. Chen¹, W. Lin¹, L. Liu¹, T. Zhou¹, X. Han³, J. Chai² and J. Chen¹* *1. Department of Material Science and Engineering, National University of Singapore, Singapore; 2. Institute of Material Research and Engineering, A*STAR, Singapore, Singapore; 3. Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, University of Chinese Academy of Sciences, Beijing, China*

- HF-08. Voltage tailoring of the magnetic anisotropy of CoFeB with graphene oxide membranes.** *K. Ning^{1,3}, H. Liu^{1,3}, X. Liu^{1,3}, Y. Li^{1,3}, C. Fang², C. Wan², Y. Yang^{1,3} and T. Ren^{1,3}* *1. Institute of Microelectronics, Tsinghua University, Beijing, China; 2. Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, University of Chinese Academy of Science, Chinese Academy of Sciences, Beijing, China; 3. Tsinghua National Laboratory for Information Science and Technology, Tsinghua University, Beijing, China*

- HF-09. Control of magnetic anisotropy by lattice distortion in cobalt ferrite thin film.** *H. Onoda¹, H. Sukegawa², E. Kita¹ and H. Yanagihara¹* *1. Inst. Appl. Phys, University of Tsukuba, Tsukuba, Japan; 2. National Institute for Materials Science (NIMS), Tsukuba, Japan*

4:30

- HF-10. Torque magnetometry of perpendicular anisotropy exchange-spring heterostructures.** P. Vallobra¹, T. Hauet¹, F. Montaigne¹, E. Shipton², E. Fullerton² and S. Mangin¹
1. Institut Jean Lamour, Université de Lorraine, Nancy, France;
2. CMRR, University of California, San Diego, La Jolla, CA, United States

4:45

- HF-11. Effects of Heavy Metal Microstructure on Spin Transport in the Ultrathin Limit.** S.J. Brennan¹, J. Liao¹, T. Vemulkar¹, L. O'Brien² and R. Cowburn¹ *1. University of Cambridge, Cambridge, United Kingdom; 2. University of Liverpool, Liverpool, United Kingdom*

FRIDAY
AFTERNOON
2:00

PEONY III

Session HG
PERMANENT MAGNET AND RELUCTANCE
MACHINES VII

Weinong Fu, Chair
The Hong Kong Polytechnic University, Hong Kong, Hong Kong

2:00

- HG-01. Nonlinear Modeling of the Flux Linkage in Two-Dimensional Plane for the Planar Switched Reluctance Motor.** G. Cao¹, N. Chen¹, S. Huang¹, S. Xiao¹ and J. He²
1. Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen, China; 2. GE Global Research, Schenectady, NY, United States

2:15

- HG-02. Validation of Efficiency Maps of an Outer Rotor Surface Mounted Permanent Magnet Machine for Evaluation of Recyclability of Magnets.** A. Garcia Gonzalez¹, A.K. Jha³, L. Ziwei², P. Upadhyay² and P.O. Rasmussen¹ *1. Energy Technology, Aalborg University, Aalborg, Denmark; 2. VALEO Electrical Systems, Créteil, France; 3. G2Elab, Grenoble INP, Grenoble, France*

2:30

- HG-03. Axial Magnetic Force Analysis of Conical-rotor Permanent Magnet Synchronous Motor.** J. Wang¹, S. Huang¹ and C. Guo¹
1. College of Electrical & Information Engineering, Hunan University, Changsha, China

- HG-04. Analysis and experimental validation of performance for a switched reluctance motor with pre-fabricated soft magnetic core.** *V. Krishnan¹, K. Selvam² and K. Radhakrishnan³* 1. *EEE, avviyar college of engineering, Puducherry, India*; 2. *Research and Development, Greenergy solar solutions, Pondicherry, India*; 3. *EEE, Sri Venkateswara college of Engineering, Tamilnadu, India*

3:00

- HG-05. Study on Static Magnetic Characteristics of a Switched Reluctance Motor with 12/10 Poles under Different Operation Modes.** *Y. Hu¹ and W. Ding¹* 1. *Xi'an Jiaotong University, Xi'an, China*

3:15

- HG-06. Demagnetization under normal operation in variable flux PM-assisted Synchronous Reluctance Machines.** *I. Manolas¹, A. Kladas², D. Svehkarenko¹ and R. Chin¹* 1. *Corporate Research Sweden, ABB, Västerås, Sweden*; 2. *School of Electrical and Computer Engineering, National Technical University of Athens, Zografou, Greece*

3:30

- HG-07. Design Procedure for a 4-pole, External Rotor Synchronous Reluctance Motor (Ex-R SynRM) for the Application Mechanical Constraints.** *R. Azhagar¹ and A. Kavitha¹* 1. *Electrical and Electronics Engineering, College of Engineering, Anna University, Chennai, India*

3:45

- HG-08. Design of a High-Effective Fault-Tolerance Double-Stator Magnetless Vernier Machine for Direct-Drive Robotics.** *J. Yu¹ and C. Liu¹* 1. *School of Energy and Environment, City University of Hong Kong, Hong Kong, China*

4:00

- HG-09. Analysis of Local Demagnetization in Magnet for PM-Assisted Synchronous Reluctance Motors.** *H.T. Anh² and M. Hsieh¹* 1. *Department of Electrical Engineering, National Cheng Kung University, Tainan, Taiwan*; 2. *Department of Systems and Naval Mechatronic Engineering, National Cheng Kung University, Tainan, Taiwan*

4:15

- HG-10. An Integrated Motor-Drive and Battery-charging System Utilizing Doubly Salient Electro-magnet Machine with Split Field Windings.** *T. Zhang¹, J. Wei¹, P. Liu¹, W. Tao¹ and B. Zhou¹* 1. *Jiangsu Key Laboratory of New Energy Generation and Power Conversion, Nanjing University of Aeronautics and Astronautics, Nanjing, China*

4:30

- HG-11. Electromagnetic Performance comparison of multi-layered Interior PM machines for EV Traction Applications.** *M. Xie¹* 1. *Nanjing University of Aeronautics and Astronautics, Nanjing, China*

- HG-12. Design and Characterization of a single-phase Main Exciter for Aircraft Starter-Generator.** *J. Li¹, Z. Zhang¹, Y. Liu¹, J. Lu¹ and Z. Chen¹* *1. Nanjing University of Aeronautics and Astronautics, Nanjing, China*

FRIDAY
AFTERNOON
2:00

PEONY II

Session HH HYSTERESIS MODELLING II

Kay Hameyer, Chair
RWTH Aachen University, Aachen, Germany

2:00

- HH-01. Broadband modeling of magnetic components with saturation and hysteresis for circuit simulations of power converters.** *B. Wunsch¹, S. Skibin¹, T. Christen¹ and V. Forsstrom²* *1. ABB Corporate Research, Baden, Switzerland; 2. ABB Oy Drives, Helsinki, Finland*

2:15

- HH-02. Temperature Dependence in the Jiles-Atherton Model for Non-Oriented Electrical Steels: An Engineering Approach.** *S. Hussain¹, A. Benabou³, S. Clenet² and D. Lowther¹* *1. Elec and Comp Eng, McGill University, Montreal, QC, Canada; 2. L2EP, Arts et Metiers ParisTech, Lille, France; 3. L2EP, Universite Lille 1, Villeneuve d'Ascq, France*

2:30

- HH-03. A Hybrid Algorithm for Parameter Extraction of Energetic Hysteresis Model.** *R. Liu¹ and L. Li¹* *1. School of Electrical and Electronic Engineering, North China Electric Power University, Beijing, China*

2:45

- HH-04. Loss Simulation by Finite Element Magnetic Field Analysis Considering Dielectric Effect and Magnetic Hysteresis in EI-Shaped Mn-Zn Ferrite Core.** *K. Shimizu¹, A. Furuya¹, Y. Uehara¹, J. Fujisaki¹, H. Kawano², T. Ataka¹, T. Tanaka¹ and H. Oshima²* *1. Fujitsu Limited, Kawasaki, Japan; 2. Fujitsu Laboratories Limited, Atsugi, Japan*

3:00

- HH-05. Prandtl-Ishlinskii Modeling for Giant Magnetostrictive Actuator Based on Internal Time-delay Recurrent Neural Network.** *Y. Wang¹, R. Xu¹ and M. Zhou¹* *1. Department of control science and engineering, Jilin University, Changchun, China*

3:15

HH-06. Vector Hysteresis Modeling of Soft Magnetic Composite by the Improved Preisach Model Considering Anisotropic Characteristic. X. Zhao¹, H. Zhang¹, L. Li¹, F. Xiao¹, X. Liu¹ and Y. Li² *1. North China Electric Power University, Baoding, China; 2. Hebei University of Technology, TianJing, China*

3:30

HH-07. Modeling the role of magnetic charges on field cooling memory in low anisotropy polycrystalline materials. H. ElBidweihy¹, A. Arrott² and V. Provenzano³ *1. Department of Electrical and Computer Engineering, United States Naval Academy, Annapolis, MD, United States; 2. Physics Department, Simon Fraser University, Burnaby, BC, Canada; 3. Materials Science and Engineering Division, National Institute of Standards and Technology, Gaithersburg, MD, United States*

3:45

HH-08. Vector Magnetization By A Distribution Of Easy Axes. A. Jamali¹, E. Della Torre¹ and A. Aslani¹ *1. Department of Electrical and Computer Engineering, The George Washington University, Falls Church, VA, United States*

FRIDAY
AFTERNOON
2:00

ORCHID II

Session HI
TRANSFORMERS AND INDUCTORS: HIGH
FREQUENCY EFFECTS

Jianguo Zhu, Chair
University of Technology, Shanghai, China

2:00

HI-01. Analysis on variable inductances of planar coils sandwiched by soft magnetic layers. Y. Wen¹, P. Li¹, F. Song¹, S. Yu¹, L. Bian² and Y. Wang¹ *1. Instrument Science and Engineering, Shanghai Jiaotong University, Shanghai, China; 2. Mechanical Engineering, Nanjing Technology University, Nanjing, China*

2:15

HI-02. Layout Optimization of Indoor Substation Considering Power Transformer Spatial Acoustic Radiation Characteristics. D. Wang¹, L. Ying¹, W. Wang² and J. Wang¹ *1. School of Electrical Engineering, Wuhan University, Wuhan, China; 2. Central Southern China Electric Power Design Institute Co.,Ltd, Wuhan, China*

- HI-03. 3D Magnetic Properties Measurement of Silicon Steel under Biased Magnetic Excitation along Laminated Direction.** C. Zhang¹, B. Jiang¹, Y. Li¹ and Q. Yang² 1. Hebei University of Technology, Tianjin, China; 2. Tianjin polytechnic University, Tianjin, China

- HI-04. Numerical Modeling of Magnetic Characteristics of Ferrite Core Taking Account of Both Eddy Current and Displacement Current.** M.K. Ghosh¹, Y. Gao¹, H. Dozono¹, K. Muramatsu¹, W. Guan², J. Yuan², C. Tian² and B. Chen² 1. Dept. of Electrical & Electronic Engineering, Saga University, SAGACITY, Japan; 2. School of Electrical Engineering, Wuhan University, Wuhan, China

- HI-05. Rapid Design of Litz Wire Through Inverse Surrogate Modeling.** H. Chen^{1,2}, Y. Du² and Q. Cheng¹ 1. Department of Electrical and Electronic Engineering, Southern University of Science and Technology, Shenzhen, China; 2. Department of Building Service Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong

- HI-06. The Effect of Different Core Materials on Transformer Inrush Currents.** W. Sima¹, Y. Liu¹, M. Yang¹ and D. Peng¹ 1. State Key Laboratory of Power Transmission Equipment & System Security and New Technology, Chongqing University, Chongqing, China

- HI-07. A Novel High-Q-value Inductor with Vacant Space for a High-frequency Non-isolated DC-DC Converter.** Y. Konno¹, T. Yamamoto¹, Y. Chai¹, S. Kawahara¹, T. Kenta¹, Y. Bu¹ and T. Mizuno¹ 1. Department Electric and Electronic Engineering, Shinshu University, Nagano, Japan

- HI-08. Vibration and Acoustic Noise Emitted by Three-phase Iron-core Reactors under PWM Voltage Excitation.** J. Li¹, H. Gao^{2,1}, S. Wang¹, J. Hong¹ and M. Liu^{2,1} 1. State Key Laboratory of Control and Simulation of Power System and Generation Equipments, Tsinghua University, Beijing, China; 2. State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China

- HI-09. A Novel Structure Design of Iron Core for Power Transformers Considering Joints Forms and Magnetostriction.** J. Li¹, S. Wang¹, H. Gao^{2,1}, M. Liu^{2,1} and J. Hong¹ 1. State Key Laboratory of Control and Simulation of Power System and Generation Equipments, Tsinghua University, Beijing, China; 2. State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China

- HI-10. Comprehensive Analysis and Control of Maximum Power and Maximum Efficiency for Multiple-Objective Wireless Charging Systems.** Z. Zhang¹, R. Tong¹, W. Ai¹, S. Chang¹ and J. Wang¹ *1. School of Electrical and Information Engineering, Tianjin University, Tianjin, China*

- HI-11. Analysis of High Frequency Effects of Excitation Winding in High Frequency Rotating Tester with Nanocrystalline material.** Y. Li¹, A. Li¹, C. Zhang¹ and Q. Yang¹ *1. State Key Laboratory of EFEAR, Hebei University of Technology, Tianjin, China*

FRIDAY
AFTERNOON
1:30

SIMPOR/ROSELLE BALLROOM

Session HP
AB-INTIO CALCULATIONS
(Poster Session)

Arti Kashyap, Co-Chair
IIT Mandi, Mandi, India
Jia Zhang, Co-Chair

Huazhong University of Science and Technology, Wuhan, China

- HP-01. Possible Origin of Ferromagnetism in Undoped Magnesium Oxide Film.** M. Wang^{1,2}, D. Hou¹, S. Tang², J. Ren³, Y. Li⁴, T. Zhou⁵ and Y. Han⁶ *1. College of Physics and Information Engineering, Hebei Normal University, Shijiazhuang, China; 2. School of Information Science and Engineering, Hebei University of Science and Technology, Shijiazhuang, China; 3. College of Science, Hebei University of Science and Technology, Shijiazhuang, China; 4. School of Materials Science and Engineering, Hebei University of Technology, Tianjin, China; 5. College of Electronic Information and Optical Engineering, Nankai University, Tianjin, China; 6. Department of Construction Engineering, Hebei Vocational College of Politics and Law, Shijiazhuang, China*
- HP-02. About softening of phonon modes in Heusler alloys.** V. Buchelnikov^{1,2}, O. Miroshkina^{1,3} and A. Zayak⁴ *1. Condensed Matter Physics, Chelyabinsk State University, Chelyabinsk, Russian Federation; 2. National University of Science and Technology "MIS&S", Moscow, Russian Federation; 3. Institute of Radioengineering and Electronics of RAS, Moscow, Russian Federation; 4. Department of Physics & Astronomy, Bowling Green State University, Bowling Green, OH, United States*
- HP-03. Investigation of magnetic and structural properties of FeRh_{1-x}Pt_x (x = 0.5 - 1) alloys by first principles method.** O. Pavlukhina¹, V. Sokolovskiy¹, V. Buchelnikov¹ and M.A. Zagrebin¹ *1. Chelyabinsk State University, Chelyabinsk, Russian Federation*

- HP-04. First-principles study of MnAl/MgO/MnAl magnetic tunnel junctions with perpendicular magnetic anisotropy.** X. Zhang¹, L. Tao¹, J. Zhang², S. Liang¹, L. Jiang¹ and X. Han¹
1. State Key Lab of Magnetism, Institute of Physics, Beijing, China; 2. Huazhong University of Science and Technology, School of Physics and Wuhan National High Magnetic Field Center, Wuhan, China
- HP-05. Numerical Modeling of Iron Loss Considering Laminated Structure and Excess Loss.** D. Zhang¹, W. Guan¹, M. Yang¹, Y. Gao² and K. Muramatsu² 1. School of Electrical Engineering, Wuhan University, Wuhan, China; 2. Department of Electrical and Electronic Engineering, Saga University, Saga, Japan
- HP-06. Enhancement of perpendicular magnetic anisotropy in Co/graphene and Co/BN heterostructures by strain.** B. Yang^{1,2}, J. Zhang³, L. Jiang², W. Chen², P. Tang², Y. Yan¹ and X. Han²
1. Key Laboratory of Physics and Technology for Advanced Batteries (Ministry of Education), Department of Physics, Jilin University, Changchun, China; 2. State Key Lab of Magnetism, Institute of Physics, Beijing, China; 3. Huazhong University of Science and Technology, School of Physics and Wuhan National High Magnetic Field Center, Wuhan, China
- HP-07. Silicene spintronics: Fe(111)/silicene system for efficient spin injection.** J. Zhou^{1,2}, A. Bournel², Y. Wang³, X. Lin¹, Y. Zhang¹ and W. Zhao¹ 1. Beihang University, Beijing, China; 2. Université Paris-Sud, Orsay, France; 3. The University of Hong Kong, Hong Kong, China
- HP-08. First-principles investigation of magnetocrystalline anisotropy oscillation in Co₂FeAl/Ta heterostructure.** J. Qiao^{1,2}, S. Peng^{1,2}, Y. Zhang^{1,2}, H. Yang³ and W. Zhao^{1,2}
1. School of Electronic and Information Engineering, Beihang University, Beijing, China; 2. Fert Beijing Institute, BDBC, Beihang University, Beijing, China; 3. Key Laboratory of Magnetic Materials and Devices, Ningbo Institute of Material Technology and Engineering, Chinese Academy of Sciences, Ningbo, China
- HP-09. Theory of non-collinear interactions beyond Heisenberg exchange; applications to bcc Fe.** S. Attila¹, D. Thonig¹, P.F. Bessarab², Y. Kvashnin¹, D. Rodrigues¹, M. Pereiro¹, L. Nordstrom¹, A. Bergman¹, A. Klautau³, O. Eriksson¹ and R. Cardias¹ 1. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden; 2. Science Institute of the University of Iceland, Reykjavik, Iceland; 3. Faculdade de Fisica, Universidade Federal do Para, Reykjavik, Belem, Brazil
- HP-10. Ab initio study of phase stability in Fe-Pd binary alloys.** R. Pathak¹, O. Golovnya^{2,3}, A. Popov^{2,3}, R. Skomski⁴ and A. Kashyap¹ 1. Physics, School of Basic Sciences, Indian Institute of Technology, Mandi, HP, Mandi, India; 2. Ural Federal University, Ekaterinburg, Russian Federation; 3. M.N. Miheev Institute of Metal Physics of Ural Branch of Russian Academy of Sciences, Str. S. Kovalevskoy, Ekaterinburg, Russian Federation; 4. Nebraska Center for Materials and Nanoscience and Department of Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE, United States

Session HQ
ANALYSIS AND OPTIMISATION OF ELECTRICAL
MACHINES II
(Poster Session)

Georges Barakat, Co-Chair
University of Le Havre, Le Havre, France
Heyun Lin, Co-Chair
Southeast University, Nanjing, China

- HQ-01. Analysis and Discussion of the Indirect Testing Method for the Losses of Multi-unit Permanent Magnet Synchronous Machines.** *D. Zeng¹, J. Zou¹, Y. Xu¹, F. Liu¹ and H. Lan¹*
1. Harbin Institute of Technology, Harbin, China
- HQ-02. Investigation of Unbalanced Magnetic Force and Vibration Performance Degeneration Caused by Asymmetric Design in Permanent Magnet Synchronous Machines.** *H. Lan¹, J. Zou¹, Y. Xu¹ and M. Liu¹*
1. School of Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, China
- HQ-03. Optimal Design of an Ultra-premium Efficiency PMA-Synchronous Reluctance Motor with Winding Method and Slots Size to Considering Nonlinear Slots Saturation and Minimize Torque Pulsations.** *H. Liu¹, S. Oh¹, Y. Oh¹, J. Lee¹ and H. Lee²*
1. Hanyang Univ., Seoul, The Republic of Korea; 2. Busan Institute of Science and Technology University, Busan, The Republic of Korea
- HQ-04. A Novel Doubly Salient Flux Modulation PM Machine with Halbach Magnets.** *K. Xie¹, D. Li¹, R. Qu¹, Y. Gao¹ and Y. Pan¹*
1. Huazhong University of Science & Technology, Wuhan, China
- HQ-05. Analysis and Optimization of Cogging Torque in Yokeless and Segmented Armature Axial-Flux Permanent-Magnet Machine with Soft Magnetic Composite Core.** *L. Xu¹ and Y. Xu¹*
1. School of Electrical Engineering, Shandong University, Jinan, China
- HQ-06. Withdrawn**
- HQ-07. Development of a Slotted Limited-Angle Torque Motor with Asymmetrical Teeth for Torque Performance Improvement.** *G. Yu¹, B. Zheng¹, Y. Xu¹, J. Zou¹, L. Xiao¹ and H. Lan¹*
1. Harbin Institute of Technology, Harbin, China
- HQ-08. Design Optimization of Interior Permanent Magnet Synchronous Motor for Electric Compressors of Air-Conditioning Systems Mounted on EVs and HEVs.** *S. Cho¹, J. Choi¹, H. Shin², K. Jung² and K. Shin¹*
1. Chungnam National Univ., Daejeon, The Republic of Korea; 2. Hanon systems, Daejeon, The Republic of Korea

- HQ-09. Comparison of Modular Spoke-type Permanent-Magnet Machines Using Different Magnets for In-Wheel Traction Applications.** H. Zhang¹ and W. Hua¹ *1. School of Electrical Engineering, Southeast University, Nanjing, China*
- HQ-10. Study on the torque ripple reduction design through varying the air-gap magnetic flux density in the SPM motor.** K. Lee¹, J. Lee¹, R. Kim¹, J. Seo¹ and S. Rhyu¹ *1. Korea Electronics Technology Institute, Gyeonggi-do, The Republic of Korea*
- HQ-11. A Study on the Shape Optimization Design of Permanent Magnet Assist to Improve Output Performance of WFSMG.** S. Lee¹, J. Lee², B. Kim², D. Lee² and D. Kang² *1. Electronic and Electricity Engineering, Keimyung University, Daegu, The Republic of Korea; 2. Electrical Energy Engineering, Keimyung University, Daegu, The Republic of Korea*
- HQ-12. Analysis and Optimization of Rotor Deformation in Interior Permanent Magnet Synchronous Motors.** Y. Pei¹, Y. Li¹, F. Chai¹ and Y. Yu¹ *1. Harbin Institute of Technology, Harbin, China*
- HQ-13. A Robust Design Optimization Method for Electromagnetic Devices with Interval Uncertainties.** B. Ma¹, J. Zheng¹, G. Lei¹, J. Zhu¹ and Y. Guo¹ *1. University of Technology Sydney, Sydney, NSW, Australia*
- HQ-14. Optimized design of segmented magnet demagnetization and eddy current loss analysis of fractional pole slot combination IPMSG for ISG.** B. Kim¹, D. Lee¹, J. Lee¹, S. Lee¹ and D. Kang¹ *1. Keimyung University, Daegu, The Republic of Korea*
- HQ-15. Discrete-Search Algorithm for Estimation of MTPA Trajectory in Electromagnetic Design Optimization of Interior Permanent Magnet Machines.** A. Pouramin¹, M. Farshadnia¹, S. Paul^{2,1}, R. Dutta¹ and F.M. Rahman¹ *1. School of Electrical Engineering and Telecommunications, University of New South Wales, Universtiy of NSW, NSW, Australia; 2. Electrical Engineering, Dong-A University, Busan, The Republic of Korea*
- HQ-16. Performance Optimization of an Air-core PMSLM with New Double-layer Windings.** W. Mei¹ and Q. Lu¹ *1. College of Electrical Engineering, Zhejiang University, Hangzhou, China*

Session HR
ENERGY HARVESTERS AND GENERATORS II
(Poster Session)

Shuangxia Niu, Co-Chair

The Hong Kong Polytechnic University, Hung Hom, Hong Kong

Shuhong Wang, Co-Chair

Xi'an Jiaotong University, Xi'an, China

- HR-01. Characteristics of Energy Harvesting in Flywheel Energy Storage System Based on Efficiency Map of Electric Machine.** *J. Cho*¹, *H. Hwang*¹, *Y. Choo*¹, *C. Kim*¹ and *C. Lee*¹
1. Electrical and Computer Engineering, Pusan National University, Pusan, The Republic of Korea
- HR-02. Influence of Additional Loss in the Rotor Surface on Rotor Temperature Field of 1100MW Half-speed Nuclear Power Turbine Generator.** *L. Hu*², *Y. Su*¹, *W. Li*¹, *Y. Li*¹, *P. Wang*¹ and *W. Liu*¹
1. Electrical Engineering, Beijing jiaotong University, Beijing, China; 2. Shanghai Electric Power Generation Equipment Co., Ltd., Shanghai, China
- HR-03. Research on an Asymmetric-primary Axis-flux Maglev Generator for the Vertical Axis Wind Turbine.** *J. Liu*¹
1. Hohai University, Nanjing, China
- HR-04. Modeling and Design of a Efficient Magnetostrictive Energy Harvesting System with Low-Voltage and Low-Power under Low Vibration Excitation.** *S. Cao*¹, *X. Wang*¹ and *J. Zheng*¹
1. Hebei University of Technology, Tianjin, China
- HR-05. Performance Analysis of a Novel Brushless Hybrid Excitation Synchronous Generator.** *C. Zhu*¹, *Y. Yang*¹, *Y. Zhang*² and *Y. Shen*¹
1. School of Electrical Engineering, Shandong University, Jinan, China; 2. Yijun Motor Technology Development Center, Liaochen, China
- HR-06. Analysis of the Resonance Characteristics by a Variation of Coil Distance in Magnetic Resonant Wireless Power Transmission.** *H. Lee*¹ and *G. Park*¹
1. Department of Electrical Engineering, Pusan National University, Busan, The Republic of Korea
- HR-07. Optimization of Planar Spiral Coils for Uniform Magnetic Field to Wirelessly Power Moving Targets.** *Y. Xie*¹ and *Q. Xu*¹
1. Key Laboratory of Image Processing and Intelligent Control of Education Ministry, Department of Control Science and Engineering, Huazhong University of Science and Technology, Wuhan, China
- HR-08. Demagnetization Characteristics of a Permanent Magnet Embedded Salient Pole Wind Generator.** *Y. Guo*¹, *P. Jin*¹, *H. Yang*² and *Y. Zhu*¹
1. College of Energy and Electrical Engineering, Hohai University, Nanjing, China; 2. School of Electrical Engineering, Southeast University, Nanjing, China

HR-09. Design of a Novel Brushless Electrically-Excited Claw-Pole Generator for Hybrid Electric Vehicles. *X. Zhao¹ and S. Niu¹*
1. Electrical Engineering, The Hong Kong Polytechnic University, Kowloon, Hong Kong

HR-10. Study of Air-gap Magnetic Field of a Novel Integrated Brushless Excitation Generator. *S. Zhu¹ and C. Li¹* *1. Nanjing University of Aeronautics and Astronautics, Nanjing, China*

HR-11. Performance of Hybrid Excitation Synchronous Machine for Small Hydropower Generation. *Y. Xia¹, W. Gu¹, L. Zhou¹, C. Zhang¹ and Z. Wen¹* *1. School of Information Engineering, Nanchang University, Nanchang, China*

HR-12. Research of an Axial Flux Stator Partition Hybrid Excitation Brushless Synchronous Generator. *C. Ye^{1,2}, Y. Du¹, J. Yang¹, X. Liang¹, F. Xiong¹ and W. Xu¹* *1. School of Electrical and Electronic Engineering, Huazhong University of Science and Technology, Wuhan, China; 2. State Key Laboratory of Advanced Electromagnetic Engineering and Technology, Huazhong University of Science and Technology, Wuhan, China*

HR-13. A Novel Interior Permanent Magnet Brushless Doubly-fed Generator with Segmented Reluctance Rotor for Wind Power Application. *J. Zhang¹, Y. Jiang¹, J. Zhao¹ and W. Hua¹*
1. School of Electrical Engineering, Southeast University, Nanjing, China

HR-14. Electromagnetic energy harvester for harvesting energy from low-frequency vibration. *K. Zhang¹, Y. Su¹, J. Ding¹ and Z. Zhang¹* *1. School of Mechanical Engineering, Zhengzhou University, Zhengzhou, China*

HR-15. Parameter Determination of PMSM using Coupled Electromagnetic and Thermal Model Incorporating Current Harmonics. *S. Mukundan¹, H. Dhulipati¹, J. Tjong¹ and N. C. Kar¹* *1. Electrical & Computer Engineering, University of Windsor, Windsor, ON, Canada*

FRIDAY

SIMPOR/ROSELLE BALLROOM

AFTERNOON

1:30

Session HS

SHIELDING, ELECTROMAGNETIC COMPATIBILITY, MOTORS AND GENERATORS II (Poster Session)

Jonathan Bird, Chair

Portland State University, Portland, OR, United States

HS-01. Electromagnetic Shielding Measurement of Magnetic Absorbing Sheets Using IC-stripline. *H. Park¹* *1. School of Electrical and Electronic Engineering, The University of Suwon, Hwaseong-si, The Republic of Korea*

- HS-02. Influence of Sleeve Material on Electromagnetic Field Based on Multi-Physical Field for Permanent Magnet Synchronous Motor.** W.L. Li¹, L. Li¹, J. Li², J. Shen³, J. Cao¹ and D. Li¹
1. School of Electrical Engineering, Beijing Jiaotong University, Beijing, China; 2. School of Electrical Engineering and Automation, Harbin Institute of Technology, Harbin 150001, China, Harbin, China; 3. College of Electrical and Electronic Engineering, Harbin University of Science and Technology, Harbin, China, Harbin, China
- HS-03. Design and Analysis of a Linear Interior Permanent Magnet Vernier Machine.** C. Shi¹, R. Qu¹, Y. Gao¹, D. Li¹ and Y. Zhou¹ *1. School of Electrical and Electronics Engineering, Huazhong University of Science & Technology, Wuhan, China*
- HS-04. Reduction of magnetically induced vibration and noise in SPM motors due to segmented magnets.** J. Song¹, S. Sung¹, H. Jang¹, C. Kang¹ and G. Jang¹ *1. Dept of Mechanical Convergence Engineering, Hanyang University, Seoul, The Republic of Korea*
- HS-05. A High Torque Density Concentrated Winding Vernier Reluctance Machine with DC-Biased Current.** S. Jia^{1,3}, D. Liang^{1,3}, D. Li², W. Kong² and R. Qu² *1. School of Electrical Engineering, Xi'an Jiaotong University, Xi'an, China; 2. School of Electrical and Electronic Engineering, Huazhong University of Science and Technology, Wuhan, China; 3. State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an, China*
- HS-06. The Vibration Reduction Design and Experimental Validation of Generator for Range Extended Electric Vehicle.** B. Son¹, G. Park¹, H. Jung², Y. Kim³ and S. Jung¹
1. Sungkyunkwan Univ., Suwon-si, The Republic of Korea; 2. Korea Automotive Technology Institute, Cheonan, The Republic of Korea; 3. Chosun Univ., Gwangju, The Republic of Korea
- HS-07. Comparative Study of Airgap Field Modulation in Flux Reversal and Vernier Permanent Magnet Machines.** H. Li¹, Y. Liu¹ and Z. Zhu¹ *1. Department of Electronic and Electrical Engineering, The University of Sheffield, Sheffield, United Kingdom*
- HS-08. Low Cost High Torque Density Dual-Stator Permanent Magnet Vernier Machine.** N. Baloch¹, B. Kwon¹ and Y. Gao²
1. Electronic Systems Engineering, Hanyang University, Ansan, The Republic of Korea; 2. School of Electrical and Electronic Engineering, Huazhong University of Science and Technology, Wuhan, China
- HS-09. A Generalized Method of Electromagnetic Vibration Analysis of Amorphous Alloy Permanent Magnet Synchronous Machines.** S. Wu¹, W. Tong¹, R. Sun¹ and R. Tang¹ *1. Shenyang University of Technology, Shenyang, China*
- HS-10. A Double Stator Flux Reversal PM Machine with Halbach Consequent Pole in Slot Opening.** H. Huang¹, D. Li¹, R. Qu¹ and K. Xie¹ *1. Huazhong University of Science & Technology, Wuhan, China*

HS-11. Analysis on a Novel Flux Adjustable Permanent Magnet Eddy Current Coupler with a Double-layer Permanent Magnet Rotor. *M. Tian*¹, *X. Wang*¹, *W. Zhao*¹, *Y. Yang*¹, *J. Diao*² and *X. Ma*² *1. School of Electrical Engineering, Shandong University, Ji'nan, China; 2. Shandong Jiemeng Energy Conservation and Environmental Protection Technology Co., Ltd, Ji'nan, China*

FRIDAY
AFTERNOON
1:30

SIMPOR/ROSELLE BALLROOM

Session HT MICROMAGNETICS II (Poster Session)

Oksana Chubykalo-Fesenko, Chair
Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain

HT-01. Peaked linewidth broadening of ferromagnetic resonance induced by Dzyaloshinskii-Moriya interaction. *J. Oh*¹, *I. Hong*¹ and *K. Lee*¹ *1. Material Science Department, Korea University, Seoul, The Republic of Korea*

HT-02. Spin transport model including thermal effect of GMR based devices. *N. Saenphum*², *J. Chureemart*¹, *R.W. Chantrell*³ and *P. Chureemart*² *1. Physics, Mahasarakham University, Mahasarakham, Thailand; 2. Physics, Mahasarakham University, Mahasarakham, Thailand; 3. Physics, University of York, York, United Kingdom*

HT-03. Electrical Modeling of Double-Barrier Magnetic Tunnel Junction with Reliability Analyses. *G. Wang*^{1,2}, *Y. Zhang*^{1,2}, *Z. Zhang*^{1,2}, *Z. Zheng*^{1,2}, *K. Zhang*^{1,2}, *Y. Zhang*^{1,2} and *W. Zhao*^{1,2} *1. Fert Beijing Institut, Beihang University, Beijing, China; 2. Electronics and Information Engineering School, Beihang University, Beijing, China*

HT-04. Role of Defect on Stabilizing Skyrmion in Magnetic Nanostructure. *A. Talapatra*¹ and *J. Mohanty*¹ *1. Physics, Indian Institute of Technology, Hyderabad, Hyderabad, India*

HT-05. Comparison of Computational Speed between Landau-Lifshitz-Gilbert and Hybrid-Monte-Carlo Micromagnetics. *J. Song*¹, *Z. Zhao*¹ and *D. Wei*¹ *1. School of Materials Science and Engineering, Tsinghua University, Beijing, China*

HT-06. Realistic micromagnetic model in exchange bias: The parametric study including thermal activation as setting process. *W. Daeng-am*¹, *P. Chureemart*¹, *L.J. Atkinson*², *R.W. Chantrell*² and *J. Chureemart*¹ *1. Physics, Mahasarakham University, Kantharawichai, Thailand; 2. Physics, University of York, York, United Kingdom*

- HT-07. Micromagnetic Studies of Laser-induced Magnetization Dynamics in FePt-C Films.** *J. Miao*¹, *J. Wang*², *R. Mandal*², *D. Wei*¹, *Y. Takahashi*² and *K. Hono*² *1. School of Materials Science and Engineering, Tsinghua University, Beijing, China; 2. Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science (NIMS), Tsukuba, Japan*
- HT-08. Micromagnetic simulation for the effects of Fe nanowires distribution on the magnetic properties of the Nd₂Fe₁₄B/ α -Fe nanocomposite magnets.** *W. Li*¹, *L. Zhao*¹ and *Z. Liu*¹ *1. South China University of Technology, Guangzhou, China*
- HT-09. Parallelization with locality optimization of ultra-large-scale micromagnetics simulation using OSCAR Compiler.** *K. Ono*¹, *M. Shimaoka*², *H. Mikami*², *H. Tsukahara*¹, *K. Iwano*¹, *C. Mitsumata*³ and *H. Morita*⁴ *1. High Energy Accelerator Research Organization, Tsukuba, Japan; 2. Waseda University, Tokyo, Japan; 3. National Institute for Materials Science (NIMS), Tsukuba, Japan; 4. Hitachi, Ltd., Tokyo, Japan*
- HT-10. Voltage induced strain-mediated perpendicular magnetization control for in-memory computing device.** *Q. Wang*¹, *C. Liang*¹ and *G.P. Carman*¹ *1. Department of Mechanical and Aerospace Engineering, University of California, Los Angeles, Los Angeles, CA, United States*
- HT-11. Three-dimensional Domain Calculations by Hybrid Monte Carlo Micromagnetics.** *L. Bao*¹, *M. Dai*², *D. Wei*^{2,3} and *G. Yun*^{1,3} *1. Inner Mongolia Key Lab of Nanoscience and Nanotechnology and School of Physical Science and Technology, Inner Mongolia University, Hohhot, China; 2. Key Laboratory of Advanced Materials, School of Materials Science and Engineering, Tsinghua University, Beijing, China; 3. College of Physics and Electronic Information, Inner Mongolia Normal University, Hohhot, China*
- HT-12. Design and Optimization of Skyrmion-based Racetrack Memory by Overcoming Clogging and Annihilation of Skyrmion Signals.** *G. Zhao*¹ *1. Physics, Sichuan Normal University, Chengdu, China*

Session HU
PERMANENT MAGNET AND RELUCTANCE
MACHINES VI
(Poster Session)

Ming Liu, Chair
Xi'an Jiaotong University, Xian, China

- HU-01. 3D Structure Line Start Synchronous Reluctance Motor Design Based on Selective Laser Melting of 3D Printing.** P. Huang², M. Tsai¹ and I. Jiang² *1. Mechanical Engineering Department, National Cheng Kung University, Tainan, Taiwan; 2. Electrical Motor Technology Research Center, National Cheng Kung University, Tainan, Taiwan*
- HU-02. Quantitative Comparison of Interior Permanent Magnet Machines and Vernier Permanent Magnet Machines for Integrated Charging Applications.** W. Li², T. Ching¹, Q. Li⁴, X. Zhang³ and L. Zhang⁴ *1. University of Macau, Taipa, Macao; 2. The University of Hong Kong, Hong Kong; 3. Shenzhen In Drive Ampere Co. Ltd, Shenzhen, China; 4. Nanjing University of Science and Technology, Nanjing, China*
- HU-03. Novel Dual-Stator Permanent-Magnet Vernier Machines with Various Magnet Arrangements for Large Telescope Application.** H. Wang^{1,2}, S. Fang¹, T. Jahns², H. Yang¹, K. Wang¹ and H. Lin¹ *1. School of Electrical Engineering, Southeast University, Nanjing, China; 2. Wisconsin Electric Machines and Power Electronics Consortium (WEMPEC), University of Wisconsin-Madison, Ma, WI, United States*
- HU-04. A New Double-Winding Vernier Permanent Magnet Wind Power Generator for Hybrid AC/DC Microgrid Application.** Q. Wang¹ and S. Niu¹ *1. Department of Electrical Engineering, The Hong Kong Polytechnic University, Hung Hom, Hong Kong*
- HU-05. Ring-shaped surface-mounted permanent magnet generators with modular stator for small wind turbines – a comparison of topologies.** J.A. Oliveira^{1,2}, A.F. Flores Filho¹ and D.G. Dorrell³ *1. Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil; 2. Universidade Federal de Mato Grosso, Rondonopolis, Brazil; 3. Howard College Campus, University of KwaZulu-Natal, Durban, South Africa*
- HU-06. A novel doubly fed wind energy power split system with partial-scale converter and control strategy.** X. Liu¹, M. Li¹ and S. Huang¹ *1. Electrical and Information Engineering College, Hunan University, Changsha, China*
- HU-07. Partitioned Stator Hybrid Excitation Machine with Separated Field Sources and Armature Winding.** Y. Du¹, W. Lu¹, X. Zhu¹, F. Xiao¹ and L. Quan¹ *1. Jiangsu University, Zhenjiang, China*

- HU-08. Low-Loss Design and Analysis of Magnetic-Field Modulated Brushless Double-Rotor Machine.** J. Bai¹, J. Liu¹, P. Zheng¹ and Y. Liu¹ *1. Harbin Institute of Technology, Harbin, China*
- HU-09. Development of a New Stator Module Type Vernier Motor utilizing Amorphous Cut Core.** H. Nakagawa¹, T. Sato¹ and T. Todaka¹ *1. Oita Univ., Oita, Japan*
- HU-10. Optimal Arrangement of Permanent Magnets in a Dual-permanent-magnet-excited Synchronous Motor.** Y. Chen¹ and W. Fu¹ *1. Department of Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*
- HU-11. Loss and efficiency of a flux-switching permanent-magnet double-rotor machine with high torque density.** L. Mo¹ *1. Huaiyin Institute of Technology, Huaian, China*
- HU-12. Design, modeling, analysis of a traction motor in railway with independently rotating wheelsets.** Y. Oh¹ and S. Kim² *1. Hanyang University, Seoul, The Republic of Korea; 2. Yuhan University, Bucheon-si, The Republic of Korea*
- HU-13. Investigation of Flux Modulation Effect on Double-Side-Excited Permanent Magnet Vernier Machine with Various Magnet Topologies.** M. Jiang¹ and X. Zhu¹ *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*
- HU-14. Investigation of Dual Stator Spoke Type Vernier Machine for EV Application.** K. Jung-Woo¹ and B. Kwon¹ *1. Electronic Engineering, Hanyang University, Ansan, The Republic of Korea*
- HU-15. Hybrid Rectangular Bar Wave Windings to Minimize Winding Losses of Permanent Magnet Machines for EV/HEVs over a Driving Cycle.** X. Fan¹, D. Li¹, R. Qu¹, C. Wang¹ and J. Li¹ *1. School of Electricity and Electronic Engineering, Huazhong University of Science and Technology, State Key Laboratory of Advanced Electromagnetic Engineering and Technology, Wuhan, China*
- HU-16. Reduction of Vibration and Acoustic Noise in Fractional-Slot Concentrated-Windings Permanent-Magnet Machine.** S. Zhu¹, W. Zhao¹, J. Ji¹ and J. Zheng¹ *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*

Session HV
RECORDING SYSTEMS: CODING AND HEAD-DISK
INTERFACE
(Poster Session)

Sergiu Ruta, Chair
University of York, York, United Kingdom

- HV-01. SNR Improvement of Envelope Demodulation Using Two Temporal Magnetization Dynamics from Dual Spin-Torque Oscillator.** *Y. Nakamura¹, M. Nishikawa¹, H. Osawa¹, Y. Okamoto¹, T. Kanao² and R. Sato²* *1. Graduate School of Science and Engineering, Ehime University, Matsuyama, Japan; 2. Corporate Research & Development Center, Toshiba Corporation, Kawasaki, Japan*
- HV-02. Two-dimensional Signal Processing Systems Using CRC-polar Coding and List Decoding for Bit-patterned Magnetic Recording.** *H. Saito¹* *1. School of Advanced Engineering, Kogakuin University, Tokyo, Japan*
- HV-03. Performance of Bit-Patterned Media Recording According to Island Patterns.** *S. Jeong¹, J. Kim¹ and J. Lee¹* *1. Soongsil University, Seoul, The Republic of Korea*
- HV-04. A Rate-5/6 2D Modulation Code for Single-Reader/Two-Track Reading in BPMR Systems.** *K. Buahing¹, W. Busyatras² and C. Warisarn¹* *1. College of Advanced Manufacturing Innovation, King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand; 2. Faculty of Science and Technology, Rajamangala University of Technology Thanyaburi, Pathumthani, Thailand*
- HV-05. Control Scheme for Read/Write Head Positioning in Dual-Stage Magnetic Disk Drive Servo System.** *B. Shi^{1,2}, Y. Meng¹ and C. Jin¹* *1. School of Mechanical and Electrical Engineering, Shandong Jianzhu University, Jinan, China; 2. School of Mechanical Engineering, Hebei University of Technology, Tianjin, China*
- HV-06. Reduced-complexity window decoding of spatially coupled LDPC codes for magnetic recording systems.** *S. Khittiwitthayakul¹, W. Phakphisut¹ and P. Supnithi¹* *1. Faculty of Engineering, King Mongkut's Institute of Technology Ladkrabang, Ladkrabang, Thailand*
- HV-07. A study on iterative decoding with LLR modulator by parity check information in SMR system.** *M. Nishikawa¹, Y. Nakamura¹, H. Osawa¹, Y. Okamoto¹, Y. Kanai² and H. Muraoka³* *1. Ehime University, Matsuyama, Japan; 2. Niigata Institute of Technology, Kashiwazaki, Japan; 3. Tohoku University, Sendai, Japan*
- HV-08. Thermal decomposition of the polymeric lubricant and the viscoelastic effects on the head-disk interface in heat-assisted magnetic recording.** *P. Chung¹* *1. Energy Engineering, Inje University, Gimhae-si, The Republic of Korea*

- HV-09. Numerical Study of Particle Rebound on the Slider Air Bearing Surface.** F. Cui¹, H. Li¹, H. Shang¹, S. Shen¹, S. Wu¹ and S. Liu² *1. School of Power and Mechanical Engineering, Wuhan University, Wuhan, China; 2. Department of Mechanical Engineering, Colorado School of Mines, Golden, CO, United States*
- HV-10. Frequency analysis of disturbance torque exerted on a carriage arm in hard disk drives using Hilbert-Huang Transform.** S. Koganezawa¹ *1. Kansai University, Suita, Japan*
- HV-11. Dynamic Performance of Head-disk Interface in HAMR Using Molecular Dynamics Simulation Method.** T. Shu¹, H. Li¹, S. Shen¹, X. Dai¹, W. Shen¹ and F. Cui¹ *1. School of Power and Mechanical Engineering, Wuhan University, Wuhan, China*
- HV-12. Effect of Assembly Errors on Position Accuracy in a Rotary Magnetic Recording System.** H. Hsiao¹, L. Chen¹, C. Sung¹ and J. Chang¹ *1. Power Mechanical Engineering, National Tsing Hua University, Hsinchu, Taiwan*
- HV-13. Optimising dual layer recording using antiferromagnetic exchange coupling.** S. Greaves¹, T. Kikuchi¹, Y. Kanai² and H. Muraoka¹ *1. Tohoku University, Sendai, Japan; 2. Niigata Institute of Technology, Kashiwazaki, Japan*
- HV-14. A General LDPC code Design Framework for High-density Magnetic Recording with 2D-ISI.** L. Kong¹ and X. Jiang² *1. Nanjing University of Posts & Telecommunications Nanjing, NANJING, China; 2. Donghua University, Shanghai, China*
- HV-15. Reduced Complexity Multi-track Joint Equalization and Detection of High Areal Density Magnetic Recording.** L.M. Myint¹, C. Warisarn² and P. Supnithi³ *1. School of Science and Technology, Shinawatra University, Thailand, Pathum Thani, Thailand; 2. College of Advanced Manufacturing Innovation, King Mongkut's Institute of Technology Ladkrabang (KMUTL), Bangkok, Thailand; 3. Telecommunications Engineering Department, King Mongkut's Institute of Technology Ladkrabang (KMUTL), Bangkok, Thailand*

FRIDAY
AFTERNOON
1:30

SIMPOR/ROSELLE BALLROOM

Session HW
MAGNETO-CALORIC MATERIALS II
(Poster Session)
Jia Yan Law, Chair
Sevilla University, Sevilla, Spain

- HW-01. Effect of Si doped on magnetic and magnetocaloric properties of Ni-Co-Mn-Sn alloys.** S. Ghosh¹, P. Sen² and K. Mandal¹ *1. Condensed Matter Physics and Material Sciences, S.N.Bose National Centre for Basic Sciences, Kolkata, India; 2. Physics Group, Variable Energy Cyclotron Centre, Kolkata, India*

HW-02. Magnetocaloric effect, large coercivity and exchange bias in melt-spun rare earth intermetallic compound SmNi.

J. Kurian¹, A. Chelvane², A. Morozkin³, A.K. Nigam⁴, S.K. Malik⁵ and N. R¹ 1. *Physics, Indian Institute of Technology Madras, Chennai, India*; 2. *DMRL, Hyderabad, India*; 3. *Lomonosov Moscow State University, Moscow, Russian Federation*; 4. *TIFR, Mumbai, India*; 5. *UFRN, Natal, Brazil*

HW-03. Burst-like superelasticity and elastocaloric effect in Ni-Fe-Ga-Co magnetic shape memory alloys.

J. Liu¹ and D. Zhao¹ 1. *Ningbo Institute of Materials Technology and Engineering, Ningbo, China*

HW-04. Evaluation of different magnetocaloric heat exchanger stacks in a demonstrator with upcycled Nd-Fe-B permanent magnets.

D. Benke¹, J. Wortmann¹, M. Specht¹, I.A. Radulov¹, K. Skokov¹, D. Proserpi², P. Afiun², M. Zakotnik² and O. Gutfleisch¹ 1. *Funktionale Materialien, TU Darmstadt, Darmstadt, Germany*; 2. *Urban Mining Company, Austin, TX, United States*

HW-05. Design of an Efficient Magnetic Circuit for a Magnetocaloric Air-Conditioning System.

C. Jäschke¹, P. Schegner¹ and J. Seifert¹ 1. *Technische Universität Dresden, Dresden, Germany*

HW-06. Magnetic properties and magnetocaloric effect of Ni₂Mn_{1+x}Sn_{1-x} Heusler alloy thin films.

H. Yako¹, T. Shima¹ and M. Doi¹ 1. *Tohoku Gakuin University, Tagajo, Japan*

HW-07. Influences of sintering temperature on the microstructure and magnetocaloric effect of Mn_{1.15}Fe_{0.85}P_{0.65}Si_{0.13}Ge_{0.2}B_{0.02} prepared by spark plasma sintering.

Z. Zhao¹, T. Jing¹, G. Wang², B. Yang² and X. Zhang¹ 1. *School of Science, Inner Mongolia University of Science and Technology, Baotou, China*; 2. *Key Laboratory of Integrated Exploitation of Bayan Obo Multi-Metal Resources, Inner Mongolia University of Science and Technology, Baotou, China*

HW-08. Customizing Magnetic and Structural Properties of Nanomaterials.

A. Aslani¹, M. Ghahremani², M. Zhang³, L.H. Bennett¹ and E. Della Torre¹ 1. *Electrical and Computer Engineering, George Washington University, Washington, DC, United States*; 2. *Computer Science, Mathematics, and Engineering, Shepherd University, Shepherdstown, WV, United States*; 3. *Chemistry, George Washington University, Washington, DC, United States*

HW-09. Magnetocaloric effect in La_{0.7}Ca_{0.3}MnO₃ compounds with different pressure.

W. Nan¹, D. Pham¹, S. Yu¹, W. Shon², J. Rhyee², S. Demyanov³, N. Kalanda³, M. Yarmolich³ and L. Kovalev³ 1. *Department of Physics, Chungbuk National University, Cheongju, Cheongju, The Republic of Korea*; 2. *Department of Applied Physics, Kyung Hee University, Yongin, The Republic of Korea*; 3. *Scientific-Practical Research Centre of NAS of Belarus, Minsk, Belarus*

Session HX
POWER TRANSFORMERS
(Poster Session)

Kai Wang, Chair

Nanjing University of Aeronautics and Astronautics, Nanjing, China

- HX-01. Calculation Method of Transformer Residual Flux by Using Hysteresis Loops of Different Frequencies.** *W. Yuan¹, Y. Shangguan¹ and J. Yuan¹ 1. Dept. of Electrical Engineering, Tsinghua University, Beijing, China*
- HX-02. Influence of the Winding Geometry and its Materials on the Resonance Behavior of Transformer Coils.** *M. Nilges¹ and P. Schegner¹ 1. Institute of Electrical Power Systems and High Voltage Engineering, Technische Universitaet Dresden, Dresden, Germany*
- HX-03. An Optimized Strategy Based on backflow power of Dual-active-bridge Converters with Extending Dual-phase-shifting Control.** *Z. Feng¹ and S. Chi¹ 1. Hebei University of Technology, Tianjin, China*
- HX-04. Study of Analysis and experiment for Ability to Withstand DC Bias in Power Transformers.** *D. Chen¹, Z. Feng¹, B. Bai¹ and L. Fang¹ 1. School of Electrical Engineering, Shenyang University of Technology, Shenyang, China*
- HX-05. Vibration Research of Magnetically Controlled Saturated Reactors under AC and DC Excitations.** *Y. Gao^{2,3}, R. Yan^{2,3}, H. Liu^{2,3} and J. Chen^{2,3} 2. State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China; 3. Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability of Hebei Province, Hebei University of Technology, Tianjin, China*
- HX-06. Research on transformer core vibration Based on Thermal Analogy Method.** *B. Zhang¹, J. Du¹ and N. Yan¹ 1. Shenyang University of Technology, Shenyang, China*
- HX-07. Performance Optimization of a Novel Saturated Core Fault Current Limiter Considering Eddy current Loss of Permanent Magnet.** *L. Wei^{1,2}, B. Chen¹, Y. Liu³, H. Zhou¹, Y. Zhong¹, J. Yuan¹, K. Muramatsu⁴ and C. Wang¹ 1. Wuhan University, Wuhan, China, Wuhan, China; 2. Department of Electrical Engineering, Kyoto University, Kyoto 606-8501, Japan; 3. Anhui Electric Power Research Institute, Hefei, China; 4. Department of Electrical and Electronic Engineering, Saga University, Saga, Japan*

HX-08. Analysis of a Novel Near-Field Plate applied in Wireless Power Transmission System. *X. Zhang*¹ and *Z. Zhang*¹

1. Tianjin Normal University, Tianjin, China

HX-09. Research on Hot-spot Temperature of Nanofluid Filled Transformer. *X. Yang*^{1,2}, *S. Ho*¹, *W. Fu*¹, *G. Xu*² and *D. Peng*²

1. Department of Electrical Engineering, Applied Electromagnetics Laboratory and Electrical Machine Laboratory, Hung Hom, Hong Kong; 2. Hebei University of Technology, Tianjin, China

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Cai, J. (CC-07)	66
Cai, J. (FV-12)	159
Cai, J.L. (ET-11)	125
Cai, K. (GC-02)	165
Cai, K. (HC-09)	196
Cai, L. (BU-05)	59
Cai, S. (AT-14)	26
Cai, W. (FC-11)	135
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Chang, C. (BC-04)	36
Chang, C. (BQ-07)	50
Chang, C. (CW-03)	90
Chang, C. (EI-10)	116
Chang, C. (GW-08)	191
Chang, E.K. (EF-06)	110
Chang, F. (GD-05)	167
Chang, H. (AU-11)	28
Chang, H. (EV-12)	128
Chang, H.W. (BR-10)	54
Chang, H.W. (BU-10)	59
Chang, H.W. (CS-06)	83
Chang, J. (DH-02)	100
Chang, J. (EP-10)	117
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Chang, J. (FR-14)	152
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Chang, Q. (BP-05)	49
Chang, Q. (CW-09)	91
Chang, S. (AI-03)	16
Chang, S. (DG-08)	100
Chang, S. (EI-07)	115
Chang, S. (HI-10)	207
Chang, T. (GR-03)	181
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Chang, W.C. (CS-06)	83
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Chatterjee, S. (CR-04)	81	Chen, J. (GD-11)	168
Chatterji, T. (CR-01)	80	Chen, J. (GT-11)	185
Chau, K. (BG-09)	44	Chen, J. (HF-07)	201
Chau, K. (BH-10)	46	Chen, J. (HX-05)	221
Chau, K. (CH-02)	75	Chen, J.M. (CR-05)	81
Chau, K. (FP-04)	147	Chen, K. (AH-08)	14
Chau, K. (GU-13)	187	Chen, K. (BU-05)	59
Chau, K. (GU-14)	187	Chen, L. (BB-09)	35
Chaudhary, S. (CF-03)	71	Chen, L. (BW-10)	52
Chaudhary, S. (CF-10)	72	Chen, L. (HV-12)	219
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Chaudhary, V. (AB-10)	4	Chen, P. (ED-11)	108
Chaudhary, V. (FD-04)	136	Chen, Q. (AP-04)	18
Chaudhary, V. (GB-03)	164	Chen, Q. (AP-12)	19
Chaudhary, V. (GB-11)	165	Chen, Q. (CH-08)	75
Chaudhary, V. (GE-09)	170	Chen, Q. (FT-13)	155
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Chebotkevich, L. (AV-08)	30	Chen, S. (CW-11)	91
Chebotkevich, L. (CQ-12)	80	Chen, S. (DE-03)	97
Chebotkevich, L. (GW-06)	190	Chen, S. (EW-10)	130
Chebotkevich, L. (GW-14)	191	Chen, S. (HF-07)	201
Chebotkevich, L. (HF-03)	201	Chen, S.W. (CR-05)	81
Checca, N. (FD-06)	137	Chen, T. (AD-06)	7
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Chelvane, A. (FD-02)	136	Chen, W. (FT-02)	154
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Chen, A. (FW-02)	160	Chen, W. (HP-06)	208
Chen, A. (FW-08)	161	Chen, X. (BT-04)	57
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Chen, B. (AG-08)	13	Chen, X. (EC-03)	105
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Chen, B. (BC-03)	36	Chen, X. (HE-10)	200
Chen, B. (CG-06)	73	Chen, Y. (AF-08)	11
Chen, B. (CG-11)	74	Chen, Y. (AS-11)	24
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Chen, B. (CH-09)	75	Chen, Y. (BQ-07)	50
Chen, B. (FQ-07)	149	Chen, Y. (BV-09)	61
Chen, B. (FW-09)	161	Chen, Y. (BV-13)	61
Chen, B. (HI-04)	206	Chen, Y. (CE-04)	69
Chen, B. (HX-07)	221	Chen, Y. (CR-12)	82
Chen, C. (EI-10)	116	Chen, Y. (EF-06)	110
Chen, C. (EQ-01)	118	Chen, Y. (GQ-09)	180
Chen, C. (EQ-13)	119	Chen, Y. (HU-10)	217
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Chen, J. (BQ-05)	50	Cheng, Q. (HI-05)	206
Chen, J. (BQ-06)	50	Cheng, S. (GT-11)	185
Chen, J. (BR-06)	53	Cheng, T. (FV-12)	159
Chen, J. (CR-07)	81	Cheng, W. (BP-02)	48
Chen, J. (DE-03)	97	Cheng, W. (BQ-05)	50
Chen, J. (ED-09)	108	Cheng, W. (BW-06)	52
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Choi, H. (FR-01)	150	Coe, M. (AD-05)	7
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Choi, J. (ES-11)	123	Collin, S. (HE-04)	199
Choi, J. (FT-01)	154	Collovini, A. (BC-09)	37
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Cowburn, R. (HF-11)	202	Della Torre, E. (HW-08)	220
Cramer, J. (FF-07)	141	Delshadi, S. (BC-01)	36
Cronin, D.J. (AV-15)	31	Deman, A. (AP-02)	17
Cronin, D.J. (FW-07)	161	Demidov, V.E. (BE-01)	40
Cros, V. (AE-01)	8	Demidov, V.E. (BV-04)	60
Cros, V. (AR-15)	23	Demidov, V.E. (FV-01)	158
Cros, V. (BD-06)	39	Demidov, V.E. (GF-01)	170
Cros, V. (BE-05)	40	Demir, Y. (AG-04)	12
Cros, V. (BV-04)	60	Demir, Y. (GH-03)	174
Cros, V. (CA-01)	62	Demokritov, S.O. (BE-01)	40
Cros, V. (GF-09)	172	Demokritov, S.O. (BV-04)	60
Cros, V. (HE-04)	199	Demokritov, S.O. (FV-01)	158
Cucolo, A. (EV-03)	127	Demokritov, S.O. (GF-01)	170
Cugat, O. (BC-01)	36	Dempsey, N. (BC-01)	36
Cui, F. (HV-09)	219	Dempsey, N. (BF-01)	41
Cui, F. (HV-11)	219	Dempsey, N. (FB-11)	133
Cui, W. (AB-04)	3	Dempsey, N. (FQ-11)	150
Cui, W. (EA-06)	102	Dempsey, N. (GR-04)	181
Curti, M. (FU-03)	156	Demyanov, S. (HW-09)	220
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		Deng, L. (BB-10)	35
		Dergachev, P. (GH-11)	175
		Desfeux, R. (HD-04)	197
		Devaux, X. (HD-04)	197
		Devillers, T. (BF-01)	41
		Devolder, T. (AE-01)	8
		Devolder, T. (FF-01)	140
		Dhaens, M. (BG-10)	44
		Dhagat, P. (EV-08)	128
		Dhagat, P. (FF-12)	142
		Dhar, A. (HB-11)	194
		Dhesi, S. (FE-07)	139
		Dhesi, S. (HE-02)	199
		Dhillon, S. (AI-09)	16
		Dhulipati, H. (AG-12)	13
		Dhulipati, H. (FT-16)	155
		Dhulipati, H. (HR-15)	212
		Di Giorgio, C. (EV-03)	127
		Di Sante, D. (BE-09)	41
		Di, J. (BU-04)	58
		Di, J. (BU-05)	59
		Diao, J. (HS-11)	214
		Diao, K. (AU-05)	27
		Diao, X. (GP-06)	178
		Dias, A. (GR-04)	181
		Dias, R. (BH-01)	45
		Dieguez, L. (BC-02)	36
		Dieny, B. (BD-03)	38
		Dieny, B. (DF-03)	98
		Dieny, B. (HC-06)	195
		Dieterle, G. (FF-05)	141
		Diguet, G. (EB-02)	103
		Diko, P. (EB-12)	104
		Dimasi, A. (BC-09)	37
		Ding, G. (BU-04)	58
		Ding, G. (BU-05)	59
		Ding, G. (BU-11)	59
		Ding, J. (ER-10)	121
		Ding, J. (FE-08)	139
		Ding, J. (HR-14)	212
		Ding, L.S. (AB-02)	3
		Ding, S. (EP-13)	117
		Ding, W. (CP-13)	77
		Ding, W. (HG-05)	203
		Ding, X. (EW-06)	130
		Ding, Y. (EF-06)	110
		Divay, L. (AI-09)	16
		Divieto, C. (EI-05)	115
		Divinskiy, B. (BE-01)	40
		Divinskiy, B. (FV-01)	158
		Dixit, H. (AI-07)	16
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d'Aquino, M. (FF-09)	141
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Daeng-am, W. (HT-06)	214
Dagesyan, S. (EB-10)	104
Dai, B. (HC-09)	196
Dai, L. (EG-06)	111
Dai, M. (HT-11)	215
Dai, X. (HV-11)	219
Dai, Y. (HB-12)	194
Daibou, T. (BD-11)	39
Daikoku, A. (AT-09)	26
Dalai, M.K. (DB-06)	94
Damian, A. (BB-12)	35
Dang, T. (AI-09)	16
Daniel, L. (EE-04)	109
Danudirdjo, D. (AC-10)	6
Dao, P. (AD-04)	7
Dash, S.P. (HD-03)	197
Datta, D. (AI-07)	16
Datta, D. (BI-06)	47
Davies, J. (FF-12)	142
Davino, D. (EB-03)	103
Davino, D. (FS-05)	153
Davydenko, A. (AV-08)	30
Davydenko, A. (GW-14)	191
Davydenko, A. (HF-03)	201
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de Loubens, G. (GF-01)	170
De Riz, A. (BF-09)	43
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Deac, A. (AE-02)	8
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Dohi, T. (FC-06)	134
Doi, M. (FR-11)	151
Doi, M. (HW-06)	220
Dolecek, L. (GI-04)	176
Domann, J. (CE-08)	70
Domann, J. (ED-01)	107
Dominguez, L. (BB-04)	34
Dong, D. (FQ-04)	149
Dong, G. (AS-06)	24
Dong, J. (CH-08)	75
Dong, K. (AF-03)	10
Dong, K. (BQ-04)	50
Dong, K. (BQ-06)	50
Dong, K. (CW-15)	91
Dong, S. (CR-07)	81
Dong, Y. (AS-12)	24
Dong, Y. (FR-01)	150
Dong, Y. (FR-04)	151
Dong, Y. (FR-05)	151
Dong, Y. (GQ-01)	179
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Dorrell, D.G. (DG-07)	99
Dorrell, D.G. (FU-12)	157
Dorrell, D.G. (HU-05)	216
Dou, Y. (AP-04)	18
Dou, Y. (AP-12)	19
Dou, Y. (AQ-15)	21
Dou, Y. (EV-13)	129
Downing, G. (BI-07)	47
Dozono, H. (FQ-07)	149
Dozono, H. (HI-04)	206
Du, F. (AP-04)	18
Du, F. (AP-12)	19
Du, F. (EA-05)	102
Du, F. (EV-13)	129
Du, H. (AB-02)	3
Du, H. (AE-07)	9
Du, H. (EP-13)	117
Du, J. (AP-08)	18
Du, J. (EV-09)	128
Du, J. (FT-03)	154
Du, J. (HX-06)	221
Du, Q. (EW-07)	130
Du, X. (CT-10)	85
Du, X. (CU-15)	87
Du, Y. (ED-11)	108
Du, Y. (EG-02)	111
Du, Y. (HI-05)	206
Du, Y. (HR-12)	212
Du, Y. (HU-07)	216
Duan, C. (BW-05)	52
Duan, F. (GE-04)	169
Duan, N. (EQ-03)	118
Duan, N. (GT-08)	185
Duan, Z. (ER-10)	121
Duarte, C. (BH-06)	45
Dubois, J. (GB-01)	163
Dubowik, J. (FF-06)	141
Dubowik, J. (GF-05)	171
Dubs, C. (FF-11)	142
Dubuis, G. (EH-10)	114
Ducharne, B. (EW-04)	129
Ducharne, B. (FR-09)	151
Ducharne, B. (GT-03)	184
Ducharne, B. (GT-05)	184
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Duine, R. (FF-07)	141
Dumitru, L. (AV-05)	29
Dumont, Y. (CD-09)	68
Dunin-Borkowski, R. (CC-03)	66
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Duong, H.D. (HD-06)	197
Dupé, B. (HE-05)	199
Dupré, L. (DA-01)	92
Dupuis, V. (AP-02)	17
Dupuis, V. (AS-14)	25
Dupuis, V. (BF-06)	42
Dupuis, V. (FB-11)	133
Dupuis, V. (FQ-11)	150
Dutta, R. (GR-09)	182
Dutta, R. (HQ-15)	210
Dutta, T. (AF-07)	11
Dutta, T. (BD-09)	39
Dvornik, M. (AI-11)	17
Dvornik, M. (HD-10)	198
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Eggert, B. (FE-01)	138
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El-Ghazaly, A. (CE-03)	69
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ElBidweihy, H. (CB-05)	64
ElBidweihy, H. (HH-07)	205
Eldosouky, A. (GB-07)	164
Elfgen, S. (EE-02)	109
Elzwawy, A. (CW-06)	90
Encinas, A. (BF-04)	42
Endo, K. (HD-09)	198
Endo, S. (GU-06)	186
Endo, T. (GG-03)	172
Endo, Y. (AE-08)	9
Endo, Y. (CE-05)	70
Endoh, T. (HC-04)	195
Endoh, T. (HC-05)	195
Enokizono, M. (CB-09)	65
Enokizono, M. (CB-10)	65
Enokizono, M. (CT-16)	86
Enokizono, M. (FU-05)	156
Enpuku, K. (AP-13)	19
Enpuku, K. (CV-05)	88
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Era, H. (AV-14)	31
Erb, D. (EV-06)	128
Eriksson, O. (CF-01)	71
Eriksson, O. (HP-09)	208
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Esser, B.D. (CA-05)	63
Estevez, D. (BB-11)	35
Evans, J. (BW-07)	52
Evans, R.F. (BI-05)	47
Evans, R.F. (CS-08)	83
Evans, R.F. (DF-01)	98
Evans, R.F. (GD-04)	167
Evelt, M. (BV-04)	60
Ezawa, M. (CQ-14)	80
Ezawa, M. (HE-07)	199
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Faberova, M. (CB-03)	64
Fache, T. (ET-04)	124

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Fähnle, M. (FF-05)	141	Fert, A. (FC-11)	135
Faiz, J. (BG-07)	44	Fert, A. (HE-04)	199
Faiz, J. (FU-01)	156	Feuchtwanger, J. (EW-03)	129
Fallon, K. (FE-07)	139	Finco, A. (HF-01)	200
Fallon, K. (HF-06)	201	Finizio, S. (AE-05)	9
Falub, C. (BB-03)	34	Finizio, S. (FF-05)	141
Fan, H. (BG-09)	44	Finizio, S. (HE-06)	199
Fan, M. (GB-10)	165	Finn, D.J. (CC-08)	66
Fan, P. (GP-09)	178	Finocchio, G. (AE-03)	8
Fan, T. (BT-02)	56	Finocchio, G. (CE-09)	70
Fan, T. (BT-05)	57	Finocchio, G. (CQ-05)	79
Fan, X. (HU-15)	217	Finocchio, G. (DE-06)	97
Fan, Y. (FT-06)	154	Finocchio, G. (ET-11)	125
Fang, B. (CE-09)	70	Fiore, G.B. (BC-09)	37
Fang, B. (ET-02)	124	Fiorillo, F. (AV-09)	30
Fang, B. (ET-11)	125	Fischer, H.E. (CR-01)	80
Fang, C. (AR-12)	23	Fischer, I.A. (EB-08)	104
Fang, C. (HF-08)	201	Fischer, P. (AC-04)	5
Fang, J. (GU-02)	186	Fisher, B. (AC-08)	6
Fang, L. (AG-01)	12	Flatau, A.B. (EQ-15)	120
Fang, L. (BS-04)	55	Fletcher, J. (DH-02)	100
Fang, L. (HX-04)	221	Flores Filho, A.F. (DG-07)	99
Fang, S. (HU-03)	216	Flores Filho, A.F. (HU-05)	216
Fang, Y. (BU-08)	59	Fodorean, D. (ES-04)	122
Fang, Y. (EG-03)	111	Foerster, M. (CD-06)	68
Fang, Y. (FB-10)	133	Foerster, M. (HE-02)	199
Fang, Y. (GT-01)	184	Fonin, M. (DB-02)	93
Fang, Y. (HB-04)	193	Forestier, G. (ET-01)	124
Fangohr, H. (BI-07)	47	Forghani, B. (FP-02)	147
Farheen, A. (BP-06)	49	Forsstrom, V. (HH-01)	204
Fariborzi, H. (EW-15)	131	Förster, J. (FF-05)	141
Farle, M. (EW-08)	130	Förster, J. (FF-06)	141
Farshadnia, M. (DH-02)	100	Fowley, C. (AD-05)	7
Farshadnia, M. (HQ-15)	210	Fowley, C. (AE-02)	8
Fassbender, J. (AE-02)	8	Fowley, C. (CF-09)	72
Fassbender, J. (BV-02)	60	Fowley, C. (FC-10)	135
Fassbender, J. (CF-09)	72	Fowley, C. (FE-10)	140
Fassbender, J. (FC-10)	135	Franco, F. (BC-08)	37
Fassbender, J. (FE-10)	140	Franco, F. (BH-01)	45
Fecher, G. (AA-01)	1	Franco, V. (FD-01)	136
Fei, L. (AI-06)	16	Franco, V. (FD-07)	137
Felser, C. (AA-01)	1	Frangou, L. (ET-01)	124
Feng, C. (CC-07)	66	Fratzl, M. (BC-01)*	36
Feng, C. (GR-08)	181	Freimuth, F. (AA-05)	2
Feng, G. (ET-10)	125	Freimuth, F. (AD-04)	7
Feng, H. (AQ-02)	19	Freimuth, F. (AD-09)	7
Feng, J. (CW-04)	90	Freimuth, F. (FA-04)	131
Feng, J. (EC-03)	105	Freire-Fernandez, F. (GC-05)	166
Feng, J. (EP-11)	117	Freitas, P. (BC-02)	36
Feng, J. (ET-02)	124	Freitas, P. (BE-07)	41
Feng, J. (GS-09)	183	Freitas, P. (BH-01)	45
Feng, M. (BW-02)	51	Freitas, P. (DA-04)	92
Feng, N. (CT-07)	85	Friedrich, L. (GG-01)	172
Feng, N. (ES-13)	123	Fries, P. (DA-04)	92
Feng, Q. (AQ-16)	21	Frolova, L. (EB-12)	104
Feng, S. (FH-07)	145	Frost, W.J. (EC-07)	106
Feng, Y. (AG-06)	12	Fruchart, O. (BF-09)	43
Feng, Y. (GI-10)	177	Fruchart, O. (CD-01)	67
Feng, Z. (BS-04)	55	Fruchart, O. (CD-06)	68
Feng, Z. (HX-03)	221	Fruchart, O. (DF-03)	98
Feng, Z. (HX-04)	221	Fu, H. (CR-09)	82
Fermon, C. (DA-04)	92	Fu, H. (FD-12)	138
Fernandes, M. (DA-03)	92	Fu, M. (CB-11)	65
Fernandez Martin, E. (EW-03)	129	Fu, T. (AW-05)	32
Fernández-Pacheco, A. (BF-05)	42	Fu, W. (FU-13)	157
Fernandez-Roldan, J. (BF-07)	42	Fu, W. (FU-14)	157
Fernandez-Roldan, J. (BF-08)	42	Fu, W. (GT-13)	185
Fernandez-Roldan, J. (BF-09)	43	Fu, W. (GT-14)	185
Fernandez-Scarioni, A. (FE-06)	139	Fu, W. (GU-08)	187
Fernández, M. (AP-01)	17	Fu, W. (HU-10)	217
Fernández, M.A. (FR-08)	151	Fu, W. (HX-09)	222
Ferrara, E. (AV-09)	30	Fu, X. (GH-07)	175
Ferrari, G. (BC-09)	37	Fu, Y. (AI-01)	15
Ferreira, R. (BE-07)	41	Fu, Z. (FQ-10)	150
Ferri, A. (HD-04)	197	Fu, Z. (GD-04)	167
Fert, A. (AI-01)	15	Fuji, Y. (AH-09)	15

*Best student presentation award finalist

Fujii, J. (BE-09)	41
Fujisaki, J. (BE-06)	40
Fujisaki, J. (CH-10)	76
Fujisaki, J. (HH-04)	204
Fujisaki, K. (FT-05)	154
Fujisaki, K. (FT-09)	155
Fujisaki, K. (GG-03)	172
Fujisaki, K. (GV-09)	189
Fujishiro, Y. (CW-14)	91
Fujita, N. (CS-01)	82
Fujita, N. (EQ-02)	118
Fujita, S. (BD-01)	38
Fujita, Y. (AR-10)	22
Fujita, Y. (HD-08)	197
Fujita, Y. (HD-09)	198
Fujiwara, H. (CE-06)	70
Fujiwara, K. (AV-03)	29
Fujiwara, K. (CV-04)	88
Fujiwara, K. (CV-14)	89
Fujiwara, K. (EI-01)	114
Fukami, S. (BD-02)	38
Fukami, S. (ED-10)	108
Fukami, S. (FC-06)	134
Fukami, S. (GD-03)	167
Fukami, S. (HC-03)	195
Fukami, T. (GV-08)	189
Fukazawa, T. (CS-07)	83
Fukunaga, H. (AV-10)	30
Fukunaga, H. (BU-01)	58
Fukunaga, H. (BU-02)	58
Fukunaga, H. (CS-01)	82
Fukushima, A. (AR-15)	23
Fukushima, A. (BD-06)	39
Fukushima, A. (BE-05)	40
Fukushima, A. (EC-01)	105
Fukushima, A. (FC-05)	134
Fukushima, A. (FC-08)	135
Fukuzawa, H. (BD-08)	39
Fukuzawa, H. (GA-03)	163
Fullerton, E. (HF-10)	202
Furdyna, J. (EP-10)	117
Furdyna, J. (GF-02)	170
Furuya, A. (BE-06)	40
Furuya, A. (CH-10)	76
Furuya, A. (EQ-09)	119
Furuya, A. (HH-04)	204
Futamoto, M. (AF-10)	11
Futamoto, M. (EB-06)	103
Fuzer, J. (AV-11)	30
Fuzer, J. (CB-03)	64

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Gabor, M. (ET-10)	125
Gabsi, M. (GT-12)	185
Gage, E. (AF-01)	10
Gage, E. (DF-04)	98
Gage, E. (EF-06)	110
Gage, E. (EF-08)	110
Gahtori, B. (HB-11)	194
Galbraith, R. (GI-04)	176
Galkin, V. (AB-08)	3
Galkin, V. (AB-11)	4
Gambardella, P. (AD-04)	7
Gambarelli, S. (ET-01)	124
Gan, K. (GA-02)	162
Gan, P. (CG-06)	73
Gan, P. (CG-11)	74
Gan, P. (FW-09)	161
Gan, W. (CQ-02)	78
Gan, W. (CQ-03)	78
Gan, W. (HE-09)	200
Gandha, K. (AS-02)	23
Gangwar, A. (FF-05)	141
Gangwar, V. (CR-04)	81
Gao, C. (AS-12)	24
Gao, C. (FR-05)	151

Gao, C. (FR-06)	151
Gao, C. (FS-08)	153
Gao, C. (FS-10)	153
Gao, F. (EQ-05)	119
Gao, F. (ES-15)	123
Gao, F. (GR-10)	182
Gao, G. (GQ-09)	180
Gao, H. (HI-08)	206
Gao, H. (HI-09)	206
Gao, J. (AC-08)	6
Gao, J. (EG-06)	111
Gao, J. (EG-09)	112
Gao, J. (ER-10)	121
Gao, J. (GG-12)	174
Gao, J. (GP-09)	178
Gao, K. (AF-06)	11
Gao, K. (FQ-12)	150
Gao, L. (EF-06)	110
Gao, T. (GE-08)	170
Gao, X. (AT-05)	26
Gao, X. (CT-09)	85
Gao, Y. (AG-08)	13
Gao, Y. (CE-04)	69
Gao, Y. (CG-06)	73
Gao, Y. (CG-11)	74
Gao, Y. (CH-09)	75
Gao, Y. (EQ-08)	119
Gao, Y. (FQ-07)	149
Gao, Y. (FW-09)	161
Gao, Y. (HI-04)	206
Gao, Y. (HP-05)	208
Gao, Y. (HQ-04)	209
Gao, Y. (HS-03)	213
Gao, Y. (HS-08)	213
Gao, Y. (HX-05)	221
Garcia Gonzalez, A. (HG-02)	202
Garcia-Arribas, A. (EI-03)	115
Garcia-Arribas, A. (EW-03)	129
Garcia-Hernandez, K. (BV-04)	60
García-Hernández, M. (GB-02)	163
Garcia-Sanchez, F. (FE-06)	139
Garcia, J. (EV-08)	128
Garcia, K. (CA-01)	62
Garello, K. (GD-06)	168
Garg, C. (CF-07)	72
Gargiani, P. (DB-03)	93
Gaspar, J. (BH-01)	45
Gatel, C. (AC-06)	5
Gaudin, G. (CD-10)	68
Gaudin, G. (ED-06)	107
Gaudin, G. (GD-10)	168
Gaudin, G. (HE-02)	199
Gautier, E. (BD-03)	38
Gavrila, H. (AV-05)	29
Ge, H. (AS-13)	25
Ge, H. (BW-05)	52
Ge, H. (CS-04)	83
Ge, H. (GB-08)	164
Ge, L. (BT-06)	57
Ge, W. (AW-09)	32
Gemming, S. (AE-02)	8
Geng, G. (GU-02)	186
Geng, W. (DH-03)	100
George, J. (AI-01)	15
George, J. (AI-09)	16
Gerada, C. (CU-09)	87
Gerada, C. (GS-03)	183
Gerada, D. (CU-09)	87
Geraldi, N. (BH-06)	45
Gerasimenko, A. (GW-06)	190
Gerber, A. (EW-01)	129
Gerhard, J. (EC-02)	105
Gerken, M. (AC-05)	5
Germick, J.R. (CP-06)	77
Germick, J.R. (CP-07)	77
Ghahremani, M. (FD-09)	137
Ghahremani, M. (HW-08)	220

*Best student presentation award finalist

Ghayesh, M. (FG-10)	143	Guan, W. (EQ-08)	119
Ghemes, I. (BF-02)	42	Guan, W. (FQ-07)	149
Ghorbanian, V. (FT-07)	154	Guan, W. (HI-04)	206
Ghosh, A. (BD-07)	39	Guan, W. (HP-05)	208
Ghosh, E. (FT-16)	155	Guan, X. (AW-02)	31
Ghosh, M.K. (FQ-07)	149	Guarisco, D. (HC-08)	196
Ghosh, M.K. (HI-04)	206	Guddeti, S. (CQ-01)	78
Ghosh, S. (CC-06)	66	Guelfucci, J. (HC-06)	195
Ghosh, S. (HW-01)	219	Guillemard, C. (GD-02)	167
Ghoshal, T. (AS-08)	24	Guillemard, C. (GW-08)	191
Giacometti, M. (BC-09)	37	Gulec, M. (FH-09)	145
Gilbert, I. (DF-04)	98	Gulec, M. (FQ-05)	149
Giménez-Marqués, M. (AH-04)	14	Günther, C. (AC-03)	5
Giri, A. (FD-07)	137	Guo, B. (GV-07)	188
Girt, E. (GW-13)	191	Guo, B. (GV-16)	189
Givord, D. (BF-01)	41	Guo, C. (AG-06)	12
Gladii, O. (ET-01)	124	Guo, C. (HG-03)	202
Gliga, S. (FE-05)	139	Guo, G. (ED-11)	108
Glowinski, H. (GF-05)	171	Guo, J. (BG-11)	44
Go, G. (CQ-08)	79	Guo, K. (GI-10)	177
Göbl, E. (FG-03)	142	Guo, L. (CP-13)	77
Godfrin, C. (HA-05)	192	Guo, L. (CS-04)	83
Godinho, J. (AA-04)	2	Guo, L. (DH-01)	100
Goering, E. (FE-09)	140	Guo, P. (CW-04)	90
Goh, L. (GA-02)	162	Guo, P. (ET-02)	124
Gohda, Y. (AB-01)	2	Guo, R. (EH-07)	113
Goiriena-Goikoetxea, M. (EI-03)	115	Guo, R. (EQ-01)	118
Golovnya, O. (HP-10)	208	Guo, R. (EQ-13)	119
Gomonay, O. (AA-03)	2	Guo, R. (ES-13)	123
Gomonay, O. (FF-07)	141	Guo, R. (GR-13)	182
Gompertz, J. (FI-11)	147	Guo, R. (HB-12)	194
Gong, H. (EP-16)	118	Guo, S. (BU-04)	58
Gong, J. (FH-02)	144	Guo, S. (BU-05)	59
Gonzalez, J. (AB-12)	4	Guo, S. (BU-11)	59
Gonzalez, J. (BB-04)	34	Guo, S. (GS-05)	183
Gorchon, J. (BQ-13)	51	Guo, S. (GS-09)	183
Gorchon, J. (GC-06)	166	Guo, S. (GV-11)	189
Gorige, V. (BR-03)	53	Guo, Y. (AG-05)	12
Gorn, N. (EV-04)	127	Guo, Y. (AU-05)	27
Goswami, S. (FI-04)	146	Guo, Y. (BG-08)	44
Goto, T. (EB-08)	104	Guo, Y. (FU-15)	157
Gotoh, Y. (AP-13)	19	Guo, Y. (FW-12)	161
Gotoh, Y. (CV-12)	89	Guo, Y. (GR-14)	182
Gotoh, Y. (CV-13)	89	Guo, Y. (HQ-13)	210
Grachev, A. (FV-02)	158	Guo, Y. (HR-08)	211
Gräfe, J. (FE-09)	140	Guo, Z. (GB-06)	164
Gräfe, J. (FF-06)	141	Gupta, A. (BV-03)	60
Gräfe, J. (GF-05)	171	Gupta, A. (FI-06)	146
Gragnaniello, L. (DB-02)	93	Gupta, B. (EW-04)	129
Granville, S. (EH-10)	114	Gupta, B. (FR-09)	151
Granz, S.D. (AF-01)	10	Gupta, B. (GT-03)	184
Granz, S.D. (DF-04)	98	Gupta, B. (GT-05)	184
Granz, S.D. (EF-06)	110	Gupta, D. (HD-02)	196
Graulich, D. (DE-01)	96	Gupta, D.K. (CF-03)	71
Greaves, S. (BQ-01)	49	Gupta, M. (CF-03)	71
Greaves, S. (BQ-03)	50	Gupta, R. (GC-04)	166
Greaves, S. (EU-04)	126	Gupta, S. (AP-14)	19
Greaves, S. (HV-13)	219	Guryeva, T. (GW-15)	191
Greneche, J. (GR-15)	182	Gusakova, D. (BF-09)	43
Grezes, C. (FC-09)	135	Gusev, N. (AH-03)	14
Grier, A. (GI-07)	176	Gushi, T. (CD-01)	67
Grigoros, M. (BB-12)	35	Gusliencko, K. (EI-03)	115
Grigoros, M. (BF-02)	42	Gutfleisch, O. (EA-01)	102
Grigoros, M. (DB-08)	94	Gutfleisch, O. (FD-01)	136
Groenefeld, M. (GB-09)	164	Gutfleisch, O. (HW-04)	220
Grollier, J. (AR-15)	23	Gwalani, B. (GE-09)	170
Grollier, J. (BE-05)	40	Gysen, B. (BG-10)	44
Grollier, J. (DD-01)	95	Gysen, B. (FU-02)	156
Gross, F. (FE-09)	140	Gysen, B. (GG-01)	172
Gross, F. (GF-05)	171		
Gruszecki, P. (FF-06)	141		
Gu, J. (EI-08)	115		
Gu, W. (HR-11)	212		
Gu, X. (CE-02)	69		
Guan, M. (AS-06)	24		

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Ha, C. (GV-14)	189
Hache, T. (BV-02)	60
Hadimani, R.L. (AP-14)	19
Hadimani, R.L. (CP-02)	76

Hadimani, R.L. (CP-04)	76	Haq, J. (GA-03)	163
Hadimani, R.L. (CP-06)	77	Hara, K. (GS-07)	183
Hadimani, R.L. (CP-07)	77	Hara, M. (AH-09)	15
Hadimani, R.L. (CP-15)	78	Hara, Y. (GR-02)	181
Hadimani, R.L. (CR-09)	82	Harada, T. (BU-02)	58
Hadimani, R.L. (FD-12)	138	Harashima, Y. (CS-07)	83
Hadimani, R.L. (GQ-04)	179	Hareedy, A. (GI-04)	176
Hadjipanayis, G.C. (HB-03)	193	Hari, S. (EP-04)	116
Hahn, H. (CB-05)	64	Harish Kumar, N. (BR-07)	53
Hahn, I. (AU-10)	28	Harris, V. (CE-02)	69
Hahn, I. (BT-14)	58	Harris, V. (EQ-10)	119
Hahn, I. (GP-11)	178	Harstad, S.M. (AP-14)	19
Hahn, S. (AW-03)	31	Hartmann, U. (AQ-12)	20
Hahn, S. (FW-05)	160	Hartmann, U. (EW-14)	130
Haider, K. (AB-08)	3	Harumoto, T. (GE-08)	170
Haider, K. (AB-11)	4	Hashi, S. (CW-07)	91
Hakala, T. (GC-05)	166	Hashizume, R. (AU-01)	27
Hakamata, K. (EQ-09)	119	Hashmi, M. (EI-02)	114
Halder, M. (AE-04)	9	Hasiak, M. (FP-01)	147
Hallal, A. (DF-03)	98	Hasselbach, K. (GR-04)	181
Haltz, E. (CD-09)	68	Hata, S. (AV-14)	31
Hamamura, R. (CS-01)	82	Hauet, T. (BC-04)	36
Hamans, R.F. (BF-05)	42	Hauet, T. (HF-10)	202
Hamaya, K. (AR-10)	22	Hayashi, K. (GQ-12)	180
Hamaya, K. (HD-07)	197	Hayashi, M. (BH-03)	45
Hamaya, K. (HD-08)	197	Hayashi, M. (ED-04)	107
Hamaya, K. (HD-09)	198	Hayashi, M. (GW-11)	191
Hameyer, K. (AV-13)	30	Hayashi, M. (GW-16)	191
Hameyer, K. (CB-08)	64	Hayashi, M. (HC-07)	196
Hameyer, K. (EE-02)	109	Hayes, S. (CV-03)	88
Hamzic, A. (BV-14)	61	Hayward, T. (AV-16)	31
Han, B. (AU-06)	28	Hayward, T. (CD-08)	68
Han, C. (FT-01)	154	Hazra, B.K. (EH-11)	114
Han, H. (AC-04)	5	He, J. (HG-01)	202
Han, J. (AB-02)	3	He, L. (AB-04)	3
Han, J. (EP-13)	117	He, L. (BR-13)	54
Han, J. (FR-05)	151	He, L. (EH-02)	112
Han, L. (EP-13)	117	He, L. (EP-01)	116
Han, R. (BU-08)	59	He, M. (BS-02)	54
Han, S. (GB-08)	164	He, P. (DC-01)	94
Han, T. (AH-11)	15	He, R. (EG-09)	112
Han, T. (EQ-04)	118	He, R. (GA-03)	163
Han, T. (FP-09)	148	He, S. (FW-10)	161
Han, W. (AS-12)	24	He, X. (AW-05)	32
Han, W. (BH-10)	46	He, X. (BP-05)	49
Han, W. (CH-02)	75	He, X. (CW-09)	91
Han, W. (DC-05)	95	He, Y. (AQ-05)	20
Han, W. (FP-04)	147	He, Y. (BC-03)	36
Han, W. (FR-03)	150	He, Y. (DB-07)	94
Han, W. (FR-05)	151	He, Y. (FS-07)	153
Han, W. (GU-13)	187	He, Y.H. (FP-12)	148
Han, W. (GU-14)	187	Heald, S. (AC-08)	6
Han, W. (GV-03)	188	Hebler, B. (CC-01)	65
Han, X. (AR-12)	23	Hebrard, Y. (GT-03)	184
Han, X. (AS-03)	24	Hehn, M. (GD-10)	168
Han, X. (CC-07)	66	Heidari, H. (AG-09)	13
Han, X. (CW-04)	90	Heimbach, F. (BV-14)	61
Han, X. (DE-03)	97	Heimlich, M. (BC-08)	37
Han, X. (EP-11)	117	Heinonen, O. (CA-04)	63
Han, X. (ET-02)	124	Heinrich, A.J. (HA-06)	192
Han, X. (FC-09)	135	Heinrich, B. (GW-13)	191
Han, X. (GR-11)	182	Heinz, B. (FF-11)	142
Han, X. (HF-07)	201	Heinze, S. (HE-05)	199
Han, X. (HP-04)	208	Heistracher, P.T. (BI-01)	46
Han, X. (HP-06)	208	Hellwig, O. (BV-02)	60
Han, Y. (HP-01)	207	Hellwig, O. (FE-10)	140
Hane, Y. (ES-09)	123	Hendren, W.R. (BI-05)	47
Hane, Y. (GG-02)	172	Heng, C. (AI-06)	16
Hanke, J. (AD-09)	7	Henk, J. (FA-02)	131
Hanke, J. (FA-04)	131	Heo, C. (CV-11)	89
Hansen, M. (FF-12)	142	Herchenroeder, J. (EA-04)	102
Hänze, M. (AE-05)	9	Herea, D. (BF-02)	42
Hänze, M. (FF-03)	140	Herea, D. (EI-06)	115
Hao, P. (CP-16)	78	Hernandez, J. (HC-08)	196
Hao, Y. (BW-06)	52	Hernandez, S. (AF-01)	10
Hao, Y. (FV-13)	159	Hernandez, S. (DF-04)	98

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Hernandez, S. (EF-08)	110	Hono, K. (BI-10)	48
Herrmann, L. (GB-12)	165	Hono, K. (BQ-10)	50
Herynek, V. (AP-03)	17	Hono, K. (CF-05)	71
Herzer, G. (BB-01)	34	Hono, K. (DF-03)	98
Heussner, F. (FF-11)	142	Hono, K. (EA-03)	102
Heya, A. (BG-05)	44	Hono, K. (EC-01)	105
Heya, A. (CG-07)	73	Hono, K. (EF-04)	110
Heyns, M. (FF-01)	140	Hono, K. (EF-07)	110
Hickey, B. (DB-03)	93	Hono, K. (FC-03)	134
Hida, R. (BB-03)	34	Hono, K. (FC-09)	135
Higashi, Y. (AH-09)	15	Hono, K. (FC-12)	136
Higuchi, T. (AU-01)	27	Hono, K. (GW-09)	191
Hildebrandt, E. (HB-06)	193	Hono, K. (HB-01)	193
Hillebrands, B. (FF-04)	141	Hono, K. (HB-02)	193
Hillebrands, B. (FF-11)	142	Hono, K. (HT-07)	215
Hillebrands, B. (FV-07)	158	Horaguchi, T. (CQ-06)	79
Hilliard, D. (FE-10)	140	Horibe, Y. (AV-14)	31
Hillion, A. (BF-06)	42	Horie, Y. (BQ-12)	51
Hinata, S. (BQ-11)	51	Horino, T. (CV-12)	89
Hino, H. (EV-05)	128	Horita, T. (CS-09)	83
Hino, W. (BS-03)	55	Hoshi, K. (BV-15)	61
Hinzke, D. (FV-12)	159	Hosseinnia, M. (FD-09)	137
Hirai, Y. (AT-10)	26	Hou, C. (BC-03)	36
Hiraoka, S. (ER-01)	120	Hou, D. (CT-07)	85
Hirata, K. (BG-04)	44	Hou, D. (HP-01)	207
Hirata, K. (BG-05)	44	Hou, W. (EQ-07)	119
Hirata, K. (CG-07)	73	Hou, Y. (DD-03)	96
Hirata, K. (EG-10)	112	Houssameddine, D. (AI-07)	16
Hirohata, A. (CD-08)	68	Hovorka, O. (BI-07)	47
Hirohata, A. (EC-07)	106	Hovorka, O. (BQ-08)	50
Hirohata, A. (ET-16)	125	Høyer-Hansen, M. (FW-02)	160
Hirohata, A. (FE-04)	139	Høyer-Hansen, M. (FW-08)	161
Hirosawa, S. (HB-01)	193	Hrkac, G. (CS-08)	83
Hirosawa, S. (HB-02)	193	Hsiao, C. (EV-12)	128
Hittinger, C. (BT-14)	58	Hsiao, H. (HV-12)	219
Hittinger, C. (GP-11)	178	Hsieh, C. (CT-12)	85
Hlawacek, G. (FE-10)	140	Hsieh, M. (GV-10)	189
Hlenschi, C. (EW-09)	130	Hsieh, M. (HG-09)	203
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Jung, D. (GV-12)	189	Kang, Y. (FP-03)	147
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Kawabe, T. (HD-01)	196	Kim, H. (FT-14)	155
Kawahara, S. (HI-07)	206	Kim, H. (FW-03)	160
Kawai, T. (EB-06)	103	Kim, H. (GV-12)	189
Kawakami, R. (CA-05)	63	Kim, J. (AE-01)	8
Kawano, H. (EQ-09)	119	Kim, J. (AI-02)	15
Kawano, H. (HH-04)	204	Kim, J. (CD-08)	68
Kawano, T. (CT-16)	86	Kim, J. (CF-04)	71
Kawasaki, Y. (EI-08)	115	Kim, J. (CH-03)	75
Kawase, K. (FR-07)	151	Kim, J. (CQ-07)	79
Kawato, Y. (AR-04)	22	Kim, J. (CS-03)	83
Kayama, Y. (EU-04)	126	Kim, J. (DD-05)	96
Kazakova, O. (AC-05)	5	Kim, J. (FE-04)	139
Kazakova, O. (CC-04)	66	Kim, J. (FT-10)	155
Kazakova, O. (FE-06)	139	Kim, J. (HE-05)	199
Keller, S. (FF-11)	142	Kim, J. (HV-03)	218
Keller, S. (GD-07)	168	Kim, K. (AI-02)	15
Kenta, T. (HI-07)	206	Kim, K. (AW-06)	32
Kern, P. (EP-15)	118	Kim, K. (CH-03)	75
Kessler, R. (GB-12)	165	Kim, K. (CQ-08)	79
Ketterson, J. (AA-05)	2	Kim, K. (CS-05)	83
Kfir, O. (CC-01)	65	Kim, K. (CT-05)	84
Khajrullin, M.F. (BB-06)	35	Kim, M. (CR-08)	81
Khalili Amiri, P. (CE-09)	70	Kim, M. (CS-03)	83
Khalili Amiri, P. (ET-11)	125	Kim, R. (BS-07)	55
Khalili, P. (FC-09)	135	Kim, R. (HQ-10)	210
Khaliq, S. (BS-07)	55	Kim, S. (AV-08)	30
Khalsa, G. (AR-15)	23	Kim, S. (AW-08)	32
Khan, R.A. (HF-04)	201	Kim, S. (CQ-08)	79
Khan, S. (BF-10)	43	Kim, S. (EC-05)	106
Khan, U. (AS-03)	24	Kim, S. (GP-07)	178
Khanal, S. (CF-11)	72	Kim, S. (GQ-03)	179
Khanal, S. (GW-05)	190	Kim, S. (GQ-05)	180
Khatab, M.F. (ES-12)	123	Kim, S. (HU-12)	217
Khittiwitachayakul, S. (HV-06)	218	Kim, T. (GD-06)	168
Khizroev, S. (AF-03)	10	Kim, T. (GW-02)	190
Khokle, R.P. (BC-08)	37	Kim, W. (BS-06)	55
Khomskii, D. (FI-09)	146	Kim, W. (FT-14)	155
Khymyn, R. (DD-04)	96	Kim, W. (FW-03)	160
Khymyn, R. (DE-08)	97	Kim, W. (HC-02)	195
Khymyn, R. (HD-10)	198	Kim, Y. (AT-15)	27
Kieu, X. (CR-02)	81	Kim, Y. (ES-08)	123
Kieu, X. (CR-03)	81	KIM, Y. (FQ-02)	149
Kikuchi, H. (CW-12)	91	Kim, Y. (FQ-03)	149
Kikuchi, N. (EW-16)	131	Kim, Y. (GD-06)	168
Kikuchi, T. (HV-13)	219	Kim, Y. (GS-10)	183
Kim, B. (AU-06)	28	Kim, Y. (GW-02)	190
Kim, B. (BT-12)	57	Kim, Y. (HS-06)	213
Kim, B. (HQ-11)	210	Kim, Y.J. (GW-06)	190
Kim, B. (HQ-14)	210	Kim, Y.K. (AV-08)	30
Kim, C. (AT-02)	25	Kim, Y.K. (GD-06)	168
Kim, C. (CW-06)	90	Kim, Y.K. (GW-02)	190
Kim, C. (EW-02)	129	Kim, Y.K. (GW-06)	190
Kim, C. (GS-02)	183	Kimata, M. (AS-04)	24
Kim, C. (GS-04)	183	Kimata, M. (CD-02)	67
Kim, C. (HR-01)	211	Kimel, A. (GD-04)	167
Kim, D. (AB-08)	3	Kimura, T. (AR-04)	22
Kim, D. (AB-11)	4	Kimura, T. (FR-12)	151
Kim, D. (AT-01)	25	Kimura, T. (FR-16)	152
Kim, D. (AW-08)	32	Kinoshita, T. (GV-04)	188
Kim, D. (AW-10)	32	Kioussis, N.G. (FC-09)	135
Kim, D. (BS-13)	56	Kishimoto, K. (FR-10)	151
Kim, D. (CQ-07)	79	Kishimoto, K. (FR-12)	151
Kim, D. (CS-11)	84	Kishimoto, K. (FR-16)	152
Kim, D. (ES-08)	123	Kishimoto, M. (EV-14)	129

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Kita, E. (EV-14)	129	Kong, Y. (AU-03)	27
Kita, E. (HF-09)	201	Kong, Y. (BS-12)	56
Kitai, Y. (CE-06)	70	Kong, Y. (GH-04)	174
Kitakami, O. (EW-16)	131	Kong, Y. (GH-07)	175
Kitakami, O. (HB-07)	194	Konno, Y. (HI-07)	206
Kitao, J. (AT-09)	26	Koo, H. (CF-04)	71
Kitaoka, M. (EQ-09)	119	Koo, J. (CH-03)	75
Kiwa, T. (BH-03)	45	Koo, M. (CT-05)	84
Kiwa, T. (BH-05)	45	Koodacadavan, N.A. (FI-08)	146
Kiwa, T. (CC-09)	67	Koplak, O. (BC-10)	37
Kladas, A. (HG-06)	203	Kopnov, G. (EW-01)	129
Kläui, M. (CA-03)	62	Korinkova, T. (DB-04)	93
Kläui, M. (EC-02)	105	Kosaka, W. (FR-02)	150
Kläui, M. (FF-07)	141	Kosel, J. (BH-06)	45
Klaus, B. (CH-06)	75	Kosel, J. (EC-02)	105
Klautau, A. (HP-09)	208	Kostylev, M. (AQ-07)	20
Klein, J. (AR-08)	22	Kostylev, M. (BV-11)	61
Klein, J. (AR-11)	22	Kostylev, M. (ET-07)	124
Klein, J. (DD-03)	96	Kostylev, M. (GC-10)	167
Klein, O. (BV-04)	60	Kostylev, M. (GF-07)	171
Klein, O. (GF-01)	170	Kostyuchenko, N. (EP-03)	116
Klementova, M. (DB-04)	93	Kou, B. (BT-09)	57
Klemmer, T. (EF-06)	110	Kou, B. (CT-01)	84
Kliava, J. (GE-05)	169	Kou, B. (CT-15)	85
Klos, J.W. (GF-05)	171	Kou, B. (CU-10)	87
Klose, F. (BA-04)	33	Kou, B. (CU-14)	87
Klyatskaya, S. (HA-05)	192	Kou, B. (ER-13)	121
Kmjec, T. (DB-04)	93	Kou, B. (FG-07)	143
Knight, A. (AG-02)	12	Kou, B. (GV-05)	188
Knoll, P. (GQ-11)	180	Kou, R. (AC-08)	6
Knyazev, G.A. (AH-03)	14	Kovac, F. (AV-11)	30
Ko, Y. (FQ-03)	149	Kovalev, L. (HW-09)	220
Ko, Y. (GS-10)	183	Koyama, M. (GV-08)	189
Kobayashi, C. (GU-03)	186	Koyanagi, T. (FR-10)	151
Kobayashi, K. (AD-03)	7	Koyanagi, T. (FR-12)	151
Kobayashi, K. (AP-10)	18	Koyanagi, T. (FR-16)	152
Kobayashi, K. (AP-11)	18	Kozhaev, M. (EB-10)	104
Kobayashi, N. (BP-04)	48	Kozhaev, M. (FV-09)	159
Kobayashi, N. (FR-07)	151	Koziol-Rachwal, A. (EC-01)	105
Kobayashi, Y. (GU-09)	187	Kozlov, A. (AS-01)	23
Kobayashi, Y. (GV-08)	189	Kozlov, A. (HF-03)	201
Kobe, S. (GB-01)	163	Kozlova, T. (AH-04)	14
Koczka, G. (EE-01)	108	Kravcak, J. (EB-12)	104
Koda, K. (AV-10)	30	Krawczyk, M. (FF-06)	141
Koganezawa, S. (DG-05)	99	Krawczyk, M. (GF-05)	171
Koganezawa, S. (GI-08)	176	Krenn, H. (GQ-11)	180
Koganezawa, S. (HV-10)	219	Krieff, J. (AD-04)	7
Koh, C. (GT-09)	185	Krieff, J. (BV-03)	60
Kohara, A. (EG-10)	112	Kriegner, D. (AA-04)	2
Kohara, K. (GV-04)	188	Krishnan, R. (EQ-12)	119
Kohno, Y. (AC-02)	5	Krishnan, V. (HG-04)	203
Kohout, J. (DB-04)	93	Krivosik, P. (AF-01)	10
Koi, K. (BD-04)	38	Krizakova, V. (HE-01)	198
Koi, K. (BP-01)	48	Kronast, F. (AC-09)	6
Koi, K. (ED-07)	108	Kronseder, M. (AE-04)	9
Koi, K. (GA-06)	163	Ku, S.T. (CR-05)	81
Koike, H. (HC-05)	195	Kubetzka, A. (HF-01)	200
Koizumi, H. (GW-12)	191	Kubickova, L. (AP-03)	17
Koktan, J. (DB-04)	93	Kubickova, L. (DB-04)	93
Kolesnickov, A. (AS-01)	23	Kubo, S. (AV-14)	31
Kolesnikov, A. (CQ-12)	80	Kubo, T. (CW-14)	91
Kolesnikov, A. (GW-01)	190	Kubo, Y. (CW-07)	91
Kolesnikov, A. (GW-14)	191	Kubota, H. (AR-15)	23
Kollar, P. (AV-11)	30	Kubota, H. (BD-06)	39
Kollar, P. (CB-03)	64	Kubota, H. (BE-05)	40
Komarov, R. (EB-10)	104	Kubota, H. (BE-06)	40
Komineas, S. (CQ-05)	79	Kubota, H. (EC-01)	105
Komissinskiy, P. (HB-06)	193	Kubota, H. (FC-08)	135
Komori, M. (ER-12)	121	Kubota, K. (BR-12)	54
Komori, M. (GS-07)	183	Kubota, M. (AR-03)	21
Kondou, K. (AS-04)	24	Kubota, T. (DE-04)	97
Kondou, K. (ED-05)	107	Kubota, T. (EC-06)	106
Kondou, K. (HD-01)	196	Kubota, Y. (EF-06)	110
Kong, H. (BS-06)	55	Kudo, T. (HC-04)	195
Kong, L. (HV-14)	219	Kuhnt, M. (BB-01)	34
Kong, W. (HS-05)	213	Kulickova, J. (AP-03)	17
Kong, X. (EP-13)	117	Kulkarni, S. (FW-07)	161

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Lee, J. (FQ-02)	149	Lervik, J. (FW-02)	160
Lee, J. (FT-01)	154	Lervik, J. (FW-08)	161
Lee, J. (GC-02)	165	Lesne, E. (AI-01)	15
Lee, J. (GQ-05)	180	Létang, J. (AE-01)*	8
Lee, J. (GS-12)	184	Leung, C. (BP-02)	48
Lee, J. (GV-12)	189	Leung, C. (FS-12)	153
Lee, J. (GV-15)	189	Leuning, N. (AV-13)	30
Lee, J. (HQ-03)	209	Leuning, N. (CB-08)	64
Lee, J. (HQ-10)	210	Leuning, N. (EE-02)	109
Lee, J. (HQ-11)	210	Leutkens, H. (DB-03)	93
Lee, J. (HQ-14)	210	Lew, W. (AD-11)	8
Lee, J. (HV-03)	218	Lew, W. (BV-12)	61
Lee, K. (AC-04)	5	Lew, W. (CQ-02)	78
Lee, K. (BD-09)	39	Lew, W. (CQ-03)	78
Lee, K. (BS-07)	55	Lew, W. (HE-09)	200
Lee, K. (BV-05)	60	Lewis, C.M. (DA-04)	92
Lee, K. (CF-04)	71	Li, A. (AQ-15)	21
Lee, K. (CQ-08)	79	Li, A. (HI-11)	207
Lee, K. (CQ-11)	79	Li, C. (BC-03)	36
Lee, K. (CS-03)	83	Li, C. (BT-08)	57
Lee, K. (CU-08)	87	Li, C. (EU-06)	126
Lee, K. (DD-06)	96	Li, C. (FW-10)	161
Lee, K. (EP-10)	117	Li, C. (GG-12)	174
Lee, K. (ES-03)	122	Li, C. (GV-10)	189
Lee, K. (FV-05)	158	Li, C. (HR-10)	212
Lee, K. (GA-02)	162	Li, D. (AH-02)	14
Lee, K. (GD-08)	168	Li, D. (BW-11)	52
Lee, K. (HQ-10)	210	Li, D. (CC-07)	66
Lee, K. (HT-01)	214	Li, D. (EG-08)	112
Lee, M. (CU-03)	86	Li, D. (HQ-04)	209
Lee, N. (CR-08)	81	Li, D. (HS-02)	213
Lee, O. (AF-03)	10	Li, D. (HS-03)	213
Lee, O. (CF-04)	71	Li, D. (HS-05)	213
Lee, P. (FR-14)	152	Li, D. (HS-10)	213
Lee, S. (AQ-11)	20	Li, D. (HU-15)	217
Lee, S. (AS-11)	24	Li, F. (DH-05)	100
Lee, S. (AT-04)	26	Li, H. (AG-07)	12
Lee, S. (BS-05)	55	Li, H. (AT-03)	25
Lee, S. (BS-06)	55	Li, H. (AT-14)	26
Lee, S. (BT-12)	57	Li, H. (BQ-06)	50
Lee, S. (CS-11)	84	Li, H. (BT-11)	57
Lee, S. (CU-08)	87	Li, H. (BU-03)	58
Lee, S. (DB-03)	93	Li, H. (ES-12)	123
Lee, S. (EP-10)	117	Li, H. (EU-05)	126
Lee, S. (ES-03)	122	Li, H. (EU-06)	126
Lee, S. (FV-05)	158	Li, H. (GP-09)	178
Lee, S. (GQ-02)	179	Li, H. (GQ-12)	180
Lee, S. (GR-12)	182	Li, H. (GR-01)	181
Lee, S. (HQ-11)	210	Li, H. (HS-07)	213
Lee, S. (HQ-14)	210	Li, H. (HV-09)	219
Lee, T. (AR-07)	22	Li, H. (HV-11)	219
Lee, W. (CU-03)	86	Li, J. (AU-13)	28
Lee, W. (CV-09)	88	Li, J. (AW-07)	32
Lee, W. (GR-03)	181	Li, J. (BE-08)	41
Lee, W.T. (CR-05)	81	Li, J. (BW-05)	52
Lee, Y. (BU-10)	59	Li, J. (CG-09)	74
Lee, Y. (CS-06)	83	Li, J. (CS-04)	83
Lee, Y. (GA-03)	163	Li, J. (ET-14)	125
Lees, M.R. (CR-05)	81	Li, J. (FU-06)	156
Legrand, W. (CA-01)	62	Li, J. (FW-10)	161
Legrand, W. (HE-04)	199	Li, J. (GH-01)	174
Lei, G. (AG-05)	12	Li, J. (GT-15)	185
Lei, G. (AU-05)	27	Li, J. (HG-12)	204
Lei, G. (BG-08)	44	Li, J. (HI-08)	206
Lei, G. (HQ-13)	210	Li, J. (HI-09)	206
Lei, W. (AB-04)	3	Li, J. (HS-02)	213
Leibfried, T. (CH-06)	75	Li, J. (HU-15)	217
Leliaert, J. (DA-01)	92	Li, K. (AB-02)	3
Leng, Q. (EW-13)	130	Li, K. (EG-03)	111
Lenz, K. (CF-09)	72	Li, K. (EP-13)	117
Lenzing, N. (FF-03)	140	Li, K. (EQ-01)	118
Leone, D. (EB-03)	103	Li, L. (FP-02)	147
Leone, D. (FS-05)	153	Li, L. (HH-03)	204
Leong, Z. (AV-16)	31	Li, L. (HH-06)	205
Leong, Z. (CB-04)	64	Li, L. (HS-02)	213
Leong, Z. (CV-03)	88	Li, M. (BU-06)	59
Lequeux, S. (BD-03)	38	Li, M. (ET-05)	124

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Li, M. (GB-06).....	164	Li, Y. (FH-07).....	145
Li, M. (GP-13).....	178	Li, Y. (FR-15).....	152
Li, M. (GP-15).....	179	Li, Y. (FS-08).....	153
Li, M. (HU-06).....	216	Li, Y. (FS-10).....	153
Li, N. (AP-04).....	18	Li, Y. (GH-05).....	174
Li, N. (AP-12).....	19	Li, Y. (GQ-07).....	180
Li, N. (BS-12).....	56	Li, Y. (GQ-10).....	180
Li, N. (EV-13).....	129	Li, Y. (GR-01).....	181
Li, P. (AH-11).....	15	Li, Y. (GS-05).....	183
Li, P. (CC-07).....	66	Li, Y. (GS-09).....	183
Li, P. (GI-01).....	175	Li, Y. (GT-08).....	185
Li, P. (HI-01).....	205	Li, Y. (GT-15).....	185
Li, Q. (AQ-02).....	19	Li, Y. (HF-08).....	201
Li, Q. (BT-02).....	56	Li, Y. (HH-06).....	205
Li, Q. (BT-05).....	57	Li, Y. (HI-03).....	206
Li, Q. (HU-02).....	216	Li, Y. (HI-11).....	207
Li, R. (BQ-06).....	50	Li, Y. (HP-01).....	207
Li, R. (EH-08).....	113	Li, Y. (HQ-12).....	210
Li, R. (FS-02).....	152	Li, Y. (HR-02).....	211
Li, R. (GR-05).....	181	Li, Z. (AQ-01).....	19
Li, S. (AD-11).....	8	Li, Z. (BU-12).....	59
Li, S. (AQ-02).....	19	Li, Z. (BV-03).....	60
Li, S. (AQ-08).....	20	Li, Z. (FT-02).....	154
Li, S. (BV-12).....	61	Li, Z. (GT-01).....	184
Li, S. (EI-07).....	115	Li, Z. (GU-15).....	187
Li, S. (GP-14).....	179	Liang, C. (HT-10).....	215
Li, S. (HE-07).....	199	Liang, D. (BG-11).....	44
Li, T. (FB-12).....	133	Liang, D. (FT-13).....	155
Li, W. (AS-03).....	24	Liang, D. (FW-01).....	160
Li, W. (AV-07).....	30	Liang, D. (GG-08).....	173
Li, W. (BS-01).....	54	Liang, D. (HS-05).....	213
Li, W. (BU-08).....	59	Liang, G. (EH-09).....	113
Li, W. (BV-06).....	61	Liang, H. (BT-07).....	57
Li, W. (EP-14).....	118	Liang, H. (FT-12).....	155
Li, W. (FB-10).....	133	Liang, J. (AH-08).....	14
Li, W. (FR-13).....	151	Liang, J. (BU-03).....	58
Li, W. (GB-06).....	164	Liang, J. (CW-11).....	91
Li, W. (GR-11).....	182	Liang, J. (EW-10).....	130
Li, W. (GR-15).....	182	Liang, J. (GR-01).....	181
Li, W. (HB-04).....	193	Liang, P. (CG-08).....	74
Li, W. (HR-02).....	211	Liang, S. (AV-07).....	30
Li, W. (HT-08).....	215	Liang, S. (HD-04).....	197
Li, W. (HU-02).....	216	Liang, S. (HP-04).....	208
Li, W.L. (HS-02).....	213	Liang, X. (FW-06).....	160
Li, X. (AB-02).....	3	Liang, X. (GP-16).....	179
Li, X. (AR-13).....	23	Liang, X. (HR-12).....	212
Li, X. (AT-07).....	26	Liang, Y. (FW-01).....	160
Li, X. (EP-11).....	117	Liao, J. (BF-05).....	42
Li, X. (EP-13).....	117	Liao, J. (HF-11).....	202
Li, X. (ET-08).....	125	Liao, X. (BU-09).....	59
Li, X. (FB-07).....	133	Liao, X. (FT-12).....	155
Li, X. (FC-02).....	134	Liao, X. (GR-15).....	182
Li, X. (FC-07).....	135	Lim, D. (CU-11).....	87
Li, X. (FC-09).....	135	Lim, G.J. (BV-12).....	61
Li, X. (FS-06).....	153	Lim, J. (CT-04).....	84
Li, X. (GP-08).....	178	Lim, J. (CT-06).....	85
Li, X. (HD-04).....	197	Lim, J. (CU-11).....	87
Li, Y. (AP-04).....	18	Lim, J. (CU-12).....	87
Li, Y. (AP-07).....	18	Lim, J. (ER-03).....	120
Li, Y. (AP-12).....	19	Lim, J. (GA-02).....	162
Li, Y. (AQ-14).....	21	Lim, J. (GV-14).....	189
Li, Y. (AQ-15).....	21	Lim, M. (FQ-09).....	150
Li, Y. (AQ-16).....	21	Lim, M. (GP-12).....	178
Li, Y. (AW-07).....	32	Lim, M. (GU-05).....	186
Li, Y. (BT-05).....	57	Lim, P.B. (EB-08).....	104
Li, Y. (BU-12).....	59	Lim, S. (BD-07).....	39
Li, Y. (CR-07).....	81	Lim, S. (BV-05).....	60
Li, Y. (CV-06).....	88	Lim, S. (EC-05).....	106
Li, Y. (EG-05).....	111	Lin, C. (AU-14).....	28
Li, Y. (EI-09).....	116	Lin, C. (EI-10).....	116
Li, Y. (EQ-03).....	118	Lin, D. (GG-09).....	173
Li, Y. (EQ-11).....	119	Lin, H. (AG-10).....	13
Li, Y. (ET-14).....	125	Lin, H. (AQ-08).....	20
Li, Y. (EU-06).....	126	Lin, H. (ED-08).....	108
Li, Y. (EV-13).....	129	Lin, H. (FH-03).....	144
Li, Y. (FB-02).....	132	Lin, H. (HU-03).....	216
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Lin, J.G. (BV-13)	61	Liu, L. (AQ-08)	20
Lin, K. (AS-07)	24	Liu, L. (BT-10)	57
Lin, K. (CR-11)	82	Liu, L. (DE-03)	97
Lin, K. (EP-09)	117	Liu, L. (EU-01)	126
Lin, M. (AU-03)	27	Liu, L. (FB-12)	133
Lin, M. (BS-12)	56	Liu, L. (FS-03)	152
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Lin, M. (GH-04)	174	Liu, L. (GR-08)	181
Lin, M. (GH-07)	175	Liu, L. (HF-07)	201
Lin, P. (ED-08)	108	Liu, M. (AS-06)	24
Lin, P. (ED-11)	108	Liu, M. (AW-07)	32
Lin, W. (CR-12)	82	Liu, M. (BU-14)	59
Lin, W. (GD-11)	168	Liu, M. (BW-01)	51
Lin, W. (HF-07)	201	Liu, M. (BW-02)	51
Lin, X. (AR-09)	22	Liu, M. (CW-08)	91
Lin, X. (EI-10)	116	Liu, M. (EC-04)	105
Lin, X. (GC-01)	165	Liu, M. (EQ-07)	119
Lin, X. (HP-07)	208	Liu, M. (ET-09)	125
Lin, Z. (HD-11)	198	Liu, M. (FI-07)	146
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Liu, C. (AU-11)	28	Liu, S. (AP-12)	19
Liu, C. (BB-09)	35	Liu, S. (EI-08)	115
Liu, C. (BG-08)	44	Liu, S. (EP-13)	117
Liu, C. (BG-09)	44	Liu, S. (EV-13)	129
Liu, C. (BV-14)	61	Liu, S. (HV-09)	219
Liu, C. (CR-12)	82	Liu, T. (AQ-16)	21
Liu, C. (CT-12)	85	Liu, T. (BU-08)	59
Liu, C. (DH-08)	101	Liu, T. (FF-10)	142
Liu, C. (FU-06)	156	Liu, T. (FV-12)	159
Liu, C. (GS-03)	183	Liu, W. (BH-10)	46
Liu, C. (GV-03)	188	Liu, W. (BR-13)	54
Liu, C. (HG-08)	203	Liu, W. (BU-12)	59
Liu, E. (EP-12)	117	Liu, W. (BU-14)	59
Liu, E. (ET-08)	125	Liu, W. (CH-02)	75
Liu, E. (HC-02)	195	Liu, W. (EH-02)	112
Liu, F. (BT-01)	56	Liu, W. (EP-01)	116
Liu, F. (GU-04)	186	Liu, W. (FB-02)	132
Liu, F. (HQ-01)	209	Liu, W. (FP-04)	147
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Liu, G. (CT-13)	85	Liu, W. (GU-14)	187
Liu, H. (BP-05)	49	Liu, W. (HR-02)	211
Liu, H. (CW-04)	90	Liu, X. (AB-05)	3
Liu, H. (CW-09)	91	Liu, X. (AT-08)	26
Liu, H. (EP-11)	117	Liu, X. (AV-02)	29
Liu, H. (EQ-01)	118	Liu, X. (CD-04)	68
Liu, H. (EQ-13)	119	Liu, X. (CQ-14)	80
Liu, H. (GA-03)	163	Liu, X. (CU-09)	87
Liu, H. (GD-11)	168	Liu, X. (CV-02)	88
Liu, H. (GV-15)	189	Liu, X. (EH-06)	113
Liu, H. (HF-08)	201	Liu, X. (EP-10)	117
Liu, H. (HQ-03)	209	Liu, X. (EQ-01)	118
Liu, H. (HX-05)	221	Liu, X. (EQ-13)	119
Liu, J. (EA-02)	102	Liu, X. (ES-01)	122
Liu, J. (EB-07)	104	Liu, X. (ES-02)	122
Liu, J. (FB-07)	133	Liu, X. (ES-13)	123
Liu, J. (HR-03)	211	Liu, X. (FQ-04)	149
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Liu, J. (HW-03)	220	Liu, X. (GF-02)	170
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Liu, K. (AU-03)	27	Liu, X. (GQ-08)	180
Liu, K. (CT-07)	85	Liu, X. (GR-02)	181
Liu, K. (GH-04)	174	Liu, X. (GR-13)	182
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Liu, Y. (AS-03)	24	Lu, C. (CR-10)	82
Liu, Y. (AT-14)	26	Lu, H. (BB-10)	35
Liu, Y. (BA-03)	33	Lu, J. (CH-07)	75
Liu, Y. (BB-10)	35	Lu, J. (GG-08)	173
Liu, Y. (BP-02)	48	Lu, J. (HG-12)	204
Liu, Y. (BR-11)	54	Lu, K. (CU-02)	86
Liu, Y. (BT-01)	56	Lu, P. (BQ-05)	50
Liu, Y. (BT-11)	57	Lu, Q. (BG-06)	44
Liu, Y. (BU-07)	59	Lu, Q. (BU-12)	59
Liu, Y. (BU-13)	59	Lu, Q. (CU-04)	86
Liu, Y. (CC-07)	66	Lu, Q. (CU-05)	86
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Liu, Y. (FW-11)	161	Lu, X. (GW-04)	190
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Liu, Y. (GH-09)	175	Lu, Y. (HD-04)	197
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Liu, Z. (AT-08)	26	Luo, J. (CT-15)	85
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Liu, Z. (CP-12)	77	Luo, K. (BQ-05)	50
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Ma, C. (HF-02)	200
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Maeda, Y. (EW-11)	130	Masuda, K. (BI-10)	48
Maeng, C. (CU-03)	86	Masuda, T. (CR-05)	81
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Mangin, S. (GD-10)	168	Meier, G. (EV-06)	128
Mangin, S. (HD-04)	197	Meier, G. (FF-03)	140
Mangin, S. (HF-10)	202	Meier, T. (AE-04)	9
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Miao, J. (BV-10)	61	Mondal, S. (AE-09)	9
Miao, J. (ED-09)	108	Mondal, S. (GF-04)	171
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Miao, J. (HT-07)	215	Montaigne, F. (HF-10)	202
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Miao, Z. (GG-04)	173	Moon, J. (AT-16)	27
Midhunlal, P.V. (BR-07)	53	Moon, J. (CR-08)	81
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Mizuguchi, M. (FE-02)	138	Muela, A. (EI-03)	115
Mizuguchi, M. (GD-09)	168	Muhammad Mustafa, H. (EC-02)	105
Mizuno, T. (DF-03)	98	Mukherjee, K. (CR-06)	81
Mizuno, T. (FP-07)	148	Mukhin, A. (EP-03)	116
Mizuno, T. (GU-06)	186	Mukundan, S. (BT-16)	58
Mizuno, T. (HI-07)	206	Mukundan, S. (DB-07)	94
Mizushima, K. (AR-02)	21	Mukundan, S. (FT-16)	155
Mizushima, K. (EF-05)	110	Mukundan, S. (HR-15)	212
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Ou, J. (GH-09)	175
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Ouyang, C. (EV-12)	128
Ouyang, J. (BW-03)	51
Ouyang, J. (CW-11)	91
Ouyang, J. (EW-10)	130
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Park, C. (ES-10)	123
Park, D. (ER-03)	120
Park, E. (BV-05)	60
Park, G. (CV-08)	88
Park, G. (CV-11)	89
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Park, H. (HS-01)	212
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Park, J. (CU-08)	87
Park, J. (ES-03)	122
Park, J. (GB-08)	164
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Park, K. (FW-05)	160
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Peng, C. (CT-10)	85
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Peng, J. (FW-04)	160
Peng, J. (GS-09)	183
Peng, S. (FC-02)	134
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Peng, S. (HP-08)	208
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Radu, E. (EI-06)	115	Ren, L. (BR-11)	54
Radu, F. (AC-09)	6	Ren, L. (FW-13)	161
Radu, I.P. (FF-01)	140	Ren, L. (GT-10)	185
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Rahman, M. (GG-09)	173	Ren, Y. (EP-11)	117
Rahmawati, D. (AC-10)	6	Ren, Y. (EW-10)	130
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Ramanujan, R.V. (GE-09)	170	Rial, J. (GB-05)	164
Ramasubramanian, L. (AE-02)	8	Rial, J. (HB-09)	194
Ramasubramanian, L. (CF-09)	72	Rial, J. (HB-10)	194
Ramaswamy, R. (BD-09)	39	Ribeiro, C. (DA-03)	92
Ramaswamy, R. (CF-08)	72	Ribeiro, P.M. (CV-07)	88
Ramaswamy, R. (DE-02)	96	Ribeiro, S. (DA-03)	92
Ramaswamy, R. (GC-02)	165	Rice, K. (CF-01)	71
Rameshti, B. (GC-07)	166	Richter, J. (BB-03)	34
Ramezani, A. (EQ-14)	119	Richter, K. (BB-08)	35
Rana, B. (ED-05)	107	Rinaldi, C. (BC-09)	37
Rana, B. (FF-02)	140	Rinaldi, C. (BE-09)	41
Randeria, M. (CA-05)	63	Riou, M. (AR-15)	23
Randrianantoandro, N. (CS-02)	83	Ripka, P. (BH-02)	45
Rani, D. (BR-08)	53	Ripka, P. (EU-10)	127
Rani, J. (BR-09)	54	Ritzmann, U. (HE-05)	199
Ranno, L. (HE-01)	198	Rivas, M. (AP-01)	17
Rao, S. (HC-02)	195	Rizzi, P. (EV-02)	127
Rao, W. (EU-01)	126	Robert, S. (GW-08)	191
Rao, X. (EA-05)	102	Robertson, W. (FG-10)	143
Rao, Y. (ET-05)	124	Rode, K. (AD-05)	7
Rao, Z. (FG-05)	143	Rode, K. (FC-10)	135
Rasly, M. (HD-11)	198	Rodionova, V. (BB-07)	35
Rasmussen, P.O. (HG-02)	202	Rodionova, V.V. (BB-06)	35
Rastogi, A. (BV-03)	60	Rodrigues, D. (HP-09)	208
Rastogi, P. (CP-02)	76	Rodríguez, L. (CC-04)	66
Rastogi, P. (CP-04)	76	Roehlsberger, R. (AH-05)	14
Rastogi, P. (CP-06)	77	Roehlsberger, R. (EV-06)	128
Rastogi, P. (CP-07)	77	Roehlsberger, R. (GW-15)	191
Rath, M. (DE-01)	96	Roese, P. (GW-10)	191
Rathi, A. (FI-06)	146	Rogalev, A. (FB-11)	133
Rathi, A. (HB-11)	194	Rogalev, A. (FE-01)	138
Rausch, T. (AF-01)	10	Rogalev, A. (GW-01)	190
Rausch, T. (DF-04)	98	Rogalev, A. (GW-03)	190
Rausch, T. (EF-06)	110	Rogers, M. (DB-03)	93
Rausch, T. (EF-08)	110	Rohrmann, H. (BB-03)	34
Ravelosona, D. (AR-08)	22	Rojas-Sánchez, J. (AI-01)	15
Ravelosona, D. (CD-03)	67	Rojas-Sánchez, J. (GD-02)	167
Ravelosona, D. (EW-13)	130	Rojas-Sánchez, J. (GD-10)	168
Ravelosona, D. (GC-01)	165	Romero-Muñiz, C. (FD-01)	136
Rawat, R. (EH-11)	114	Ropers, C. (CC-01)	65
Rawat, R. (FI-04)	146	Rosa, P. (GE-05)	169
Re, M.E. (EF-06)	110	Rosamond, M. (FI-02)	146
Rea, C.J. (DF-04)	98	Rosamond, M. (HE-06)	199
Rea, C.J. (EF-06)	110	Rosch, A. (AE-04)	9
Rebeiro, R. (AG-02)	12	Rosenaue, A. (AE-04)	9
Reese, B.A. (CG-03)	73	Rosenberg, J. (AP-14)	19
Reese, B.A. (CG-04)	73	Roshanzamir, A. (ER-07)	121
Rehman, S. (AB-04)	3	Ross, A. (FF-07)	141

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Rotarescu, C. (CQ-09)	79	Sakuraba, Y. (AI-10)	17
Rotarescu, C. (EU-11)	127	Sakuraba, Y. (CF-05)	71
Rott, K. (AD-04)	7	Sakuraba, Y. (EF-07)	110
Roussigné, Y. (CF-08)	72	Sakuraba, Y. (FC-03)	134
Roussigné, Y. (GW-02)	190	Sala, A. (CD-06)	68
Roussigné, Y. (HE-01)	198	Salahuddin, S. (BQ-13)	51
Rout, P. (FI-06)	146	Salahuddin, S. (GC-06)	166
Rout, P. (HB-11)	194	Salamon, S. (FE-01)	138
Rowland, J. (CA-05)	63	Salvador, M. (AP-01)	17
Roy Dakua, H. (FE-03)	139	Samardak, A. (AV-08)	30
Roy, K. (CW-13)	91	Samardak, A. (GW-06)	190
Roy, P. (AA-04)	2	Samardak, A.S. (AS-01)	23
Roy, P. (CD-07)	68	Samardak, A.S. (AV-08)	30
Roy, R. (CF-12)	72	Samardak, A.S. (CQ-12)	80
Roy, S. (AS-08)	24	Samardak, A.S. (GW-01)	190
Roy, S. (GQ-06)	180	Samardak, A.S. (GW-02)	190
Rozanov, K.N. (CE-10)	70	Samardak, A.S. (GW-06)	190
Rozhkova, E.A. (FE-08)	139	Samatham, S. (BR-08)	53
Rózsa, L. (HF-01)	200	Samatham, S. (FI-01)	145
Ruben, M. (HA-05)	192	Samatham, S. (FI-05)	146
Rubi, K. (FD-05)	137	Samiepour, M. (CD-08)	68
Rubia-Rodríguez, I. (EI-04)	115	Samiepour, M. (EC-07)	106
Rubiola, E. (BD-06)	39	Samir, M. (AP-02)	17
Ruck, B.J. (EH-10)	114	Sampaio, J. (CD-09)	68
Rüffer, R. (EV-06)	128	Sampathkumaran, E.V. (BW-08)	52
Ruiz, O.J. (GI-09)	177	Sampietro, M. (BC-09)	37
Ruotolo, A. (AH-02)	14	Sandig, O. (AC-09)	6
Rusponi, S. (DB-02)	93	Sangawa, U. (CE-06)	70
Rusz, J. (CC-03)	66	Sankar, A. (FD-02)	136
Ruta, S. (BQ-08)	50	Santoso, B. (BH-11)	46
Ruta, S. (GD-04)	167	Sanyal, B. (FE-01)	138
Ryan, E. (HC-08)	196	Sanz-Hernández, D. (BF-05)*	42
Ryba, T. (EB-12)	104	Sarkar, P. (AV-01)	29
Rychly, J. (GF-05)	171	Sarriegui, G. (AB-12)	4
Ryu, D. (FQ-02)	149	Sasada, I. (EW-05)	130
		Sasaki, H. (ER-08)	121
		Sasaki, I. (AV-14)	31
		Sasaki, T. (AF-04)	10
		Sasaki, T. (FC-09)	135
		Sasaya, T. (FT-09)	155
		Sasaya, T. (GG-03)	172
		Sasayama, T. (AP-13)	19
		Sasayama, T. (CV-05)	88
		Sassi, M. (EI-05)	115
		Sato, A. (CP-01)	76
		Sato, H. (BD-02)	38
		Sato, H. (ED-10)	108
		Sato, H. (FC-06)	134
		Sato, H. (HC-03)	195
		Sato, H. (HC-05)	195
		Sato, H. (HC-10)	196
		Sato, M. (AQ-09)	20
		Sato, M. (CE-06)	70
		Sato, N. (BW-07)	52
		Sato, R. (EF-05)	110
		Sato, R. (HV-01)	218
		Sato, T. (AV-04)	29
		Sato, T. (AV-06)	30
		Sato, T. (AW-01)	31
		Sato, T. (BB-05)	34
		Sato, T. (CB-09)	65
		Sato, T. (CW-14)	91
		Sato, T. (GV-04)	188
		Sato, T. (HU-09)	217
		Satoh, T. (HB-08)	194
		Savero-Torres, W. (BE-04)	40
		Savochkin, I.V. (FV-09)	159
		Saw, A.K. (CR-09)	82
		Sawano, K. (AR-10)	22
		Saxena, U. (DD-02)	95
		Sayama, D. (GU-09)	187
		Scalera, V. (BI-09)	48
		Scalera, V. (FF-09)	141
		Schabes, M. (HC-08)	196
		Schäfer, R. (EV-04)	127
		Schäfer, R. (EV-08)	128

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S, S. (GC-09)	166
Saari, M. (CC-09)	67
Sabon, P. (BD-03)	38
Sabouri, M. (FU-01)	156
Sadovnikov, A.V. (FV-02)	158
Sadovnikov, A.V. (GF-06)	171
Sadovnikov, A.V. (GF-10)	172
Sadovnikov, A.V. (GW-06)	190
Saenphum, N. (HT-02)	214
Safeer, A. (BF-10)	43
Saglam, H. (AA-05)	2
Sahoo, S. (GF-04)	171
Sahu, B. (EQ-12)	119
Sahu, U. (DD-02)	95
Sai, R. (AQ-09)	20
Sai, R. (CE-06)	70
Saifullah, M. (AF-07)	11
Saifullah, M. (BD-09)	39
Saiki, T. (CF-06)	71
Saito, H. (AI-05)	16
Saito, H. (EV-01)	127
Saito, H. (HD-08)	197
Saito, H. (HD-09)	198
Saito, H. (HV-02)	218
Saito, S. (BQ-11)	51
Saito, T. (CS-09)	83
Saito, Y. (BP-01)	48
Saito, Y. (ED-07)	108
Saito, Y. (HD-07)	197
Saitoh, Y. (EI-08)	115
Sakai, K. (BH-03)	45
Sakai, K. (BH-05)	45
Sakai, K. (CC-09)	67
Sakai, M. (BG-05)	44
Sakai, N. (ER-12)	121
Sakai, N. (GS-07)	183
Sakuma, A. (AI-10)	17
Sakuraba, Y. (AF-04)	10

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Schäfer, S. (CC-01)	65	Serpico, C. (BI-09).	48
Schauerte, B. (CB-08)	64	Serpico, C. (FF-09)	141
Schefer, T. (ET-07).	124	Serrano-Guisan, S. (GA-03)	163
Schegner, P. (HW-05).	220	Serrate, C.H. (CP-15).	78
Schegner, P. (HX-02).	221	Sessoli, R. (HA-03)	192
Scheike, T. (GW-09)	191	Setiawan, A.D. (AC-10).	6
Scherf, L.M. (GB-01).	163	Sha, R. (FP-09)	148
Scherf, L.M. (GB-12).	165	Shadman, A. (HC-01)	195
Scheuer, L. (GD-07).	168	Shah, S. (BW-04).	52
Schiefer, M. (GH-06).	174	Shah, S.A. (BF-10).	43
Schiefer, M. (GH-09).	175	Shah, S.A. (EI-02)	114
Schlage, K. (AH-05)	14	Shahbazi, K. (HE-06).	199
Schlage, K. (EV-06).	128	Shahzad, M. (BW-04)	52
Schlage, K. (GW-15)	191	Shamim, A. (BH-06)	45
Schlipf, J. (EB-08).	104	Shamout, K. (GW-10)	191
Schmalhorst, J. (AD-04)	7	Shang, D. (EH-01).	112
Schmidt, E. (FU-09).	157	Shang, H. (HV-09).	219
Schmitz-Antoniak, C. (FE-01).	138	Shang, R. (GR-05).	181
Schmuelling, B. (EE-05)	109	Shang, Y. (FD-12)	138
Schneider, I.C. (CP-14)	78	Shangguan, Y. (BH-08)	46
Schneider, M. (CF-01).	71	Shangguan, Y. (FP-08).	148
Schneider, M. (FF-11)	142	Shangguan, Y. (HX-01)	221
Schöbitz, M. (CD-06)	68	Shao, Y. (CU-14)	87
Schoen, M. (CF-01)	71	Shao, Z. (AB-02)	3
Schönhöbel, A.M. (HB-03)	193	Shao, Z. (EP-13)	117
Schöps, S. (EE-03).	109	Shaposhnikov, A. (EB-10).	104
Schott, M. (HE-01)	198	Shaposhnikov, A. (FV-09)	159
Schowalter, M. (AE-04).	9	Sharaevskaia, A. (GF-06).	171
Schrefl, T. (CS-08).	83	Sharaevsky, Y. (FV-02)	158
Schulte, B. (AE-05)	9	Sharaevsky, Y. (GF-10)	172
Schulte, B. (FF-03)	140	Sharif, R. (BF-10)	43
Schultheiss, H. (BV-02).	60	Sharma, H. (GD-09).	168
Schulz, S.E. (AE-02)	8	Sharma, P. (BB-02)	34
Schulze, J. (EB-08)	104	Sharma, P. (HB-07)	194
Schumacher, H. (AC-05)	5	Sharma, R. (CE-07)	70
Schutte, B. (CW-16).	91	Sharma, S. (GC-07)	166
Schütz, G. (FE-09).	140	Sharma, S. (HB-06)	193
Schütz, G. (FF-05).	141	Sharma, V.K. (FD-04)	136
Schütz, G. (FF-06).	141	Sharmin, S. (EV-14).	129
Schütz, G. (GF-05).	171	Sharmin, S. (GW-12).	191
Schweicher, G. (HD-05)	197	Shaw, C. (CS-06).	83
Scott, J.N. (BI-05)	47	Shaw, G. (GR-04)	181
Sebald, G. (EB-02).	103	Shaw, J.M. (CF-01)	71
Sebald, G. (EW-04)	129	Shaw, J.M. (FF-08)	141
Sebald, G. (GT-05).	184	Shen, B. (GR-05)	181
Seifert, J. (HW-05).	220	Shen, D. (GA-03).	163
Seigler, M.A. (EF-06)	110	Shen, H. (FH-11)	145
Seki, T. (DE-04).	97	Shen, J. (EH-01).	112
Sekino, M. (EI-08).	115	Shen, J. (HS-02).	213
Seleznyova, K. (GE-05).	169	Shen, M. (FV-06).	158
Sellmyer, D. (GE-06).	169	Shen, Q. (EB-07)	104
Selvam, K. (HG-04)	203	Shen, S. (GP-13)	178
Selvaraj, J. (CP-02)	76	Shen, S. (GP-15)	179
Semisalova, A.S. (FF-05).	141	Shen, S. (HV-09)	219
Sen, P. (HW-01)	219	Shen, S. (HV-11)	219
Sen, S. (EH-03)	113	Shen, W. (HV-11).	219
Senthil Kumar, M. (CF-12)	72	Shen, Y. (CU-04)	86
Seo, H. (CT-04)	84	Shen, Y. (CU-05)	86
Seo, H. (CT-06)	85	Shen, Y. (HR-05)	211
Seo, J. (HQ-10)	210	Sheng, M. (FH-10).	145
Seo, K. (AQ-04).	20	Sheng, P. (FE-02).	138
Seo, M. (FQ-03).	149	Sheng, P. (GW-11).	191
Seo, M. (GS-10).	183	Sherpa, P.N. (CF-11)	72
Seo, S. (AT-02).	25	Sherpa, P.N. (GW-05)	190
Seo, S. (CT-05).	84	Sheshukova, S. (FV-02).	158
Seo, S. (GS-04)	183	Sheshukova, S. (GF-10).	172
Seoane, A. (GB-05)	164	Sheth, N.K. (EA-04)	102
Seol, H. (GV-12)	189	Sheth, N.K. (FB-04).	132
Sepehri-Amin, H. (EF-04)	110	Sheth, N.K. (FB-08).	133
Sepehri-Amin, H. (EF-07)	110	Shi, B. (GI-10).	177
Sepehri-Amin, H. (HB-02)	193	Shi, B. (GI-12)	177
Sepehri-Amin, H. (HC-07)	196	Shi, B. (HV-05)	218
Serantes, D. (BI-04).	47	Shi, C. (HS-03)	213
Serdobintsev, A. (FV-02)	158	Shi, G. (DE-05)	97
Serga, O. (FF-11)	142	Shi, J. (EP-02)	116
Serga, O. (FV-07).	158	Shi, J. (GE-08).	170
Serizawa, K. (EB-06).	103	Shi, S. (DC-04)	95

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Shi, T. (DH-01)	100	Silva, T. (CF-01)	71
Shi, X. (FB-10)	133	Silva, T. (FF-08)	141
Shi, Y. (FG-09)	143	Silveira, M.A. (DG-07)	99
Shibahara, Y. (GI-08)	176	Sim, J. (BS-13)	56
Shibata, N. (AC-02)	5	Sim, J. (GV-06)	188
Shibayama, T. (AC-03)	5	Sim, K. (CU-08)	87
Shih, C. (CS-06)	83	Sima, W. (CW-01)	90
Shih, P. (DH-08)	101	Sima, W. (FW-11)	161
Shima, T. (HW-06)	220	Sima, W. (GT-06)	184
Shimada, Y. (AE-08)	9	Sima, W. (HI-06)	206
Shimada, Y. (CE-05)	70	Singh, A.V. (BV-03)	60
Shimaoka, M. (HT-09)	215	Singh, B.B. (EV-15)	129
Shimizu, D. (BU-01)	58	Singh, B.B. (FV-15)	160
Shimizu, H. (GB-04)	164	Singh, D. (CB-06)	64
Shimizu, K. (BE-06)	40	Singh, D. (CF-12)	72
Shimizu, K. (CH-10)	76	Singh, K. (CR-06)	81
Shimizu, K. (EQ-09)	119	Singh, R. (BP-06)	49
Shimizu, K. (HH-04)	204	Singh, R. (FI-06)	146
Shimizu, M. (BD-04)	38	Singh, R. (HB-11)	194
Shimizu, M. (BP-01)	48	Singh, U. (EP-07)	117
Shimizu, M. (ED-07)	108	Sinha, J. (AD-07)	7
shimizu, M. (GA-06)	163	Sinha, J. (GF-03)	171
Shimizu, T. (AF-10)	11	Sinha, S. (BA-05)	33
Shimoji, H. (GV-04)	188	Sinova, J. (AA-03)	2
Shimokawa, S. (CH-10)	76	Sinova, J. (FF-07)	141
Shimomura, N. (BD-04)	38	Sinova, J. (HD-05)	197
Shimomura, N. (BP-01)	48	Sinova, J. (HE-05)	199
Shimomura, N. (ED-07)	108	Siracusano, G. (CQ-05)	79
Shimomura, N. (GA-06)	163	Sirewal, G. (GP-10)	178
Shimose, K. (HD-01)	196	Siritaratiwat, A. (GT-02)	184
Shin, E. (ER-04)	120	Sirringhaus, H. (HD-05)	197
Shin, H. (ES-07)	122	Sisniega, B. (BC-05)	36
Shin, H. (ES-14)	123	Sisodia, N. (CE-07)	70
Shin, H. (HQ-08)	209	Siu, Z. (BV-07)	61
Shin, J. (GQ-02)	179	Siu, Z. (BV-08)	61
Shin, K. (CP-03)	76	Siu, Z. (EH-09)	113
Shin, K. (ES-06)	122	Sivaih, B. (HB-11)	194
Shin, K. (ES-11)	123	Sivis, M. (CC-01)	65
Shin, K. (FT-01)	154	Skelland, C. (CS-08)	83
Shin, K. (FT-11)	155	Skibin, S. (HH-01)	204
Shin, K. (GP-02)	177	Sklenar, J. (AA-05)	2
Shin, K. (GS-04)	183	Skokov, K. (EA-01)	102
Shin, K. (HQ-08)	209	Skokov, K. (FD-01)	136
Shinde, K. (AS-13)	25	Skokov, K. (HW-04)	220
Shindo, Y. (CH-04)	75	Skomski, R. (GE-06)	169
Shindou, R. (FI-10)	147	Skomski, R. (HP-10)	208
Shinozaki, M. (HC-10)	196	Skulj, I. (GB-07)	164
Shintani, Y. (GB-04)	164	Slavin, A.N. (BE-08)	41
Shiota, K. (CW-14)	91	Slavin, A.N. (CE-09)	70
Shiota, Y. (EC-01)	105	Slavin, A.N. (DD-04)	96
Shiota, Y. (FV-03)	158	Slavin, A.N. (DE-06)	97
Shipton, E. (HF-10)	202	Slavin, A.N. (DE-07)	97
Shirage, P.M. (FB-06)	133	Slavin, A.N. (DE-08)	97
Shirai, M. (EC-01)	105	Slavin, A.N. (FF-05)	141
Shirai, T. (EU-03)	126	Slavin, A.N. (FF-11)	142
Shirokura, T. (DC-03)	95	Slavin, A.N. (HD-10)	198
Shirotori, S. (BD-04)	38	Slawinska, J. (BE-09)	41
Shirotori, S. (BP-01)	48	Smekhova, A. (FE-01)	138
Shirotori, S. (ED-07)	108	So, J. (AT-01)	25
Shirotori, S. (GA-06)	163	So, J. (AW-08)	32
Shirsath, S. (GR-02)	181	So, Y. (AC-02)	5
Shiryaev, A.O. (CE-10)	70	Soban, Z. (AA-04)	2
Shiu, H. (EP-05)	116	Soda, N. (CT-16)	86
Shojaie Mehr, S. (EQ-14)	119	Sogame, T. (FR-12)	151
Shoji, T. (CS-08)	83	Sogame, T. (FR-16)	152
Shon, W. (HW-09)	220	Sokolov, A.S. (CE-02)	69
Shrivastava, P. (HC-08)	196	Sokolov, A.S. (EQ-10)	119
Shu, T. (HV-11)	219	Sokolov, I. (FE-08)	139
Shum, D. (AI-07)	16	Sokolovskiy, V. (BI-08)	47
Shum, D. (BI-06)	47	Sokolovskiy, V. (HP-03)	207
Shum, D. (GD-11)	168	Soldatov, I. (EV-04)	127
Si, P. (AS-13)	25	Soldatov, I. (EV-08)	128
Si, P. (GB-08)	164	Son, B. (HS-06)	213
Si, W. (FE-04)	139	Son, J. (BD-09)	39
Sichelschmidt, J. (DB-05)	93	Sonehara, M. (AV-04)	29
Silva, B. (BC-02)	36	Sonehara, M. (BB-05)	34

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Sonehara, M. (CW-14)	91	Stobiecki, F. (GF-05)	171
Song, C. (DE-05)	97	Stognij, A. (GF-06)	171
Song, C. (EC-03)	105	Stoian, G. (BB-12)	35
Song, C. (EU-02)	126	Stoll, H. (FF-05)	141
Song, D. (AC-01)	4	Strache, T. (BB-01)	34
Song, F. (HI-01)	205	Strelkov, N. (DF-03)	98
Song, H. (FP-05)	147	Streltsov, S. (FI-09)	146
Song, H. (FT-15)	155	Strugatsky, M. (GE-05)	169
Song, J. (AT-15)	27	Studer, A. (CR-05)	81
Song, J. (BQ-04)	50	Su, B. (AU-05)	27
Song, J. (CW-15)	91	Su, H. (EQ-11)	119
Song, J. (ES-08)	123	Su, J. (BP-10)	49
Song, J. (FQ-03)	149	Su, K. (GR-15)	182
Song, J. (HS-04)	213	Su, W. (CW-08)	91
Song, J. (HT-05)	214	Su, X. (BP-08)	49
Song, K. (AQ-04)	20	Su, X. (BP-09)	49
Song, K. (AS-10)	24	Su, X. (EG-09)	112
Song, K. (HB-04)	193	Su, Y. (EQ-04)	118
Song, L. (FB-10)	133	Su, Y. (ER-10)	121
Song, T. (AB-09)	4	Su, Y. (HR-02)	211
Song, T. (AP-08)	18	Su, Y. (HR-14)	212
Song, T. (EV-09)	128	Subramanian, K. (AF-02)	10
Song, Y. (AP-09)	18	Subramanian, K. (GI-07)	176
Song, Y. (AQ-02)	19	Sudo, Y. (ER-02)	120
Song, Z. (CG-08)	74	Sudoh, L. (FE-04)	139
Song, Z. (EG-05)	111	Suemasu, T. (CD-01)	67
Soni, V. (GE-09)	170	Suess, D. (BI-01)	46
Sonobe, Y. (AR-04)	22	Suess, D. (EF-04)	110
Sonobe, Y. (EU-04)	126	Suess, D. (GB-09)	164
Sophan, S. (BQ-15)	51	Suess, D. (HC-07)	196
Sopon, T. (BQ-15)	51	Sugahara, K. (CH-04)	75
Sora, D. (CW-07)	91	Sugimoto, T. (FT-05)	154
Sorescu, M. (FD-03)	136	Sugimoto, T. (GV-09)	189
Soumah, L. (GF-09)	172	Sugimura, K. (AV-04)	29
Sousa, R.C. (BD-03)	38	Sugimura, K. (BB-05)	34
Sousa, R.C. (HC-06)	195	Sugiyama, H. (BD-04)	38
Specht, M. (HW-04)	220	Sugiyama, H. (BP-01)	48
Spiesser, A. (HD-08)	197	Sugiyama, H. (ED-07)	108
Spiesser, A.M. (HD-09)	198	Sugiyama, H. (GA-06)	163
Spinu, L. (CF-11)	72	Suhaimi, N. (CC-09)	67
Spinu, L. (EP-15)	118	Sui, Y. (AI-04)	16
Spinu, L. (GW-05)	190	Sui, Y. (BG-02)	43
Srikanti, K. (FD-10)	137	Sui, Y. (BS-09)	55
Srinath, S. (EH-11)	114	Sukegawa, H. (BP-03)	48
Srinivas, V. (CW-13)	91	Sukegawa, H. (FC-03)	134
Srinivas, V. (EP-04)	116	Sukegawa, H. (FC-12)	136
Srinivasan, A. (CF-02)	71	Sukegawa, H. (GW-09)	191
Srivastava, S. (BD-09)	39	Sukegawa, H. (HF-09)	201
Srivastava, S. (GC-02)	165	Suksmono, A.B. (AC-10)	6
Srivastava, T. (HE-01)	198	Sullivan, C.R. (CG-03)	73
Stamenov, P. (FW-07)	161	Sullivan, C.R. (CG-04)	73
Stamenov, P.S. (AD-05)	7	Sulymenko, O. (DD-04)	96
Stamenov, P.S. (CC-08)	66	Sulymenko, O. (DE-07)	97
Stamenov, P.S. (FB-01)	132	Sumi, S. (CD-11)	69
Stamenov, P.S. (FC-10)	135	Sumi, S. (GW-16)	191
Stamenov, P.S. (FS-07)	153	Sumida, C. (CW-12)	91
Stamps, R.L. (FI-02)	146	Sun, A. (AF-08)	11
Stankiewicz, A. (AF-02)	10	Sun, A. (AS-11)	24
Stankiewicz, A. (GI-07)	176	Sun, C. (AC-08)	6
Stano, M. (CD-06)	68	Sun, C. (BV-07)	61
Starostenko, S.N. (CE-10)	70	Sun, F. (AG-01)	12
Stashkevich, A. (CF-08)	72	Sun, H. (BT-04)	57
Stashkevich, A. (GC-10)	167	Sun, J. (GR-05)	181
Stashkevich, A. (GW-02)	190	Sun, K. (EH-07)	113
Stashkevich, A. (HE-01)	198	Sun, K. (EQ-01)	118
Stebliy, M. (CQ-12)	80	Sun, K. (EQ-13)	119
Stebliy, M. (GW-14)	191	Sun, K. (HB-12)	194
Stebliy, M. (HF-03)	201	Sun, L. (AG-11)	13
Steentjes, S. (AV-13)	30	Sun, L.Y. (GR-08)	181
Steentjes, S. (CB-08)	64	Sun, N. (AH-01)	13
Steentjes, S. (EE-02)	109	Sun, N. (AQ-08)	20
Stefano, S. (HA-03)	192	Sun, N. (CE-04)	69
Steil, D. (CC-01)	65	Sun, R. (FH-01)	144
Stewart, R. (DB-03)	93	Sun, R. (GH-02)	174
Stiles, M. (AR-15)	23	Sun, R. (GH-10)	175
Stinshoff, R. (AA-01)	1	Sun, R. (HS-09)	213

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Sun, X. (AU-05)	27	Takemura, Y. (BH-09)	46
Sun, Y. (CG-09)	74	Takeuchi, A. (GC-03)	166
Sun, Y. (EH-01)	112	Takeuchi, H. (EI-01)	114
Sun, Y. (ER-05)	120	Takeuchi, M. (EQ-02)	118
Sun, Y. (ER-15)	121	Takeuchi, T. (ER-04)	120
Sun, Y. (FG-01)	142	Takeuchi, Y. (ED-10)	108
Sun, Y. (FG-11)	143	Takezaki, K. (BS-03)	55
Sun, Y. (GH-01)	174	Takezawa, M. (AV-14)	31
Sun, Y. (GH-08)	175	Takhsha Ghahfarokhi, M. (EB-05)	103
Sun, Y. (GI-10)	177	Taki, C. (GG-03)	172
Sundar, V. (GA-03)	163	Takizawa, S. (HD-01)	196
Sung, C. (HV-12)	219	Takizawa, Y. (CF-06)	71
Sung, S. (HS-04)	213	Takura, T. (AW-04)	31
Supnithi, P. (BQ-15)	51	Talantsev, A. (CW-06)	90
Supnithi, P. (GI-05)	176	Talapatra, A. (AC-03)	5
Supnithi, P. (HV-06)	218	Talapatra, A. (BR-07)	53
Supnithi, P. (HV-15)	219	Talapatra, A. (EB-04)	103
Suresh, K.G. (FI-05)	146	Talapatra, A. (HT-04)	214
Sushruth, M. (BV-11)	61	Talmelli, G. (FF-01)	140
Sutanto, D. (CT-08)	85	Tamaru, S. (EC-01)	105
Suto, H. (AR-02)	21	Tamion, A. (AS-14)	25
Suto, H. (EF-05)	110	Tamion, A. (BF-06)	42
Suzue, D. (AQ-13)	21	Tan, C. (FT-06)	154
Suzuki, H. (EG-10)	112	Tan, F. (CQ-02)	78
Suzuki, H. (GD-09)	168	Tan, S. (BV-07)	61
Suzuki, K. (EV-11)	128	Tan, S. (EH-09)	113
Suzuki, M. (EC-01)	105	Tan, X. (AB-07)	3
Suzuki, S. (GU-09)	187	Tan, X. (AB-10)	4
Suzuki, T. (BB-02)	34	Tan, X. (GB-03)	164
Suzuki, T. (HB-08)	194	Tan, X. (GB-11)	165
Suzuki, Y. (BD-01)	38	Tanaka, M. (HD-06)	197
Suzuki, Y. (EC-01)	105	Tanaka, R. (CV-05)	88
Suzuki, Y. (EV-01)	127	Tanaka, T. (BE-06)	40
Švec Sr, P. (HB-10)	194	Tanaka, T. (HH-04)	204
Svec, P. (HB-10)	194	Tanaka, Y. (GU-03)	186
Svechkarenko, D. (HG-06)	203	Tanaka, Y. (HB-08)	194
Svedlindh, P. (CF-10)	72	Tanazawa, T. (CQ-06)	79
Swain, A. (BR-03)	53	Tang, J. (ET-08)	125
Swerts, J. (HC-02)	195	Tang, P. (HP-06)	208
Syed Mohd, A. (AF-05)	10	Tang, R. (BP-08)	49
Syed, Q. (AU-10)	28	Tang, R. (BP-09)	49
Syeda, F. (CP-15)	78	Tang, R. (FH-01)	144
Syeda, F. (GQ-04)	179	Tang, R. (FQ-08)	149
Sykulski, J. (FT-12)	155	Tang, R. (HS-09)	213
Sylgacheva, D. (FV-09)	159	Tang, S. (HP-01)	207
Szyjka, T. (FE-01)	138	Tang, X. (AB-09)	4
- T -		Tang, X. (BU-06)	59
		Tang, X. (EQ-11)	119
Tagawa, I. (BQ-02)	49	Tang, X. (ET-10)	125
Tagawa, N. (GI-08)	176	Tang, Y. (CG-08)	74
Taheri, A. (AG-09)	13	Tang, Y. (CP-04)	76
Tainosho, T. (BP-03)	48	Tang, Y. (FW-13)	161
Tajiri, H. (HB-07)	194	Tang, Z. (EH-07)	113
Takagi, H. (EB-08)	104	Tang, Z. (GI-12)	177
Takahara, K. (BG-04)	44	Tani, H. (GI-08)	176
Takahashi, A. (AQ-09)	20	Tani, Y. (AV-03)	29
Takahashi, K. (BH-09)	46	Tanigawa, T. (HC-05)	195
Takahashi, K. (GU-03)	186	Taniguchi, H. (AD-03)*	7
Takahashi, T. (FE-04)	139	Taniguchi, T. (AD-03)	7
Takahashi, Y. (BQ-10)	50	Taniguchi, T. (BE-03)	40
Takahashi, Y. (CF-05)	71	Taniguchi, T. (BE-05)	40
Takahashi, Y. (DF-03)	98	Tao, B. (AR-12)	23
Takahashi, Y. (HB-01)	193	Tao, B. (CW-04)	90
Takahashi, Y. (HB-02)	193	Tao, L. (HP-04)	208
Takahashi, Y. (HT-07)	215	Tao, S. (GR-06)	181
Takaki, Y. (ER-08)	121	Tao, W. (CT-13)	85
Takamatsu, S. (AR-06)	22	Tao, W. (HG-10)	203
Takamura, Y. (EB-11)	104	Taouallah1, A. (BC-02)	36
Takanashi, K. (DE-04)	97	Taran, N. (FU-12)	157
Takanashi, K. (EC-06)	106	Tarequzzaman, M. (BE-07)	41
Takanashi, K. (GD-09)	168	Tatara, G. (GC-03)	166
Takashima, K. (AV-10)	30	Tatetsu, Y. (AB-01)	2
Takashima, K. (CS-01)	82	te Velthuis, S. (CA-04)	63
Takata, F. (CD-01)	67	Tekgöl, A. (EW-08)	130
Takemoto, M. (BS-03)	55	Telegin, A. (CR-02)	81

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Telling, N. (DA-01)	92	Todaka, T. (GV-04)	188
Temple, R.C. (AS-04)	24	Todaka, T. (HU-09)	217
Temple, R.C. (FE-07).	139	Tohara, M. (CV-13)	89
Teng, X. (EQ-06)	119	Tomasello, R. (CQ-05).	79
Teng, X. (GT-11)	185	Tomczak, P. (GF-02)	170
Teng, Y. (AS-09)	24	Tomioka, T. (BH-05)	45
Teng, Z. (GA-03)	163	Tomita, M. (EB-11)	104
Teo, K. (AR-05)	22	Tomše, T. (GB-01)	163
Teo, K. (BR-11)	54	Tomše, T. (GB-12)	165
Teo, K. (DC-04)	95	Tomy, C. (BR-09).	54
Teo, K. (DE-02)	96	Tong, R. (AI-03).	16
Teo, K. (GW-07)	191	Tong, R. (DG-08).	100
Teobaldi, G. (DB-03).	93	Tong, R. (GA-03).	163
Teran, F. (DA-01).	92	Tong, R. (HI-10).	207
Thach, P.V. (CD-11).	69	Tong, T. (FH-02)	144
Tham, K. (BQ-11)	51	Tong, W. (FH-01).	144
Thiaville, A. (BB-08)	35	Tong, W. (GH-02)	174
Thiele, J. (EF-06)	110	Tong, W. (GH-10)	175
Thiery, N. (GF-01).	170	Tong, W. (HS-09).	213
Thirion, C. (BF-09)	43	Tongsomporn, D. (GI-03)	176
Thirion, C. (CD-06)	68	Torii, T. (CP-01).	76
Thirumurugan, A. (DB-05)	93	Törmä, P. (GC-05)	166
Thiyagarajah, N. (AD-05)	7	Torosyan, G. (GD-07)	168
Thiyagarajah, N. (FC-10).	135	Torreson, J. (AR-15).	23
Thiyagarajah, N. (GA-02)	162	Totti, F. (HA-03)	192
Thomas, C. (DC-06)	95	Tournus, F. (AS-14)	25
Thomas, L. (GA-03)	163	Tournus, F. (BF-06)	42
Thomson, T. (AV-16)	31	Toussaint, J. (BF-09)	43
Thonig, D. (CF-01)	71	Toussaint, J. (CD-06)	68
Thonig, D. (HP-09)	208	Tozman, P. (HB-02)	193
Thuo, M. (BC-01)	36	Träger, N.A. (FF-06)	141
Thyroff, D. (BT-14)	58	Tran Thi, H. (CW-05).	90
Thyroff, D. (GP-11)	178	Tran, B. (GC-06)	166
Tian, C. (AG-08)	13	Tran, D. (CR-02)	81
Tian, C. (CG-06)	73	Tran, D. (CR-03)	81
Tian, C. (CG-11)	74	Tran, M. (AI-07)	16
Tian, C. (CH-08)	75	Tran, N. (CS-11).	84
Tian, C. (CH-09)	75	Trapanese, M. (DG-04)	99
Tian, C. (FQ-07).	149	Trapp, B. (BF-09).	43
Tian, C. (FW-09)	161	Trapp, B. (CD-06)	68
Tian, C. (GF-11).	172	Trauchessec, V. (DA-04)	92
Tian, C. (HI-04)	206	Trejo-Rosillo, J. (DA-04).	92
Tian, G. (AB-02)	3	Tremelling, D. (GB-12)	165
Tian, H. (GE-04)	169	Tretjakov, O. (GW-06).	190
Tian, M. (AE-07)	9	Trifu, A.V. (ED-06)	107
Tian, M. (BT-08)	57	Trinh, X. (CW-10)	91
Tian, M. (HS-11)	214	Tripathi, M. (CR-01)	80
Tiar, I. (FC-12).	136	Truong, A. (DF-03)	98
Tiberkevich, V.S. (BE-08)	41	Tsai, J. (BQ-07)	50
Tiberkevich, V.S. (DD-04).	96	Tsai, M. (ED-08)	108
Tiberkevich, V.S. (DE-06)	97	Tsai, M. (ES-05).	122
Tiberkevich, V.S. (DE-07)	97	Tsai, M. (GR-03)	181
Tiberkevich, V.S. (DE-08)	97	Tsai, M. (HU-01)	216
Tiberkevich, V.S. (FF-05)	141	Tsai, S. (EI-10).	116
Tiberkevich, V.S. (FF-11).	142	Tsai, T. (EV-07)	128
Tiberkevich, V.S. (HD-10).	198	Tseng, C. (CW-03).	90
Tiberto, P. (EB-05).	103	Tseng, Y. (AH-08)	14
Tiberto, P. (EI-05)	115	Tserkovnyak, Y. (CA-04).	63
Tiberto, P. (EV-02).	127	Tserkovnyak, Y. (CQ-08).	79
Tibu, M. (BB-12).	35	Tserkovnyak, Y. (FA-01)	131
Tibu, M. (EI-06).	115	Tsujikawa, M. (EC-01).	105
Tien, V. (CR-02).	81	Tsukada, K. (BH-03)	45
Tignon, J. (AI-09)	16	Tsukada, K. (BH-05)	45
Tillie, L. (BD-03).	38	Tsukada, K. (CC-09)	67
Tillie, L. (HC-06).	195	Tsukahara, H. (BI-02)	47
Tipcharoen, W. (GT-02).	184	Tsukahara, H. (HT-09).	215
Titova, A. (FC-10)	135	Tsukahara, M. (AR-10)	22
Tiwari, A. (BD-04).	38	Tsukahara, M. (HD-07)	197
Tiwari, A. (BP-01).	48	Tsukahara, T. (EC-01)	105
Tiwari, A. (ED-07).	108	Tsunegi, S. (AR-15)	23
Tiwari, A. (GA-06).	163	Tsunegi, S. (BD-06)	39
Tjong, J. (FT-16)	155	Tsunegi, S. (BE-05)	40
Tjong, J. (HR-15).	212	Tsunoda, M. (AH-06).	14
Többsens, D. (FE-01)	138	Tsunoda, M. (AR-03).	21
Todaka, T. (AV-06).	30	Tu, S. (BV-14)	61
Todaka, T. (AW-01)	31	Tu, Z. (EQ-04)	118

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Tulapurkar, A. (BR-09)	54
Tung, Y. (AS-07)	24
Tung, Y. (CR-11)	82

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Uchida, H. (EB-08)	104
Uchimoto, T. (EW-04)	129
Uchimoto, T. (GT-05)	184
Uchiyama, T. (AP-05)	18
Uchiyama, T. (BC-07)	37
Ueda, D. (AV-04)	29
Ueda, T. (AQ-10)	20
Ueda, T. (CE-01)	69
Ueda, Y. (DC-02)	94
Uehara, Y. (BE-06)	40
Uehara, Y. (CH-10)	76
Uehara, Y. (EQ-09)	119
Uehara, Y. (HH-04)	204
Uemura, T. (EC-08)	106
Uemura, T. (HD-11)	198
Ueno, T. (EV-05)	128
Uesugi, I. (AV-06)	30
Ullah, Z. (BS-14)	56
Um, D. (FP-06)	148
Umesaka, T. (AQ-13)	21
Ünal, A.A. (AC-09)	6
Unguris, J. (CC-07)	66
ünlü, C.G. (EW-08)	130
Unnikrishnan, A. (DB-05)	93
Upadhayay, P. (HG-02)	202
Upadhyay, P. (FH-05)	144
Upadhyay, S.K. (BW-08)	52
Urata, S. (EW-11)	130
Urazhdin, S. (BE-01)	40
Urazhdin, S. (FV-01)	158
Ustinov, A.B. (AQ-06)	20
Ustinov, A.B. (BP-07)	49
Utsumi, R. (AE-08)	9
Utsumi, R. (CE-05)	70
Utsumi, Y. (CF-06)	71
Utsuzawa, S. (AP-09)	18

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V, J. (EB-04)	103
V.V, R. (FD-10)	137
Vaahsan, C. (GQ-08)	180
Valadeiro, J. (DA-04)	92
Valencia, S. (AC-09)	6
Valentyn, N. (EV-03)	127
Vallejo-Fernandez, G. (CD-08)	68
Vallejo-Fernandez, G. (FE-04)	139
Vallejo-Fernandez, G. (FI-11)	147
Vallejo-Fernandez, G. (TU-01)	1
Vallobra, P. (GD-10)	168
Vallobra, P. (HF-10)	202
Valvidares, M. (DB-03)	93
van Dam, J. (BG-10)	44
van der zant, H. (AH-04)	14
van Dijken, S. (GC-05)	166
Van Elshocht, S. (HC-02)	195
van Lierop, J. (EP-09)	117
Van Pham, T. (BE-04)	40
Varaprasad, B. (AF-09)	11
Varga, R. (BB-08)	35
Varga, R. (EB-12)	104
Vargova, Z. (EB-12)	104
Varotto, S. (BE-09)	41
Varvaro, G. (BQ-07)	50
Varvaro, G. (EB-05)	103
Vasquez, J. (HC-08)	196
Vaysset, A. (HC-02)	195
Vaz, C.A. (FE-04)	139
Vaz, D. (AI-01)	15
Vázquez, M. (BF-07)	42
Vázquez, M. (BF-08)	42

Vázquez, M. (CW-16)	91
Vedmedenko, E. (HF-01)	200
Velázquez-Galván, Y. (BF-04)	42
Vemulkar, T. (HF-11)	202
Venkat, G. (GC-09)	166
Venkataramani, N. (AQ-07)	20
Venkataramani, N. (EQ-12)	119
Venkataramani, N. (FE-03)	139
Venkatesan, M. (FB-01)	132
Verdaguer, H. (EI-04)	115
Verdum, V. (DG-07)	99
Vernier, N. (CD-03)	67
Vernier, N. (EW-13)	130
Vernier, N. (GC-01)	165
Vetoshko, P. (AH-03)	14
Veverka, P. (AP-03)	17
Victoria, R.H. (BD-05)	38
Victoria, R.H. (DF-05)	98
Vignale, G. (DC-01)	94
Vila, L. (AI-01)	15
Vila, L. (AI-09)	16
Vila, L. (BD-03)	38
Vila, L. (BE-04)	40
Vila, L. (CD-01)	67
Vila, L. (CD-03)	67
Vila, L. (DC-06)	95
Vila, L. (GF-01)	170
Villanueva, M. (GB-02)	163
Villanueva, M. (GB-05)	164
Villar, P.J. (FB-04)	132
Villar, P.J. (FB-08)	133
Vinai, G. (BE-09)	41
Visone, C. (EB-03)	103
Visone, C. (FS-05)	153
Vitko, V. (AQ-06)	20
Vobornik, I. (BE-09)	41
Vogel, J. (CD-01)	67
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Wang, C. (CW-08)	91	Wang, M. (BT-01)	56
Wang, C. (DD-03)	96	Wang, M. (EQ-05)	119
Wang, C. (DH-03)	100	Wang, M. (FC-11)	135
Wang, C. (EP-13)	117	Wang, M. (FQ-10)	150
Wang, C. (HU-15)	217	Wang, M. (GR-10)	182
Wang, C. (HX-07)	221	Wang, M. (HP-01)	207
Wang, D. (CT-10)	85	Wang, P. (GA-03)	163
Wang, D. (CU-15)	87	Wang, P. (HR-02)	211
Wang, D. (EQ-06)	119	Wang, Q. (AP-08)	18
Wang, D. (GR-02)	181	Wang, Q. (AU-02)	27
Wang, D. (GT-11)	185	Wang, Q. (AW-05)	32
Wang, D. (HI-02)	205	Wang, Q. (CA-04)	63
Wang, G. (AR-11)	22	Wang, Q. (CE-08)	70
Wang, G. (BR-05)	53	Wang, Q. (ED-01)	107
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Wang, G. (FW-04)	160	Wang, Q. (EV-09)	128
Wang, G. (HT-03)	214	Wang, Q. (FF-04)	141
Wang, G. (HW-07)	220	Wang, Q. (FF-11)	142
Wang, H. (AP-06)	18	Wang, Q. (FV-07)	158
Wang, H. (BW-06)	52	Wang, Q. (GP-14)	179
Wang, H. (CH-01)	74	Wang, Q. (HT-10)	215
Wang, H. (CR-13)	82	Wang, Q. (HU-04)	216
Wang, H. (CS-06)	83	Wang, R. (FT-12)	155
Wang, H. (DH-01)	100	Wang, S. (AB-05)	3
Wang, H. (FV-10)	159	Wang, S. (AF-08)	11
Wang, H. (FV-11)	159	Wang, S. (AW-07)	32
Wang, H. (FV-13)	159	Wang, S. (BG-08)	44
Wang, H. (FW-04)	160	Wang, S. (CG-09)	74
Wang, H. (GD-11)	168	Wang, S. (CP-16)	78
Wang, H. (GP-13)	178	Wang, S. (ED-02)	107
Wang, H. (GP-15)	179	Wang, S. (EQ-03)	118
Wang, H. (HU-03)	216	Wang, S. (ET-14)	125
Wang, J. (AG-06)	12	Wang, S. (EU-05)	126
Wang, J. (AI-03)	16	Wang, S. (FP-11)	148
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Wang, J. (CQ-13)	80	Wang, S. (FW-01)	160
Wang, J. (DF-03)	98	Wang, S. (GH-01)	174
Wang, J. (DG-08)	100	Wang, S. (GT-08)	185
Wang, J. (EA-02)	102	Wang, S. (GT-15)	185
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Wang, J. (ET-06)	124	Wang, S. (HI-09)	206
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Wang, J. (FR-15)	152	Wang, S.X. (BW-07)	52
Wang, J. (FS-04)	152	Wang, S.X. (CE-03)	69
Wang, J. (FS-06)	153	Wang, T. (AD-06)	7
Wang, J. (GW-04)	190	Wang, T. (BW-06)	52
Wang, J. (HG-03)	202	Wang, T. (CU-10)	87
Wang, J. (HI-02)	205	Wang, T. (DG-01)	99
Wang, J. (HI-10)	207	Wang, W. (BW-03)	51
Wang, J. (HT-07)	215	Wang, W. (CW-11)	91
Wang, K. (AG-10)	13	Wang, W. (EQ-13)	119
Wang, K. (AP-07)	18	Wang, W. (EW-10)	130
Wang, K. (BQ-08)	50	Wang, W. (FF-10)	142
Wang, K. (BV-14)	61	Wang, W. (FQ-10)	150
Wang, K. (CA-04)	63	Wang, W. (HI-02)	205
Wang, K. (EC-09)	106	Wang, X. (AS-13)	25
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Wang, K. (EH-02)	112	Wang, X. (AU-04)	27
Wang, K. (FC-02)	134	Wang, X. (BA-04)	33
Wang, K. (FC-07)	135	Wang, X. (BB-10)	35
Wang, K. (FC-09)	135	Wang, X. (BD-08)	39
Wang, K. (FR-15)	152	Wang, X. (BT-08)	57
Wang, K. (FU-06)	156	Wang, X. (BT-15)	58
Wang, K. (FV-10)	159	Wang, X. (BV-14)	61
Wang, K. (FV-11)	159	Wang, X. (BW-05)	52
Wang, K. (GE-01)	169	Wang, X. (CA-04)	63
Wang, K. (GE-04)	169	Wang, X. (CE-04)	69
Wang, K. (HU-03)	216	Wang, X. (CG-12)	74
Wang, L. (AP-04)	18	Wang, X. (CQ-03)	78
Wang, L. (CU-15)	87	Wang, X. (CS-04)	83
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Wang, Y. (AW-09)	32	Wei, S. (AP-06)	18
Wang, Y. (BB-09)	35	Wei, S. (BB-11)	35
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Wang, Y. (BQ-05)	50	Wei, S. (GQ-13)	180
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Wang, Y. (BW-10)	52	Wei, Z. (AA-05)	2
Wang, Y. (CH-05)	75	Wei, Z. (BC-03)	36
Wang, Y. (CT-09)	85	Wei, Z. (CA-04)	63
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Wang, Y. (DC-01)	94	Weigand, M. (FF-03)	140
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Wang, Y. (GI-01)	175	Wen, X. (EP-13)	117
Wang, Y. (GI-11)	177	Wen, X. (FS-02)	152
Wang, Y. (GS-03)	183	Wen, Y. (AH-11)	15
Wang, Y. (GS-05)	183	Wen, Y. (GI-01)	175
Wang, Y. (GT-04)	184	Wen, Y. (HI-01)	205
Wang, Y. (HH-05)	204	Wen, Z. (EC-06)	106
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Wrona, J. (FC-11)	135
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Wu, C. (AD-06)	7
Wu, C. (BG-11)	44
Wu, C. (CB-07)	64
Wu, C. (EQ-13)	119
Wu, D. (BV-01)	60
Wu, D. (FC-09)	135
Wu, G. (EH-07)	113
Wu, G. (EQ-13)	119
Wu, H. (AR-12)	23
Wu, H. (CC-07)	66
Wu, H. (CR-07)	81
Wu, H. (ED-01)	107
Wu, H. (FC-09)	135
Wu, H. (FE-04)	139
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Wu, J. (EP-09)	117
Wu, J. (FV-12)	159
Wu, J. (GW-04)	190
Wu, L. (AT-07)	26
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Wu, R. (GI-04)	176
Wu, S. (CG-10)	74
Wu, S. (DG-03)	99
Wu, S. (FH-01)	144
Wu, S. (GH-02)	174
Wu, S. (GH-10)	175
Wu, S. (HS-09)	213
Wu, S. (HV-09)	219
Wu, T. (AR-14)	23
Wu, T. (CR-07)	81
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Wu, W. (CR-11)	82
Wu, W. (GS-01)	182
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Wu, Y. (AH-07)	14
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Wu, Y. (BR-06)	53
Wu, Y. (BV-06)	61
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Wu, Y. (EA-02)	102
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Xia, J. (HE-07)	199
Xia, J. (HF-02)	200
Xia, T. (GR-13)	182
Xia, W. (CP-13)	77
Xia, Y. (CU-02)	86
Xia, Y. (HR-11)	212
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Xiang, Z. (FR-09)	151
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Xiao, F. (HH-06)	205
Xiao, F. (HU-07)	216
Xiao, J. (AT-08)	26
Xiao, L. (AU-13)	28
Xiao, L. (EQ-05)	119
Xiao, L. (GR-10)	182
Xiao, L. (HQ-07)	209
Xiao, S. (HG-01)	202
Xiao, Y. (AU-12)	28
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Xiao, Y. (FV-11)	159
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Xie, H. (HF-05)	201
Xie, J. (BB-10)	35
Xie, K. (HQ-04)	209
Xie, K. (HS-10)	213
Xie, M. (HG-11)	203
Xie, Q. (GE-04)	169
Xie, Q. (HF-07)	201
Xie, W. (GE-04)	169
Xie, Y. (HR-07)	211
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Xing, F. (CU-07)	86
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Xu, R. (GT-04)	184	Yamada, M. (ER-02)	120
Xu, R. (HH-05)	204	Yamada, M. (FR-07)	151
Xu, W. (BS-02)	54	Yamada, M. (GV-08)	189
Xu, W. (EQ-03)	118	Yamada, M. (HD-07)	197
Xu, W. (ER-09)	121	Yamada, S. (AR-10)	22
Xu, W. (FW-06)	160	Yamada, S. (HD-08)	197
xu, W. (GQ-09)	180	Yamada, S. (HD-09)	198
Xu, W. (GT-08)	185	Yamada, T. (BH-09)	46
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Xu, X. (BV-06)	61	Yamaguchi, Y. (BU-01)	58
Xu, X. (BV-10)	61	Yamamoto, M. (EC-08)	106
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Xu, X. (EP-06)	117	Yamamoto, T. (BD-01)	38
Xu, X. (EP-08)	117	Yamamoto, T. (EC-01)	105
Xu, X. (FC-12)	136	Yamamoto, T. (FC-08)	135
Xu, X. (FR-15)	152	Yamamoto, T. (FP-07)	148
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Xu, Y. (EQ-05)	119	Yan, A. (FB-12)	133
Xu, Y. (EU-01)	126	Yan, B. (AU-04)	27
Xu, Y. (FS-08)	153	Yan, B. (AW-11)	32
Xu, Y. (FV-12)	159	Yan, B. (BT-15)	58
Xu, Y. (GG-04)	173	Yan, B. (GR-07)	181
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Xu, Y. (GU-04)	186	Yan, J. (EP-14)	118
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Xu, Y. (HQ-02)	209	Yan, M. (BU-07)	59
Xu, Y. (HQ-05)	209	Yan, M. (BU-13)	59
Xu, Y. (HQ-07)	209	Yan, M. (CB-07)	64
Xu, Z. (AU-07)	28	Yan, M. (GR-06)	181
Xu, Z. (CU-09)	87	Yan, M. (HB-05)	193
Xu, Z. (EP-12)	117	Yan, N. (FR-13)	151
Xu, Z. (EP-13)	117	Yan, N. (HX-06)	221
Xu, Z. (ET-08)	125	Yan, P. (FV-14)	159
Xuan, L. (AW-02)	31	Yan, Q. (FQ-02)	149
Xue, M. (AB-02)	3	Yan, R. (HX-05)	221
Xue, M. (EP-13)	117	Yan, S. (FW-13)	161
Xue, S. (GS-09)	183	Yan, S. (GT-10)	185
Xue, X. (ET-09)	125	Yan, X. (BH-04)	45
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Yabu, N. (AV-04)	29	Yan, X. (FP-03)	147
Yabu, N. (BB-05)	34	Yan, Y. (CW-04)	90
Yabukami, S. (AE-08)	9	Yan, Y. (GW-04)	190
Yabukami, S. (CE-05)	70	Yan, Y. (HP-06)	208
Yagi, Y. (HC-04)	195	Yanagihara, H. (BF-01)	41
Yagupov, S. (GE-05)	169	Yanagihara, H. (BP-03)	48
Yai, D. (FT-03)	154	Yanagihara, H. (EV-14)	129
Yako, H. (HW-06)	220	Yanagihara, H. (GW-12)	191
Yakovlev, D. (FV-09)	159	Yanagihara, H. (HF-09)	201
Yakushiji, K. (AR-15)	23	Yanai, T. (AV-10)	30
Yakushiji, K. (BD-06)	39	Yanai, T. (BU-01)	58
Yakushiji, K. (BE-05)	40	Yanai, T. (BU-02)	58
Yakushiji, K. (FC-08)	135	Yanai, T. (CE-06)	70
Yamada, H. (CS-01)	82	Yanai, T. (CS-01)	82
Yamada, K. (AR-06)	22	Yang, B. (ED-11)	108
		Yang, B. (HF-07)	201
		Yang, B. (HP-06)	208
		Yang, B. (HW-07)	220

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Yang, C. (AS-07).....	24	Yang, Y. (AB-02).....	3
Yang, C. (CR-11).....	82	Yang, Y. (AH-07).....	14
Yang, C. (CS-05).....	83	Yang, Y. (AS-13).....	25
Yang, C. (CS-06).....	83	Yang, Y. (AU-04).....	27
Yang, D. (CC-07).....	66	Yang, Y. (BQ-13).....	51
Yang, F. (FG-01).....	142	Yang, Y. (BT-15).....	58
Yang, F. (FG-11).....	143	Yang, Y. (BW-05).....	52
Yang, F. (GH-08).....	175	Yang, Y. (CH-05).....	75
Yang, G. (AU-03).....	27	Yang, Y. (CS-04).....	83
Yang, G. (BS-12).....	56	Yang, Y. (DE-02).....	96
Yang, G. (GR-13).....	182	Yang, Y. (EP-13).....	117
Yang, H. (AF-07).....	11	Yang, Y. (GA-03).....	163
Yang, H. (AG-10).....	13	Yang, Y. (HF-05).....	201
Yang, H. (BD-09).....	39	Yang, Y. (HF-08).....	201
Yang, H. (BP-09).....	49	Yang, Y. (HR-05).....	211
Yang, H. (BV-07).....	61	Yang, Y. (HS-11).....	214
Yang, H. (CF-08).....	72	Yang, Z. (AU-05).....	27
Yang, H. (CT-07).....	85	Yang, Z. (CG-10).....	74
Yang, H. (DC-01).....	94	Yano, M. (CS-08).....	83
Yang, H. (DC-04).....	95	Yao, A. (FT-05).....	154
Yang, H. (DE-02).....	96	Yao, A. (GV-09).....	189
Yang, H. (ED-03).....	107	Yao, K. (DC-03).....	95
Yang, H. (EH-08).....	113	Yao, T. (DG-03).....	99
Yang, H. (ER-11).....	121	Yap, Q. (BD-07).....	39
Yang, H. (FC-11).....	135	Yarmolich, M. (HW-09).....	220
Yang, H. (FV-14).....	159	Yasuhira, M. (HC-05).....	195
Yang, H. (GA-02).....	162	Yazdan, T. (BS-08).....	55
Yang, H. (GC-02).....	165	Yazdan, T. (EG-04).....	111
Yang, H. (GP-08).....	178	Ye, C. (BS-02).....	54
Yang, H. (GW-07).....	191	Ye, C. (ER-09).....	121
Yang, H. (HD-04).....	197	Ye, C. (FW-06).....	160
Yang, H. (HP-08).....	208	Ye, C. (HR-12).....	212
Yang, H. (HR-08).....	211	Ye, L. (CQ-13).....	80
Yang, H. (HU-03).....	216	Ye, X. (BT-07).....	57
Yang, J. (AB-02).....	3	Yedeas, M.A. (EI-08).....	115
Yang, J. (AR-09).....	22	Yefremenko, V. (EV-03).....	127
Yang, J. (AS-02).....	23	Yen, C. (EI-09).....	116
Yang, J. (EP-13).....	117	Yen, H. (AD-06).....	7
Yang, J. (FW-06).....	160	Yenugonda, V. (BR-08).....	53
Yang, J. (HR-12).....	212	Yesilyurt, C. (EH-09).....	113
Yang, K. (DH-08).....	101	Yi, G. (EI-07).....	115
Yang, M. (CW-01).....	90	Yi, J. (AQ-01).....	19
Yang, M. (EQ-08).....	119	Yildirim, O. (AE-02).....	8
Yang, M. (FW-11).....	161	Yildirim, O. (CF-09).....	72
Yang, M. (GT-06).....	184	Yildirim, O. (FE-10).....	140
Yang, M. (HI-06).....	206	Yildiriz, E. (FH-09).....	145
Yang, M. (HP-05).....	208	Yin, H. (EF-06).....	110
Yang, P. (BD-09).....	39	Yin, L. (CW-04).....	90
Yang, P. (DE-03).....	97	Yin, M. (GH-04).....	174
Yang, Q. (AQ-14).....	21	Yin, M. (GH-07).....	175
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Yang, Q. (BW-02).....	51	Yin, W. (AB-09).....	4
Yang, Q. (ET-05).....	124	Yin, W. (BU-06).....	59
Yang, Q. (ET-14).....	125	Yin, X. (CR-07).....	81
Yang, Q. (GH-05).....	174	Yin, Z. (BG-02).....	43
Yang, Q. (GQ-07).....	180	Yin, Z. (BS-09).....	55
Yang, Q. (GQ-10).....	180	Ying, L. (HI-02).....	205
Yang, Q. (GT-15).....	185	Ying, W.C. (CD-11).....	69
Yang, Q. (HI-03).....	206	Ying, Z. (FP-10).....	148
Yang, Q. (HI-11).....	207	Yoda, H. (BD-04).....	38
Yang, S. (CF-07).....	72	Yoda, H. (BP-01).....	48
Yang, W. (AB-02).....	3	Yoda, H. (ED-07).....	108
Yang, W. (AP-06).....	18	Yoda, H. (GA-06).....	163
Yang, W. (CP-08).....	77	Yokoi, Y. (AU-01).....	27
Yang, W. (EP-13).....	117	Yoo, H. (CV-08).....	88
Yang, W. (FV-14).....	159	Yoo, H. (CV-15).....	89
Yang, X. (BT-09).....	57	Yoo, J. (FB-03).....	132
Yang, X. (BU-04).....	58	Yoo, S. (AQ-11).....	20
Yang, X. (BU-05).....	59	Yoon, J. (EU-08).....	126
Yang, X. (BU-11).....	59	Yoon, M. (BS-13).....	56
Yang, X. (BW-03).....	51	Yoon, S. (GI-06).....	176
Yang, X. (CT-15).....	85	Yoong, H. (DE-03).....	97
Yang, X. (CW-11).....	91	Yoong, H. (GD-11).....	168
Yang, X. (ER-13).....	121	Yoshida, C. (BE-06).....	40
Yang, X. (EW-10).....	130	Yoshimura, R. (CD-11).....	69
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You, C. (AR-07)	22	Yuasa, S. (BD-06)	39
You, C. (CQ-15)	80	Yuasa, S. (BE-05)	40
You, D. (ES-06)	122	Yuasa, S. (EC-01)	105
You, D. (FT-11)	155	Yuasa, S. (FC-01)	134
You, J. (AQ-11)	20	Yuasa, S. (FC-05)	134
You, J. (FT-12)	155	Yuasa, S. (FC-08)	135
You, L. (AF-03)	10	Yuasa, S. (HD-08)	197
You, L. (AR-13)	23	Yuasa, S. (HD-09)	198
You, L. (CQ-04)	79	Yue, M. (BU-03)	58
You, L. (FV-06)	158	Yue, M. (BU-12)	59
You, Y. (AT-01)	25	Yue, M. (BU-14)	59
Young-Un, P. (AW-10)	32	Yue, M. (EU-06)	126
Youssef, J.B. (BV-04)	60	Yue, M. (FB-02)	132
Yu, C. (CE-02)	69	Yue, M. (GR-01)	181
Yu, C. (GQ-03)	179	Yue, S. (AQ-14)	21
Yu, G. (AU-13)	28	Yun, G. (HT-11)	215
Yu, G. (BV-14)	61	Yun, J. (AT-04)	26
Yu, G. (CA-04)	63	Yun, S. (BV-05)	60
Yu, G. (ED-01)	107	Yun, W. (BR-05)	53
Yu, G. (EQ-05)	119	Yuzawa, A. (AH-09)	15
Yu, G. (GR-10)	182		
Yu, G. (HQ-07)	209		
Yu, H. (AB-06)	3		
Yu, H. (BT-07)	57		
Yu, H. (BV-14)	61		
Yu, H. (CP-13)	77		
Yu, H. (CU-09)	87		
Yu, H. (ES-13)	123		
Yu, H. (GR-13)	182		
Yu, H. (GR-15)	182		
Yu, J. (AD-10)	8		
Yu, J. (BD-08)	39		
Yu, J. (CQ-07)	79		
Yu, J. (CS-05)	83		
Yu, J. (DE-03)	97		
Yu, J. (GD-11)	168		
Yu, J. (HG-08)	203		
Yu, L. (EP-05)	116		
Yu, L. (FG-09)	143		
Yu, N. (HB-04)	193		
Yu, R. (CC-03)	66		
Yu, S. (CR-02)	81		
Yu, S. (CR-03)	81		
Yu, S. (FU-08)	156		
Yu, S. (HI-01)	205		
Yu, S. (HW-09)	220		
Yu, X. (CR-07)	81		
Yu, X. (FP-03)	147		
Yu, Y. (HQ-12)	210		
Yu, Z. (EH-07)	113		
Yu, Z. (EQ-01)	118		
Yu, Z. (EQ-13)	119		
Yu, Z. (HB-12)	194		
Yuan, F. (AV-01)	29		
Yuan, H. (HE-08)	200		
Yuan, J. (AG-08)	13		
Yuan, J. (BH-08)	46		
Yuan, J. (CG-06)	73		
Yuan, J. (CG-11)	74		
Yuan, J. (CH-09)	75		
Yuan, J. (FP-08)	148		
Yuan, J. (FQ-07)	149		
Yuan, J. (FW-09)	161		
Yuan, J. (HI-04)	206		
Yuan, J. (HX-01)	221		
Yuan, J. (HX-07)	221		
Yuan, W. (HX-01)	221		
Yuan, Y. (AD-05)	7		
Yuan, Y. (FG-01)	142		
Yuan, Y. (FG-11)	143		
Yuan, Y. (GH-08)	175		
Yuan, Z. (CW-04)	90		
Yuan, Z. (GC-03)	166		
Yuan, Z. (GQ-10)	180		
Yuasa, S. (AI-05)	16		
Yuasa, S. (AR-15)	23		

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Zakotnik, M. (HW-04)	220
Zandbergen, H. (AH-04)	14
Zander, A. (FG-10)	143
Zang, M. (EE-05)	109
Zare, M. (GQ-14)	180
Zavaliche, F. (EF-06)	110
Zayak, A. (HP-02)	207
Zayets, V. (AI-05)	16
Zayets, V. (FC-05)	134
Zayko, S. (CC-01)	65
Zegeye, A. (BC-04)	36
Zeissler, K. (HE-06)	199
Zelent, M. (GF-05)	171
Zeng, D. (GA-02)	162
Zeng, D. (GU-04)	186
Zeng, D. (HQ-01)	209
Zeng, F. (AW-02)	31
Zeng, H. (AB-06)	3
Zeng, H. (BU-09)	59
Zeng, J. (BU-04)	58
Zeng, J. (BU-11)	59
Zeng, L. (DD-03)	96
Zeng, M. (BD-07)	39
Zeng, Q. (AB-04)	3
Zeng, Z. (CE-09)	70
Zeng, Z. (DG-02)	99
Zeng, Z. (ET-02)	124
Zeng, Z. (ET-11)	125
Zeng, Z. (FH-06)	144
Zeng, Z. (FV-10)	159
Zeng, Z. (FV-11)	159
Zha, L. (AB-02)	3
Zha, L. (EP-13)	117
Zhai, G. (BT-07)	57
Zhai, K. (EH-01)	112
Zhai, Y. (FV-12)	159
Zhang, B. (AI-03)	16
Zhang, B. (CP-04)	76
Zhang, B. (CV-06)	88
Zhang, B. (FR-13)	151
Zhang, B. (GT-05)	184
Zhang, B. (HX-06)	221
Zhang, C. (AG-07)	12
Zhang, C. (AQ-15)	21
Zhang, C. (AW-11)	32
Zhang, C. (CP-16)	78
Zhang, C. (CU-10)	87
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Zhang, C. (FU-15)	157	Zhang, M. (AG-01)	12
Zhang, C. (GG-05)	173	Zhang, M. (BB-10)	35
Zhang, C. (GH-02)	174	Zhang, M. (FW-01)	160
Zhang, C. (GH-05)	174	Zhang, M. (HF-05)	201
Zhang, C. (GI-12)	177	Zhang, M. (HW-08)	220
Zhang, C. (GR-07)	181	Zhang, M.N. (FP-12)	148
Zhang, C. (HI-03)	206	Zhang, N. (CP-16)	78
Zhang, C. (HI-11)	207	Zhang, P. (CT-07)	85
Zhang, C. (HR-11)	212	Zhang, P. (DE-05)	97
Zhang, D. (BH-04)	45	Zhang, P. (GQ-01)	179
Zhang, D. (BU-12)	59	Zhang, Q. (BU-04)	58
Zhang, D. (BU-14)	59	Zhang, Q. (CW-04)	90
Zhang, D. (CT-10)	85	Zhang, Q. (EH-06)	113
Zhang, D. (CU-15)	87	Zhang, R. (EH-02)	112
Zhang, D. (CV-01)	88	Zhang, S. (BT-01)	56
Zhang, D. (DD-03)	96	Zhang, S. (CA-04)	63
Zhang, D. (EQ-08)	119	Zhang, S. (DC-01)	94
Zhang, D. (FB-02)	132	Zhang, S. (EH-02)	112
Zhang, D. (GR-01)	181	Zhang, S. (GV-11)	189
Zhang, D. (GT-09)	185	Zhang, T. (HG-10)	203
Zhang, D. (HP-05)	208	Zhang, W. (AB-03)	3
Zhang, E. (AF-09)	11	Zhang, W. (EG-06)	111
Zhang, E. (CV-01)	88	Zhang, W. (ER-11)	121
Zhang, F. (BR-02)	53	Zhang, W. (GP-16)	179
Zhang, F. (FU-08)	156	Zhang, X. (AP-04)	18
Zhang, H. (AQ-05)	20	Zhang, X. (AP-12)	19
Zhang, H. (BT-09)	57	Zhang, X. (AS-03)	24
Zhang, H. (BU-12)	59	Zhang, X. (BB-09)	35
Zhang, H. (CQ-14)	80	Zhang, X. (BR-13)	54
Zhang, H. (CT-15)	85	Zhang, X. (CA-04)	63
Zhang, H. (CU-14)	87	Zhang, X. (CD-03)*	67
Zhang, H. (DG-03)	99	Zhang, X. (CQ-13)	80
Zhang, H. (DH-05)	100	Zhang, X. (CQ-14)	80
Zhang, H. (EQ-11)	119	Zhang, X. (EH-06)	113
Zhang, H. (ER-13)	121	Zhang, X. (EP-01)	116
Zhang, H. (ET-05)	124	Zhang, X. (EP-11)	117
Zhang, H. (FB-02)	132	Zhang, X. (EP-14)	118
Zhang, H. (FC-02)	134	Zhang, X. (EP-16)	118
Zhang, H. (FD-11)	138	Zhang, X. (EQ-06)	119
Zhang, H. (FG-07)	143	Zhang, X. (EV-13)	129
Zhang, H. (FP-02)	147	Zhang, X. (EW-13)	130
Zhang, H. (FP-11)	148	zhang, X. (FP-09)	148
Zhang, H. (FQ-06)	149	Zhang, X. (FP-13)	148
Zhang, H. (GR-05)	181	Zhang, X. (GC-01)	165
Zhang, H. (GS-03)	183	Zhang, X. (GQ-07)	180
Zhang, H. (HH-06)	205	Zhang, X. (GQ-10)	180
Zhang, H. (HQ-09)	210	Zhang, X. (GR-08)	181
Zhang, J. (AU-07)	28	Zhang, X. (HE-07)	199
Zhang, J. (BU-03)	58	Zhang, X. (HE-10)	200
Zhang, J. (BU-09)	59	Zhang, X. (HF-02)	200
Zhang, J. (BV-14)	61	Zhang, X. (HP-04)	208
Zhang, J. (CC-07)	66	Zhang, X. (HU-02)	216
Zhang, J. (CF-07)	72	Zhang, X. (HW-07)	220
Zhang, J. (CT-13)	85	Zhang, X. (HX-08)	222
Zhang, J. (EG-03)	111	Zhang, Y. (AB-02)	3
Zhang, J. (FF-10)	142	Zhang, Y. (AG-03)	12
Zhang, J. (FH-07)	145	Zhang, Y. (AR-01)	21
Zhang, J. (FR-02)	150	Zhang, Y. (AR-08)	22
Zhang, J. (GP-04)	178	Zhang, Y. (AR-09)	22
Zhang, J. (GR-05)	181	Zhang, Y. (BB-02)	34
Zhang, J. (GR-15)	182	Zhang, Y. (BR-05)	53
Zhang, J. (HP-04)	208	Zhang, Y. (BU-14)	59
Zhang, J. (HP-06)	208	Zhang, Y. (BV-14)	61
Zhang, J. (HR-13)	212	Zhang, Y. (BW-02)	51
Zhang, J.W. (CG-05)	73	Zhang, Y. (CC-07)	66
Zhang, K. (AR-08)	22	Zhang, Y. (DG-01)	99
Zhang, K. (BR-05)	53	Zhang, Y. (EP-13)	117
Zhang, K. (ER-10)	121	Zhang, Y. (FC-02)	134
Zhang, K. (HR-14)	212	Zhang, Y. (FC-11)	135
Zhang, K. (HT-03)	214	Zhang, Y. (FP-03)	147
Zhang, L. (AB-04)	3	Zhang, Y. (FQ-12)	150
Zhang, L. (BB-10)	35	Zhang, Y. (FU-13)	157
Zhang, L. (BT-10)	57	zhang, Y. (FV-06)	158
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Zhang, Y. (GR-05).....	181	Zhao, W. (CT-02).....	84
Zhang, Y. (GT-09).....	185	Zhao, W. (DD-03).....	96
Zhang, Y. (GT-10).....	185	Zhao, W. (EA-04).....	102
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Zhang, Y. (HB-07).....	194	Zhao, W. (FC-02).....	134
Zhang, Y. (HE-10).....	200	Zhao, W. (FC-07).....	135
Zhang, Y. (HP-07).....	208	Zhao, W. (FC-09).....	135
Zhang, Y. (HP-08).....	208	Zhao, W. (FC-11).....	135
Zhang, Y. (HR-05).....	211	Zhao, W. (FH-11).....	145
Zhang, Y. (HT-03).....	214	Zhao, W. (GC-01).....	165
Zhang, Z. (AG-11).....	13	Zhao, W. (GQ-13).....	180
Zhang, Z. (AI-03).....	16	Zhao, W. (GS-03).....	183
Zhang, Z. (AR-08).....	22	Zhao, W. (HE-07).....	199
Zhang, Z. (AT-08).....	26	Zhao, W. (HE-10).....	200
Zhang, Z. (BR-05).....	53	Zhao, W. (HP-07).....	208
Zhang, Z. (BU-12).....	59	Zhao, W. (HP-08).....	208
Zhang, Z. (CG-11).....	74	Zhao, W. (HS-11).....	214
Zhang, Z. (DG-08).....	100	Zhao, W. (HT-03).....	214
Zhang, Z. (DH-03).....	100	Zhao, W. (HU-16).....	217
Zhang, Z. (DH-07).....	101	Zhao, X. (AU-09).....	28
Zhang, Z. (EI-07).....	115	Zhao, X. (FP-02).....	147
Zhang, Z. (EP-12).....	117	Zhao, X. (GV-05).....	188
Zhang, Z. (EP-14).....	118	Zhao, X. (HH-06).....	205
Zhang, Z. (ET-08).....	125	Zhao, X. (HR-09).....	212
Zhang, Z. (EU-09).....	126	Zhao, Y. (AR-01).....	21
Zhang, Z. (FC-09).....	135	Zhao, Y. (CC-07).....	66
Zhang, Z. (FG-09).....	143	Zhao, Y. (ES-02).....	122
Zhang, Z. (FH-07).....	145	Zhao, Y. (GQ-13).....	180
Zhang, Z. (GC-01).....	165	Zhao, Z. (CB-11).....	65
Zhang, Z. (GE-08).....	170	Zhao, Z. (FW-10).....	161
Zhang, Z. (GG-04).....	173	Zhao, Z. (HT-05).....	214
Zhang, Z. (HG-12).....	204	Zhao, Z. (HW-07).....	220
Zhang, Z. (HI-10).....	207	Zheng, B. (HQ-07).....	209
Zhang, Z. (HR-14).....	212	Zheng, C. (EW-07).....	130
Zhang, Z. (HT-03).....	214	Zheng, D. (BW-11).....	52
Zhang, Z. (HX-08).....	222	Zheng, H. (BB-10).....	35
Zhao, C. (AQ-02).....	19	Zheng, H. (CU-15).....	87
Zhao, C. (ER-14).....	121	Zheng, J. (FS-01).....	152
Zhao, C. (ET-06).....	124	Zheng, J. (FS-03).....	152
Zhao, C. (FC-07).....	135	Zheng, J. (HQ-13).....	210
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