INTERMAG Europe 2017
24th - 28th April 2017
www.intermag2017.com
The Convention Centre Dublin, Ireland
Welcome

Dear Colleagues,

It is my great pleasure to welcome you to Dublin for the IEEE International Magnetics Conference, INTERMAG Europe 2017.

INTERMAG is the premier conference on all aspects of applied magnetism and provides a range of oral and poster presentations, invited talks and symposia, a tutorial session, and exhibits reviewing the latest developments in magnetism ranging from fundamental to applied aspects, including advances in magnetic recording, spintronics, energy and power technologies and the emerging field of bio-magnetism. All members of the international scientific community interested in new developments in magnetism and associated technologies are invited to attend. Selected papers from the conference will be published in the IEEE Transactions on Magnetics.

Dublin follows Dresden (2014) and Madrid (2008) in hosting the INTERMAG Europe Conference. Dublin is a vibrant city, and serves as an excellent gateway to the island of Ireland. The centrally located Convention Centre Dublin is walking distance from historic Trinity College Dublin, many hotels, restaurants and lively bars. For the many things to see and to do in and around Dublin, please visit www.dublintown.ie

On behalf of the Management Committee of Intermag 2017, I wish all participants a fruitful and enjoyable stay in Dublin.

Nora Dempsey
INTERMAG 2017 General Chair
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**Venue**

The Technical programme and exhibits for INTERMAG 2017 will take place at the Convention Centre Dublin (CCD). The CCD, Ireland’s first purpose-built convention centre is located in Spencer Dock in the heart of Dublin city. Designed by Pritzker award-winning Irish-born architect Kevin Roche, the CCD has quickly become a landmark building. Its stunning design includes a unique glass-fronted atrium running the full height of the building, which gives visitors panoramic views of the River Liffey, Dublin City Centre and the Wicklow mountains.

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**Convention Centre Dublin (CCD)**

**Ground Floor:**
- Foyer (Registration Desk)
- The Forum (Posters, exhibition, tea/coffee breaks, bierstubes, water, information announcement boards, catering points and other conference services)

**First Floor:**
- The Liffey A & B (Oral Sessions)
- The Liffey Hall 1 & 2 (Oral Sessions)
- Liffey Meeting Rooms 1-5
- Liffey Boardroom 3

**Second Floor:**
- Wicklow Hall 1 (Oral Sessions)
- Wicklow Hall 2A & 2B (Oral Sessions)
- Level 2 foyer (Networking Events)
- EcoCem Room

**Third, Fourth & Fifth Floors:**
- The Auditorium (Plenary Session)
- Level 3 Foyer (Plenary Reception)
General Information

Registration
All Conference attendees, including invited speakers, must pay registration fees. Payments onsite must be made in Euros € by Cash or by MasterCard, Visa or American Express credit card.

Registration Desk
The registration desk will be located on the ground floor foyer inside the main entrance area. The opening hours are as follows:

Monday, April 24th  2:00pm – 7:00pm
Tuesday, April 25th  8:00am – 5:00pm
Wednesday, April 26th  8:00am – 5:00pm
Thursday, April 27th  8:00am – 5:00pm
Friday, April 28th  8:00am – 5:00pm

Many thanks to Singulus Technologies AG for sponsoring the registration lanyards for INTERMAG 2017.

Badge Policy
All Conference attendees are required to wear the official INTERMAG 2017 Conference name badge to enter the Technical Sessions, Exhibits and the Reception.

Camera, Cell Phone and Video Recording Policy
Attendees are not permitted to take pictures of speaker slides or posters, or to make video recordings of presentations. Furthermore, attendees are asked to be respectful of their colleagues by turning off all cell phones before entering the session rooms.
Special Conference Events

Coffee Service and Bierstube
Coffee service will be available on Tuesday through Friday mornings from 8:30am in the poster and exhibitions area (The Forum).
Join your colleagues at the traditional Bierstube which will be open on Monday from 6:15pm – 7:15pm, Tuesday and Thursday evenings from 4:30pm – 6pm in the poster and exhibition area.
Many thanks to Materion Corporation for sponsoring the Bierstube on Tuesday the 25th April.

Tutorial Session
The Internet of Things
Monday April 24th 4:00pm – 6:15pm Liffey B

This session will present tutorials related to the Internet-of-Things (IoT). The first speaker will provide an overview of the different elements that make up an IoT network from the devices, through the network, to the data analytics, as well as look at the wider context in which IoT plays out in the built environment and in the natural world. The second speaker will review the status of STT-MRAM development and explain the particular advantages of STT-MRAM for IoT applications. The third speaker will discuss the use of HF Magnetics to Power the IoT. The tutorials will not only be accessible to those with no background in the subjects, but will also provide comprehensive and timely summaries to specialists in the field.
The tutorial session is organised by the Education Committee of the IEEE Magnetics Society.

Linda Doyle, Trinity College Dublin, Ireland.
“A General Introduction to the Internet of Things (IoT)”

Bernard Dieny, SPINTEC, Grenoble, France.
“Non-Volatile Magnetic Memories for Internet of Things”

Cian O’Mathuna, Tyndall National Institute, Cork, Ireland.
“High Frequency Magnetics to Power the Internet of Things (IoT)”
Symposia
Smart City, Smart Living BA
Bio-Applied Magnetism CA
Additive Manufacturing and 3D Printing of Magnets DA
When THz Meets X-rays: An Ultrafast View on Magnetism EA
Magnetic Micro- and Nano-Actuators and Robots FA
STT-MRAM: Toward Volume Production GA
Spin-Dependent Phenomena in 2D Materials and van der Waals Heterostructures HA

IEEE Magnetic Society Annual Meeting
This meeting is open to all INTERMAG 2017 delegates and will be held on Thursday 27th April in Liffey Meeting Room 3 from 5:00pm – 6:00pm
Come to learn more about what the IEEE Magnetics Society is doing to support and strengthen the Magnetics Community, and about the benefits of joining the society. Your suggestions and feedback are most welcome! Beverages will be provided.

Plenary Session and Award Ceremony
Wednesday April 26th, 4pm, The Auditorium
Session Chair: Nora Dempsey
Awards Chair: Burkard Hillebrands

IEEE Magnetics Society Achievement Award
Dr. William H. Butler
For predicting the spin-filter effect and the resulting high magnetoresistance of MgO magnetic tunnel junctions, used by the HDD industry to substantially increase storage density

IEEE Magnetics Society Early Career Award
Dr. Wie Zhang
Oakland University
For contributions to exploring spin-orbit coupling phenomena with antiferromagnets, magnetic insulators, two-dimensional systems, and topologically non-trivial spin textures
IEEE Magnetics Society Distinguished Service Award
Dr. Robert E. Fontana, Jr.
IBM
For establishing the structure and enhancing the international impact of major technical conferences sponsored by the IEEE Magnetics Society

Newly Elected Fellows of the IEEE
Dr. Laura Heyderman
ETH Zurich
For contributions to nanoimprint lithography and nanostructured magnetic systems and devices

Dr. Jordan Katine
HGST
For contributions to nanoscale magnetic device design, fabrication, and characterization

Dr. David Lowther
McGill University
For contributions to and industrial applications of computer aided design in electromagnetics

Dr. Sara Majetich
Carnegie Mellon University
For contributions to understanding of magnetic nanoparticles

2017 Magnetics Society Distinguished Lecturers
Michael Farle, Univ. of Duisburg-Essen, Germany
“Functionalised Hybrid Nanomagnets: New Materials for Innovations in Energy Storage and Medical Theranostics”

Xiaofeng Jin, Fudan University, China
“The Hall Effects Edwin Hall Never Imagined”

Hendrik Ohldag, SLAC, USA

Eiji Saitoh, Tohoku University, Sendai, Japan
“Spin Current Physics and Applications”
Plenary Lecture
Wednesday 26th April, 5:15pm, The Auditorium

By: Kazuhiro Hono
Title: Recent advances in nano-characterisation of magnetic materials and devices

Abstract: Magnetic properties are structurally sensitive; hence, understanding the structure-property relationships is essential for developing magnetic materials and spintronic devices. A typical example is the coercivity of hard magnets; it varies from a near zero value to $H_{c}/3$ depending on the grain size, shape and intergrain exchange coupling. The optimisation of the size distribution, shapes and defects of FePt nanograins is critical for achieving sufficient signal to noise ratio in high density heat-assisted magnetic recording media. Controlling the atomistic structure at FM/Oxide or FM/NM interfaces is essential for magnetic tunneling junctions for both the MRAM cells and the current perpendicular to plane giant magnetoresistive devices (CPP-GMR) for readers. In this talk, I will address the importance of nanostructure characterisations to optimise the magnetic and transport properties of various magnetic and spintronic materials by showing specific examples of property optimisation of hard magnets, recording media and magnetoresistive devices. Through these examples, we will try to address which structural feature will lead to breakthroughs for overcoming current issues in these materials and devices.

Biography: Kazuhiro Hono received the BS and MS degrees in Materials Science from Tohoku University in 1982 and 1984, and a Ph.D. degree in Metals Science and Engineering from Penn State in 1988. After working as a post doc at Carnegie Mellon, he became a research associate at the Institute for Materials Research, Tohoku University in 1990. He moved to the National Institute for Materials Science (NIMS) as a senior researcher in 1995, and is now a NIMS Fellow and the Director of the Research Center for Magnetic and Spintronic Materials. He is also a professor in Materials Science and Engineering at the University of Tsukuba. His current research interest is materials science in magnetic and spintronics materials and their devices.
Plenary Reception
Invitation from Nora Dempsey, General Chair of INTERMAG 2017
Following the Plenary Lecture a Conference Reception will be held for all delegates of INTERMAG 2017. This reception is supported by the IEEE Magnetics Society. The reception will be held on the third floor foyer as you exit the Auditorium. All registered delegates are cordially invited to attend and celebrate the achievements of our award winners and to network with colleagues. Canapes and refreshments will be served.

Lunch with the Speakers
Tuesday 25th April at 12pm, EcoCem Room

Lunch with the Experts
Thursday 27th April at 12pm, EcoCem Room

Many thanks to Evico Magnetics GmbH for sponsoring these lunches.

Special Evening Sessions
Tuesday 25th April, 5:30pm – 6:30pm, Liffey A
Chair: Michael Coey, Trinity College Dublin
Title: Who Funds Magnetics Research, and Why?
Pannelists:
Mark Fergusson, Director and CEO, Science Foundation Ireland
Burkhard Jahnen, Programme Director at the DFG
Paul Dodd, Associate Vice Chancellor for Interdisciplinary Research and Strategic Initiatives UC Davis
John Pethica, Chief Scientist, U.K. National Physical Laboratory and former Vice President of the Royal Society

Thursday 27th April, 5:30pm – 6:30pm, Liffey A
Chair: Dominique Givord
Title: 50 years of rare earth permanent magnets
Speakers:
G. Hadjipanayis – The development of Sm-Co magnets
M. Sagawa – NdFeB magnets – past, present and future
I.R. Harris – The use of hydrogen in the processing of RE-TM magnets
J.M.D. Coey – Reflection and tribute to I.V. Mitchell
Women’s Networking Event
Thursday 27th April, 6:00pm – 7:30pm, Level 2 foyer

There will be 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 build new friendships and expand your professional network. All graduate students, researchers and retirees are encouraged to attend. Canapes and refreshments will be provided.

Many thanks to Intel for sponsoring the Women’s Networking Event at INTERMAG 2017.

Sponsors

The INTERMAG 2017 Conference Committee would like to gratefully acknowledge the following sponsors:

Silver Sponsors
Intel Ireland
Seagate Technology

Other Sponsors and Partners
Science Foundation Ireland
Evico Magnetics
Singulus Technologies AG
Materion
Beijing Zhong Ke San Huan High-tech Co., Ltd.
VACUUMSCHMELZE GmbH & Co. KG
Exhibition

Suppliers of instrumentation, materials, process tools and other products and services will exhibit their latest offerings for professionals in magnetism and associated technologies. The exhibition will be located in the Forum, which is also the location of the coffee service and Bierstubes.

Exhibition Opening Hours
Tuesday 25th April  8:30am – 5:30pm
Wednesday 26th April  8:30am – 4:00pm
Thursday 27th April  8:30am – 5:30pm
Friday 28th April  8:30am – 12:00pm

List of Exhibitors
• Attocube Systems AG
• Capres A/S
• Hinds Instruments, Inc.
• HPROBE
• Intlvac Thin Film
• IOP Publishing
• JEOL (UK) Ltd
• JMAG Instruments
• Lake Shore Cryotronics
• MAGNET-PHYSIK Dr. Steingroever GmbH
• Mantis Deposition Ltd
• Metrolab Technology SA
• MicroXact Inc.
• NanoManyetik Bilimsel Cihazlar
• Nanoscan
• NT-MDT Spectrum Instruments
• Oxford University Press
• Quantum Design Inc
• Singulus Technologies AG
• SmartTip BV
• TOHOKU STEEL CO., LTD.
• Zurich Instruments

The INTERMAG 2017 Conference Committee would like to acknowledge the participation of the exhibitors.
Internet Access

To access the CCD Wi-Fi network:

- Open network Settings
- Select the network ‘CCD Guest’
- Open a new page in your browser
- Accept the terms and conditions
- You are then free to browse and read emails

Speaker Preview Room

Speakers may use Liffey Meeting Room 5 on the first floor to practice their presentations and test their computer’s connections prior to their individual presentations. Audio-visual equipment will be provided in the Speaker Preview Room which will be open from 8:00am – 6:00pm Tuesday – Friday. Speakers are encouraged to use this facility to practice their presentation, either alone or with colleagues.

Oral Sessions

The oral sessions will be held in the Liffey A & B and Liffey Hall 1 & 2 and Liffey Meeting Room 2 on the first floor and the Wicklow Hall 1, 2A & 2B on the second floor. Oral sessions will take place from 9:00am – 12:00pm and from 2:00pm – 5:00pm Tuesday through Friday except Wednesday where they will finish at 4:00pm.

Contributed oral presentations are 15 minutes per speaker (including 3 minutes Q&A), while invited presentations are 30 minutes per speaker (including 5 minutes Q&A).

The conference will provide the screen, projector, pointer and microphone in each oral session room. All presentations should be in 16:9 format.

Speakers must use their own laptops. Only standard PC-style VGA connections to the projector will be provided. Presenting authors must supply any adaptor required for their device. In particular, Mac OS users must make sure that they have the correct adaptor plug and that video “mirroring” is activated.

In each session room there will be a multi-port switchbox so that speakers can connect their devices during the question period of the previous speaker.
Presenting authors should “check in” with the session chair at least 10 minutes before the start of their session. Session chairs have the responsibility of reporting “No-Shows” to the Publication Committee. Papers associated with “No Shows” will not be published in the special INTERMAG issue of the IEEE Transactions on Magnetics and the related digests will also be removed from IEEE Xplore.

IEEE Magnetics Society Best Student Oral Presentation Award

Following the establishment of this prestigious award by the IEEE Magnetics Society in 2008, the selection of the five finalists for INTERMAG 2017 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 five 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 the student’s presentation

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

The five finalists of INTERMAG 2017 are:

AC-09 Manu Sushruth (Tuesday, 11:15am, THE LIFFEY A)
AE-02 Maite Goiriena-Goikoetxea (Tuesday, 9:15am, LIFFEY MEETING ROOM 2)
BB-05 Philip Lenox (Tuesday, 3:00pm, LIFFEY HALL 2)
BD-09 Jiawei Yu (Tuesday, 4:30pm, LIFFEY HALL 1)
CF-05 Jyotirmoy Chatterjee (Wednesday, 10:00am, WICKLOW HALL 1)
Poster Sessions

The poster sessions will be held in the Forum of the CCD on the ground floor. Posters should be displayed from 8:30am – 11:30am in the morning and from 1:30pm – 4:30pm in the afternoon. Posters should be set up 15 minutes before the session starts and must be removed by the authors promptly at the end of their session. Posters that have not been removed will be discarded.

The poster size is A0 vertical/portrait format (841 x 1189 mm; 33.1 x 46.8 in) and the paper weight should not exceed 170g. You must include the title and authors on the poster. The conference provides a small numbered sign designating the paper to be posted on each board and Velcro 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 at least the first and last hour of the poster session. If a poster is posted but none of the authors are present, the Session Chairs will count the presentation as a "No-Show". Papers associated with "No Shows" will not be published in the special INTERMAG issue of the IEEE Transactions on Magnetics and the related digests will also be removed from IEEE Xplore.

Best Poster Awards

Best poster awards will be given out to recognise 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 €50 cash prize and an award certificate. 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 and sessions as described above. Nominations will be made by the individual Session Chairs. The final decision will be made by a Poster Award Committee after reviewing the nominated posters. Selections will be based on the level of the research, quality of the poster and clarity of the presentation.
Student Travel Grants

Travel grants of up to $1,000 each will be awarded to a limited number of students in the areas of basic and applied magnetism. These grants, which will be sponsored by the IEEE Magnetics Society and Science Foundation Ireland, are intended to partially offset travel and local costs related to participation in INTERMAG 2017. Support is for current graduate students only. Postdoctoral fellows, undergraduates or non-students are not eligible. To be eligible for the IEEE Magnetics Society award, the student’s advisor must be a member of the IEEE Magnetics Society. Preference for these grants will be given to those applicants who are student members of the Magnetics Society, nearing completion of their graduate studies and presenting conference papers. Students who have previously received travel support from the Magnetics Society for any other conference are not eligible for an award from either sponsor.

Travel grants are a reimbursement for actual expenses. Thus the students must attend the conference and submit receipts to a representative of the student travel coordinator (details will be supplied to successful applicants). Chip and pin debit cards will be issued to awardees on the last day of the conference.

Shortly after the conference, grant recipients must submit a short account of their experience for possible inclusion in the Magnetic Society Newsletter and / or a wrap up account of INTERMAG 2017.
Dublin

There are many layers to the city of Dublin amongst which every visitor finds their niche. It is a bustling city with a population of over 1.7 million and is home to over 100 different nationalities all of whom contribute to the fabric of Dublin. While it has a genuine cosmopolitan feel, Dublin has still managed to retain its own distinct culture which is expressed in a love of literature, drama, traditional music and sport.

Browsing the shops on Dublin’s Grafton Street or O’Connell Street is a renowned pastime as the shopping can also be combined with sight-seeing. The city is abundant with unique buildings and quirky stores; and the streets are always bustling.

The wide-ranging choice of hotels, restaurants, and pubs meets every visitor’s pocket and taste and whether it is a chic boutique hotel, world-class international accommodation or a quaint B&B, Dublin’s menu suits every palette.

The quintessential Dublin Pub provides the focal point of Dublin’s social life, illuminating the vibrant hues of Dubliners and their culture. Conversation flows freely unleashing the unique atmosphere that defines the city.

Dublin is one of the oldest cities in Europe and with ancient churches, grand buildings and fine museums, cultural riches abound. From the ancient to the avant-garde, from history, architecture, literature, art and archaeology to the performing arts Dublin has it, with the real advantage to the visitor being that everything is contained within a small area. Furthermore, Dublin boasts the largest park to be found in a European City, the Phoenix Park.

When conference business is over, there is a wealth of activities and culture to attract the delegate. Due to Dublin’s coastal location, the sea is an integral part of Dublin life. This inheritance allows for a wide variety of water activities, sports or just strolling. Inland, Dublin offers a pick of events from greyhound racing, a variety of many fine gardens, old stately homes and picturesque parklands.
Did you know?

- Dublin accounts for 40% of Ireland’s GDP
- Dublin has 47% of all Foreign Direct Investment Projects in Ireland
- 50% of Dublin’s population are under the age of 36, the youngest capital city in Europe
- James Joyce and four Nobel Laureates in literature were from or lived in Dublin

Useful tips

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</table>

Travelling around Dublin

Dublin Bus
Dublin Bus is the main provider of public transport in the Irish capital. If you are planning on following the established tourist routes, joining a hop-on-hop-off tour of Dublin is advised. Tickets are valid the whole day and the buses will take you to the major attractions on circular routes. An average bus trip costs €2.70 each way.

LUAS Light rail
There are at present two routes or “lines” - the Red Line and the Green Line. The colour designation refers to the route, all trains are steel-grey with a yellow band. It is important to note that there is no interchange facility between the two LUAS lines, a brisk five to ten minute walk is the quickest connection. There are ticket machines at all LUAS stops. For more info, see www.luas.ie

Congress Organiser
Conference Partners LTD,
Suites 11-13, The Hyde Building
The Park, Carrickmines
Dublin 18, Ireland
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, 2017: F. Albertini; M. Cheng; B. Dieny; D. Ravelosona; A. Stancu; T. Thomson; J.-P. Wang; R. Wood.

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

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

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

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

Joining IEEE 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 recognised as being part of the established and vibrant IEEE technical community
• You will receive a large discount at conferences such as this INTERMAG

Joining is easy: you can go online via the Society Website at www.ieemagnetics.org and follow the links.

There will be an IEEE membership desk located in the Forum on the ground floor. We are looking forward to meeting you at INTERMAG 2017.
# Conference Management Committee

**General Chair**  
Nora Dempsey  

**Local Chair**  
Michael Coey  

**Program Chairs**  
Adekunle Adeyeye  
Cindi Dennis  
Jeffrey McCord  

**Treasurers**  
Karsten Rode, Mark T Kief  

**Publication Chairs**  
Petru Andrei, S. N. Piramanayagam  

**Exhibition Chairs**  
Gavin D’Arcy, Mark Gubbins  

**Publicity Chair**  
Plamen Stamenov  

**Student Awards**  
Atsufumi Hirohata  

**Student Travel**  
Matt Carey  

**IEEE Representative**  
Randall H. Victoria  

**Mag Soc support**  
Diane Melton, Regina Mohr  

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# Programme Committee Members

Publication Editors

Amr Adly; Yacine Amara; Radhika Barua; Ciro Visone; David Dorrell; Min-Fu Hsieh Ron Jansen; Dennis Leung; Nicoleta Lupu; Gangping Ju; Iulian Nistor; Johannes J.H. Paulides; Philip Pong; Alexandru Stancu; Dan Wei; Hyunsoo Yang

Conference Local Support

We would like to thank Trinity College Dublin and The Science Foundation of Ireland for supporting the conference.

Future Conferences

2017 Conference on Magnetism and Magnetic Materials
Nov 6-10, 2017, Pittsburgh, USA

2018 Intermag Conference
April 23-27, 2018, Singapore, Singapore

The 21st International Conference on Magnetism (ICM 2018)
July 16-20, 2018, San Francisco, California

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

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

2020 Intermag Conference
May 4-8, 2020, Montreal, Canada

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

2022 Joint MMM/Intermag Conference
January 10-14, 2022, New Orleans, LA
# Programme at a Glance

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Type</th>
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<tbody>
<tr>
<td>24/04/17 MONDAY PM</td>
<td>4:00 PM</td>
<td>Tutorial</td>
<td>WA The Internet of Things</td>
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<tr>
<td>25/04/17 TUESDAY AM</td>
<td>9:00 AM</td>
<td>Symposium</td>
<td>AA Magnetocaloric Materials: New Concepts for Energy Application</td>
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<td></td>
<td>Oral</td>
<td>AB Magnetic Nanoparticles, Nanowires, and 3D Structures I</td>
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<td></td>
<td>Oral</td>
<td>AC Magnonics I</td>
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<td>Oral</td>
<td>AD Spin currents, switching and Spin Seebeck Effect I</td>
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<td>Oral</td>
<td>AE Exchange bias and patterned film I</td>
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<td>Oral</td>
<td>AF Sensors and MEMS: Materials</td>
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<td>Oral</td>
<td>AG L10 Magnets and Related Crystal Structures</td>
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<td>AH Fundamental properties and interdisciplinary topics</td>
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<td>Poster</td>
<td>AM Spin-orbit torques and spin-orbit effects I</td>
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<td></td>
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**26/04/17 WEDNESDAY PM**

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28/04/17 FRIDAY AM

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Session WA

TUTORIAL: THE INTERNET OF THINGS
Atsufumi Hirohata, Chair
University of York, York, United Kingdom

4:00

WA-01. A General Introduction to the Internet of Things (IoT).
(Invited) L. Doyle1 1. University of Dublin, Dublin, Ireland

4:45

WA-02. Non-Volatile Magnetic Memories for Internet of Things.
(Invited) B. Dieny1 1. SPINTEC, Univ Grenoble Alpes / CEA-INAC / CNRS, Grenoble, France

5:30

WA-03. HF Magnetics to Power the IoT. (Invited) C. O’Mathuna1
1. Tyndall National Institute, Cork, Ireland

Session AA

MAGNETOCALORIC MATERIALS: NEW CONCEPTS FOR ENERGY APPLICATION
Anja Waske, Co-Chair
IFW Dresden, Dresden, Germany
Jesus Blanco, Co-Chair
University of Oviedo, Oviedo, Spain

9:00

AA-01. Expanding the operating temperature range of magnetocaloric materials towards gas liquefaction. (Invited) A. Barcza1, H. Vieyra1 and M. Katter1 1. Permanent Magnets, Vakuumschmelze GmbH & Co. KG, Hanau, Germany

9:30

AA-02. Thermal Switches and Enhanced Heat Transfer for Magnetocalorics. (Invited) A. Kitanovski1 1. Faculty of Mechanical Engineering, University of Ljubljana, Ljubljana, Slovenia

10:00

AA-03. Active Magnetocaloric Heat Pipe (AMH) – A new concept for high-efficient cooling systems. (Invited) T. Hess1, L. Maier1, A. Mahlke1, J. König1 and K. Bartholome1 1. Fraunhofer IPM, Freiburg, Germany
10:30

11:00

11:30
AA-06. Tuning magnetocaloric materials with stress. (Invited) X. Moya1. Materials Science and Metallurgy, University of Cambridge, Cambridge, United Kingdom

TUESDAY MORNING

9:00
Session AB
MAGNETIC NANOPARTICLES, NANOWIRES, AND 3D STRUCTURES I
Frank Ludwig, Chair
TU Braunschweig, Braunschweig, Germany

9:00
AB-01. Current Induced Domain Wall Motion in Cylindrical Nanowires. (Invited) H. Mohammed1, H. Corte-León2, Y.P. Ivanov1,2, J.A. Moreno1, O. Kazakova2 and J. Kosel1

9:30
AB-02. In-situ TEM study of the field and current driven domain wall motion in cylindrical nanowires. I. Ivanov1,2, J. Kosef1 and A. Chuvilin3
1. Electron Microscopy Group, Erich Schmid Institute of Materials Science, Leoben, Austria; 2. Department of Electrical Engineering, King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia; 3. Electron Microscopy Lab, CIC NanoGUNE, San Sebastian, Spain

9:45
AB-03. Domains and Domain Walls in Flux-Closure Magnetic Nanotubes. M. Stano1, S. Schaefer2, A. Wartelle1, D. Gusakova1, J. Toussaint1, F. Genuzio4, A. Sala2, T.O. Mentes3, A. Locatelli1, M. Rioult5, R. Belkhou3, W. Ensinger2, S. Martin1,2 and O. Fruchart1,3


AB-06. Magnetization reversal of 3D vortices in cobalt nanospheres. M. Urbánek1, O. Vyrobal1, M. Kolíbal1, M. Corbetta2, O. Wojewoda1, L. Flajsman1, M. Vanatka1, M. Stano5, O. Fruchart1,2 and T. Šikola1. 1. Brno University of Technology, Brno, Czech Republic; 2. Nanoscan AG, Duebendorf, Switzerland; 3. Institut Néel, Univ. Grenoble Alpes / CNRS, Grenoble, France; 4. SPINTEC, Univ. Grenoble Alpes / CNRS / CEA-INAC, Grenoble, France

AB-07. Ferromagnetic resonance study of individual highly ordered 3D nanoparticle superlattices. E. Josten1,2, R. Narkowicz1, A. Kakay1, D. Meertens3, L. Bergström4, K. Lenz1, T. Brückel1, J. Fäßbender1 and J. Lindner1. 1. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. JCNS-2 and PGI-4, Forschungszentrum Jülich, Jülich, Germany; 3. ERC, Forschungszentrum Jülich, Jülich, Germany; 4. Department of Materials and Environmental Chemistry, Stockholm University, Stockholm, Sweden

AB-08. Microstructure evolution and magnetic behavior of self-organized arrays of ultra-high aspect ratio epitaxial Co nanostrips. K. Ermakov1, A. Ognev1, A.Y. Samardak1, A. Kozlov1, A.V. Davydenko1, E. Sukovatisina1, L. Chebotkevich1, A. Stancu2 and A.S. Samardak1. 1. School of Natural Sciences, Far Eastern Federal University, Vladivostok, Russian Federation; 2. Department of Physics, Alexandru Ioan Cuza University of Iasi, Iasi, Romania
AB-09. Two-Photon Lithography for 3D Magnetic Nanostructure Fabrication. M. Hunt, G.I. Williams, B. Boehm, M. Taverne, D. Ho, S.R. Giblin, D.E. Read, J.G. Rarity, R. Allenspach and S. Ladak. School of Physics and Astronomy, Cardiff University, Cardiff, United Kingdom; IBM Research - Zurich, Rüschlikon, Switzerland; Department of Electrical and Electronic Engineering, University of Bristol, Bristol, United Kingdom

AB-10. 3D interconnected magnetic nanofiber networks with multifunctional properties. T. da Câmara Santa Clara Gomes, J. De La Torre Medina, Y. Velázquez-Galván, J. Martínez-Huerta, A. Encinas, and L. Piraux. Institute of Condensed Matter and Nanosciences, Université Catholique de Louvain, Louvain-La-Neuve, Belgium; Instituto de Investigaciones en Materiales - Unidad Morelia, Universidad Nacional Autónoma de México, Mexico, Mexico; División de Materiales Avanzados, Instituto Potosino de Investigacion Cientifica y Tecnologica, San Luis Potosí, Mexico

Tuesday The Liffey A
Morning 9:00

Session AC MAGNONICS I
Gianluca Gubbiotti, Chair
Istituto Officina dei Materiali del CNR, Perugia, Italy

AC-01. Total non-reflection with refraction of spin waves at the edge of antidots to generate and control spin-wave beams propagating in YIG films of mm and nm thicknesses. P. Gruszecki, R. Gieniusz, U. Guzowska, A. Stognij, A. Maziewski and M. Krawczyk. Faculty of Physics, Adam Mickiewicz University in Poznan, Poznan, Poland; Faculty of Physics, University of Bialystok, Bialystok, Poland; Scientific-Practical Materials Research Center at National Academy of Sciences of Belarus, Minsk, Belarus

AC-02. Inhomogeneous parametric pumping of spin-waves by acoustic waves in an yttrium-iron-garnet film. I. Lisenkov, P. Dhagat and A. Jander. School of Electrical Engineering and Computer Science, Oregon State University, Corvallis, OR

AC-03. Coupled mode theory for the acoustic wave – spin wave interaction in the maghonic crystal. P. Graczyk, J. Klos and M. Krawczyk. Department of Physics, Adam Mickiewicz University, Poznan, Poland
AC-04. Integrated three-port spin wave waveguide using thin YIG film. T. Yoshimoto1, T. Goto1,2, A. Banno1, K. Shimada1, H. Takagi1, Y. Nakamura1, H. Uchida1, K. Sekiguchi3, C.A. Ross4 and M. Inoue1 1. Toyohashi University of Technology, Toyohashi, Japan; 2. JST PRESTO, Kawaguchi, Japan; 3. Keio University, Yokohama, Japan; 4. Massachusetts Institute of Technology, Cambridge, MA

10:00 AC-05. Spin wave propagation and spin polarized electron transport in single crystal iron films. (Invited) O. Gladii1, D. Halley1, Y. Henry1 and M. Bailleul1 1. Institut de Physique et Chimie des Matériaux de Strasbourg, CNRS-Université de Strasbourg, Strasbourg, France

10:30 AC-06. Splitting of Ferromagnetic Resonance Spectra of Periodically Modulated One Dimensional Magnonic Crystals. S. Khanal1, P.N. Sherpa1 and L. Spinu1 1. AMRI, University of New Orleans, New Orleans, LA

10:45 AC-07. Spin wave power flow and caustics in ultrathin films with the Dzyaloshinskii-Moriya interaction and spin currents. J. Kim1, R. Stamps2 and R.E. Camley3 1. Centre for Nanoscience and Nanotechnology (C2N), CNRS, Univ. Paris-Sud, Universite Paris-Saclay, Orsay, France; 2. SUPA School of Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom; 3. Department of Physics and Energy Science, University of Colorado at Colorado Springs, Colorado Springs, CO

11:00 AC-08. Nano-scaled magnon transistor based on three-magnon splitting. Q. Wang1, P. Pirro1, B. Hillebrands1 and A. Chumak1 1. Fachbereich Physik, Technische Universität Kaiserslautern, Kaiserslautern, Germany

11:15 AC-09. Resonance based detection of magnetic nanoparticles using nanopatterned ferromagnets. M. Sushruth1,*, J. Ding2, X. Zhou2, J. Duczynski3, R. Woodward1, R. Begley1, H. Fangohr4, R. Fuller1, A. Adeevey2, M. Kostylev1 and P. Metaxas1 1. School of Physics, University of Western Australia, Perth, WA, Australia; 2. Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; 3. School of Chemistry and Biochemistry, University of Western Australia, Perth, WA, Australia; 4. University of Southampton, Southampton, United Kingdom

11:30 AC-10. Magnetostatic spin waves in irregular narrow ferromagnetic waveguides. D. Kalyabin1,2, E. Beginin3, Y. Sharaevskii3, A.V. Sadovnikov1,2 and S. Nikitov1,2 1. Kotel’nikov IRE RAS, Moscow, Russian Federation; 2. MIPT, Dolgoprudny, Russian Federation; 3. Chernyshevskii Saratov State University, Saratov, Russian Federation
AC-11. Parametric amplification of nonlinear spin waves in magnetic nanostructures. M. Carpentieri¹, R.V. Verba², G. Finocchio³, V.S. Tiberkevich⁴ and A.N. Slavin⁴ ¹ Electrical and Information Engineering, Politecnico di Bari, Bari, Italy; ² Institute of Magnetism, Kyiv, Ukraine; ³ Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina, Messina, Italy; ⁴ Physics, Oakland University, Rochester, MI

TUESDAY LIFFEY HALL 1 MORNING 9:00

Session AD

SPIN CURRENTS, SWITCHING AND SPIN SEEBECK EFFECT I

Robert Reeve, Chair
Johannes Gutenberg University, Mainz, Germany

9:00
AD-01. Towards standardisation of the spin Seebeck effect for thin films: Fe₃O₄:Pt. K. Morrison ¹ Physics, Loughborough University, Loughborough, United Kingdom

9:15
AD-02. Spin transport in insulating systems – interface vs. bulk effects. J. Cramer¹,², E. Guo¹,³, A. Kehlberger¹, G. Jakob¹ and M. Kläui¹,² ¹ Institute of Physics, Johannes Gutenberg-Universität Mainz, Mainz, Germany; ² Graduate School of Excellence Materials Science in Mainz, Mainz, Germany; ³ Quantum Condensed Matter Division, Oak Ridge National Laboratory, Oak Ridge, TN

9:30
AD-03. Auto-oscillations in YIG/Pt nanostructures driven by the spin Seebeck effect. V. Lauer¹, M. Schneider¹, T. Meyer¹, C. Dubs², P. Pirro¹, T. Brächer¹, F. Heusser¹, B. Lägel¹, V.I. Vasyuchka², A.A. Serga², B. Hillebrands³ and A. Chumak¹ ¹ Fachbereich Physik and Landesforschungszentrum OPTIMAS, Technische Universität Kaiserslautern, Kaiserslautern, Germany; ² INNOVENT e.V., Technologieentwicklung Jena, Jena, Germany; ³ SPINTEC, UMR-8191, CEA-INAC/CNRS/UJF-Grenoble/Grenoble-INP, Grenoble, France

9:45
AD-04. Absence of the Thermal Hall Effect in Anomalous Nernst and Spin Seebeck Effects. Y. Chen¹ and S. Huang¹ ¹ Physics, National Taiwan University, Taipei, Taiwan
AD-05. Thermal spin current originated from spin Nernst effect in ferromagnet/heavy metal bilayer structures. D. Kim1, C. Jeon1, J. Choi1, J. Lee1, S. Surabhi2, J. Jeong2, K. Lee3,4 and B. Park1. 1. Department of Material Science and Engineering, KAIST, Daejeon, The Republic of Korea; 2. Department of Materials Science and Engineering, Chungnam National University, Daejeon, The Republic of Korea; 3. Department of Materials Science and Engineering, Korea University, Seoul, The Republic of Korea; 4. KU-KIST Graduate School of Converging Science and Technology, Korea University, Seoul, The Republic of Korea

AD-06. Optimisation of Co2MnSi thin films and multilayers for spin Seebeck devices. C.D. Cox1, K. Morrison1 and M. Cropper1. 1. Department of Physics, Loughborough University, Loughborough, United Kingdom

AD-07. High Efficiency Pure Spin Current Driven Domain Wall Depinning in Geometrically Tailored Non-Local Spin Valves. R.M. Reeve1, A. Pfeiffer1,2, M. Voto3, S. Hu4, W. Savero-Torres1, N. Richter1,2, A. Kronenberg1, M. Jourdan1,2, L. Vila5, J. Attané6, L. Lopez-Diaz7, T. Kimura4 and M. Kläui1,2. 1. Institute of Physics, Johannes Gutenberg University, Mainz, Germany; 2. Graduate School of Excellence Materials Science in Mainz (MAINZ), Mainz, Germany; 3. Departamento de Física Aplicada, Universidad de Salamanca, Salamanca, Spain; 4. Research Center for Quantum Nano-Spin Sciences, Kyushu University, Fukuoka, Japan; 5. Institut Nanosciences et Cryogénie, Université Grenoble Alpes & CEA, Grenoble, France

AD-08. Observation of spin transport in n-type non-degenerate germanium using Co2Fe0.4Mn0.6Si Heusler alloy electrodes. T. Koike1, M. Oogane1, T. Takada2, H. Saito2 and Y. Ando1. 1. Department of Applied Physics, Graduate School of Engineering, Tohoku University, Aoba-yama, Japan; 2. National Institute of Advanced Industrial Science and Technology, Umezono, Japan

AD-09. Giant Magnetoresistance exceeding 10% in metal based lateral devices. G. Zahnd1, V. Pham1, A. Marty1, L. Vila1 and J. Attané1. 1. SPINTEC, CEA-INAC/CNRS/Univ. Grenoble Alpes, Grenoble, France

AD-10. Characterization of 3- and 4-terminal spin signals in Si non-local transport devices with giant spin accumulation. R. Jansen1, A. Spiesser1, H. Saito1, Y. Fujita2, S. Yamada2, K. Hamaya2 and S. Yuasa1. 1. National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan; 2. Graduate School of Engineering Science, Osaka University, Toyonaka, Japan
AD-11. Ballistic spin-polarized transport in a correlated electronic system. M. Tomczyk1,2 and J. Levy1,2. 1. Physics and Astronomy, University of Pittsburgh, Pittsburgh, PA; 2. Pittsburgh Quantum Institute, Pittsburgh, PA

11:45

AD-12. THz-Frequency Spin-Hall Oscillator Based on a Canted Antiferromagnet. R. Khymyn1, O. Prokopenko2, O. Sulymenko2, V.S. Tiberkevich1 and A.N. Slavin1. 1. Department of Physics, University of Gothenburg, Gothenburg, Sweden; 2. Faculty of Radio Physics, Electronics and Computer Systems, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine; 3. Department of Physics, Oakland University, Rochester, MI

TUESDAY  LIFFEY MEETING ROOM 2
MORNING  9:00

Session AE
EXCHANGE BIAS AND PATTERNED FILM I
Paolo Vavassori, Chair
CIC nanoGUNE, San Sebastian, Spain

9:00

AE-01. Temperature dependent magnetic properties of patterned FeNi/Gd dot arrays. P. Lapa1,2, J. Ding1, C. Phatak1, J. Pearson1, J. Jiang1, A. Hoffmann1 and V. Novosad1. 1. Materials Science Division, Argonne National Laboratory, Argonne, IL; 2. Department of Physics & Astronomy, Texas A&M University, College Station, TX

9:15

AE-02. Magnetic vortex core sizes and hysteresis loops in sub-100 nm Permalloy dots. M. Goiriena-Goikoetxea1*, K. Guslienko2,3, M. Rouco4, I. Orue5, E. Berganza6, M. Jaafar6, A. Asenjo6 and A. García-Arribas1,4. 1. Basque Center for Materials, Applications and Nanostructures (BCMaterials), Derio, Spain; 2. Materials Physics, University of the Basque Country (UPV/EHU), Donostia, Spain; 3. IKERBASQUE, Bilbao, Spain; 4. Electricity and Electronics, University of the Basque Country (UPV/EHU), Lejona, Spain; 5. SGiker, UPV/EHU, Lejona, Spain; 6. Instituto de Ciencia de Materiales CSIC, Madrid, Spain

9:30

AE-03. Magnetic Stray Field Landscape Design by Domain Engineering in Magnetic Thin Film Systems for Magnetic Particle Transport. (Invited) A. Ehresmann1, H. Huckfeldt1, I. Koch1, T. Ueltzhoeffer1, A. Tomita1, V. Neu2, U. Wolff2, O.G. Schmidt2, M. Albrecht3 and D. Holzinger1. 1. Institute of Physics and Center for Interdisciplinary Nanostructure Science and Technology (CINaT), Kassel University, Kassel, Germany; 2. IFW Dresden, Dresden, Germany; 3. University of Augsburg, Augsburg, Germany
AE-04. Crafting magnetic anisotropy landscapes in exchange-bias multilayers for the manipulation of spin waves. (Invited) R. Bertacco1,2, E. Albisetti1,3, D. Petti1, S. Tacchi4, G. Csaba5, P. Vavassori6 and E. Riedo1 1. Department of Physics, Politecnico di Milano, Milano, Italy; 2. IFN-CNR (Istituto di Fotonica e Nanotecnologie), Milano, Italy; 3. CUNY-Advanced Science Research Center and City College New York, New York, NY; 4. Unità di Perugia, Istituto Officina dei Materiali del CNR (CNR-IONM), Perugia, Italy; 5. Center for Nano Science and Technology, University of Notre Dame, Notre Dame, IN; 6. CIC NanoGUNE, Donostia-San Sebastian, Spain

10:30

AE-05. Chirality induced exchange bias effect in DyCo/FeNi bilayers. D. Lott1 and K. Chen2 1. WPD, Helmholtz-Zentrum Geesthacht, Geesthacht, Germany; 2. University of Cologne, Köln, Germany

10:45

AE-06. Depth-dependent magnetisation reversal in Fe/FeMn exchange-biased bilayers determined by conversion electron Mössbauer spectroscopy hysteresis loops. M.S. Araujo Filho1,2, L.E. Fernandez-Outon3,1, J.D. Ardisson1 and W.A. Macedo1 1. Centro de Desenvolvimento da Tecnologia Nuclear - CDTN, Belo Horizonte, Brazil; 2. Instituto Federal do Norte de Minas Gerais, Januária, Brazil; 3. Departamento de Física, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil

11:00


11:15

AE-08. Exchange-bias Effect in ErFeO3 Single Crystal and in Polycrystalline La-doped BaFeO3. A. Wisniewski1, I. Fita1, R. Puzniak1 and V. Markovich2 1. Institute of Physics, Polish Academy of Sciences, Warsaw, Poland; 2. Department of Physics, Ben-Gurion University of the Negev, Beer Sheva, Israel

11:30

AE-09. Spatial Evolution of the Ferromagnetic Phase Transition in an Exchange Graded Film. (Invited) C. Miller1,2, D. Belyea3, P. Riego3, A. Berger3, P. Kienzle4, A. Grutter4 and B.J. Kirby4 1. Rochester Institute of Technology, Rochester, NY; 2. Department of Physics, University of Gothenburg, Gothenburg, Sweden; 3. CIC nanoGUNE, San Sebastian, Spain; 4. NIST Center for Neutron Research, Gaithersburg, MD
Session AF
SENSORS AND MEMS: MATERIALS
Alexander Samardak, Chair
Far Eastern Federal University, Vladivostok, Russian Federation

9:00
AF-01. Thin film artificial magneto-electric heterostructures as micro-beam resonators for high sensitivity magnetic sensing applications. S.P. Bennett1, M. Staruch1, B.R. Matis2, J.W. Baldwin2, S.F. Cheng3, K. Bussmann1 and P. Finkel1

9:15
AF-02. Magneto-optical and transport characterization of micromachined Si cantilever with integrated high frequency GMI thin-film device under local compressive/tensile strain. G. Büttel1 and U. Hartmann1 1. University of Saarland, Saarbrücken, Germany

9:30
AF-03. Ultrasensitive flux-gate magnetometer based on iron garnet film for biomedical applications. (Invited) P. Vetoshko1,2, N. Gusev1, V. Belotelov1,3, A. Zvezdin1 and V. Shavrov2
1. Russian Quantum Center, Skolkovo, Russian Federation; 2. Kotelnikov Institute of Radioengineering and Electronics of the Russian Academy of Sciences, Moscow, Russian Federation; 3. Faculty of Physics, Lomonosov Moscow State University, Moscow, Russian Federation; 4. Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russian Federation

10:00
AF-04. Magnetic field distortion from conductive layers for high frequency speed sensor applications. M. Ortner1
1. Microsystems Technologies, Carinthian Tech Research, Villach, Austria

10:15
AF-05. The influence of edge inhomogeneities on vortex hysteresis curves in magnetic tunnel junctions. T. Würffel1,2, W. Raberg1, K. Pruegl1, A. Satz2 and H. Brueckl1 1. Infineon Technologies AG, Neubiberg, Germany; 2. Thin Films and Physics of Nanostructures, Bielefeld University, Bielefeld, Germany; 3. Infineon Technologies AG, Regensburg, Germany; 4. Infineon Technologies Austria AG, Villach, Austria; 5. Center for Integrated Sensor Systems, Danube University Krems, Wiener Neustadt, Austria
10:30
AF-06. Probing the geometrical dependence of the propagation and nucleation field in magnetic looping structures. B. Borie¹,², J. Wahrhusen¹, H. Grimm¹ and M. Kläui² 1. Sensitec GmbH, Mainz, Germany; 2. Institut für Physik, Johannes Gutenberg-Universität, Mainz, Germany

10:45
AF-07. Vortex magnetization state in a GMR spin-valve type field sensor. H. Brueckl¹, A. Satz², K. Prügl², T. Wurff², S. Luber², W. Raberg², J. Zimmer² and D. Süss³ 1. Center for Integrated Sensor Systems, Danube University Krems, Wiener Neustadt, Austria; 2. Infineon Technologies Austria AG, Villach, Austria; 3. Institute of Solid State Physics, TU Wien, Vienna, Austria

11:00
AF-08. Wide-dynamic-range magnetic sensor based on magnetic tunnel junctions using perpendicularly magnetized synthetic antiferromagnetic reference layer. T. Nakano¹, M. Oogane¹, T. Furuichi² and Y. Ando¹,³ 1. Department of Applied Physics, Tohoku University, Sendai, Japan; 2. DENSO Corporation, Kariya, Japan; 3. Center for Spintronics Research Network, Sendai, Japan

11:15
AF-09. Extremely sensitive magnetoresistance sensors using few-layer graphene/boron-nitride. K. Gopinadhan¹, Y. Shin¹, R. Jalil², T. Venkatesan¹, A. Geim², A. Castro Neto¹ and H. Yang¹ 1. National University of Singapore, Singapore, Singapore; 2. University of Manchester, Manchester, United Kingdom

11:30
AF-10. Current dependence of low-frequency noise in giant magnetoresistive sensors. V. Trauchessec¹, A. Solignac¹, M. Pannetier Lecoeur¹ and C. Fermon¹ 1. SPEC, Commissariat à l'Energie Atomique, Antony, France

11:45
AF-11. Nanostructured La₉₈Sr₈Mn₇Co₃O₁₁ Films for Room Temperature Pulsed Magnetic Field Sensors. N. Zurauškienë¹, V. Rudokas¹, S. Balevicius¹, V. Stankevič¹, S. Kersulis¹, R. Vasiliauskas¹, M. Vagner¹ and V. Plausinaitiene¹ 1. Center for Physical Sciences and Technology, Vilnius, Lithuania
Session AG
L10 MAGNETS AND RELATED CRYSTAL STRUCTURES
Dagmar Goll, Chair
Aalen University, Aalen, Germany

9:00 AG-01. Tetragonality and Magnetism in Equiatomic FeNi.
N. Bordeaux1, L. Lewis2, K. Barmak3 and S. Keshavarz1,2
1. Chemical Engineering Department, Northeastern University, Boston, MA; 2. Mechanical Engineering Department, Northeastern University, Boston, MA; 3. Department of Applied Physics and Applied Mathematics, Columbia University, New York, NY

9:15 AG-02. Towards realization of bulk L10-FeNi. D. Niarchos1, M. Gjoka1, V. Psycharisi1 and E. Devlin1 1. INN, NCSR Demokritos, Athens, Greece

9:30 AG-03. Current assistant synthesis: acceleration formation of low temperature phases for permanent magnets production. D.Y. Karpenkov1,2, K. Skokov1, I.A. Radulov1, T. Braun1 and O. Gutleisch1 1. Institute of Materials Science, TU Darmstadt, Darmstadt, Germany; 2. National University of Science and Technology “MISIS”, Moscow, Russian Federation

9:45 AG-04. Fabrication and characterization of L10-FeNi films using a combinatorial sputtering approach. G. Giannopoulos1, A. Kaidatzis1, R. Salikhov2, G. Varvaro3, G. Barucca4, S. Laureti3, M. Koutsouflakis1, V. Psycharis1, M. Farle2 and D. Niarchos1 1. Institute of Nanoscience and Nanotechnology, NCSR Demokritos, Athens, Greece; 2. Fakultät für Physik and Center for Nanointegration (CeNIDE), University of Duisburg-Essen, Duisburg, Germany; 3. ISM-CNR, Rome, Italy; 4. Dipartimento SIMAU, Università Politecnica delle Marche, Ancona, Italy

10:00 AG-05. Magnetic properties of L10 FeNi phase developed through annealing of an amorphous alloy. (Invited) P. Sharma1, Y. Zhang1 and A. Makino1,2 1. Institute for Materials Research, Tohoku University, Sendai, Japan; 2. Tohoku University, Sendai, Japan
10:30

AG-06. Coercivity development in MnAl permanent magnet powders through flash-milling processing of gas-atomized particles. J. Rial1, M. Villanueva1, E. Céspedes1, N. Lopez1, J. Camarero1, L. Marshall2, L. Lewis2 and A. Bollero1
1. Division of Permanent Magnets and Applications, IMDEA Nanoscience, Madrid, Spain; 2. Dept. of Chemical Engineering, Northeastern University, Boston, MA

10:45

AG-07. Ferromagnetic L10 phase formation in the Mn-Al-C alloys induced by high-pressure spark plasma sintering. M. Tyrman1,2, S. Quetel-Weben3, A. Pasko1, L. Perriere3, I. Guillot1, V. Etgens2 and F. Mazaleyrat1 1. SATIE, ENS Cachan, CNRS, Université Paris-Saclay, Cachan, France; 2. LISV, Université de Versailles Saint-Quentin-en-Yvelines, Velizy, France; 3. ICMPE, CNRS, Université Paris-Est Creteil, Thiais, France

11:00

AG-08. Alloying with a Few Atomic Percent of Ga Makes Mn-Al Thermodynamically Stable. T. Mix1,2, F. Bittner1,3, K. Müller1, L. Schultz1,2 and T. Woodcock1 1. Institute for Metallic Materials, IFW Dresden, Dresden, Germany; 2. Department of Physics, TU Dresden, Dresden, Germany; 3. Institute for Materials Science, TU Dresden, Dresden, Germany

11:15

AG-09. Recrystallization and Magnetic Hardening in Mn1.8Ga Magnet by Spark Plasma Sintering Deformation. Q. Lu1, C. Li1, M. Yue1, H. Zhang1 and Z. Altounian2 1. College of Materials Science and Engineering, Beijing University of Technology, Beijing, China; 2. Physics Department and Centre for the Physics of Materials, McGill University, Montreal, QC, Canada

11:30

AG-10. Stripe domains in tetragonally distorted Fe-Co-C films with perpendicular anisotropy. V. Neu1, L. Reichel1, S. Fähler1, R. Schäfer1 and K. Nielsch1 1. IFW Dresden, Dresden, Germany

11:45

Session AH

FUNDAMENTAL PROPERTIES AND INTERDISCIPLINARY TOPICS

Federico Montoncello, Chair
University of Ferrara, Ferrara, Italy

9:00

AH-01. Magnetic order in Cr-doped Sb$_{2-x}$Te$_3$ topological insulator thin films. (Invited)
N. Steinke$^1$, P. Baker$^1$, L. Duffy$^{1,2}$, G. van der Laan$^3$, Z. Salman$^1$, T. Hesjedal$^2$ and S. Langridge$^1$
1. ISIS neutron and muon source, Rutherford Appleton Laboratory, Chilton, United Kingdom; 2. Department of Physics, University of Oxford, Oxford, United Kingdom; 3. Diamond Light Source, Rutherford Appleton Laboratory, Chilton, United Kingdom; 4. SuS, Paul Scherrer Institut, Villigen, Switzerland

AH-02. Orbital magnetic anisotropy in ordered L1$_0$ CoPt and NiFePt$_2$ thin films probed with XMCD.
F. Wilhelm$^1$, T. Kohl$^1$, C. Schmerber$^2$, V. Pierron-Bohnes$^2$ and A. Rogalev$^1$
1. ESRF, Grenoble, France; 2. Magnetism of the Nanostructures, IPCMS, Strasbourg, France

V. Provenzano$^1$ and A. Arrott$^2$
1. Materials Science and Engineering Division, National Institute of Standards and Technology (NIST), Gaithersburg, MD; 2. Physics, Simon Fraser University, Burnaby, BC, Canada

AH-04. From intrinsic magnetic properties to applications of Fe$_8$N.
I. Dirba$^1$, C. Schwöbel$^1$, T.O. Helbig$^{1,2}$, M. Duerrschmied$^2$, L. Molina-Luna$^2$, K. Hofmann$^3$, H. Zhang$^1$, L. Alff$^3$ and O. Gutfleisch$^1$
1. Institute of Materials Science, Technische Universität Darmstadt, Darmstadt, Germany; 2. Department of Materials and Geosciences, Technische Universität Darmstadt, Darmstadt, Germany; 3. Eduard-Zintl-Institute of Inorganic and Physical Chemistry, Technische Universität Darmstadt, Darmstadt, Germany

AH-05. Stochastic phase synchronization of perpendicularly magnetized spin torque oscillators with second-order uniaxial anisotropy.
H. Arat$^{1,2}$ and H. Imamura$^2$
1. JST, Kawaguchi, Japan; 2. AIST, Tsukuba, Japan

9:30

9:45

10:00

10:15
AH-06. Ultrafast phase transition in strained VO$_2$ films.
1. National Research Council Research Associate at the Naval Research Laboratory, Washington, DC; 2. Nova Research, Inc. at the Naval Research Laboratory, Washington, DC; 3. Naval Research Laboratory, Washington, DC

AH-07. Current enhanced THz emission from nonmagnet/ferromagnet structures on flexible substrates.
Y. Wu$^1$$^2$, M. Chen$^1$, L. Ke$^2$ and H. Yang$^1$.
1. National University of Singapore, Singapore, Singapore; 2. Institute of Materials Research and Engineering, A-STAR, Singapore, Singapore

AH-08. Control of volume magnetization in magnetoelectric antiferromagnet Cr$_2$O$_3$ thin film by doping.
1. Department of Electronic Engineering, Tohoku University, Sendai, Japan; 2. TDK Corporation, Chiba, Japan; 3. Japan Synchrotron Radiation Institute, SPring-8, Hyogo, Japan; 4. ImPACT program, Tokyo, Japan

AH-09. Interacting magnetic nanoparticles under applied magnetic fields – how to estimate the local heat dissipation?
C. Munoz-Menendez$^1$, D. Serantes$^1$$^2$, S. Ruta$^2$, O. Hovorka$^1$, K. Livesey$^2$, O. Chubykalo-Fesenko$^1$, R. Chantrell$^2$ and D. Baldomir$^1$.
1. Instituto de Investigaciones Tecnolóxicas and Departamento de Física Aplicada, Universidade de Santiago de Compostela, Santiago de Compostela, Spain; 2. Department of Physics, University of York, York, United Kingdom; 3. Faculty of Engineering and the Environment, University of Southampton, Southampton, United Kingdom; 4. Department of Physics and Energy Science and UCCS Biofrontiers Center, University of Colorado Colorado Springs, Colorado Springs, CO; 5. Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain

AH-10. Spin-orbit interaction and spin relaxation in graphene induced by transition-metal dichalcogenides.
T. Wakamura$^1$, S. Guéron$^1$, A. Ouerghi$^2$ and H. Bouchiat$^1$.
1. Laboratoire de Physique des Solides, University Paris-Sud, Orsay, France; 2. C2N, CNRS, Marcoussis, France

R. Aboljadayel$^1$, D. Love$^1$, T. Charlton$^2$, C. Kinane$^3$, C. Vas$^1$, A. Jonescu$^1$, J. Llando$^1$, M. Martin$^4$, R. Weatherup$^1$, C. Barnes$^1$, S. Hofmann$^4$ and S. Langridge$^2$.
1. Physics, University of Cambridge, Cambridge, United Kingdom; 2. ISIS Facility, STFC Rutherford Appleton Laboratory, Chilton, United Kingdom; 3. Paul Scherrer Institute, Zurich, Switzerland; 4. Engineering, University of Cambridge, Cambridge, United Kingdom.
AM-01. Large and tunable spin Hall angles in gold based alloys: from intrinsic to side jump contributions. P. Laczkowski1,2, P. Noel1, Y. Fu1, H. Yang1, J. Rojas-Sanchez2, V. Pham1, G. Zahnd1, C. Deranlot2, S. Collin2, C. Bouard1, P. Warin1, M. Chshiev1, A. Marty1, J. Attane1, A. Fert2, H. Jaffres2, L. Vila1 and J. George2 1. Spintec, Institut Nanosciences et Cryogenie, Univ. Grenoble Alpes, CEA, CNRS, Grenoble, France; 2. Unité Mixte de Physique CNRS-Thales, Univ. Paris-sud, Université Paris-Saclay 11, Palaiseau, France

AM-02. Size effect of spin-Hall-assisted spin transfer torque in the presence of Dzyaloshinskii-Moriya interaction. Y. Gao1,2, Z. Wang1,2, X. Lin1,2, Y. Zhang1,2 and W. Zhao1,2 1. Fert Beijing Research Institute, Beihang University, Beijing, China; 2. School of Electrical and Information Engineering, Beihang University, Beijing, China

AM-03. Inverse Spin Hall Effect in Nickel Thin Films. A.C. Gandhi1, Y. Weng1 and J.G. Lin1 1. Center for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan

AM-04. Unexpected strong spin Hall effect in heavy-element-free paramagnetic CoGa. Y. Lau1,2, H. Lee2 and M. Hayashi1,2 1. Department of Physics, The University of Tokyo, Tokyo, Japan; 2. National Institute for Materials Science, Tsukuba, Japan

AM-05. Field-free spin Hall effect driven magnetization switching induced by IrMn. X. Han1, C. Wan1, W. Kong1 and X. Zhang1 1. State Key Lab of Magnetism, Institute of Physics, Beijing, China

AM-06. Stack engineering of spin-orbit torque efficiency in magnetic bilayers. O. Lee1,2, J. Kim1, B. Ju1, H. Koo1, B. Min1, K. Lee2,4 and O. Lee1 1. Center for Spintronics, Korea Institute of Science and Technology, Seoul, The Republic of Korea; 2. KU-KIST Graduate School, Korea University, Seoul, The Republic of Korea; 3. Electrical Engineering, Korea University, Seoul, The Republic of Korea; 4. Materials Science and Engineering, Korea University, Seoul, The Republic of Korea

AM-07. The W thickness dependence of interfacial and bulk spin-orbit torques in the NiFe/W bilayers. S. Li1,2 and T. Zhu1 1. State Key Lab for Magnetism, Institute of Physics, Chinese Academy of Sciences, Beijing, China; 2. College of Electronics and Information Technology, Guangdong Ocean University, Zhanjiang, China
AM-08. All-Optical Detection of Thickness Dependent Spin Hall Angle of W Within Structural Phase Transition Regime in W/CoFeB/SiO₂ Heterostructures. S. Mondal¹, S. Choudhury², S. Pan³, J. Sinha³ and A. Barman¹ 1. S. N. Bose National Centre for Basic Sciences, Kolkata, India

AM-09. Temperature dependence of spin orbit effective fields in Pt/GdFeCo. W. Ham¹, S. Kim¹, K. Kim¹², T. Okuno¹, H. Yoshikawa², A. Tsukamoto³, T. Moriyama¹ and T. Ono¹ 1. Institute of Chemical Research, Kyoto University, Uji, Japan; 2. Department of Physics, Korea Advanced Institute of Science and Technology, Daejeon, The Republic of Korea; 3. College of Science and Technology, Nihon University, Funabashi, Japan

AM-10. Continuous tuning the magnitude and direction of spin-orbit torque using bilayer heavy metals. P. He¹, X. Qiu¹, V. Zhang¹, Y. Wu¹, M. Kuok¹ and H. Yang¹ 1. National University of Singapore, Singapore, Singapore

AM-11. Quantitative Characterization of Spin-Orbit Torques in Pt/Co/Pt/Co/Ta Heterostructures on the Magnetization Azimuthal Angle Dependence. C. Engel¹, S. Goolaup¹, F. Luo¹ and W. Lew¹ 1. Nanyang Technological University, Singapore, Singapore

AM-12. Enhanced current induced spin orbital torque efficiency in Pt by B doping. B. Yang¹, P. Lin¹ and C. Lai¹ 1. Materials Science and Engineering, National Tsing Hua University, Hsinchu, Taiwan

AM-13. Electrical control over spin-orbit-torque-induced perpendicular magnetization switching. X. Han¹, X. Zhang¹, C. Wan¹, H. Wu¹, L. Huang¹, W. Kong¹, C. Fang¹ and U. Khan¹ 1. State Key Lab of Magnetism, Institute of Physics, Beijing, China

AM-14. Direct Magneto-Optical Detection of Transverse Effective Field Generated by Spin Orbit Torque. N. Lei¹, T. Xing¹, C. Zhou², W. Zhao² and Y. Wu² 1. Beihang University, Beijing, China; 2. Fudan University, Shanghai, China

AM-15. Observation of Large Planar Hall Effect on the Current Induced Spin-orbit Effective Fields in Ta/MgO/CoFeB/Ta. Q. Wong¹, W. Gan¹, F. Luo¹, G.J. Lim¹, F. Tan¹ and W. Lew¹ 1. Physics and Applied Physics, Nanyang Technological University, Singapore, Singapore

AM-16. Spin-to-charge interconversion in ferromagnetic/nonmagnetic nanostructures using direct and inverse spin Hall effects. V. Pham¹, P. Noel¹, G. Zahnd¹, A. Marty¹, C. Bouard¹, W. Savero-Torres¹, L. Vila¹ and J. Attané¹ 1. Spintec, Institut Nanosciences et Cryogenie, Univ. Grenoble Alpes, CEA, CNRS, Grenoble, France

AM-17. Charge-to-spin conversion in the ferroelectric Rashba semiconductor GeTe. S. Varotto¹, C. Rinaldi¹², S. Cecchi³, R. Calarco¹ and R. Bertacco¹² 1. Dipartimento di Fisica, Politecnico di Milano, Milano, Italy; 2. IFN-CNR, Milano, Italy; 3. Paul-Drude-Institut für Festkörperelektronik, Berlin, Germany
AM-18. Spin to charge current interconversion at NM/Bi2O3 (NM = Cu, Ag, and Au) interfaces. H. Tsai1, S. Karube1, K. Kondou2 and Y. Otani1,2 1. ISSP, University of Tokyo, Chiba, Japan; 2. CEMS, RIKEN, Wako, Japan

TUESDAY MORNING
8:30

Session AN

SPIN TORQUES, SWITCHING AND SPIN TORQUE OSCILLATORS
(Poster Session)

Luc Thomas, Co-Chair
Headway Technologies, Inc., Milpitas, CA

Flavio Abreu Araujo, Co-Chair
CNRS/Thales, Paris, France

AN-01. Analytical Limits to Maximum RF Performance of Spin Torque Nano-Oscillators. D. Ricketts1 and M. Abbasi1 1. ECE, North Carolina State University, Apex, NC

AN-02. Comparison between different synchronization schemes of spin transfer torque nano-oscillators. J. Hem1,2, L.D. Buda-Prejbeanu1,2 and U. Ebels1,2 1. Univ. Grenoble Alpes, Grenoble, France; 2. INAC-SPINTEC, CEA/CNRS, Grenoble, France

AN-03. Order of magnitude improvement of nano-contact spin torque nano-oscillator performance. S. Banuazizi1, S.R. Sani2, A. Ekland3, M.M. Naitini4, S. Mohseni4, S. Chung5, P. Dürrenfeld6, B. Malm3 and J. Åkerman1,6 1. Materials and Nano Physics, Department of Applied Physics, School of Engineering Sciences, KTH Royal Institute of Technology, Stockholm, Sweden; 2. Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA; 3. Department of Integrated Devices and Circuits, School of Information and Communication Technology, KTH Royal Institute of Technology, Stockholm, Sweden; 4. Department of Physics, Shahid Beheshti University, Tehran, The Islamic Republic of Iran; 5. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden; 6. Department of Physics, University of Gothenburg, Gothenburg, Sweden

AN-04. Current tunability and spatial rotation of the auto-oscillation mode in nanoconstriction-based spin Hall nano-oscillators in oblique fields. A.A. Awad1, M. Dvornik1, A. Houshang2, P. Dürrenfeld1,2, M. Zahedinejad3, Y. Yin1,3, R.K. Dumas1 and J. Åkerman1,4 1. Department of Physics, University of Gothenburg, Gothenburg, Sweden; 2. School of Electronic Science and Engineering, Nanjing University, Nanjing, China; 3. Department of Physics, Southeast University, Nanjing, China; 4. Materials and Nanophysics, School of ICT, KTH Royal Institute of Technology, Kista, Sweden
AN-05. Free Layer Dynamics Excited with a Concurrent Spin Injection from a Spin-Polarized Tunneling Current and a Pure Spin Hall Current. M. Tarequzzaman1,2, T. Boehnert1, M. Decker1, J.D. Costa1, J. Borme1, B. Lacoste1, E. Paz1, A. Jenkins1, S.S. Serrano-Guisan1, C.H. Back2, R. Ferreira1 and P. Freitas1,2. 1. Nanoelectronics (Spintronics), International Iberian Nanotechnology Laboratory (INL), Braga, Portugal; 2. Physics, Instituto Superior Tecnico (IST), Lisbon, Portugal; 3. Institut für Experimentelle Physik, Universität Regensburg, Regensburg, Germany

AN-06. Instantaneous RF detector based on vortex core expulsion in spintransfer nano-oscillators. S. Menshawy1,2, A. Jenkins3, P. Bortolotti2, J. Kermorvant1, U. Ebels1, M. Cyrille5, L. Vila4, K. Merazzo1, R. Ferreira1, P. Freitas1, J.D. Costa1 and V. Cros2. 1. Thales Communications and Security, Gennevilliers, France; 2. Unité Mixte de Physique CNRS, Thales, Univ. Paris-Sud, Univ. Paris-Saclay, Palaiseau, France; 3. International Iberian Nanotechnology Laboratory, Braga, Portugal; 4. Univ. Grenoble Alpes, CEA, CNRS, SPINTEC, Grenoble, France; 5. Univ. Grenoble Alpes, CEA-LETI MINATEC campus, Grenoble, France

AN-07. Conditions for the generation of pure spin currents in spin-Hall devices: application of the least dissipation principle. J. Wegrowe1, R. Benda1 and M.M. Rubi1. 1. Physics, Ecole Polytechnique, Palaiseau, France; 2. Facultad de Fisica, Universitat de Barcelona, Barcelona, Spain

AN-08. Reversible spin torque switching of uncompensated non-collinear antiferromagnet. Y. Liu1, M. Hsu2, R. Skomski1, S. Liou1 and S. Lee1. 1. Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE; 2. Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; 3. Institute of Physics, Academia Sinica, Taipei, Taiwan

AN-09. Multi-scale investigation on FePt/MgO based MTJs for high stability STT-MRAMs. M. Galante1, M.O. Ellis1, M. Stamenova1 and S. Sanvito1. 1. Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE; 2. School of Physics and CRANN, Trinity College Dublin, Dublin, Ireland

AN-10. Spectral characterization of in-plane MgO magnetic tunnel nanojunctions. A.V. Silva1,2, R. Ferreira1, E. Paz1, D.C. Leitao1,2, T. Devolder4, S. Cardoso1,2 and P. Freitas1,3. 1. INESC Microsystems and Nanotechnologies (INESC-MN), Lisboa, Portugal; 2. Instituto Superior Técnico, Universidade Lisboa, Lisboa, Portugal; 3. INL, Braga, Portugal; 4. Centre de Nanosciences et de Nanotechnologies, CNRS/Univ. Paris-sud, Orsay, France


AN-12. Drastic Dependence of Spin Torque Efficiency on Thickness of Magnetic Layer. Y. Nam1, M. Park1, J. Kim1, Y. Park1,2, B. Min2 and S. Choe1. 1. Physics and Astronomy, Seoul National University, Seoul, The Republic of Korea; 2. Center for Spintronics Research, Korea Institute of Science and Technology, Seoul, The Republic of Korea
AN-13. Systematic study of Gilbert damping of top magnetic electrode in MgO based magnetic tunnel junctions versus thicknesses, annealing temperature and capping layers. 
N. Perrissin1, R. Sousa1, S. Auffret1, M. Caminale1, L. Prejbeanu1 and B. Dieny1 1. SPINTEC, Grenoble, France

AN-14. Stability diagram of perpendicular magnetic tunnel junction with a composite free layer. W. Skowronski1, M. Frankowski1, S. Zietek1, J. Checinski1, P. Rzeszut1, J. Wrona2 and M. Czapkiewicz1 1. Department of Electronics, AGH University of Science and Technology, Kraków, Poland; 2. Singulus Technologies AG, Kahl am Main, Germany

AN-15. Tuning the spin wave resonance using lateral current spread in nano-contact spin torque nano-oscillators. M. Fazlali1, S. Banuazizi2, M. Dvornik1, M. Ahlberg1, S.R. Sani3, S. Mohseni4, P. Dürrenfeld1 and J. Åkerman1,2 1. Physics, University of Gothenburg, Gothenburg, Sweden; 2. Department of Materials and Nano Physics, School of Information and Communication Technology, KTH Royal Institute of Technology, Stockholm, Sweden; 3. Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA; 4. Physics, Shahid Beheshti University, Tehran, The Islamic Republic of Iran

AN-16. Influence of heavy metal materials on magnetic properties of Pt/Co/heavy metal tri-layered structures. B. Zhang1,2, A. Cao1,2, J. Qiao1,2, M. Tang1, K. Cao1,2, X. Zhao1,2, S. Eimer1,2, Z. Si1,2, N. Lei1,2, Z. Wang1,2, X. Lin1,2, Z. Zhang1, M. Wu4 and W. Zhao1,2 1. Fert Beijing Research Institute, Beijing Advanced Innovation Center for Big Data and Brain Computing (BDBC), Beihang University, Beijing, China; 2. School of Electronic and Information Engineering, Beihang University, Beijing, China; 3. Key Laboratory of Micro and Nano Photonic Structures (Ministry of Education), Department of Optical Science and Engineering, Fudan University, Shanghai, China; 4. Department of Physics, Colorado State University, Fort Collins, CO

AN-17. Temperature dependent spin transport properties of TmIG/normal metal bilayers with perpendicular magnetic anisotropy. C. Avci1, A.U. Quindeau1, J. Mendil2, P. Gambardella2, C.A. Ross1 and G. Beach1 1. Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA; 2. Materials, ETH Zürich, Zurich, Switzerland
Session AO

SPIN ORBIT EFFECTS, SKYRMIONS
AND DOMAIN WALLS
(Poster Session)
Henk Swagten, Chair
Eindhoven University of Technology, Eindhoven, Netherlands

AO-01. Extraordinary Hall effect based magnetic comparison applications. T. Liu1, D. Lacour4, F. Montaigne1, S. Le Gall1, M. Zein1 and T. Hauet1 1. Institut Jean Lamour, Université de Lorraine - CNRS, Vandoeuvre les Nancy, France

AO-02. Numerical study on vertical domain wall propagation for three-dimensional race track memory. Z. Zhang1, Y. Hashiguchi1, T. Tanaka1 and K. Matsuyama1 1. ISEE, Kyushu University, Fukuoka, Japan

AO-03. Tailoring magnetic texture for domain wall motion control in nanowires of Co/Pd multilayers. T. Jin1, M. Ranjbar1, W. Gan1, W. Lew1 and S.N. Piramanayagam1 1. School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore

AO-04. Efficient and reliable magnetic domain nucleation based on RKKY coupling and voltage control magnetic anisotropy. Y. Zhang1, Z. Zhang1, Y. Zhang1, J. Klein2, D. Ravelosona2 and W. Zhao3 1. Beihang University, Beijing, China; 2. C2N, Univ. Paris Sud, Orsay, France

AO-05. Domain-wall propagation in GaMnAs: beyond spin transfer torque? L. Thevenard1, B. Boutigny1, L. Becerra1, N. Gускен1, C. Ulysse2, S. Shihab1, A. Lemaitre2, J. Kim2, V. Jeudy3 and C. Gourdon1 1. Institut des Nanosciences de Paris, UPMC CNRS, Paris, France; 2. Centre de Nanosciences et de Nanotechnologies, CNRS, Universite Paris Sud, Orsay, France; 3. Laboratoire de Physique des Solides, CNRS Université Paris Sud, Orsay, France

AO-06. Domain walls as efficient spin current sources in lateral devices. W. Savero Torres1, G. Zahnd1, V. Pham1, A. Marty1, L. Vila1 and J. Attané1 1. SPINTEC, CEA-INAC/ CNRS/Univ. Grenoble Alpes, Grenoble, France

AO-07. Probing stochastic domain wall positions in GMR nanowires by high resolution Kerr microscopy. E. Lage1, R. Mattheis2 and J. McCord1 1. Institute for Materials Science, Kiel University, Kiel, Germany; 2. Leibniz Institute of Photonic Technology, Jena, Germany

AO-08. Quantifying data retention and the effect of radiation on domain wall memory devices. S. Krishnia1, P. Sethi1, W. Gan1, I. Purnama1, R. Maddu1 and W. Lew1 1. SPMS, Nanyang Technological University, Singapore, Singapore
AO-09. Electrical detection of magnetic domain wall by inverse and direct spin Hall effects. V. Pham1, C. Bouard2, P. Warin3, G. Zahnd1, A. Marty1, P. Noel1, W. Savero-Torres1, L. Vilà1 and J. Attané1 1. SPINTEC, Univ. Grenoble Alpes/CEA/CNRS, Grenoble, France

AO-10. Ring-Shaped Content Addressable Memory Based on Spin Orbit Torque Driven Chiral Domain Wall Motions. Y. Zhang1, J. Nan1, L. Yue1, X. Zhang1, Y. Zhang1, D. Ravelosona2 and W. Zhao1 1. Beihang University, Beijing, China; 2. C2N, Univ. Paris Sud, Orsay, France


AO-12. Skyrmion lattice and critical behavior of Fe0.6Co0.4Si: A bulk magnetization study. S. Samatham1 and K.G. Suresh1 1. Physics, Indian Institute of Technology Bombay, Mumbai, India

AO-13. A novel neuron device based on current-driven magnetic skyrmions. S. Li1, W. Kang1, Y. Huang2, W. Zhao1, Y. Zhou2 and X. Zhang2 1. Fert Beijing Institute, Beijing, China; 2. School of Science and Engineering, Chinese University of Hong Kong, Shenzhen, China


AO-17. Spin-orbit torque switching for the MnGa/Pt films with a perpendicular magnetic anisotropy. R. Ranjbar¹, K. Suzuki¹, Y. Sasaki¹, L. Bainsla¹ and S. Mizukami¹ 1. WPI Advanced Institute for Materials Research, Tohoku University, Sendai, Japan; 2. Graduate School of Engineering, Tohoku University, Sendai, Japan

AO-18. Spin-Orbit Torque MRAM Read Reliability. H. Kazama¹ and T. Kawahara¹ 1. Electrical Engineering, Tokyo University of Science, Tokyo, Japan

TUESDAY THE FORUM
MORNING
8:30

Session AP
GIANT AND TUNNELING MAGNETORESISTANCE I
(Poster Session)
Hiroaki Sukegawa, Co-Chair
National Institute for Materials Science (NIMS), Tsukuba, Japan
Enrique Cobas, Co-Chair
U.S. Naval Research Laboratory, Washington, DC

AP-01. Metrology for Accurate Via Opening While Defining Nanometric Magnetic Tunnel Junctions on Large Area Wafers. B.J. Pires¹, D.C. Leitao¹, A.V. Silva¹ and S. Cardoso¹² 1. INESC-Microsystems and Nanotechnologies (MN) and IN, Lisbon, Portugal; 2. Department of Physics, Instituto Superior Técnico (IST), Universidade de Lisboa, Lisbon, Portugal

AP-02. Zero-moment spin electronics: tunneling magnetoresistance with compensated MnRuGa. K. Borisov¹, D. Betto¹, Y. Lau¹, C. Fowley², A. Titova², G. Atcheson¹, N. Thiyagaraja¹, J. Lindner², A. Deac², M. Coey¹, P.S. Stammenov¹ and K. Rode¹ 1. School of Physics, CRANN and AMBER, Trinity College Dublin, Dublin, Ireland; 2. Institute of Ion Beam Physics and Materials Research, Dresden, Germany

AP-03. Structural, magnetic and magneto-transport properties of equiatomic CoFeMnSi Heusler epitaxial thin films. L. Bainsla¹, K. Suzuki¹, J. Okabayashi², A. Ono¹ and S. Mizukami¹ 1. WPI-Advanced Institute for Materials Research, Tohoku University, Sendai, Japan; 2. Research Center for Spectrochemistry, University of Tokyo, Tokyo, Japan

AP-04. Numerical Calculation of Magnetoresistance in MTJ Containing Ferromagnetic Insulator. K. Sate¹, Y. Kayama², S. Honda¹, Y. Sonobe² and H. Itoh¹ 1. Department of Pure and Applied Physics, Kansai University, Suita, Japan; 2. Samsung R&D Institute Japan, Yokohama, Japan; 3. Center for Spintronics Research Network, Osaka University, Toyonaka, Japan
AP-05. Low noise all-oxide magnetic tunnel junctions based on a La_{x}Sr_{1-x}MnO_{3} / Nb: SrTiO_{3} interface. A. Solignac, T. Maroutian, G. Agnus, R. Guerrero, L.E. Calvet, M. Pannetier-Lecoeur and P. Lecoeur. 1. SPEC, CEA, CNRS, Université Paris-Saclay, Gif-sur-Yvette, France; 2. Centre de Nanosciences et de Nanotechnologies, CNRS UMR 9001, Univ. Paris-Sud, Université Paris-Saclay, C2N – Orsay, Orsay, France

AP-06. Magnetoconductivity of the La_{1-x}Sr_{x}MnO_{3}@TiO_{2} Nanocomposite. J. Koktan, G. Goglio, J. Hejtmanek, Z. Jirak, K. Knizek, J. Kulieckova, M. Marysko and O. Kaman. 1. Department of Magnetics and Superconductors, Institute of Physics, AS CR, Prague, Czech Republic; 2. Department of Analytical Chemistry, University of Chemistry and Technology, Prague, Czech Republic; 3. University of Bordeaux, CNRS, ICMCB, Pessac, France

AP-07. Highly (001)-textured Mn-Ga polycrystalline ultrathin films with a perpendicular magnetic anisotropy. A. Ono, K. Suzuki, R. Ranjbar, A. Sugihara and S. Mizukami. 1. WPI-AIMR, Tohoku University, Sendai, Japan

AP-08. Magnetization reversal of elliptic submicron magnetic tunnel junctions. C. Chao, G. Lai, L. Horg, T. Wu and J. Wu. 1. Department of Physics, National Chianghua University of Education, Chianghua, Taiwan; 2. Graduate School of Materials Science, National Yunlin University of Science and Technology, Yunlin, Taiwan

AP-09. Influence of thickness, annealing and stack position on the perpendicular magnetic anisotropy of MgO-CoFeB nanostructures. L. Martins, J. Ventura and R. Ferreira. 1. Physics and Astronomy, Faculty of Sciences of the University of Porto, Porto, Portugal; 2. International Iberian Nanotechnology Laboratory, Braga, Portugal

AP-10. Enhanced temperature stability of spin-torque microwave detector based on giant magnetoresistive microstripe with synthetic ferrimagnetic free layer. X. Li, Y. Zhou, C. Zheng, P. Chan, M. Chan and P. Pong. 1. EEE, The University of Hong Kong, Hong Kong, Hong Kong; 2. School of Science and Engineering, Chinese University of Hong Kong, Shenzhen, China; 3. Department of Electronic and Computer Engineering, Hong Kong University of Science and Technology, Hong Kong, Hong Kong

AP-11. Thickness and annealing temperature dependence of magnetic tunnel junctions using ultra-thin MnGa electrode. K. Suzuki, R. Ranjbar, A. Sugihara and S. Mizukami. 1. WPI-AIMR, Tohoku University, Sendai, Japan

AP-12. Disentangling low field anisotropic magnetoresistance in La_{x}Sr_{1-x}MnO_{3} films. P. Perna, F. Ajejas, D. Maccariello, R. Guerrero, L. Mechin, S. Flamet, J. Santamaria, J. Camarero and R. Miranda. 1. IMDEA Nanoscience, Madrid, Spain; 2. Universidad Autonoma de Madrid, Madrid, Spain; 3. CNRS-Thales, Paris, France; 4. GREYC-CNRS, Caen, France; 5. GFMC, Universidad Complutense Madrid, Madrid, Spain
AP-13. Dead layers in La$_{0.7}$Sr$_{0.3}$MnO$_3$ revisited. S.B. Porter$^1$, M. Venkatesan$^1$, D. Betto$^2$, P. Dunne$^3$, K. Rode$^1$ and M. Coey$^1$
1. School of Physics and CRANN, Trinity College Dublin, Dublin, Ireland; 2. ESRF, Grenoble, France; 3. Université de Strasbourg, IPCMS, Strasbourg, France

AP-14. Magnetotransport properties of Ni/Bi$_2$Se$_3$ bilayers. T. Yoo$^1$, S. Bac$^1$, H. Lee$^1$, S. Lee$^1$, S. Choi$^1$, S. Lee$^1$, X. Liu$^2$ and J.K. Furdyna$^1$
1. Physics, Korea University, Seoul, The Republic of Korea; 2. Physics, University of Notre Dame, Notre Dame, IN

AP-15. Spin-Valve Junction with Transfer-Free MoS$_2$ Spacer Prepared by Sputtering. W. Wong$^1$, S. Ng$^1$, H. Wong$^1$, W. Cheng$^1$, C. Mak$^1$ and C. Leung$^1$
1. Department of Applied Physics, The Hong Kong Polytechnic University, Hong Kong, Hong Kong

AP-16. Colossal positive magneto-resistance in oxygen deficient Ca$_{4.4}$Mn$_{3.6}$O$_{10}$. M. Periyasamy$^{1,2}$, H. Fjellvåg$^{1,3}$ and A. Sjåstad$^{1,3}$
1. Centre for Materials Science and Nanotechnology, University of Oslo, Oslo, Norway; 2. University of Oslo, Oslo, Norway; 3. Department of Chemistry, University of Oslo, Oslo, Norway

AP-17. Giant magnetoresistance variations due to the Hanle effect in lateral spin valves. G. Zahnd$^1$, V. Pham$^1$, F. Rortais$^1$, M. Jamet$^1$, C. Vergnaud$^1$, A. Marty$^1$, L. Vila$^1$ and J. Attané$^1$
1. SPINTEC, CEA-INAC/CNRS/Univ. Grenoble Alpes, Grenoble, France

1. Department of Physics, Carnegie Mellon University, Pittsburgh, PA; 2. Department of Physics, University of Arizona, Tucson, AZ

TUESDAY THE FORUM
MORNING
8:30

Session AQ
RECORDING HEADS, ENERGY ASSISTED RECORDING AND NOVEL RECORDING (Poster Session)
Matthew Gibbons, Chair
Western Digital, San Jose, CA

AQ-01. Real-Time Measurement of Spin-Torque Oscillator Signal During Microwave-Assisted Magnetization Switching. H. Suto$^1$, T. Kanao$^1$, T. Nagasawa$^1$, K. Kudo$^1$, K. Mizushima$^1$ and R. Sato$^1$
1. Corporate Research & Development Center, Toshiba Corporation, Kawasaki, Japan

AQ-02. Optimising composite media for heat assisted magnetic recording. S. Greaves$^1$, H. Muraoka$^1$ and Y. Sonobe$^2$
1. Tohoku University, Sendai, Japan; 2. Samsung R&D Institute Japan, Tokyo, Japan
AQ-03. Micromagnetic model analysis of various spin torque oscillators with write head for microwave-assisted magnetic recording. 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

AQ-04. MAMR frequency optimization on [CoX/Pt]4 media.
Z. Zhao1 and D. Wei1 1. School of Materials Science and Engineering, Tsinghua University, Beijing, China

AQ-05. Micromagnetic simulation of microwave-assisted magnetization switching process for granular films.
T. Tanaka1, Y. Nozaki2 and K. Matusyama1 1. ISEE, Kyushu University, Fukuoka, Japan; 2. Keio University, Yokohama, Japan

AQ-06. Micromagnetic study of thermally activated spin wave eigenmodes in a magnetic tunnel junction read head.
M. Pauselli1,2, A. Stankiewicz2 and G. Carlotti1
1. Physics Department, University of Perugia, Perugia, Italy; 2. Istituto Officina dei Materiali del CNR (CNR-IOM), University of Perugia, Perugia, Italy; 3. Seagate Technology, Bloomington, MN

AQ-07. Layer thickness effects and microstructure of CPP-GMR spin-valves with Ag/InZnO/Zn conductive oxide-based spacer layers. T. Nakatani1, T. Sasaki1, S. Li1, Y. Sakuraba1, T. Furubayashi1 and K. Hono1 1. National Institute for Materials Science, Tsukuba, Japan

AQ-08. Effect of seed layers on both dynamic and static magnetic properties of CoFe thin films. S. Akansel1, V. Venugopal2, A. Kumar1, R. Brucaš1, S. George1, M. Gubbins2, G. Andersson3 and P. Svedlindh1 1. Department of Engineering Sciences, Uppsala University, Uppsala, Sweden; 2. Seagate Technology LLC, Londonderry, United Kingdom; 3. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden

AQ-09. Novel Design Concept for Highly-Efficient and Higher Data Rate PMR Write Head. Y. Nakamura1, R. Itagaki2 and Y. Kanai2 1. RIEC, Tohoku University, Sendai, Japan; 2. Information and Electronics Engineering Department, Niigata Institute of Technology, Kashiwazaki, Japan

AQ-10. Thermal excitation of oscillatory modes in read head structures. A. Grier1, T. Dunn1, S. Stokes2 and A. Stankiewicz2 1. Seagate, Londonderry, United Kingdom; 2. Seagate, Bloomington, MN

AQ-11. Effects of Fe content on static and dynamic magnetic properties of NiFe thin films. S. Akansel1, V. Venugopal2, A. Kumar1, M. Gubbins2 and P. Svedlindh1 1. Engineering Sciences, Uppsala University, Uppsala, Sweden; 2. Seagate Technology LLC, Londonderry, United Kingdom

AQ-12. Degradation of Bit Error Rate in CPP-GMR Read Heads due to Electromagnetic Interference. P. Khunkitti1, A. Siritaratitawan1, A. Kaewrawang1 and A. Kruesubthaworn1 1. Electrical Engineering, Khon Kaen University, Khon Kaen, Thailand
AQ-13. Spin-torque oscillator sensor for simultaneous readout of two adjacent bit tracks. J. Checinski1,2, M. Frankowski1 and T. Stobiecki1 1. Department of Electronics, AGH University of Science and Technology, Krakow, Poland; 2. Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, Krakow, Poland

AQ-14. Reader instability as a source of low frequency noise. A. Stankiewicz1 1. Seagate Technology, Bloomington, MN

AQ-15. Non-error reconstruction of magnetic hologram with magnetic assist recording. Z. Shirakashi1, T. Goto1,2, H. Takagi1, Y. Nakamura1, P. Lim1, H. Uchida1 and M. Inoue1 1. Tohoku University of Technology, Tohoku, Japan; 2. JST, PRESTO, Kawaguchi, Japan

Tuesday 27

Tuesday 27
AR-05. Formation of L10-FePt(001) Ultra-Thin Films with Flat Surfaces Using VC and VN Underlayers. T. Shimizu, M. Ohtake, M. Futamoto, F. Kirino and N. Inaba. 1. Faculty of Science and Engineering, Chuo University, Bunkyo, Japan; 2. Faculty of Engineering, Kogakuen University, Hachioji, Japan; 3. Graduate School of Fine Arts, Tokyo University of the Arts, Taito, Japan; 4. Faculty of Engineering, Yamagata University, Yonezawa, Japan


AR-07. Effects of the buffer layers thickness on magnetic properties in Co3Pt thin films. I. Chen, Y. Chen and A. Sun. 1. Chemical Engineering and Material Science, Yuan-Ze University, Taoyuan City, Taiwan

AR-08. Magnetic properties and microstructure for CoPt alloy granular films with grain boundary oxides of various melting points. R. Kushibiki, K. Thami, S. Hinata and S. Saito. 1. Tanaka Kikinzoku Kogyo, Tsukuba, Japan; 2. Electronic Engineering, Tohoku University, Sendai, Japan


AR-11. A study on relationship between recording pattern and decoding reliability in SMR. R. Suzuto, Y. Nakamura, M. Nishikawa, H. Osawa, Y. Okamoto, Y. Kana and H. Muraoka. 1. Graduate School of Science and Engineering, Ehime University, Matsuyama, Japan; 2. Department of Information and Electronics, Niigata Institute of Technology, Kashiwazaki, Japan; 3. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan

AR-12. Non-Binary Protograph-Based LDPC Codes for 2-D ISI Magnetic Recording Channels. P. Chen, K. Cai, L. Kong, Z. Chen and M. Zhang. 1. Singapore University of Technology and Design, Singapore, Singapore; 2. Fuzhou University, Fuzhou, China; 3. School of Computer Science and Technology, Nanjing University of Posts and Communications, Nanjing, China
Design of LDPC codes for unequal ISI channels.
W. Phakphisut1 and P. Supnithi1 1. Faculty of Engineering, King Mongkut’s Institute of Technology Ladkrabang, Bangkok, Thailand


A Study on Optimal BAR in Array Head Reading. T. Kondoh1, Y. Nakamura1, M. Nishikawa1, H. Osawa1, Y. Okamoto1, Y. Kanai2 and H. Murakoa2 1. Graduate School of Science and Engineering, Ehime University, Matsuyama, Japan; 2. Department of Information and Electronics, Niigata Institute of Technology, Kashiwazaki, Japan; 3. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan

Twin iterative detection for bit-patterned media recording systems. C.D. Nguyen1 and J. Lee1 1. School of Electronic Engineering, Soongsil University, Seoul, The Republic of Korea

Iterative Channel Detection with LDPC Product Code for Bit Patterned Media Recording. S. Jeong1 and J. Lee1 1. School of Electronic Engineering, Soongsil University, Seoul, The Republic of Korea

Modified Factor Graph to Belief Propagation Based Detection in BPMR Channel. T. Sopon1 and W. Wongtrairat1 1. Department of Electronic Engineering, Rajamangala University of Technology Isan, Nakhonratchasima, Thailand

Session AS
MULTIFERROICS AND COMPLEX OXIDES
((Poster Session)
Peter Finkel, Chair
U.S. Naval Research Laboratory, Washington, DC

The role of anti-site disorder and oxygen vacancies in Sr2FeMoO6 thin films. M. Saloaro1, M. Hoffmann2,3, W.A. Adeagbo2, S. Granroth1, H. Huhtinen1, S. Majumdar1,4, P. Laukkanen1, W. Hergert2, A. Ernst3 and P. Paturi1 1. Department of Physics and Astronomy, University of Turku, Turku, Finland; 2. Institut für Physik, Martin Luther University Halle-Wittenberg, Halle, Germany; 3. Max Planck Institute of Microstructure Physics, Halle, Germany; 4. Department of Applied Physics, Aalto University School of Science, Espoo, Finland
AS-02. Design and Control of Magnetic and Thermodynamic Stability of Complex Oxide Interfaces. T. Gerber1, P. Lömker2, B. Zijlstra1, C. Besson1, D. Mueller1, J. Schubert1, M. Gorgoi2 and M. Müller3 1. Peter Gruenberg Institute, FZ Juelich, Juelich, Germany; 2. BESSY, Helmholtz Zentrum Berlin, Berlin, Germany; 3. Faculty of Physics, Technical University Dortmund, Dortmund, Germany

AS-03. Structural, magnetic and electrical properties of La$_{2}$NiO$_{4+}$ (δ = 0.003-0.031) compounds. D. Tran1,2, H. Van3, T. Do2, D. Nam2, L. Hong2 and S.C. Yu4 1. Chungbuk National University, Cheongju, The Republic of Korea; 2. Institute of Materials Science, VAST, Hanoi, Vietnam; 3. Quang Ninh University of Industry, Quang Ninh, Vietnam

AS-04. Magnetic property and unusual critical behavior in La$_{2}$CoMnO$_{4}$ compound. D. Pham1, T. Manh1, D. Tran1, D. Yang1 and S.C. Yu4 1. Chungbuk National University, Cheongju, The Republic of Korea

AS-05. Superparamagnetic-like behaviour of Pb$_{1-3x}$[Gd$_{2x}$ (MoO$_{4}$)$_{3}$ (WO$_{4}$)$_{3}$ (x = 0.0455, 0.0839, 0.1154) nanoparticles. T. Gron1, M. Piatkowska2, E. Tomaszewicz2, M. Oboz1, P. Urbanowicz2 and H. Duda1 1. Institute of Physics, University of Silesia, Katowice, Poland; 2. Department of Inorganic and Analytical Chemistry, Faculty of Chemical Technology and Engineering, West Pomeranian University of Technology, Szczecin, Poland

AS-06. Electric field tuning ferromagnetic resonance frequency in oblique sputtered Fe$_{42}$Co$_{46}$Hf$_{12}$/PZN-PT multiferroic heterostructures. S. Li1, X. Liu1, H. Du2, Q. Li3, J. Xu2 and X. Wang2 1. Physics, Qingdao University, Qingdao, China; 2. Physics, Shandong University, Jinan, China

AS-07. Magnetic anisotropy changes induced by strains in FePt/BaTiO$_{3}$. A. Román1,2, A. Lopez Pedroso3,1, L. Neher4, M. Aguirre3, A. Butera5,6, J. Gómez6,6, M. Sirena5,6 and L. Steren1,6 1. Instituto de Nanociencia y Nanotecnologia & Dpto. Materia Condensada, Centro Atómico Constituyentes, San Martin, Argentina; 2. Universidad Nacional de San Martin, San Martin, Argentina; 3. Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires, Buenos Aires, Argentina; 4. Centro Atómico de Bartolome and Instituto Balseiro, S.C. de Bariloche, Argentina; 5. Instituto de Nanociencia de Aragón, Laboratorio de Microscopias Avanzadas, Universidad de Zaragoza & Dpto Física de la Materia Condensada, Universidad de Zaragoza, Zaragoza, Spain; 6. CONICET, Ciudad Autónoma de Buenos Aires, Argentina

AS-08. Parasitic phases at the origin of magnetic moment in BiFeO$_{3}$ thin films grown by low deposition rate RF sputtering. T.J. Mori1, C. Mous1,2, F.F. de Oliveira1,3, P. Schio1 and J.C. Cézar1 1. Brazilian Synchrotron Light Laboratory, Brazilian Center for Research in Energy and Materials, Campinas, Brazil; 2. IFGW, University of Campinas, Campinas, Brazil; 3. IFSC, University of São Paulo, São Carlos, Brazil
AS-09. Electric-field-controlled interface exchange coupling in a cobalt-chromia bilayer. R. Choudhary1, R. Skomski2 and A. Kashyap1. 1. Department of Physics, School of Basic Sciences, Indian Institute of Technology Mandi, HP, Mandi, India; 2. Department of Physics and Astronomy, University of Nebraska, Lincoln, Lincoln, NE

AS-10. Angular-dependent magnetic properties of interfacial exchange-coupled ferromagnetic and multiferroic BiFeO3 thin films. F. Ajejas1,2 and P. Perna1. 1. Nanomagnetism, Universidad Autónoma de Madrid/Imdea Nanociencia, Madrid, Spain; 2. Nanomagnetism, Imdea Nanociencia, Madrid, Spain

AS-11. Manipulation of in-plane magnetic anisotropy in amorphous CoFeB films induced by structural phase transitions of BaTiO3, S. Isogami1 and T. Taniyama2. 1. Fukushima National College of Technology, Iwaki, Japan; 2. Tokyo Institute of Technology, Tokyo, Japan

AS-12. Electric tuning of spin-electromagnetic waves in all-thin-film multiferroic multilayers. V. Vitko1, A. Nikitin1, A.A. Nikitin1, A.B. Ustinov1, A.A. Semenov1, B.A. Kalinikos1 and E. Lähderanta1. 1. Department of Physical Electronics and Technology, Saint Petersburg Electrotechnical University “LETI”, Saint Petersburg, Russian Federation; 2. Department of Mathematics and Physics, Lappeenranta University of Technology, Lappeenranta, Finland

AS-13. Multiferroic properties of Sr-doped BiFeO3 polycrystalline thin films on glass substrates. H.W. Chang1, S. Lin1, C. Chang1, C. Huang1, C. Wang1, C. Tu1, S. Jen1 and W.C. Chang1. 1. Department of Applied Physics, Tunghai University, Taichung, Taiwan; 2. Department of Physics, Fu Jen Catholic University, Taipei, Taiwan; 3. Institute of Physics, Academia Sinica, Taipei, Taiwan; 4. Department of Physics, National Chung Cheng University, Chia-Yi, Taiwan

AS-14. Preparation of Fe3O4/Pt heterostructures by ALD with in situ magnetic field for tuning the magnetic anisotropy and magnetoelectric coupling. L. Zhang1, M. Liu1, Y. Zhang1, Z. Zhou1, B. Peng1, W. Ren1 and Z. Ye1. 1. Electronic Materials Research Laboratory, Key Laboratory of the Ministry of Education & International Center for Dielectric Research, Xi’an Jiaotong University, Xi’an, China; 2. Department of Chemistry and 4D LABS, Simon Fraser University, Burnaby, BC, Canada

AS-15. A single-crystal Mössbauer study of spin reorientations in the multi-ferroic HoFeO3. D. Ryan1, Q. Stoyel1, L. Veryha1, K. Xu2, W. Ren2, S. Cao2 and Z. Yamani2. 1. McGill University, Montreal, QC, Canada; 2. Department of Physics, Shanghai University, Shanghai, China; 3. Canadian Neutron Beam Centre, Chalk River Laboratories, Chalk River, ON, Canada

AS-16. Fabrication and characterization of nanoimprinted organic-inorganic multiferroic nanocomposites. P.M. Pereira de Sá1. 1. Institute of Condensed Matter and Nanosciences (IMCN), Université Catholique de Louvain (UCL), Louvain la Neuve, Belgium
Spin Localized Magnetism and Electron Transport in Fe$_2$Ti$_{1-x}$Co$_x$Si. R. Pathak$^1$, Y. Jin$^2$, R. Choudhary$^1$, R. Skomski$^2$, G. Hadjipanayis$^3$, D. Sellmyer$^2$ and A. Kashyap$^1$. 1. Physics, School of Basic Sciences, Indian Institute of Technology Mandi, HP, Mandi, India; 2. Department of Physics and Astronomy, University of Nebraska, Lincoln, NE; 3. Department of Physics and Astronomy, University of Delaware, Newark, DE

TUESDAY MORNING 8:30

THE FORUM

Session AT
MICROMAGNETISM AND MULTISCALE MODELING I
(Poster Session)
Hatem ElBidweihy, Co-Chair
United States Naval Academy, Annapolis, MD
Claas Abert, Co-Chair
TU Wien, Wien, Austria

AT-01. Effects of Anisotropy Field Dispersion on Squareness Ratio for HDDR-Processed NdFeB Powders. F. Akagi$^1$, Y. Ishii$^1$ and Y. Honkura$^2$ 1. Kogakuin Univ., Shinjuku-ku, Japan; 2. Magnedesign Corporation, Nagoya, Japan

AT-02. Excitation of magnonic band gap for forward volume spin wave propagating using metalized yttrium iron garnet. K. Shimada$^1$, T. Goto$^{1,2}$, N. Kanazawa$^1$, H. Takagi$^1$, Y. Nakamura$^1$, H. Uchida$^1$ and M. Inoue$^1$ 1. Toyohashi University of Technology, Toyohashi, Japan; 2. JST PRESTO, Kawaguchi, Japan

AT-03. Voltage driven 180° magnetization switching in a magnetoelectric heterostructures. G. Yu$^{1,2}$, H. Lin$^1$, Y. Li$^2$, H. Zhang$^2$ and N. Sun$^1$ 1. Electrical and Computer Engineering, Northeastern University, Boston, MA; 2. School of Microelectronics and Solid-State Electronics, University of Electronic Science and Technology of China, Chengdu, China

AT-04. Small-angle neutron scattering on magnetic nanostructures: role of the spin misalignment. L. Gonzalez Vivas$^1$, R. Yanes$^2$ and A. Michels$^1$ 1. Research Unit Physique et Matériaux, University of Luxembourg, Luxembourg, Luxembourg; 2. Physics, University of Konstanz, Konstanz, Germany

AT-05. Simple analytical model for the field dependence of the nucleation energy barrier. L. Abelmann$^{1,2}$ 1. KIST Europe, Saarbrücken, Germany; 2. University of Twente, Enschede, Netherlands

AT-06. The anisotropy of $\Delta E$ effect of Fe-Ga single crystal. H. Jiang$^1$ and J. Zhu$^1$ 1. State Key Laboratory of Advanced Metals and Materials, University of Science and Technology Beijing, Beijing, China
AT-07. Micromagnetic simulation of the coercivity enhancement phenomenon in (Ce,Nd)FeB magnets. Y. Hong1, G. Wang1 and D. Zeng1 1. Department of Metallic Materials Science and Engineering, South China University of Technology, Guangzhou, China

AT-08. Equilibrium Magnetization States and Hysteresis in Ferromagnetic Nanotubes with Dipolar Interacting Spins. H. Salinas3, O. Iglesias2,3 and J. Restrepo1 1. Instituto de Fisica, University of Antioquia, Medellin, Colombia; 2. Condensed Matter Physics, University of Barcelona, Barcelona, Spain; 3. Institute of Nanoscience and Nanotecnology of UB, Barcelona, Spain

AT-09. High-Frequency Excitation of Toroidal Vortex Configurations in Hollow Ferromagnetic Spheres. C.J. McKeever1, M. Aziz1 and F. Ogrin1 1. Physics and Astronomy, University of Exeter, Exeter, United Kingdom

AT-10. Effect of varying dimensions on gadolinium rectangular thin film elements: micromagnetic simulations. M. McMullan1 and S. Felton1 1. School of Mathematics and Physics, Queen’s University Belfast, Belfast, United Kingdom

AT-11. Modeling of effective anisotropies in FeCo and Co nanowires. C. Rotarescu1, R. Moreno2, N.M. Nemes3, M. Vázquez1, H. Chiriac1, N. Lupu1, T.A. Ovari1 and O. Chubykalo-Fesenko1 1. National Institute of Research and Development for Technical Physics, Iasi, Romania; 2. Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain; 3. Universidad Complutense, Madrid, Spain

AT-12. Calculating the magneto-elastic anisotropy across grain boundary interfaces. S. Westmoreland1 1. Physics, University of York, York, United Kingdom

AT-13. Withdrawn

AT-14. Mathematical Model for the MgB2 Hysteresis Using Parameterized Preisach Model. K. Dong1 1. EE, Nanjing, China

AT-15. Simulation-aided development of pulsed magnetic-aligned compaction process. R. Soda1, K. Takagi2 and K. Ozaki1 1. National Institute of Advanced Industrial Science and Technology, Nagoya, Japan


AT-17. Simulation of Stress Effect on GMI in Soft Magnetic Amorphous Film. Y. Zhu1, F. Jin1, J. Wang1, K. Dong1, W. Mo1, J. Song1 and J. Ouyang2 1. China University of Geosciences, Wuhan, China; 2. Department of Electronic Science and Technology, Huazhong University of Science and Technology, Wuhan, China

Tuesday 33
AT-18. Hysteresis model identification based on support vector regression. P. Zheng¹ and S. Zhang¹ ¹ School of Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, China

TUESDAY AFTERNOON

THE LIFFEY B

2:00

Session BA
SMART CITY, SMART LIVING
Philip Pong, Chair
University of Hong Kong, Hong Kong, Hong Kong

2:00
BA-01. Spintronic Sensors in Transportation. (Invited) J. Davies¹, P. Eames¹, M.A. Torija¹, A. Jander² and C. Nordman¹
1. Advanced Technology, NVE Corporation, Eden Prairie, MN; 2. Oregon State University, Corvallis, OR

2:30
BA-02. Development of Reliable Gearless Motors for Electric Vehicles. (Invited) K. Chau¹ and C. Lee² ¹ Department of Electrical and Electronic Engineering, University of Hong Kong, Hong Kong, China; ² Research Laboratory of Electronics, Massachusetts Institute of Technology, Cambridge, MA

3:00
BA-03. Magnetic Integrated Passives for Information and Communication Technology. (Invited) M. Yamaguchi¹,², S. Tanaka², J. Ma¹, Y. Miyazawa², M. Sato², M. Nishizawa², M. Nagata¹, K. Ishiyama¹, K. Kondo¹ and Y. Okiyomeda⁵
1. Department of Electrical Engineering, Tohoku University, Sendai, Japan; 2. New Industry Creation Hatchery Center (NICHe), Tohoku University, Sendai, Japan; 3. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 4. Graduate School of Science, Technology and Innovation, Kobe University, Kobe, Japan; 5. Advanced Materials Research & Development Division, NEC TOKIN Corp., Sendai, Japan; 6. Engineering Development Sect., Showa Aircraft Industry Co., Ltd., Akishima, Japan

3:30
BA-04. TMR sensors for the smart grid. (Invited) P. Freitas¹,², S. Cardoso²,³, R. Ferreira¹, D. Ramirez³ and J. Wang³
1. International Iberian Nanotechnology Laboratory, Braga, Portugal; 2. Instituto de Engenharia de Sistemas e Computadores-Microsistemá e Nanotecnologias (INESC MN), Lisbon, Portugal; 3. Physics Department, Instituto Superior Tecnico, Lisbon, Portugal; 4. Department of Electronic Engineering, University of Valencia, Valencia, Spain; 5. Sinomags Technology Co., Ningbo, China
BA-05. Magneto-Nanosensors for Precision Medicine and Precision Health. (Invited) S.X. Wang1 and J. Lee1. 1. Materials Science and Engineering, Stanford University, Stanford, CA

4:30

BA-06. Magnets as enablers for renewable energy and resource efficiency. (Invited) O. Gutfleisch1,2 1. Material Science, TU Darmstadt, Darmstadt, Germany; 2. Fraunhofer IWKS, Hanau, Germany

TUESDAY LIFFEY HALL 2
AFTERNOON
2:00

Session BB
MAGNETIC BIO-SENSORS AND SEPARATION
Maria Torija, Chair
NVE Corp, Eden Prairie, MN

2:00

BB-01. Micro-magnetic trapping of highly diffusive magnetic nanoparticles induced by fluid-particle coupling. M. Fratzl1,2, G. Blaire1, S. Delshadi1,3, T. Devillers2, F. Bruckert4, O. Cugat1 and N. Dempsey2 1. G2ELab, UMR 5269, Grenoble, France; 2. Institut Néel, CNRS UPR 2940, Grenoble, France; 3. IAB, INSERM UMR 823, Grenoble, France; 4. LMGP, CNRS UMR 5628, Grenoble, France

2:15

BB-02. On-chip magnetic nanoparticle manipulation and trapping for biomedical applications. V. Silverio1, R. Kumar1, M. Amaral2, J. Gaspar2, S. Cardoso1,3 and P. Freitas1,2 1. INESC Microsystems and Nanotechnologies, INESC-MN, Lisboa, Portugal; 2. International Iberian Nanotechnology Laboratory, INL, Braga, Portugal; 3. Physics Department, Instituto Superior Tecnico, Universidade de Lisboa, Lisboa, Portugal

2:30

BB-03. Low Field MRI with Superconducting-GMR Mixed Sensors. C. Fermon1, A. Reina1 and M. Pannetier-Lecoeur1 1. SPEC/LNO, CEA, Gif sur Yvette, France

2:45

BB-04. System characterisation and phantom image reconstruction using a preclinical Magnetic Particle Imaging system with separate pick-up coil. J. Wells4, O. Kosch1, N. Löwa1, J. Franke2, L. Trahms1 and F. Wiekhorst1 1. PTB, Berlin, Germany; 2. Bruker, Ettlingen, Germany

3:00

BB-05. A Micro-Scale Magnetic Particle Imaging Scanner. P. Lenox1*, A. Jander1 and P. Dhagat1 1. School of Electrical Engineering and Computer Science, Oregon State University, Corvallis, OR

BB-07. Finding magnetic particles in the human body with a hand-held instrument, using DiffMag detection technology. B. ten Haken1. 1. Science and Technology - MD&I, University of Twente, Enschede, Netherlands

BB-08. Magnetic nanoparticle-based nano-grating guided-mode resonance biosensors. R. Yukino1, J. Sharma2, T. Takamura3, J. Joseph4 and A. Sandhu1. 1. Department of Engineering Science, University of Electro-Communications, Chofu Tokyo, Japan; 2. Department of Electrical and Electronic Information Engineering, Toyohashi University of Technology, Toyohashi, Japan; 3. Electronics Inspired Interdisciplinary Research Institute, Toyohashi University of Technology, Toyohashi, Japan; 4. Photonics Research Lab, Department of Physics, Indian Institute of Technology Delhi, New Delhi, India

BB-09. Operator Safety and Field Focality in Shielded Transcranial Magnetic Stimulation. M. Zucca1, O. Bottauscio1, M. Chiampi2 and L. Zilberti1. 1. Metrology for Quality of Life Department, INRIM, Torino, Italy; 2. Dipartimento Energia, Politecnico di Torino, Torino, Italy

BB-10. GIAMAG magnets for magnetic particle separation. A. Skjeltorp1,2. 1. Physics, Giamag Technologies, Kjeller, Norway; 2. Physics, Institute for Energy Technology, Kjeller, Norway

BB-11. Trapping of superparamagnetic particles with a single current-conducting micro-ring. B. Riedmüller1, F. Ostermaier1 and U. Herr1. 1. Institut für Mikro- und Nanomaterialien, Universität Ulm, Ulm, Germany

Session BC  
SPIN TORQUES AND SPIN TORQUE OSCILLATORS  
Mohammad Haidar, Chair  
University of Gothenburg, Gothenburg, Sweden

2:00

BC-01. Spoken vowel recognition with coupled spin torque nano-oscillators. M. Romera1, P. Talatchian1, F. Abreu Araujo1, S. Tsunegi2, H. Kubota2, K. Yakushiji2, A. Fukushima2, S. Yuasa2, R. Lebrun1, P. Bortolotti1, V. Cros1, D. Vodenicarevic3, N. Locatelli3, D. Querlioz3 and J. Grollier1  
1. Unité Mixte de Physique CNRS/Thales, Palaiseau, France; 2. Spintronics Research Center, AIST, Tsukuba, Japan; 3. Centre de Nanosciences et de Nanotechnologies, CNRS/Univ. Paris-Sud, Orsay, France

BC-02. Current-induced frequency and amplitude modulation of spin torque nano-oscillators. A. Ruiz-Calaforra1, A. Purbawati1, J. Hem1, L.D. Buda-Prejbeanu1 and U. Ebels1  
1. SPINTEC, Univ. Grenoble Alpes / CEA / CNRS, Grenoble, France

BC-03. Stabilization of phase noise in vortex spin torque nano-oscillators by a phase locked loop. M. Kreissig1, S. Wittrock2, R. Lebrun2, S. Menshawy2, F. Protze1, K. Merazzo-Jaimies4, M. Cyrille6, F. Ellinger1, P. Bortolotti1, U. Ebels3 and V. Cros3  
1. Chair for Circuit Design and Network Theory, Technische Universität Dresden, Dresden, Germany; 2. Unité Mixte de Physique CNRS/Thales, Univ. Paris-Sud, Univ. Paris-Saclay, Palaiseau, France; 3. Microelectronics Group, Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom; 4. SPINTEC, Univ. Grenoble Alpes / CNRS / CEA, Grenoble, France; 5. CEA-LETI MINATEC-Campus, Univ. Grenoble Alpes, Grenoble, France; 6. International Iberian Nanotechnology Laboratory (INL), Braga, Portugal

2:45

BC-04. Precision power measurement of spin-torque nano-oscillators using an accurate de-embedding structure and analysis. M. Abbasi1, B. Wang2, S. Tamaru2, H. Kubota2, A. Fukushima2 and D. Ricketts1  
1. ECE, North Carolina State University, Apex, NC; 2. National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan
BC-05. Low power microwave signal detection with a spin-torque nano-oscillator in the active self-oscillating regime. S. Louis1,2, I. Lisenkov3,4, V.S. Tiberkevich1, J. Li2, R. Khymyn5, E. Bankowski6, T. Metzler4, I. Krivorotov7 and A.N. Slavin1 1. Physics, Oakland University, Rochester, MI; 2. Department of Electrical and Computer Engineering, Oakland University, Rochester, MI; 3. Department of Electrical Engineering and Computer Science, Oregon State University, Corvallis, OR; 4. Kotelnikov Institute of Radio-engineering and Electronics, Russian Academy of Sciences, Moscow, Russian Federation; 5. Department of Physics, University of Gothenburg, Gothenburg, Sweden; 6. TARDEC, US Army, Warren, MI; 7. Department of Physics, University of California Irvine, Irvine, CA

BC-06. Multi-scale spin dynamics simulations of current-induced switching in magnetic tunnel junctions. M.O. Ellis1, M. Stamenova1 and S. Sanvito1 1. Trinity College Dublin, Dublin, Ireland

BC-07. Investigation of magneto-transport and spin-transfer-torque switching properties in magnetic tunnel junctions with perpendicularly magnetized CoFeB/W/CoFeB and CoFeB/Mo/CoFeB free layer. H. Tomita1, Y. Tanaka1, K. Nagasaka1, H. Maehara2, K. Nakamura1, S. Furukawa1, H. Kubota1, A. Fukushima1, K. Yakuishi2, S. Yuasa3 and N. Watanabe1 1. Tokyo Electron Yamanashi Limited, Nirasaki, Japan; 2. Tokyo Electron Limited, Nirasaki, Japan; 3. AIST Spintronics Research Center, Tsukuba, Japan

BC-08. Linear and nonlinear spin-wave mode localization in a spin-torque oscillator with a field well. R.V. Verba1, V.S. Tiberkevich2 and A.N. Slavin1 1. Institute of Magnetism, Kyiv, Ukraine; 2. Oakland University, Rochester, MI

BC-09. Critical current density of a spin-torque oscillator with an in-plane magnetized free layer and an out-of-plane magnetized polarizer. R. Matsumoto1 and H. Imamura1 1. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan

BC-10. Synchronization of spin torque oscillators through spin Hall magnetoresistance. T. Taniguchi1 1. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan
Spin transfer torque driven dynamics of the synthetic antiferromagnetic reference layer of perpendicular MRAM devices. L. Thomas¹, M. Benzaouia¹, S. Serrano-Guisan¹, G. Jan¹, S. Le¹, Y. Lee¹, H. Liu¹, J. Zhu¹, J. Iwata-Harms¹, R. Tong¹, Y. Yang¹, V. Sundar², S. Patel¹, J. Haq¹, D. Shen¹, R. He¹, V. Lam¹, J. Teng¹, P. Liu¹, A. Wang¹, T. Zhong¹, T. Tornig¹ and P. Wang¹ ¹. TDK - Headway Technologies, Inc., Milpitas, CA

Cylindrical and Spiral Dynamics Driven by Spin-Transfer Torque in Perpendicularly Magnetized Materials with Dzyaloshinskii–Moriya Interaction. R. Zivieri¹,², M. Carpentieri³, A. Giordano² and G. Finocchio² ¹. Department of Physics and Earth Sciences, University of Ferrara, Ferrara, Italy; 2. Department of Mathematics and Computer Science, Physics and Earth Sciences, University of Messina, Messina, Italy; 3. Department of Electrical and Information Engineering, Politecnico di Bari, Bari, Italy

Spin-Hall controlled magnetization dynamics in ultra-thin YIG films. (Invited) S.O. Demokritov¹, V.E. Demidov¹, M. Evelt¹, J. Prieto², M. Muñoz³, J. Ben Youssef⁵, V. Naletov⁵, G. de Loubens⁵, O. Klein⁶, M. Collet⁷, K. Garcia-Hernandez⁷, P. Bortolotti⁷, V. Cros⁷ and A. Anane⁷ ¹. Physics Department, University of Muenster, Muenster, Germany; 2. Instituto de Sistemas Optoelectronicos y Microtecnologia, Ciudad Universitaria, Madrid, Spain; 3. IMM-Instituto de Microelectronica de Madrid, Madrid, Spain; 4. Université de Bretagne Occidentale, Brest, France; 5. Université Paris-Saclay, Grenif-sur-Yvette, France; 6. CEA/CNRS and Univ. Grenoble Alpes, Grenoble, France; 7. Univ. Paris Sud, Palaiseau, France

Skyrmion detection using electrical transport in Pt/Co/Ir multilayer disc. K. Zeissler¹, K. Shahbazi¹, J. Massey¹, S. Finizio², J. Raabe², M.C. Rosamond¹, E.H. Linfield³, T.A. Moore¹, G. Burnett¹ and C.H. Marrows¹ ¹. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 2. Paul Scherrer Institute, Villigen, Switzerland; 3. School of Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom
BD-03. *In-situ* study of the role of Co-O-Mg bond in magnetic anisotropy of Pt/Co/MgO. Y. Yang1, J. Yuan2,3, L. Qi1, Y. Wang1, Y. Xu1,4, X. Wang1, Y. Feng1, B. Xu2, L. Shen2 and Y. Wu3 1. Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; 2. College of Science, Nanjing University of Aeronautics and Astronautics, Nanjing, China; 3. Department of Physics & Centre for Advanced Two-Dimensional Materials, National University of Singapore, Singapore, Singapore; 4. Data Storage Institute, Singapore, Singapore; 5. Engineering Science Program, National University of Singapore, Singapore, Singapore

3:00

BD-04. Artificial fabrication and characterization of large magnetic anisotropy ferromagnet “L1₀-ordered FeNi”. (Invited) M. Mizuguchi1, T. Kojima1, T.Y. Tashiro1 and K. Takanashi1 1. Tohoku University, Sendai, Japan

3:30

BD-05. Ion irradiation induced cobalt/cobalt oxide heterostructures: from materials to devices. D. Hilliard1,2, O. Yildirim1, C. Fowley1, S. Arekapudi2, H. Cansever1,3, R. Böttger1, G. Hlawacek1, O. Hellwig1,2, J. Lindner1, J. Faßbender1,3 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. Institute of Physics of Solids, Dresden University of Technology, Dresden, Germany

3:45

BD-06. Thermally Induced Magnetization Switching in Fe/MnAs Bilayers and Ultrafast Dynamics of Magneto-Structural Phase Transitions in MnAs. L. Lounis1, F. Vidal1, Y. Zheng1, M. Eddrief1, R. Delaunay2, E. Allaria3, E. Ferrari4, C. Spezzani5,6, H. Popescu6, A. Ciavardini6, C. Laulhe6, M. Chollet7, R. Alonso-Mori8 and M. Sacchi1,6 1. Sorbonne Universités, UPMC Univ Paris 06, Institut des Nanosciences de Paris (INSP), Paris, France; 2. Sorbonne Universités, UPMC Univ Paris 06, Laboratoire de Chimie Physique - Matière et Rayonnement (LCPMR), Paris, France; 3. ELETTRA-Sincrotrone Trieste, Area Science Park, Trieste, Italy; 4. Particle Accelerator Physics Laboratory, EPFL Lausanne, Lausanne, Switzerland; 5. Laboratoire de Physique des Solides (LPS), Université Paris-Sud, Orsay, France; 6. Synchrotron SOLEIL, L’Orme des Merisiers, Gif-sur-Yvette, France; 7. Université Paris-Saclay, Université Paris-Sud, Orsay, France; 8. Linac Coherent Light Source, SLAC National Accelerator Laboratory, Menlo Park, CA

4:00

BD-07. DMI-stabilized Néel walls in epitaxially cobalt films on Pt(111). E.C. Corredor Vega1, F. Kloodt1, S. Kuhrau1, R. Frömter1 and H. Oepen1 1. Physik, Institut für Nanostruktur- und Festkörperphysik, Hamburg, Germany
BD-08. Determination of interfacial Dzyaloshinskii-Moriya interaction from static domain imaging. P. Agrawal1, F. Buettner1, I. Lemesh1, S. Schlotter2 and G. Beach3
1. Materials Science and Engineering, MIT, Cambridge, MA

1. Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; 2. Toyota Technological Institute, Nagoya, Japan; 3. Division of Physical Science and Engineering, Thuwal, Saudi Arabia

BD-10. Atomic-scale surface engineering for enhancement of the Dzyaloshinskii-Moriya interaction in thin films with 3d-5d(4d) interfaces. A.S. Samardak1, B. Pal1, A.Y. Samardak1, A.V. Davydenko1, A. Ognev1, A.V. Sadovnikov2,3, S. Nikitov1,2, I. Cha1 and Y. Kim1
1. School of Natural Sciences, Far Eastern Federal University, Vladivostok, Russian Federation; 2. Laboratory “Metamaterials”, Saratov State University, Saratov, Russian Federation; 3. Kotel’nikov 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

Session BE
ENERGY ASSISTED RECORDING
Robert Bowman, Chair
Queen’s University Belfast, Belfast, United Kingdom

BE-01. Heat Assisted Recording: Advances in Recording Integration. (Invited) C.J. Rea1, P. Krivosik1, V. Venugopal1, M.F. Erden2, S. Stokes1, P. Subedi1, M.A. Cordle1, M. Benakli1, H. Zhou1, D. Karns2, D.A. Saunders1, S. Franzen1, G. Ju3, T. Rausch2, M.A. Seigler1 and E. Gage3

BE-02. A Head Cleaning Procedure for Heat-Assisted Magnetic Recording. J. Aoyama1, M. Furukawa1, S. Nishida1, K. Tasaka1, K. Matsuda1, K. Kuroki1 and M. Ikeda1
1. Western Digital, Fujisawa, Japan
BE-03. Transition jitter in heat assisted magnetic recording by micromagnetic simulations. H. Özelt1, A. Kovacs1, J. Fischbacher1, S. Bance2, M. Gubbins2 and T. Schrefl1
1. Center for Integrated Sensor Systems, Danube University Krems, Wr. Neustadt, Austria; 2. Research & Development, Seagate Technology, Derry, United Kingdom

BE-04. Head Field Design and Track Edge Characteristics in Heat Assisted Magnetic Recording. Y. Qin1, H. Li1 and J. Zhu1
1. Data Storage Systems Center, Carnegie Mellon University, Pittsburgh, PA

BE-05. Medium Stack Optimization for Microwave Assisted Magnetic Recording. X. Bai1 and J. Zhu1
1. Data Storage Systems Center, Carnegie Mellon University, Pittsburgh, PA

BE-06. Magnetization Switching of a Perpendicular Nanomagnet in a Rotating Microwave Magnetic Field. H. Suto1, T. Kanao1, T. Nagasawa1, K. Kudo1, K. Mizushima1 and R. Sato1
1. Corporate Research & Development Center, Toshiba Corporation, Kawasaki, Japan

BE-07. Magnetization switching assisted by double-frequency component of an in-plane-magnetized spin-torque oscillator: Micromagnetic simulation study. T. Kanao1, H. Suto1, K. Kudo1, T. Nagasawa1, K. Mizushima1 and R. Sato1
1. Corporate Research & Development Center, Toshiba Corporation, Kawasaki-shi, Japan

BE-08. Temperature Scaling of Anisotropy Field in HAMR Recording. (Invited) H. Richter1 and G. Parker1
1. Western Digital, San Jose, CA
Session BF
ANTIFERROMAGNETIC SPINTRONICS AND COMPLEX OXIDES
Daniel Gopman, Chair
National Institute of Standards and Technology, Gaithersburg, MD

2:00

2:15
BF-02. Towards Cr-based antiferromagnet spintronics: growth and magnetic anisotropy of chromium thin films on MgO. C. Rinaldi1,2, M. Asa1, D. Chrastina1, R. Bertacco1,2 and M. Cantoni1. 1. Physics, Politecnico di Milano, Milano, Italy; 2. IFN-CNR, Politecnico di Milano, Milano, Italy

2:30

2:45

3:00
BF-05. Spin-orbit torque memristive memory operated by pulses down to 1 ns. A. Kurenkov1, S. Duttagupta1,2, C. Zhang3, W.A. Borders1, S. Fukami1,2 and H. Ohno2,3. 1. RIEC, Tohoku University, Sendai, Japan; 2. CSRN, Tohoku University, Sendai, Japan

3:15
BF-06. Spin absorption in antiferromagnets. (Invited) L. Frangou1, G. Forestier1, S. Auffret1, S. Gambarelli2 and V. Baltz1. 1. SPINTEC, Grenoble, France; 2. SYMMES, Grenoble, France
BF-07. Band-gap engineering in all-oxide magnetic quantum wells.
G. Prinz1, T. Gerber2, A. Lorke1 and M. Müller2,3
1. Faculty of Physics, University Duisburg-Essen, Duisburg, Germany;
2. Peter Grünberg Institut, FZ Jülich, Juelich, Germany;
3. Faculty of Physics, Technical University Dortmund, Dortmund, Germany

4:00

Y. Wang1, R. Ramaswamy1, M. Motapothula1, K. Narayanapillai1, D. Zhu1, T. Venkatesan1,2 and H. Yang1
1. Department of Electrical and Computer Engineering, NUSNNI, National University of Singapore, Singapore, Singapore; 2. Department of Physics, National University of Singapore, Singapore, Singapore

4:15

BF-09. Ultrathin Magnetite in Fe3O4/MgO and Fe3O4/MgFe2O4 Superlattices.
O. Mauit1,2, K. Fleischer1 and I.V. Shvets1
1. School of Physics, Trinity College Dublin, Dublin, Ireland;
2. National Laboratory Astana, National Laboratory Astana, Astana, Kazakhstan

4:30

E. Lesne1, Y. Fu2, P. Noel1, S. Oyarzun1, J. Rojas-Sanchez1, D. Vaz1, H. Naganuma4, G. Sicoli5, J. Attane2, M. Jamet2, E. Jacquet1, J. George1, H. Jaffres1, A. Barthélémy1, A. Fert1, M. Bibes3 and L. Vila2 1. Unité Mixte de Physique, CNRS, Thales, Univ. Paris-Sud, Université Paris-Saclay, Palaiseau, France;
2. Spintec, Institut Nanosciences et Cryogenie, Univ. Grenoble Alpes, CEA, CNRS, Grenoble, France; 3. Departamento de Fisica, CEDENNA, Universidad de Santiago de Chile (USACH), Santiago, Chile; 4. Department of Applied Physics, Tohoku University, Sendai, Japan; 5. SCIB, Institut Nanosciences et Cryogenie, Univ. Grenoble Alpes, CEA, Grenoble, France

4:45

BF-11. Domain Rearrangement and Tuning of Ferroelectricity by External Magnetic Fields in the Multiferroic CuCrO2; a Monte Carlo Approach.
A. Albaalbaky1, Y. Kvashnin2, D. Ledue1, R. Patte1 and R. Frésard3 1. Normandie Univ., INSA Rouen, UNIROUEN, CNRS, GPM, Rouen, France; 2. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden; 3. Normandie Univ., ENSICAEN, UNICAEN, CNRS, CRISMAT, Caen, France
Session BG

MAGNETOCALORIC AND SHAPE MEMORY MATERIALS

Julia Lyubina, Chair
Evonik Industries AG, Hanau, Germany

2:00

BG-01. First vs second order magnetocaloric material for thermomagnetic energy conversion. M. Almanza1,2, A. Pasko1,2, F. Mazaleyrat1,2 and M. Lo Bue1,2.
Cachan, France; 1. SATIE, Cachan, France; 2. Université Paris-Saclay, Cachan, France

2:15

1. Chemical Engineering, Northeastern University, Boston, MA; 2. Division of Materials Science and Engineering, Ames Laboratory, Ames, IA; 3. McCallum Consulting LLC, Santa Fe, NM; 4. Mechanical Engineering, Northeastern University, Boston, MA

2:30

BG-03. Microstructural and magnetic properties of Mn-Fe-P-Si (Fe2P-type) magnetocaloric compounds. M. Fries1, L. Pfeuffer1, E. Bruder2, T. Gottschall1, S. Ener1, L.V. Diop1, T. Gröb2, K. Skokov1 and O. Gutfleisch1.
1. Funktionale Materialien, Materialwissenschaft, TU Darmstadt, Darmstadt, Germany; 2. Physikalische Metallkunde, TU Darmstadt, Darmstadt, Germany

2:45

BG-04. Modification of the field dependence and scaling of the magnetocaloric effect in LaFeSi across the tricritical point. V. Franco1, J. Law1, A. Conde1, V. Brabander2, D.Y. Karpenkov1, I.A. Radulov1, K. Skokov2 and O. Gutfleisch2.
1. University of Sevilla, Sevilla, Spain; 2. T.U. Darmstadt, Darmstadt, Germany

3:00

BG-05. Magnetocaloric heat exchangers made from metal-bonded La(Fe,Mn,Si)13Hx powder. I.A. Radulov1, M. Specht1, T. Braun1, D.Y. Karpenkov1,2, K. Skokov1 and O. Gutfleisch1.
1. TU Darmstadt, Darmstadt, Germany; 2. NUST MISiS, Moscow, Russian Federation
BG-06. General Working Characteristics of Magnetocaloric Materials in High Magnetic Fields. A.P. Kamantsev1,2, E. Dilmieva1,2, V. Koledov1,2, A. Mashirov1,2, V. Shavrov1, I. Tereshina1, L.N. Butvina1, A.S. Los2, I. Koshkidko1,2, J. Cwik2, D.H. Nguyen4, T.T. Pham5, Y.H. Nguyen5 and Q.M. Vu5 1. Kotelnikov Institute of Radioengineering and Electronics of RAS, Moscow, Russian Federation; 2. International Laboratory of High Magnetic Fields and Low Temperatures, Wroclaw, Poland; 3. Lomonosov Moscow State University, Moscow, Russian Federation; 4. Fiber Optics Research Center of RAS, Moscow, Russian Federation; 5. Institute of Materials Science of VAST, Hanoi, Vietnam

BG-07. Role of A site atom in magneto-structural transformation in Mn based antiperovskites. E. Dias1, K. Priolkar1 and A.K. Nigam2 1. Department of Physics, Goa University, Goa, India; 2. Tata Institute of Fundamental Research, Homi Bhabha Road, Mumbai, India

BG-08. Ferromagnetic shape memory turns to nano: microstructure engineering of thin films and nano-disks for new-concept biomedical applications. F. Albertini1, S. Fabbrici1,2, F. Casoli1, L. Nasi1, P. Ranzieri1, R. Cabassi1, M. Campanini1, C. Magen1, F. Celegato5, G. Barrera5 and P. Tiberto1,1 1. IMEM-CNR, Parma, Italy; 2. MIST E-R, Bologna, Italy; 3. EMPA, Dübendorf, Switzerland; 4. INA-University of Zaragoza, Zaragoza, Spain; 5. INRIM, Torino, Italy

BG-09. Modulations in magnetic shape memory alloys originate from nanotwin ordering. M.E. Gruner1,2, R. Niemann1, P. Entel1, R. Pentcheva2, U. Roessler1, K. Nielsch1 and S. Fähler1 1. IFW Dresden, Dresden, Germany; 2. University of Duisburg-Essen, Duisburg, Germany


46 Tuesday
BG-11. Research of magnetocaloric effect of Ni-Mn-In-Co-based Heusler alloys by the direct method in magnetic fields up to 14 T. E. Dilmieva¹,², I. Koshkidko¹,³, A.P. Kamantsev¹, V. Koledov¹, A. Mashirov¹, V. Shavrov¹, J. Cwik³, V. Khovaylo¹ and B. Grande⁴ 1. Kolenikov Institute of Radio Engineering and Electronics of RAS, Moscow, Russian Federation; 2. Bauman Moscow Technical University, Moscow, Russian Federation; 3. International Laboratory of High Magnetic Fields and Low Temperatures, Wroclaw, Poland; 4. National University of Science and Technology MISiS, Moscow, Russian Federation; 5. Oviedo University, Oviedo, Spain

TUESDAY WICKLOW HALL 2B

2:00

Session BH

MOTORS

Jonathan Bird, Chair
Portland State University, Portland, OR

2:00

BH-01. On the Design and Construction Assessments of a Permanent Magnet Assisted Synchronous Reluctance Motor. C. Liu¹, T. Luo¹, P. Shih¹, S. Yen², H. Lin², Y. Hsu² and C. Hwang² 1. Department of Electrical Engineering, National Sun Yat-Sen University, Kaohsuing, Taiwan; 2. Nidec Research and Development Center, Nidec Taiwan Corporation, Tainan, Taiwan; 3. Department of Electrical Engineering, Feng Chia University, Taichung, Taiwan

2:15

BH-02. Design and Performance Analysis of a Self-Start Radial Flux Hysteresis Interior Permanent Magnet Motor. M. Rahman¹ and S.F. Rabbi¹ 1. Electrical and Computer Engineering, Memorial University of Newfoundland, St. John's, NL, Canada

2:30

BH-03. Design and Analysis of Double-Rotors Disc-Type PM Motor for Contra-Rotating Propulsion System. G. Liu¹, G. Qiu¹, S. Jin¹ and Y. Zhang² 1. Shenyang University of Technology, Shenyang, China; 2. Queen’s University Belfast, Belfast, United Kingdom

2:45

BH-05. Electromagnetic Design of a Synchronous Reluctance Motor with Single Tooth Windings. C. Donaghy-Spargo¹ 1. School of Engineering and Computing Sciences, Durham University, Durham, United Kingdom

BH-06. Development of a New Low Cost Transverse Flux-Flux Switching Permanent Magnet Machine with Soft Magnetic Composite Cores and Ferrite Magnets. C. Liu¹², B. Ma³, G. Lei⁴, Y. Guo⁴, Y. Wang⁵ and J. Zhu⁵ 1. Hebei University of Technology, Tianjin, China; 2. PMG GmbH, Fussen, Germany; 3. University of Technology Sydney, Sydney, NSW, Australia

BH-07. A Novel Hybrid Reluctance Motor with Multiple Teeth per Stator Pole for In-Wheel Applications. J. Zhu¹, K.E. Cheng¹, X. Xue¹ and Y. Zou¹ 1. Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong

BH-08. Magnetic Flux Analysis of a New Field Excitation Flux Switching Motor with Segmental Rotor. M.F. Omar¹, E. Sulaiman¹, M. Ahmad³, M. Jenal⁴ and G.M. Romalan¹ 1. Electric Power, Universiti Tun Hussein Onn Malaysia, Parit Raja, Malaysia

BH-09. ‘Pseudo’ direct drive electrical machines with alternative winding configurations. (Invited) G. Cooke¹ and K. Atallah¹ 1. Electronic and Electrical Engineering, University of Sheffield, Sheffield, United Kingdom

BH-10. Effect of Rotor Geometry on Peak and Average Torque of Direct Drive External-Rotor Synchronous Reluctance Motor (Ex-R SynRM) in comparison with Switched Reluctance Motor for Low Speed Domestic Application. R.M. Azhagar¹ and A. Kavitha¹ 1. Electrical and Electronics Engineering, College of Engineering, Anna University, Chennai, India

BH-11. An Approach to Characterize Charged Magnet Rings for Permanent Magnet Motors. N. Aung¹ and J. Quan¹ 1. DST Division, Data Storage Institute, Singapore, Singapore
BM-01. Vectorial mapping of exchange anisotropy in [FeNi/IrMn] multilayers through static and dynamic measurements. D. Adams1,2, M.A. Khan1,2 and L. Spina1,2 1. Advanced Materials Research Institute, University of New Orleans, New Orleans, LA; 2. Physics, University of New Orleans, New Orleans, LA

BM-02. Artificially Designed Magnetic Domain Patterns Investigated by Neutron Scattering. T. Saerbeck1, N. Steinke2, H. Huckfeldt1, I. Koch3 and A. Ehresmann3 1. LSS, Institut Laue-Langevin, Grenoble, France; 2. ISIS, Rutherford Appleton Laboratory, Oxfordshire, United Kingdom; 3. Institute of Physics, University of Kassel, Kassel, Germany

BM-03. Growth of epitaxial MnN thin films and exchange coupling properties. T. Yoshida1, H. Ando1, T. Hajiri1 and H. Asano1 1. Crystalline Materials Science, Nagoya University, Nagoya, Japan

BM-04. Effect of etching on exchange bias in CoFe/IrMn bilayers studied by soft X-Ray XMCD and resonant magnetic reflectometry. D. O'Donnell1, A. Smekhova2, H. Wende1, R. Fan4, P. Steadman4, Y. Du3, S. Hassan1 and A. Dobrynin1 1. Research and Development, Seagate Technology, Derry, United Kingdom; 2. Forschungszentrum Juelich, Juelich, Germany; 3. University of Duisburg-Essen, Duisburg, Germany; 4. Diamond Light Source, Didcot, United Kingdom

BM-05. Influence of Pt layer insertion on IrMn antiferromagnetic properties. G. Forester1, L. Frangou1, Y. Wen2, S. Auffret1, X. Zhang2, A. Manchon2 and V. Baltz1 1. SPINTEC, Grenoble, France; 2. KAUST, Thuwal, Saudi Arabia

BM-06. Investigation of the Exchange Bias in NiO(111)/EuO(001) Heterostructure. R. Aboljadayel1, A. Ionescu1, P. Monteiro1, G. Cheglakov1, N. Steinke2, C. Kinane2, T. Saerbeck3, C. Barnes1 and S. Langridge2 1. Physics, University of Cambridge, Cambridge, United Kingdom; 2. ISIS Facility, STFC Rutherford Appleton Laboratory, Didcot, United Kingdom; 3. LSS, Institut Laue-Langevin, Grenoble, France

BM-07. Thickness-dependent spin reorientation transition enhanced by perpendicular exchange bias in Co/CoO(111) bilayer. B.A. Matlak1, K. Matlak1, T. Slezak1 and J. Korecki2,3 1. AGH University of Science and Technology, Faculty of Physics and Applied Computer Science, Kraków, Poland; 2. Jerzy Haber Institute of Catalysis and Surface Chemistry, Polish Academy of Sciences, Kraków, Poland
BM-08. Manipulation of lateral ferromagnetic domain by Pt insertion layer in Cr2O3/Co exchange coupled thin film system. T. Nozaki1, M. Al-Mahdawi1, S. Patti1, S. Ye1 and M. Sahashi1,2 1. Department of Electronic Engineering, Tohoku University, Sendai, Japan; 2. ImPACT program, Tokyo, Japan

BM-09. Microscopic control of the direction of the exchange bias driven by a phase transition in the antiferromagnetic layer. A. Migliorini1, M. Muñoz2, T. Huminiuc3, J.F. Cunnado4, J. Camarero5, C. Aroca4 and J. Prieto5 1. ISOM - Universidad Politécnica de Madrid, Madrid, Spain; 2. IMM-CSIC, Madrid, Spain; 3. University of York, York, United Kingdom; 4. IMDEA Nanociencia, Madrid, Spain; 5. UAM-IMDEA Nanociencia, Madrid, Spain

BM-10. Exchange Bias Induced by the Spin Glass-Like Surface Spins in Sputter Deposited Fe3O4 Thin Films. M. Shameem1, L. Meckala1 and M. Senthil Kumar1 1. Department of Physics, Indian Institute of Technology Bombay, Mumbai, India

BM-11. Interface Exchange Coupling and Non-Equilibrium Dynamics in Ferromagnetic/Antiferromagnetic Metallic Nanocomposites. G. Margaris1, M. Vasilakaki1, D. Peddis2, K. Trohidou1, S. Laureti2, C. Binns3, D. Rinaldi3, R. Mathieu4, D. Fiorani2 and E. Agostinelli2 1. Institute of Nanoscience and Nanotechnology, National Center for Scientific Research Demokritos, Athens, Greece; 2. ISM-CNR, Monterotondo, Italy; 3. Department of Physics and Astronomy, University of Leicester, Leicester, United Kingdom; 4. Dipartimento SIMAU, Università Politecnica delle Marche, Ancona, Italy; 5. Department of Engineering Sciences, Uppsala University, Uppsala, Sweden


BM-13. All-amorphous magnetic patterns by ion implantation. G. Muscat1, R. Brucas2 and P. Jönsson1 1. Physics and Astronomy, Uppsala University, Uppsala, Sweden; 2. Engineering Sciences, Uppsala University, Uppsala, Sweden

BM-14. Magnetic phase transition asymmetry dependent on the spatial confinement of FeRh patterns. V. Schanilec1, M. Horký1, J. Arregi1, M. Dhankhar1, E. Fullerton2 and V. Uhlíř1 1. Central European Institute of Technology, Brno University of Technology, Brno, Czech Republic; 2. Center for Memory and Recording Research, University of California San Diego, La Jolla, CA

BM-15. Magnetism of nanopatterned arrays with perpendicular anisotropy. M. Marszalek1, M. Krupinski1, A. Maximenko1, Y. Zabila1 and A. Zarzycki1 1. Institute of Nuclear Physics Polish Academy of Sciences, Krakow, Poland

BM-17. Programmable magnetization configurations in Co-antidot lattices of optimized geometry. T. Schneider1,2, M. Langer1,3, E. Kowalska1, A. Semisalova1, A. Neudert1, K. Lenzi1, K. Potzger1, M. Kostylev1, J. Faßbender1,3, A. Adeyeye6, J. Lindner1 and R. Bali1 1. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. TU Chemnitz, Chemnitz, Germany; 3. TU Dresden, Dresden, Germany; 4. Lomonosov Moscow State University, Moscow, Russian Federation; 5. University of Western Australia, Crawley, WA, Australia; 6. National University of Singapore, Singapore, Singapore

BM-18. Antidot patterned single and bilayer thin films based on ferrimagnetic Tb-Co alloys with tailored magnetic anisotropy. N. Kulesh1,2, K. Balymov1, V.N. Lepalovskij1, E. Palmero2, F. Makhin’ko3, V.O. Vas’kovskiy1 and M. Vázquez1,1 1. Ural Federal University, Ekaterinburg, Russian Federation; 2. Insitute of Materials Science of Madrid, CSIC, Madrid, Spain; 3. Institute of Electrophysics, Ural Branch of Russian Academy of Sciences, Ekaterinburg, Russian Federation

TUESDAY THE FORUM AFTERNOON 1:30

Session BN
MAGNETIC PROPERTIES AND CHARACTERIZATION TECHNIQUES (Poster Session)
Atsufumi Hirohata, Chair
University of York, York, United Kingdom

BN-01. In situ membrane bending setup for the investigation of magnetostrictive materials with XMCD-STXM imaging. S. Finizio1, S. Wintz1,2, E. Kirk1 and J. Raabe1 1. Paul Scherrer Institut, Villigen PSI, Switzerland; 2. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany

BN-02. Improved 3D Magnetic Properties Measurement of Silicon Steel Laminations Based on a Novel Sensing Structure. Y. Li1, X. Geng1, J. Li1, C. Zhang1 and J. Zhu2 1. Province-Ministry Joint Key Laboratory of EFEAR, Hebei University of Technology, Tianjin, China; 2. School of EMMS, University of Technology, Sydney, NSW, Australia

BN-03. Improvements to the NMR method with flowing water at CMI. M. Ulvr1 and J. Kupec1 1. Department of Electromagnetic Quantities, Czech Metrology Institute, Brno, Czech Republic
BN-04. Design and implementation of a low frequency pulsed magnetic field generator applicable to unilateral NMR. N. Prabhu Gaunkar1, R. Weber1, M. Mina1 and D. Jiles1 1. Department of Electrical and Computer Engineering, Iowa State University, Ames, IA

BN-05. Properties of Signal Caused by the Cracks on the Back Surface of Steel Plate in Low Frequency Eddy Current Testing. R. Tanaka1, T. Sasayama1, M. Matsuo1 and K. Enpuku1 1. Kyushu University, Fukuoka, Japan

BN-06. Phase stabilities and magnetic properties of Mn-deficient and Ge-substituted Mn3Ga with D022 structure. H. Okada1, T. Sasaki2, Y. Shoji1 and R.Y. Umetsu3 1. Faculty of Engineering, Tohoku Gakuin University, Tagajo, Japan; 2. Division of Engineering, Graduate School of Tohoku Gakuin University, Tagajo, Japan; 3. Institute for Materials Research, Tohoku University, Sendai, Japan

BN-07. Phase transformations in La1-xRyMnO3+δ (R = Pr, Nd, Sm, δ = 0.1) manganites. F. Bukhanko1 and A. Bukhanko1 1. Donetsk Institute for Physics and Engineering named after O.O. Galkin, National Academy of Sciences of Ukraine, Kharkiv, Ukraine

BN-08. Fully automated ultra-high sensitivity ferromagnetic resonance measurement based on microwave interferometer. S. Tamara1, K. Yakushiji1, A. Fukushima1, S. Yuasa1 and H. Kubota1 1. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan

BN-09. Characterization of Permanent Magnet Magnetization. L. Arbenz1, O. Chadebec2, C. Espanet1, Y. Rtimi1,2 and G. Cauffet2 1. Advanced Research Team, Moving Magnet Technologies, Besançon, France; 2. G2Elab, Univ. Grenoble Alpes, CNRS, Grenoble, France

BN-10. Withdrawn.

BN-11. Towards NMR scanning microscopy with magnetoresistive sensors. A. Doll1, A. Solignac1, E. Paul1, P. Pannetier-Lecoeur1 and C. Feron1 1. SPEC/LNO, CEA Saclay, Gif-sur-Yvette, France

BN-12. Equipment for determination of the static B-H relationship in soft magnetic alloys. V. Manescu (Paltanea)1, G. Paltanea1, P. Andrei1, C. Grumeza1 and P. Minciulescu2 1. Electrical Engineering Department, University Politehnica of Bucharest, Bucharest, Romania; 2. ICPE-SA, Bucharest, Romania


BN-16. Eddy current non-destructive evaluation for healthiness of radiator structure. S. Nagata and M. Numachi. 1. Faculty of Engineering, University of Miyazaki, Miyazaki city, Japan

BN-17. Improved High-Frequency Rotating Magnetic Properties Tester for Nanocrystalline Soft Magnetic Material. Y. Li, Q. Zhao, L. Wang, J. Li and C. Zhang. 1. Province-Ministry Joint Key Laboratory of EFEB, Hebei University of Technology, Tianjin, China


TUESDAY THE FORUM AFTERNOON 1:30

Session BO MAGNETIC DOMAIN CONFIGURATION (Poster Session) Trevor Almeida, Co-Chair University of Glasgow, Glasgow, United Kingdom Oksana Chubykalo-Fesenko, Co-Chair Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain

Multi-Color Imaging of Magnetic Co/Pt Multilayers. C. von Korff Schmising1, D. Weder1, F. Willems6, C.M. Günther2, M. Schneider1, B. Pfau1, A. Merhe1,4, E. Jal1,4, B. Vodungbo3,4, J. Lüning3,4, B. Mahieu1, F. Capotondi6, E. Pedersoli8 and S. Eisebitt1,2 1. Max-Born-Institut, Berlin, Germany; 2. Technische Universität Berlin, Berlin, Germany; 3. UMR 7614, Sorbonne Universités, UPMC Université, Paris, France; 4. UMR 7614, CNRS, Paris, France; 5. ENSTA ParisTech, Laboratoire d’Optique Appliquée, Palaiseau, France; 6. Elettra-Sincrotrone Trieste, Basovizza, Trieste, Italy

Novel static magnetic field imaging with fixed measuring direction for fractured surface of Sr ferrite magnet by alternating magnetic force microscopy with superparamagnetic FeCo-Gd2O3 tip. Y. Cao1, G. Egawa2, S. Yoshimura2 and H. Saito2 1. Center for Regional Revitalization in Research and Education, Akita University, Akita, Japan; 2. Graduate School of Engineering Science, Akita University, Akita, Japan

Imaging magnetization dynamics in nano-contact spin-torque vortex oscillators that exhibit gyrotropic mode splitting. P.S. Keatley1, S.R. Sani2,3, G. Hrkac4, S.M. Mohseni5, P. Dürrenfeld6, J. Åkerman2,6 and R.J. Hicken1 1. Department of Physics and Astronomy, University of Exeter, Exeter, United Kingdom; 2. Materials and Nano Physics, School of ICT, KTH Royal Institute of Technology, Kista, Sweden; 3. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden; 4. College of Engineering, Mathematics and Physical Science, University of Exeter, Exeter, United Kingdom; 5. Department of Physics, Shahid Beheshti University, Tehran, The Islamic Republic of Iran; 6. Physics Department, University of Gothenburg, Gothenburg, Sweden

Electron holography investigations of magnetic nanoprecipitations in (Ga,Mn)As dilute ferromagnetic semiconductor subjected to high temperature post-growth annealing. P. Dluzewski1 1. Institute of Physics Polish Academy of Sciences, Warsaw, Poland

Direct imaging of delayed magneto dynamic modes induced by strain waves. F. Macia1, M. Foerster2, N. Statuto3, S. Finizio4, A. Herández-Mínguez5, S. Lendínez3, P. Santos5, J. Hernàndez3, J. Fontcuberta1, M. Kläui6 and L. Aballe2 1. Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Bellaterra, Spain; 2. ALBA Synchrotron Light Source, Cerdanyola, Spain; 3. Dept. of Condensed Matter Physics, Universitat de Barcelona, Barcelona, Spain; 4. Swiss Light Source, Paul Scherrer Institut, Villigen, Switzerland; 5. Paul Drude Institut für Festkörperelektronik, Berlin, Germany; 6. Institut für Physik, Johannes Gutenberg Universität, Mainz, Germany

Conservation of energy and linear momentum in ferromagnetic systems with broken inversion symmetry. P. Borys1, R. Stamps2 and G. Tatara1 1. CEMS, Riken, Wako, Japan; 2. University of Glasgow, Glasgow, United Kingdom

Domain structure and spin reorientation in TbCo5.1 and DyCo5.2 intermetallics. A.I. Ivanova1 1. Applied Physics, Tver State University, Tver, Russian Federation
BO-09. Attainment of observation of microscopic image under pulse high magnetic field of 20 T with using an optimized new coil. A. Hamasaki, Y. Takeuchi and S. Ozeki. 1. Chemistry, Shinshu University, Matsumoto, Japan; 2. Muroran Institute of Technology, Muroran, Japan

BO-10. X-ray reciprocal space mapping of the magnetostructural transition in epitaxial FeRh films with different strain states. J. Arregi, O. Caha, E. Fullerton and V. Uhliř. 1. CEITEC, Brno University of Technology, Brno, Czech Republic; 2. CEITEC, Masaryk University, Brno, Czech Republic; 3. Center for Memory and Recording Research, University of California San Diego, La Jolla, CA

BO-11. Quantitative Analysis of Magnetic Nanoparticles by Means of the Magnetic Force Microscopy. R. Shao, A. Schillik, U. Herr and B. Koslowski. 1. Institute of Micro and Nanomaterials, Ulm University, Ulm, Germany; 2. Institute of Solid State Physics, Ulm University, Ulm, Germany


J.L. Palma$^{1,2}$, J. García-Martín$^3$, A. Pereira$^2$ and J. Escrig$^{1,2}$  
1. Physics Department, Universidad Central de Chile, Santiago, Chile; 2. Center for the Development of Nanoscience and Nanotechnology, Santiago, Chile; 3. Instituto de Microelectrónica de Madrid, Madrid, Spain; 4. Physics Department, Universidad de Santiago, Santiago, Chile

BO-17. Withdrawn

BO-18. Trapping ferromagnetic domains in pentagonal Cairo-tilings. J.L. Palma$^{1,2}$, E. Saavedra$^3$, N. Vargas$^2$, J. Denardin$^{1,2}$ and J. Escrig$^{1,2}$  
1. Physics Department, Universidad Central de Chile, Santiago, Chile; 2. CEDENNA, Center for the Development of Nanoscience and Nanotechnology, Santiago, Chile; 3. Physics Department, Universidad de Santiago, Santiago, Chile

TUESDAY THE FORUM  
AFTERNOON 1:30  
Session BP  
MAGNETIZATION DYNAMICS I  
(Poster Session)  
Helmut Schultheiss, Chair  
Helmholtz-Zentrum Dresden - Rossendorf, Dresden, Germany

BP-01. Towards a mutually synchronized 2D array of nanocontact spin torque oscillators: a micromagnetic study. M. Pauselli$^{1,2}$, A. Houshang$^1$, R.K. Dumas$^3$, J. Åkerman$^{1,4}$ and G. Carlotti$^1$  
1. Physics Department, University of Perugia, Perugia, Italy; 2. Physics Department, Istituto Officina dei Materiali del CNR (CNR-IOM), Perugia, Italy; 3. Physics Department, University of Gothenburg, Gothenburg, Sweden; 4. Material Physics, School of ICT, KTH Royal Institute of Technology, Kista, Sweden

BP-02. Inverse spin Hall effect and spin rectification voltages from coplanar waveguide ferromagnetic resonance measurements. S. Jiang$^{1,2}$, S. Chung$^1$, H. Mazeaati$^{1,2}$, F. Qejvanaj$^{1,2}$, F. Magnusson$^2$ and J. Åkerman$^{1,2}$  
1. Applied Physics, KTH Royal Institute Technology, Kista, Sweden; 2. NanOsc AB, Kista, Sweden

BP-03. Spin waves in CoFeB thin films dominated by Dzyaloshinskii-Moriya interaction. T. Fischer$^{1,2}$, F. Heussner$^1$, M. Kläui$^{1,2}$, B. Hillebrands$^1$ and P. Parro$^1$  
1. Physics, TU Kaiserslautern, Kaiserslautern, Germany; 2. MAINZ Graduate School of Excellence, Mainz, Germany; 3. Physics, University of Mainz, Mainz, Germany

BP-04. Damping coefficient of CoMnSi Heusler alloy with Mn/Si and Co/Mn atomic disorder. N. Biziere$^1$  
1. CEMES, Toulouse, France

BP-06. Analytical Treatment of Nonlinear Ferromagnetic Resonance in Nanomagnets. M. d’Aquino, C. Serpico, V. Scalera, G. Bertotti, A. Quercia, S. Perna and I.D. Mayergoyz. 1. Engineering Department, University of Naples “Parthenope”, Naples, Italy; 2. DIETI, University of Naples Federico II, Naples, Italy; 3. Istituto Nazionale di Ricerca Metrologica, Turin, Italy; 4. ECE Department, University of Maryland, College Park, MD

BP-07. Spin-Hall effect induced damping control in ultra-thin Ta/FeCoB/MgO spin-wave waveguides. M. Fabre, T. Brächer, A. Timopheev, S. Auffret, O. Klein, G. Gaudin, O. Boulle and U. Ebels. 1. SPINTEC, Univ. Grenoble Alpes / CEA / CNRS, Grenoble, France

BP-08. First-Principles Study on the Gilbert Damping Constants of Transition Metals in the Presence of Spin Fluctuation. M. Ozaki. 1. Applied Physics, Tohoku University, Sendai, Japan


BP-13. Controlling of voltage-induced spin wave resonance properties in ferromagnetic nanowires with perpendicular anisotropy. X. Ya, T. Tanaka and K. Matsuyama. 1. Kyushu University, Fukuoka, Japan

BP-14. The effect of growth sequence on magnetization damping in Ta/CoFeB/MgO structures. D. Huang, B. Liu, M. Gao, H. Tu, K. Wang, X. Ruan, J. Du, L. He, J. Wu, X. Wang, J. Cai and Y. Xu. 1. Nanjing University, Nanjing, China; 2. The University of York, York, United Kingdom; 3. Chinese Academy of Sciences, Beijing, China
1. Department of Electronic Engineering, Tohoku University, Sendai, Japan; 2. Department of Electrical Engineering, Tohoku University, Sendai, Japan; 3. Center for Spintronics Research Network (CSRN), Tohoku University, Sendai, Japan

BP-16. Characterization of the ferromagnetic resonance induced spin pumping in Co$_{20}$Fe$_{60}$B$_{20}$/Pt systems. M. Belmeguenai, M. Gabor, F. Zighem, N. Challab, T. Petrisor, Jr., R. Mos and C. Tiusan.
1. LSPM, CNRS-Université Paris 13, Sorbonne Paris Cité, Villetaneuse, France; 2. Center for Superconductivity, Spintronics and Surface Science, Technical University of Cluj-Napoca, Cluj-Napoca, Romania; 3. Université Paris 13, Villetaneuse, France

1. Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil

BP-18. Change in the Magnetization Dynamics of Fe$_{1-x}$Co$_x$ Thin Films with Co Concentration. Y. Endo, T. Miyazaki and Y. Shimada.
1. Department of Electrical Engineering, Tohoku University, Sendai, Japan; 2. Center for Spintronics Research Network, Tohoku University, Sendai, Japan; 3. Technical Division, School of Engineering, Tohoku University, Sendai, Japan

TUESDAY THE FORUM
AFTERNOON 1:30

Session BQ
MAGNONICS II
(Poster Session)
Andrii Chumak, Chair
Technische Universität Kaiserslautern, Kaiserslautern, Germany

1. Departamento de Fisica Aplicada, Universidad de Salamanca, Salamanca, Spain

1. WPI-Advanced Institute for Materials Research, Tohoku University, Sendai, Japan; 2. Department of Applied Physics, Tohoku University, Sendai, Japan

BQ-03. Design and Basic Spin Wave Dynamics of a Dual Band Magnonic Crystal. F. Montoncello and L. Giovannini.
1. Department of Physics and Earth Sciences, University of Ferrara, Ferrara, Italy
BQ-04. Magnetoacoustic resonance and spin waves in ferromagnetic nanogratings. A.S. Salasyuk1, A.V. Rudkovskaya1, A. Danilov2, A.V. Scherbakov1, B. Glavin1, A. Rushforth1, A. Elistratov3, S. Sokolov1, P. Nekludova1, D. Yakovlev1,2, A. Akimov3 and M. Bayer1,2 1. Ferroics Physics Lab, Ioffe Institute, Saint Petersburg, Russian Federation; 2. Experimentelle Physik 2, Technische Universität Dortmund, Dortmund, Germany; 3. Department of Theoretical Physics, Lashkaryov Institute of Semiconductor Physics, Kyiv, Ukraine; 4. School of Physics and Astronomy, University of Nottingham, Nottingham, United Kingdom; 5. Institute of Nanotechnology of Microelectronics of the Russian Academy of Sciences, Moscow, Russian Federation

BQ-05. Excitation of the interface spin waves using acoustic Kosevich wave. Y. Gusieva1, M. Krawczyk1, O. Gorobets1 and P. Graczyk2 1. National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Kiev, Ukraine; 2. Faculty of Physics, Adam Mickiewicz University, Poznan, Poland

BQ-06. Nonlinear switching of spin waves in the side-coupled magnonic stripes. A.V. Sadovnikov1,2, S.A. Odivnov1, E. Beginin1, M.A. Morozova1, S.E. Sheshukova1, S.V. Grishin1, Y. Sharaevskii1 and S. Nikitov1,2 1. Laboratory “Metamaterials,” Saratov State University, Saratov, Russian Federation; 2. Kotel’nikov Institute of Radioengineering and Electronics, Russian Academy of Sciences, Moscow, Russian Federation


BQ-08. Strain reconfigurable coupling of spin waves in width modulated magnonic crystal waveguide. A.V. Sadovnikov1,2, A.A. Grachev1, E. Beginin1, S.E. Sheshukova1, Y. Sharaevskii1, D.V. Romanenko1, A.A. Serdobintsev1, D.M. Mitin1 and S. Nikitov1,2 1. Laboratory “Metamaterials,” Saratov State University, Saratov, Russian Federation; 2. Kotel’nikov Institute of Radioengineering and Electronics, Russian Academy of Sciences, Moscow, Russian Federation; 3. Education and Research Institute of Nanostructures and Biosystems, Saratov State University, Saratov, Russian Federation

BQ-09. Magnon cloaking. M. Elyasi1, C.S. Bhatia2, C. Qiu2 and H. Yang2 1. Institute for Materials Research, Tohoku University, Sendai, Japan; 2. Electrical and Computer Engineering Department, National University of Singapore, Singapore, Singapore

BQ-10. Writing magnonic waveguides in Fe_{60}Al_{40} with an nano-sized ion beam. J. Osten1, T. Hula1, K. Wagner1, X. Xu1, G. Hlawacek1, R. Bäli1, K. Potzger1, J. Lindner1, J. Faßbender1,2 and H. Schultheiss1 1. Institute of Ion Beam Physics and Materials Research, HZDR, Dresden, Germany; 2. TU Dresden, Dresden, Germany
**BQ-11.** Effect of pinning on magnetic domain wall resonance spectra. J. Adam, R. Soucaillie, F. Garcia-Sanchez, J. Kim and T. Devolder. 1. Centre des Nanosciences et des Nanotechnologies, Université Paris-Sud/CNRS, Orsay, France

**BQ-12.** Goos-Hänchen shift of a spin-wave beam in transmission through interface between two ferromagnets. M. Mailian, P. Gruszecki, O. Gorobets and M. Krawczyk. 1. Faculty of Physics and Mathematics, National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Kyiv, Ukraine; 2. Faculty of Physics, Adam Mickiewicz University, Poznan, Poland; 3. Institute of Magnetism, National Academy of Sciences of Ukraine, Kyiv, Ukraine

**BQ-13.** Investigation of Magnonic Band Structure in Co/Pd Stripe Domain System for Energy Efficient Spin Wave Propagation. C. Banerjee, P. Gruszecki, O. Hellwig, M. Krawczyk and A. Barman. 1. S. N. Bose National Centre for Basic Sciences, Kolkata, India; 2. Adam Mickiewicz University, Poznan, Poland; 3. Chemnitz University of Technology, Reichenhainer Straße, Germany

**BQ-14.** Tunable Magnonic Crystals with Alternating Dzyaloshinskii-Moriya Interactions. S. Lee and K. Lee. 1. Korea University, Seoul, The Republic of Korea

**BQ-15.** Brillouin Light Scattering Study of Spin-Wave Dynamics in Two-Dimensional Binary Magnonic Crystals. A. De, S. Mondal, C. Banerjee, A. Chaurasiya, S. Pan, R. Mandal, Y. Otani and A. Barman. 1. S. N. Bose National Centre for Basic Sciences, Kolkata, India; 2. University of Tokyo, Tokyo, Japan

**BQ-16.** Bias Field Tunable Magnetic Configuration and Magnetization Dynamics in Ni$_8$Fe$_{54}$Nano-Cross Structures with Varying Arm Length. K. Adhikari, S. Choudhury, R. Mandal, S. Pan, S. Barman, Y. Otani and A. Barman. 1. S. N. Bose National Centre for Basic Sciences, Kolkata, India; 2. Institute for Solid State Physics, Kashiwa, Japan; 3. CEMS-RIKEN, Wako, Japan

**Tuesday The Forum**

**TUESDAY THE FORUM AFTERNOON 1:30**

**Session BR**

**FUNDAMENTAL PROPERTIES WITH RELEVANCE TO APPLICATIONS I**

(Poster Session)

Plamen Stamenov, Chair

Trinity College Dublin, Dublin, Ireland

**BR-01.** Magnetic and transport properties of melt spun ribbons of Fe$_{15}$Mn$_{15}$Al$_{15}$Ni$_7$ Heusler alloys. M. Seredina, M. Lyange, D.Y. Karpenkov, V. Khovaylo, R. Chatterjee and R. Varga. 1. NUST MISIS, Vorkuta, Russian Federation; 2. Indian Institute of Technology Delhi, New Delhi, India; 3. University of Pavol Jozef Safarik, Kosice, Slovakia
BR-02. Iron-Loss Characteristics Using a 1MHz GaNFET PWM Inverter. W. Martinez1, S. Odawara1 and K. Fujisaki1 1. Toyota Technological Institute, Nagoya, Japan

BR-03. Reversing the exchange bias using all-optical helicity-dependent magnetic switching. P. Vallobra1, T. Fache1, Y. Xu1, L. Zhang1, G. Malinowski1, M. Hehn1, J. Rojas-Sanchez1, E. Fullerton2 and S. Mangin1 1. Institut Jean Lamour, UMR 7198 CNRS-Université de Lorraine, Vandoeuvre lès Nancy, France; 2. Center for Memory and Recording Research, University of California, San Diego, CA


BR-05. Preparation and evaluation of Mn3GaN1-x thin films with controlled N compositions. S. Ishino1, J. So1, T. Hajiri1 and H. Asano1 1. Crystalline Materials Science, Nagoya University, Nagoya, Japan

BR-06. Structure-property correlations of carbon and nitrogen incorporated NiFe2O4. K.B. Anoop Baby1, L. George1, M. Jaiswal1, G. Markandeyulu1 and A. Subrahmanyam1 1. Physics, Indian Institute of Technology Madras, Chennai, India

BR-07. Structural, magnetic and dielectric studies of pristine and Gd-doped YBiO3. D. Bhatnagar1, A. Kandasami2 and R. Chatterjee1 1. Physics, Indian Institute of Technology Delhi, New Delhi, India; 2. Materials Science Division, Inter-University Accelerator Centre, New Delhi, India

BR-08. Tuning the magnetic and structural properties of Fe60Al40 thin films by ion irradiation. J. Ehrler1,2, R. Bali1, R. Böttger4, A. Semisalova1, S. Zhou1, J. Grenzer1 and K. Potzger1 1. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. Faculty of Mechanical Science and Engineering, Dresden University of Technology, Dresden, Germany

BR-09. Enhancement of trapped magnetic field of SiC-doped MgB2 bulk prepared by in-situ hot isostatic pressing method. T. Naito1 and H. Fujishiro1 1. Iwate University, Morioka, Japan

BR-10. Electrolyte gel gating of magnetic topological Insulator: CrxSb1-xTe3. A. Singh1, V. Kamboj1, L. Dufty2, D.A. Ritchie1, T. Hesjedal2 and C. Barnes1 1. Physics, University of Cambridge, Cambridge, United Kingdom; 2. Physics, University of Oxford, Oxford, United Kingdom
Session BS

2:14:1-BASED RARE EARTH MAGNETS
(Poster Session)

Volker Neu, Co-Chair
IFW Dresden, Dresden, Germany
Kazuhiro Hono, Co-Chair
National Institute for Materials Science, Tsukuba, Japan

BS-01. Magnetic domain structure and demagnetization process of Nd–Fe–B anisotropic HDDR magnetic particles.
M. Takezawa1, T. Nagaishi1, K. Shimba2, C. Mishima2 and H. Mitarai2. 1. Faculty of Engineering, Kyushu Institute of Technology, Kitakyushu, Japan; 2. Advanced and High Functional Products Development Division, Aichi Steel Corporation, Seki, Japan

BS-02. Consolidation of HDDR sintered magnets and coercivity enhancement by low-temperature sintering. F.O. Keller1, L.U. Lopes1 and P.A. Wendhausen1. 1. Federal University of Santa Catarina, Florianópolis, Brazil


BS-04. Improved coercivity of Nd-Fe-B sintered magnet by intergranular adding DyMg. J. Zeng1, S. Guo1, L. Chen1, X. Yang1 and A. Yan1. 1. Ningbo Institute of Industrial Technology, CAS, Ningbo, China

BS-05. Study of Migration Behavior of La, Ce and Y in the Strip Cast Process for Sintered Magnet. X. Fan1,2, S. Guo1, K. Chen2, R. Chen2, D. Lee2 and A. Yan1. 1. Xi'an University of Technology Ningbo, China; 2. Ningbo Institute of Material Technology and Engineering, CAS, Ningbo, China

BS-06. Microstructure transformation and magnetic properties enhancement of sintered Nd-Fe-B magnets by electrophoretic diffusing TbF3 Powder. X. Yang1, S. Guo1, G. Ding1, X. Cao1, J. Zeng1 and A. Yan1. 1. Ningbo Institute of Industry Technology, CAS, Ningbo, China

BS-07. A novel approach for plastic bonded magnets of the type MQU-F melt spun NdFeGaB-type alloys. S. Karamanou1, M. Gjoka1, E. Devlin1, V. Psycharis1, A. Ioannidou1,2, G. Giannopoulos1,2, G. Vekinis1 and D. Niarchos1,2. 1. INN, NCSR Demokritos, Athens, Greece; 2. R&D, Amen Technologies, Athens, Greece
BS-08. Features of the Magnetization Behavior in the Rare-Earth Intermetallic Nd Dy Fe14B. N. Kostyuchenko1, I. Tereshina2,3, D. Gorbunov4, E. Tereshina5, A. Andreev6, M. Doerr6, G. Politova2 and A. Zvezdin1,7 1. Moscow Institute of Physics and Technology (State University), Moscow, Russian Federation; 2. Lomonosov Moscow State University, Moscow, Russian Federation; 3. Baikov Institute of Metallurgy and Materials Science RAS, Moscow, Russian Federation; 4. Hochfeld-Magnetlabor Dresden (HLD), Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 5. Institute of Physics, ASCR, Prague, Czech Republic; 6. Technische Universität Dresden, Dresden, Germany; 7. A. M. Prokhorov General Physics Institute of Russian Academy of Sciences, Moscow, Russian Federation


BS-10. The effect of diffusion process of heavy rare-earths on the magnetic properties of melt-spun Nd-Fe-B ribbons. M. Soderznik1, M. Korent1 and S. Kobe1 1. Department for Nanostructured Materials, Jozef Stefan Institute, Ljubljana, Slovenia

BS-11. Comparison on the coercivity enhancement of hot deformed Nd14Fe14B-type magnets by doping R6Cu30 (R=Nd, Dy and Tb) alloy powders. Y. Lee1, K. Huang1, C. Shih1, W.C. Chang1 and H.W. Chang2 1. Department of Physics, National Chung Cheng University, Chiayi, Taiwan; 2. Department of Applied Physics, Tunghai University, Taichung, Taiwan

BS-12. Utilizing spark plasma sintering to fabricate fully dense Nd-Fe-B-type permanent magnets from the recycled HDDR powders. A. Ikram1 1. K7 Nano, Department for Nanostructured Materials, Jozef Stefan Institute, Ljubljana, Slovenia


BS-15. Preparation of the Zn-Al coating with high corrosion resistance on the sintered NdFeB magnets. Q. Zhou1 1. Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, Ningbo, China
BS-16. Perspectives of additive manufacturing of rare-earth and non-rare earth permanent magnets: possible compositions and technological limitations. V.V. Popov1 1. Israel Institute of Metals, Technion - Israel Institute of Technology, Haifa, Israel

BS-17. Fabrication Hard Magnet by 3D printing. K. Jhong1 1. NCKU, Tainan, Taiwan

TUESDAY AFTERNOON

1:30

Session BT
MOTORS, GENERATORS AND ACTUATORS I (Poster Session)
Ronghai Qu, Chair
Huazhong University of Science and Technology, Wuhan, China

BT-01. Improvement of Winding Factor in a Four-Phase Fractional-Slot Concentrated-Winding Permanent-Magnet Machine. T. Tao1, J. Zhu2 and W. Zhao1 1. Jiangsu University, Zhenjiang, China; 2. Tsinghua University, Beijing, China


BT-04. Asymmetric Multiple Inductive Coupling Coil for Wireless Power Transmission System with Self-Frequency Modulation Efficiency Tracking. S. Wu1, C. Chang1 and C. Tai1 1. Department of Electrical Engineering, National Cheng Kung University, Tainan, Taiwan

BT-05. Analysis of a Multi-Phase Bearingless PMSM with Double-Winding Based on MMF. Y. Qin1, H. Zhu1 and C. Zhao1 1. Jiangsu University, Zhenjiang, China


BT-08. Multi-Objective Design Optimization of Fan Filter Unit Motors Using Response Surface Method. K. Lee¹,², S. Lee¹, J. Park¹ and J. Cho² ¹. Korea Institute of Industrial Technology, Gwangju, The Republic of Korea; ². Department of Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea

BT-09. Design and Analysis of a Spoke-Type Hybrid Permanent Magnet Motor for Electric Vehicles. X. Wang¹, X. Zhu¹, C. Zhang¹, L. Wang¹ and W. Wu¹ ¹. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China

BT-10. Optimal design method of PMa-SynRM by loading ratio for achievement of ultra-premium efficiency. D. Jung¹, H. Hong¹, J. Won¹ and J. Lee¹ ¹. Hanyang University, Seoul, The Republic of Korea


BT-12. Optimal Structure Design of Permanent Magnet Motors Based on a General Pattern of Rotor Topologies. X. Liu¹ and W. Fu¹ ¹. Electrical Engineering, The Hong Kong Polytechnic University, Hong Hom, Hong Kong

BT-13. Three-Dimensional Integral Approach for Calculating Mutual Interactions Between Polygonal Shaped Massive Coils. L. Aomar¹, A. Hicham¹, M. Feliachi² and J. Yonnet³ ¹. Laboratoire L2EI, University of Jijel, Jijel, Algeria; ². IREENA Lab, IUT St Nazaire, University of Nantes, St-Nazaire, France; ³. G2E Lab, St Martin d'Heres, France
Session BU
TRANSFORMERS AND INDUCTORS I
(Poster Session)
Florin Ciubotaru, Chair
IMEC, Leuven, Belgium

BU-01. Single-Source Multiple-Coil Homogeneous Induction Heating. W. Han1, K. Chau1, Z. Zhang2 and C. Jiang1
1. Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong, Hong Kong; 2. Tianjin University, Tianjin, China


BU-04. Modeling and Analysis of Parasitic Capacitance of High Frequency High Voltage Transformer Using Finite-Element Method. L. Deng1 and T. Peng1 1. Wuhan National High Magnetic Field Center, Huazhong University of Science and Technology, Wuhan, China

BU-05. Surface-oxidized amorphous alloy powder/epoxy resin composite bulk magnetic core and its application to MHz band switching LLC resonant converter. K. Sugimura1, D. Shibamoto1, T. Yamamoto1, H. Ryoysuke1, A. Ueno1, K.S. Lai1, N. Yabu1, M. Somehara1, T. Satou1, T. Mizuno1 and H. Mizusaki2,1 1. Faculty of Engineering, Shinshu University, Nagano, Japan; 2. Precision and Electronics Technology, Nagano Prefecture General Industrial Technology Center, Okayama, Japan

BU-06. A Study for Transformer Ratio of Variable Reluctance Resolver Considering End Slot Leakage Inductance and Off-axis. J. Ha1, J. Kang1 and K. Kim1 1. Dept. of Electrical Engineering, Hanbat National University, Daejeon, The Republic of Korea

BU-07. Equalization method of the wireless power transfer in an electronic shelf label power supply system. Y. Bu1 and S.C. Mukhopadhyay2 1. Shinshu University, Nagano, Japan; 2. Macquarie University, Sydney, NSW, Australia
BU-08. Non-hysteretic and voltage tunable magnetoelectric inductors based on magnetic ribbon/(100) Pb(Mg_{1/3}Nb_{2/3})O_3-PbTiO_3 multiferroic composites. B. Peng¹, M. Liu¹, C. Zhang³ and Y. Yan¹. XI’an Jiaotong University, XI’an, China

BU-09. The Integration of Energy-Saving Transformer Possessing Variable Impedance. K. Ma¹,², H. He¹, S. Wang¹ and S. Ai¹. 1. State Key Laboratory of Electrical Insulation and Power Equipment, School of Electrical Engineering, XI’an Jiaotong University, Xi’an, China; 2. State Grid Ningxia Electric Power Company, Yinchuan, China

BU-10. Noise Reduction of Saturable Magnetically Controlled Reactor Using Magnetic-Mechanical Analyses. Y. Gao¹, D. Kusano¹, W. Guan², J. Yuan², C. Tian², B. Chen², H. Dozono¹ and K. Muramatsu¹. 1. Department of Electrical and Electronic Engineering, Saga University, Saga, Japan; 2. School of Electrical Engineering, Wuhan University, Wuhan, China

BU-11. Comparative Analysis and Optimization of Dynamic Charging Coils for Roadway-Powered Electric Vehicles. Z. Zhang¹, B. Jia¹, H. Pang¹ and C. Liu¹. School of Electrical and Information Engineering, Tianjin University, Tianjin, China

BU-12. Saturation and Hysteresis Characteristics Analysis of a New Type of HTS Controllable Reactor with Orthogonally Configured Core. Z. Wang¹. 1. R&D Center of Applied Superconductivity; State Key Lab. of AEET, Wuhan, China

BU-13. A Novel Three-Phase Compact Saturated Core Fault Current Limiter. J. Yuan¹, Y. Zhong¹, L. Wei¹, S. Liao¹, Y. Gao², K. Muramatsu² and B. Chen¹. 1. School of Electrical Engineering, Wuhan University, Wuhan, China; 2. Department of Electrical and Electronic Engineering, Saga University, Saga, Japan

BU-14. Vibration Analysis of Reactor Cores Considering Magnetic and Magnetostrictive Anisotropy. T. Ben¹, Q. Yang¹,², R. Yan¹ and L. Zhu². 1. Hebei University of Technology, Tianjin, China; 2. Tianjin Polytechnic University, Tianjin, China


BU-16. Computing the Coupling Resistances in High Current Instrument Transformers Considering Skin- and Proximity Effect. C. Jäschke¹ and P. Schegner¹. 1. Technische Universität Dresden, Dresden, Germany

BU-17. Fabrication and Evaluation of PCB-Embedded Broadband Signal Transformers with Custom Machined Racetrack-Shaped Ferrite Cores for Ethernet Applications. D. Bowen¹, D. Basu², C. Krafft² and I.D. Mayergoz². 1. Laboratory for Physical Sciences, College Park, MD; 2. ECE, University of Maryland, College Park, College Park, MD
TUESDAY THE LIFFEY B

5:30 Session XA

SPECIAL SESSION: PANEL DISCUSSION ON SCIENTIFIC FUNDING
Michael Coey, Chair
Trinity College Dublin, Dublin, Ireland

5:30 XA-01. Who Funds Magnetics Research, and Why? (Invited)
M. Coey1 1. School of Physics, Trinity College Dublin, Dublin, Ireland

WEDNESDAY THE LIFFEY B

9:00 Session CA

BIO-APPLIED MAGNETISM
Montserrat Rivas, Chair
Universidad de Oviedo, Gijón, Spain

9:00 CA-01. Avian magnetoreception: a quantum compass needle. (Invited)
P. Hore1 1. University of Oxford, Oxford, United Kingdom


10:00 CA-03. Development of an affinity magnetic nanobead technology for the identification of drug targets. (Invited) H. Handa1 1. Department of Nanoparticle Translational Research, Tokyo Medical University, Tokyo, Japan

11:00

CA-05. Enabling New NMR Imaging and Sensing Probes through Microengineered Magnetic Particles. (Invited) G. Zabow\textsuperscript{1,2} 1. Applied Physics, National Institute of Standards & Technology, Boulder, CO; 2. Laboratory of Functional and Molecular Imaging, National Institutes of Health (NIH), Bethesda, MD

11:30

CA-06. New anticancer approach based on the low frequency vibrations of magnetic microparticles. (Invited) C. Naud\textsuperscript{1}, H. Joisten\textsuperscript{1}, S. Leulmi\textsuperscript{1}, M. Morcrette\textsuperscript{1}, P. Sabon\textsuperscript{1}, I. Jomard\textsuperscript{1}, E. Billet\textsuperscript{1}, S. Auffret\textsuperscript{1}, Y. Hou\textsuperscript{2}, M. Carriere\textsuperscript{2}, M. Dreyfus\textsuperscript{3}, F. Berger\textsuperscript{2} and B. Dieny\textsuperscript{1} 1. SPINTEC, Univ Grenoble Alpes/ CNRS/CEA, Grenoble, France; 2. SYMMES, Univ Grenoble Alpes/CEA/CNRS, INAC, Grenoble, France; 3. Unit 1205, INSERM, Grenoble, France

WEDNESDAY LIFFEY HALL 2 MORNING

9:00

Session CB

AB INITIO AND FIRST PRINCIPLES CALCULATIONS

Petru Andrei, Co-Chair Florida State University, Tallahassee, FL Ermanno Cardelli, Co-Chair Università degli Studi di Perugia, Perugia, Italy

9:00

CB-01. Piezomagnetic and Elastocaloric Effects in Magnetically Frustrated Mn-Antiferrovinite Nitrides: \textit{Ab Initio} Theory. J. Zemen\textsuperscript{1,2}, E. Mendive-Tapia\textsuperscript{3}, Z. Gercsi\textsuperscript{4,2}, R. Banerjee\textsuperscript{2}, J. Staunton\textsuperscript{5} and K.G. Sandeman\textsuperscript{6,7} 1. Institute of Physics ASCR, Prague, Czech Republic; 2. Department of Physics, Imperial College London, London, United Kingdom, United Kingdom; 3. Department of Physics, University of Warwick, Coventry, United Kingdom; 4. CRANN and School of Physics, Trinity College Dublin, Dublin, Ireland; 5. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden; 6. Department of Physics, Brooklyn College, CUNY, Brooklyn, NY; 7. The Graduate Center, CUNY, New York, NY

9:15

CB-02. Nontrivial crossover in the topological Hall effect regimes. K. Denisov\textsuperscript{1,2}, I. Rozhansky\textsuperscript{1,2}, N. Averkiev\textsuperscript{3} and E. Lähderanta\textsuperscript{2} 1. Centre of Nanoheterostructure Physics, Ioffe Institute, Saint-Petersburg, Russian Federation; 2. School of Engineering Science, Lappeenranta University of Technology, Lappeenranta, Finland
CB-03. Lifetime of magnetic skyrmions in a racetrack. (Invited) P.F. Bessarab1, G.P. Müller2, I.S. Lobanov3, F.N. Rybakov4, S. Blügel1, N.S. Kiselev2, L. Bergqvist5 and A. Delin5
1. University of Iceland, Reykjavik, Iceland; 2. Forschungszentrum Jülich, Jülich, Germany; 3. ITMO University, St. Petersburg, Russian Federation; 4. Institute of Metal Physics, Ekaterinburg, Russian Federation; 5. KTH Royal Institute of Technology, Stockholm, Sweden

CB-04. Fully relativistic temperature dependent electronic transport properties of magnetic alloys from the first principles. D. Wagenknecht1,2, K. Carva1 and I. Turek1,2
1. Department of Condensed Matter Physics, Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic; 2. Institute of Physics of Materials, Academy of Sciences, Brno, Czech Republic

CB-05. Theory of magnetic tunneling junctions with semiconductor barriers CuInSe2 and CuGaSe2. K. Masuda1 and Y. Miura1,2
1. National Institute for Materials Science (NIMS), Tsukuba, Japan; 2. Electrical Engineering and Electronics, Kyoto Institute of Technology, Kyoto, Japan

CB-06. Efficient ab initio technique for spin-wave stiffness of random ferromagnets. I. Turek1, J. Kudrnovsky2 and V. Drchal2
1. Institute of Physics of Materials, Academy of Sciences of the Czech Republic, Brno, Czech Republic; 2. Institute of Physics, Academy of Sciences of the Czech Republic, Praha, Czech Republic

CB-07. Evolution of electronic and magnetic structure of CoCr2O4 with Fe doping. B. Sanyal1
1. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden

CB-08. Engineering hard magnets by tailoring tetragonal distortions with interstitials. H. Zhang1, J. Weischenberg1, I. Opahle1, A. Marmodoro1, I. Dirba1, L. Alff1 and O. Gutfleisch1
1. TU Darmstadt, Darmstadt, Germany

CB-09. Magnetic properties of doped rare-earth/transition metal permanent magnets at finite temperature. C. Patrick1, S. Kumar1, L. Petit1, E. Mendive-Tapia1 and J. Staunton1
1. University of Warwick, Coventry, United Kingdom; 2. Daresbury Laboratory, Daresbury, United Kingdom
11:30


11:45

CB-11. Voltage Control of Magnetic Anisotropy in the SrTiO3/Fe/Cu Structure. S. Peng1,2, S. Li1, 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, Los Angeles, CA

WEDNESDAY THE LIFFEY A  MORNING
9:00

Session CC
MAGNETIZATION DYNAMICS II
Matthieu Bailleul, Co-Chair
Institut de Physique et Chimie des Matériaux de Strasbourg, Strasbourg, France
Roman Khymyn, Co-Chair
University of Gothenburg, Gothenburg, Sweden

9:00

CC-01. Snell’s Law for Spin Waves. (Invited) J. Sigloher3, M. Decker1, H.S. Körner1, K. Tanabe2, T. Moriyama3, T. Taniguchi3, H. Hata1, M. Madami4, G. Gubbiotti5, K. Kobayashi6, T. Ono1 and C.H. Back1. 1. Institut für Experimentelle Physik, Universität Regensburg, Regensburg, Germany; 2. Department of Physics, Nagoya University, Nagoya, Japan; 3. Institute for Chemical Research, Kyoto University, Kyoto, Japan; 4. Dipartimento di Fisica e Geologia, Università di Perugia, Perugia, Italy; 5. Dipartimento di Fisica e Geologia, Istituto Officina dei Materiali del Consiglio Nazionale delle Ricerche (IOM-CNR), Perugia, Italy; 6. Department of Physics, Osaka University, Osaka, Japan

9:30

CC-02. Optical Phase Shift Makes Non-Uniform Standing Spin Waves Detectable in Ferromagnetic Layers. C. Gourdon1, S. Shihab1, L. Thevenard1 and A. Lemaitre2. 1. Institut des Nanosciences de Paris, UPMC Univ Paris 06, CNRS-UMR 7588, Paris, France; 2. Centre de Nanosciences et Nanotechnologies, CNRS, Marcoussis, France
CC-03. Time-resolved imaging investigation of the domain walls dynamics in Landau domain pattern. N. Bukin1, E.O. Burgos-Parra1, C.J. McKeever1, P.S. Keatley1, R.J. Hicken1, V.V. Kruglyak1, K. Fripp1, G. Beutier2, N. Jaouen3, H. Popescu3, F. Yakhou4, S.A. Cavill5, M. Dupraz6, G. van der Laan7 and F. Ogrin1 1. School of Physics, University of Exeter, Exeter, United Kingdom; 2. CNRS, SIMAP, Grenoble, France; 3.SOLEIL Synchrotron, Saint-Aubin, France; 4. ESRF, Grenoble, France; 5. University of York, York, United Kingdom; 6. Paul Scherrer Institute, Villigen, Switzerland; 7. Diamond Light Source, Didcot, United Kingdom

10:00


CC-05. Significant reduction of threshold current in NiFe/W bilayers based spin Hall nano-oscillators. H. Mazraati1,2, S. Chung2,3, A. Houshang1,2, S. Jiang1,2, M. Dvornik4, F. Qejvanaj1, Q. Le2 and J. Åkerman1,2 1. NanOsc AB, Stockholm, Sweden; 2. Applied Physics, KTH Royal Institute of Technology, Stockholm, Sweden; 3. Physics and Astronomy, Uppsala University, Uppsala, Sweden; 4. Physics, University of Gothenburg, Gothenburg, Sweden

10:45


11:00

CC-07. On the origin of the auto-oscillations in the constriction-based spin Hall nano-oscillators. M. Dvornik1, A.A. Awad1 and J. Åkerman1,2 1. Department of Physics, University of Gothenburg, Gothenburg, Sweden; 2. School of ICT, KTH Royal Institute of Technology, Kista, Sweden
11:15
CC-08 Exploring the spatial character of the non-linear spin wave ‘bullet’. P. S. Spicer1, M. Dvornik1, P. Dürenfeld2, A. Houshang3, M. Ranjbar4, R. Dumas4, J. Åkerman3, V. V. Kruglyak1 and R. J. Hicken1 1. Department of Physics and Astronomy, University of Exeter, Exeter, United Kingdom; 2. Physics Department, University of Gothenburg, Gothenburg, Sweden; 3. Materials and Nano Physics, KTH Royal Institute of Technology, Kista, Sweden

11:30
CC-09 Quantum detection of thermally excited spin waves. J. Liu1, S. Yoon1,2 and R. McMichael1 1. Center for Nanoscale Science and Technology, National Institute of Standards and Technology, Gaithersburg, MD; 2. Maryland Nanocenter, University of Maryland, College Park, MD

11:45
CC-10 Origin of enhanced damping constant of Co2FeAl film with perpendicular anisotropy. Y. Takahashi1, Y. Miura1, R. Choi2, T. Okubo2, Z. Wen1, K. Ishioka2, R. Medapalli2, R. Mandal2, H. Sukegawa3, S. Mitani3, E. Fullerton3 and K. Hono1 1. NIMS, Tsukuba, Japan; 2. Kyoto Institute of Technology, Kyoto, Japan; 3. UCSD, San Diego, CA

WEDNESDAY LIFFEY HALL 1
MORNING
9:00
Session CD
TRANSFORMERS AND INDUCTORS II
David Bowen, Chair
Laboratory for Physical Sciences, College Park, MD

9:00
CD-01 Basic Characterization of Magnetocoated Wire Fabricated Using Spray Method. (Invited) Y. Konno1, T. Dobashi1, C. Yuki1, T. Yamamoto1, Y. Bu1 and T. Mizuno1 1. Department of Electric and Electronic Engineering, Shinshu University, Nagano, Japan

9:30
CD-02 A Model to Compute the Resonance Effects in High Current Instrument Transformers. C. Jäschke1 and P. Schegner1 1. Technische Universität Dresden, Dresden, Germany

9:45
CD-03 Reduction of Iron-Loss Increase at Step-Lap Laminations in Large Transformers. K. Yamazaki1, H. Mukaiyama1, N. Kurita2 and A. Nishimizu2 1. Chiba Institute of Technology, Narashino, Japan; 2. Hitachi, Ltd., Hitachi, Japan
10:00
CD-04. Decomposition of Power Loss in High Energy Density Magnetic Component under Rectangular Voltage Waveforms. R. Saeed1, B. Ahmadi1, C. Johnson1, L. Empringham1 and L. De Lillo1 1. The University of Nottingham, Nottingham, United Kingdom

10:15
CD-05. LLC Resonant Converter Using Magnetocoated Wire and Iron-Based Metal Composite Core. T. Yamamoto1, Y. Konno1, T. Dobashi1, K. Sugimura1, T. Satou1, Y. Bu1 and T. Mizuno1 1. Shinshu University, Nagano, Japan

10:30
CD-06. On the influence of the distributed air-gap on the parameters of an industrial inductor. R. Jez1 1. ABB Corporate Research Center, Krakow, Poland

10:45

11:00
CD-08. Core Loss Prediction in Magnetic Laminations under High-Frequency Trapezoidal Induction Waveform. B. Chen1, L. Li1, Z. Zhao1, Y. Shong1 and W. Ma1 1. North China Electric Power University, Beijing, China

11:15
CD-09. Core loss characteristics of laminated magnetic block cores assembled with a high $B_s$ Fe–based nanocrystalline alloy. A. Yao1, K. Tsukada1, M. Inoue2 and K. Fujisaki1 1. Department of Engineering, Toyota Technological Institute, Nagoya, Japan; 2. Hitachi Metals, Ltd., Yasugi, Japan

11:30
CD-10. Characteristics Investigation of Bridge-Type Saturated Core Fault Current Limiter. J. Yuan1, Y. Zhong1, S. Liao1, L. Wei1, Y. Gao2, K. Muramatsu2 and B. Chen1 1. School of Electrical Engineering, Wuhan University, Wuhan, China; 2. Department of Electrical and Electronic Engineering, Saga University, Saga, Japan

11:45
CD-11. Validation of Model for Medium Voltage Distribution Transformer under Inrush Current Conditions. J. Naidoo1,2 and A.G. Swanson2 1. Standards Implementation, Eskom, Durban, South Africa; 2. College of Agriculture, Engineering and Science, University of KwaZulu-Natal, Durban, South Africa
Session CE
AMORPHOUS AND NANOCRYSTALLINE ALLOYS I
Nicoleta Lupu, Chair
National Institute of Research and Development for Technical Physics, Iasi, Romania

9:00
CE-01. Soft magnetic properties of thin nanocrystalline particles due to the interplay of random and coherent anisotropies. A. Bachleitner-Hofmann1, B. Bergmaier2, T. Schrefl3, A. Satz4 and D. Suess1 1. Institute of Solid State Physics, TU Wien, Wien, Austria; 2. Linz Center of Mechatronics, Linz, Austria; 3. Center for Integrated Sensor Systems, Danube University Krems, Wiener Neustadt, Austria; 4. Infineon Austria AG, Villach, Austria

9:15
CE-02. Engineering of magnetic properties and GMI effect of Co- and Fe-rich microwires by annealing. V. Zhukova1,2, M. Ipatov1,2, A. Talaat1,2, J. Blanco2 and A. Zhukov3,2 1. Dpto. de Fis. Mater., UPV/EHU San Sebastián 20018, Spain, San Sebastian, Spain; 2. Dpto. de Fisica Aplicada, EUPDS, UPV/EHU, San Sebastian, Spain; 3. Dept. Phys. Materials, University of Basque Country and Ikerbasque, San Sebastian, Spain

9:30
CE-03. The stress components effect on the Fe-based microwires magnetostatic and magnetostrictive properties. V.V. Rodionova1, I. Baraban1, K. Chichay1, A. Litvinova1 and N.S. Perov2,1 1. STP “Fabrika” & Center for Functionalized Magnetic Materials, Immanuel Kant Baltic Federal University, Kaliningrad, Russian Federation; 2. Faculty of Physics, Lomonosov Moscow State University, Moscow, Russian Federation

9:45
CE-04. The Thickness Dependence of Soft Magnetic Properties of Fe(Co)-Al Alloy Thin Films. Y. Ariake1,2, I. Kanada1,2, T. Mewes1,3, G. Mankey1,3, Y. Tanaka2, S. Wu1,3, C. Mewes1,3 and T. Suzuki1,4 1. Center for Materials for Information Technology, The University of Alabama, Tuscaloosa, AL; 2. Materials Development Center, TDK Corporation, Narita, Japan; 3. Department of Physics and Astronomy, The University of Alabama, Tuscaloosa, AL; 4. Departments of Electrical and Computer Engineering and Metallurgical and Materials Engineering, The University of Alabama, Tuscaloosa, AL
10:00
CE-05. Structural and ferromagnetic resonance study of sputtered FeCoB-based soft magnetic multilayers. C. Falub, H. Rohrmann, R. Hida, J. MicheF, M. Međuna, J. Zweck, C. Morin, H. Sibuet, M.A. Marioni, J.H. Richter, M. Bless and M. Padrun. 1. Evatec AG, Trißbach, Switzerland; 2. CEA-LETI/Minatec, Grenoble, France; 3. Department of Condensed Matter Physics, Masaryk University, Brno, Czech Republic; 4. CEITEC, Masaryk University, Brno, Czech Republic; 5. Institute of Experimental and Applied Physics, University of Regensburg, Regensburg, Germany; 6. Nanoscale Materials Science, Empa, Swiss Federal Laboratories for Materials Science and Technology, Dübendorf, Switzerland


CE-07. Surface magnetic properties and giant magnetoimpedance effect in Co-based amorphous ribbons. A. Chizhik, V. Vega, A. Mohamed, V. Prida, T. Sánchez, B. Grande, M. Ipatov, Zhukova, L. Domínguez and J. Gonzalez. 1. Department of Materials Physics, Faculty of Chemistry, University of the Basque Country, San Sebastian, Spain; 2. Department of Physics, Faculty of Sciences, University of Oviedo, Oviedo, Spain; 3. Department of Physics, Faculty of Sciences, Sohag University, Sohag, Egypt; 4. Department of Applied Physics I, University of the Basque Country, San Sebastian, Spain; 5. Dept. Phys. Materials, University of Basque Country and Ikerbasque, San Sebastian, Spain

10:45
CE-08. The role of internal stresses in microwires on their soft magnetic characteristics. X. Zheng, F. Qin, H. Wang and H. Peng. 1. Zhejiang University, Hangzhou, China

11:00

11:15
CE-10. Effect of P Addition on Amorphous Forming Ability and Magnetic Properties of FeSiBPCu Nanocrystalline Alloys. X. Fan and B. Shen. 1. School of Materials Science and Engineering, Southeast University, Nanjing, China
Session CF

STT AND SOT-MRAM

Daniel Worledge, Chair
IBM Research, San Jose, CA

9:00

CF-01. Breakthrough in Current In-Plane Metrology to Assist Large Scale MRAM Production. A. Cagliani¹², F.W. Østerberg¹², O. Hansen¹, P.F. Nielsen² and D.H. Petersen²
1. DTU-Nanotech, Technical University of Denmark, Copenhagen, Denmark; 2. Capres A/S, Kgs. Lyngby, Denmark

9:15

CF-02. Ultra-Low Resistance-Area Product and Large Magnetoresistance in Perpendicular Magnetized Magnetic Tunnel Junctions. K. Nakamura¹, H. Maehara², H. Tomita¹, A. Shimada¹, Y. Tanaka¹, K. Nagasaki¹, S. Furukawa¹, A. Gomi¹ and N. Watanabe¹
1. Tokyo Electron Yamanashi Ltd., Nirasaki City, Japan; 2. Tokyo Electron Ltd., Nirasaki City, Japan

9:30

CF-03. Study of the effect of CoFeB composition on the magnetic properties of MTJ free layer. S. Srivastava¹, R. Ramaswamy¹, J. Son¹, T. Dutta¹, K. Teo¹ and H. Yang¹
1. Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore

9:45

CF-04. Top pinned magnetic tunnel junction stacks with high annealing tolerance for high density STT-MRAM applications. J. Swerts¹, S. Couet¹, E. Liu¹, S. Mertens³, T. Lin², S. Rao¹, W. Kim¹, S. van Elshocht¹, A. Furnemont¹ and G.S. Kar¹
1. IMEC, Leuven, Belgium

10:00

CF-05. Dramatic improvement of tunneling magnetoresistance and thermal stability factor of STT-MRAM cells by replacing Ta with W/Ta cap layers. J. Chatterjee¹*, R. Sousa¹, S. Auffret¹ and B. Dieny¹
1. SPINTEC, Univ. Grenoble Alpes / CEA-INAC / CNRS, Grenoble, France

10:15

CF-06. High perpendicular anisotropy in sub-30 nm MRAM devices measured by spin-torque ferromagnetic resonance. L. Thomas¹, G. Jan¹, S. Serrano-Guisan¹, S. Le¹, J. Iwata-Harms¹, J. Zhu¹, Y. Lee¹, H. Liu¹, R. Tong¹, S. Patel¹, V. Sundar¹, D. Shen¹, J. Haq¹, Y. Yang¹, J. Teng¹, R. He¹, V. Lam¹, P. Liu¹, T. Zhong¹, A. Wang¹, T. Torng¹ and P. Wang¹
1. TDK - Headway Technologies, Inc., Milpitas, CA
CF-07. Control of interlayer exchange coupling and its impact on spin-torque switching of hybrid free layers with perpendicular magnetic anisotropy. E. Liu1,2, J. Swerts1, A. Vaysset1, T. Devolder2, S. Couet1, S. Mertens1, T. Lin1, S. van Elshocht1, J. De Boeck1,2 and G.S. Kar1. IMEC, Leuven, Belgium; 2. Department of Electrical Engineering, KU Leuven, Leuven, Belgium; 3. Institut d'Electronique Fondamentale, CNRS, Univ. Paris-Sud, Paris, France

CF-08. Distinctive behavior of perpendicular magnetic tunnel junctions with size comparable to the electrical switching nucleation. W. Kim1, S. Rao1, S. Van Beek1, K. Garello1, S. Couet1, J. Swerts1, S. Mertens1, T. Lin1, L. Souriau1, S. Kundu1, D. Tsvetanova1, D. Crotti1, G. Donadio1, F. Yasin1, S. Sakhare1, A. Furnemont1 and G.S. Kar1. IMEC, Leuven, Belgium

CF-09. Time Resolved Studies of Spin-Torque Switching in Perpendicularly Magnetized Magnetic Tunnel Junction Devices. C. Hahn1, G. Wolf1,2, B. Kardasz1, S. Watts2, M. Pinarbasi2 and A.D. Kent1. 1. New York University, New York, NY; 2. Spin Transfer Technologies, Fremont, CA

CF-10. Nanosecond-Scale Switching Process in Perpendicularly Magnetized STT-MRAM Cells. T. Devolder1, J. Kim1, J. Swerts1, W. Kim1, S. Couet1, G.S. Kar2 and V. Nikitin2. 1. Centre de Nanosciences et de Nanotechnologies, Orsay, France; 2. IMEC, Leuven, Belgium; 3. Samsung Electronics Corporation, Milpitas, CA

CF-11. Voltage-controlled magnetic tunnel junction based MRAM for replacing high density DRAM circuits corresponding to 2X nm generation. K. Ikegami1, Y. Shiota2, T. Nozaki2, K. Abe1, H. Noguchi1, S. Yuasa2, Y. Suzuki1,2,3 and S. Fujita1. 1. Corporate R&D Center, Toshiba Corporation, Kawasaki, Japan; 2. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan; 3. Graduate School of Engineering Science, Osaka University, Osaka, Japan

CF-12. Voltage-control spintronics memory with a self-aligned heavy-metal electrode. S. Shirotori1, H. Yoda1, Y. Ohsawa1, N. Shimomura1, T. Inokuchi1, Y. Kato1, Y. Kamiguchi1, K. Koï1, K. Ikegami1, H. Sugiyama1, M. Shimizu1, A. Buyandalai1, S. Oikawa1, M. Ishikawa1, T. Ajay1, Y. Saito1 and A. Kurobe1. 1. Toshiba Corporation, Kawasaki, Japan
CG-01. Multi-scale electron microscopy of nano-cell structures formed in overnitrided Sm$_2$Fe$_{17}$N$_x$ magnet powder. 
A. Hosokawa$^1$ and K. Takagi$^1$. National Institute of Advanced Industrial Science and Technology, Nagoya, Japan

CG-02. Effects of the element distribution characteristics on the temperature dependence of the coercivity of Sm$_2$Co$_{17}$-based sintered magnets. N. Yu$^{1,2}$, M. Zhu$^1$, Y. Fang$^1$, L. Song$^{1,2}$, W. Sun$^1$, K. Song$^1$, Q. Wang$^2$ and W. Li$^1$. 1. Division of Functional Materials, Central Iron and Steel Research Institute, Beijing, China; 2. Key Laboratory of National Education Ministry for Electromagnetic Processing of Materials, Northeastern University, Shenyang, China

CG-03. A combinatorial approach to the study of Sm-Fe-Ti based 1:12 hard magnetic films. G. Gomez Eslava$^{1,2}$, A. Dias$^{1,2}$, T. Devillers$^{1,2}$, M. Ito$^3$, M. Yano$^3$, N. Sakuma$^3$, T. Shoji$^3$, A. Kato$^3$, M. Bonfim$^4$, D. Givord$^{1,5}$ and N. Dempsey$^{1,2}$. 1. CNRS, Institut Néel, Grenoble, France; 2. Institut Néel, Univ. Grenoble Alpes, Grenoble, France; 3. Advanced Material Engineering Div., Toyota Motor Corporation, Susono, Japan; 4. Universidade Federal do Paraná, DLET, Curitiba, Brazil; 5. Instituto de Física, Univ. Federal do Rio de Janeiro, Rio de Janeiro, Brazil

CG-04. Iron rich compound Sm(Fe$_{1-x}$Co$_x$)$_{12}$ with high intrinsic magnetic properties as permanent magnet materials. Y. Hirayama$^1$, Y. Takahashi$^1$, S. Hirosawa$^1$ and K. Hono$^1$. 1. National Institute for Materials Science, Tsukuba, Japan

B. Veluri1,2 1. Center of Excellence - Motor, Gundfos, Bjerringbro, Denmark; 2. R&D, Magnequench, Singapore, Singapore

CG-07. Size resolved FORC diagram of Nd-Fe-B sintered magnet.

CG-08. A method for evaluating the thickness of the magnetic phase lamellae in strip-cast NdFeB ribbons with improved accuracy. O. Tosoni1, G. Stéphane1, M. Bailleux1, M. Dalmasso1 and F. Servant1 1. CEA-LITEN, Grenoble, France

CG-09. The Employment of the Hydrogen Ductilisation Process in the Production of NdFeB-Based Magnets. O. Brooks1, W. Zhou1, C. Jönsson1, A. Bradshaw1, A. Walton1 and I.R. Harris1 1. School of Metallurgy and Materials, University of Birmingham, Birmingham, United Kingdom

CG-10. Diffusion of Dy, Tb, Ce and Gd in Nd-Fe-B sintered magnets by experiment and FEM simulation. K. Löwe1, D. Benke1, S. Ener1, K. Skokov1 and O. Gutfleisch1 1. Functional Materials, Material- and Geosciences, TU Darmstadt, Darmstadt, Germany

CG-11. XMCD study of local magnetic properties of microcrystalline NdFeB-based alloys. A.P. Menushenkov1, V.G. Ivanov1, I.V. Shchetinin2, D.G. Zhukov2, V.P. Menushenkov2, I.A. Rudnev1, F. Wilhelm3, A.G. Savchenko2 and A. Rogalev3 1. National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Moscow, Russian Federation; 2. National University of Science and Technology MISIS, Moscow, Russian Federation; 3. ESRF, Grenoble, France
Session CH  
MOTORS, GENERATORS AND ACTUATORS II  
Dragan Dinulovic, Chair  
Würth Elektronik eiSos GmbH & Co. KG, Garhing, Germany

9:00  
CH-01. 2D Semi-Analytical Modeling of Eddy Currents in Multiple Non-Connected Conducting Segments. C. Custers¹, H. Jansen¹ and E. Lomonova¹. ¹Department of Electrical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands

9:15  
CH-02. Orthogonal Magnetic Field Analysis of a Double Stator Linear-Rotary Permanent Magnet Motor with Orthogonally Arrayed Permanent Magnets. L. Xu¹, M. Lin¹ and X. Fu¹. ¹Southeast University, Nanjing, China

9:30  
CH-03. Permanent Magnet Eddy Current Loss Analysis of Interior PM Machines for Electric Vehicle Application. Y. Hu¹, S. Zhu¹ and C. Liu¹. ¹Nanjing University of Aeronautics and Astronautics, Nanjing, China

9:45  
CH-04. Evaluation Method for Multi-Degree-of-Freedom Spherical Actuators under Power Control. K. Takahara¹, K. Hirata¹, N. Niguchi¹, Y. Nishiura¹ and Y. Sakaidani¹. ¹Osaka University, Suita-city, Japan

10:00  
CH-05. Current Harmonics of a Current Superimposition Variable Flux Reluctance Motor. K. Takahara¹, K. Hirata¹, N. Niguchi¹ and A. Kohara¹. ¹Osaka University, Suita, Japan

10:15  
CH-06. Portable Rotational Electromagnetic Energy Harvester for IoT. D. Dinulovic¹, M. Shousha¹, M. Brooks¹, M. Haug¹ and T. Petrovic². ¹R&D, Würth Elektronik eiSos GmbH & Co. KG, Garhing, Germany; ²Faculty of Mechanical Engineering, University of Niš, Niš, Serbia

10:30  
CH-07. 12-Slot 14-Pole Three-Phase Outer-Rotor Hybrid Excitation Flux Switching Motor for Direct Drive Electric Vehicle. M. Ahmad¹, G.M. Romalan¹, S. Rahimi¹, M. Jenal¹ and E. Sulaiman¹. ¹Electrical Power Engineering Department, Universiti Tun Hussein Onn Malaysia, Batu Pahat, Malaysia
**CH-08.** Simulation and Performance Analysis of a Decoupled Rotary-Linear Switched Reluctance Actuator. S. Li and Y. Zou 1. EE, Hong Kong Polytechnic University, Hong Kong, Hong Kong

**11:00**

**CH-09.** Parameter Calculation and Analysis of a Novel Wind Power Generator. S. Yu1, F. Zhang2 and H. Wang1 1. School of Electrical Engineering, Shenyang University of Technology, Shenyang, China

**11:15**

**CH-10.** Ironless Machine Design for Wind Based Microgeneration. V. Verdum1, R.P. Homrich1, A.F. Flores Filho1 and D.G. Dorrell2 1. Engenharia Elétrica, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil; 2. University of KwaZulu-Natal, Howard College Campus, Durban, South Africa

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**WEDNESDAY THE FORUM MORNING 8:30**

Session CM

**MAGNETIC SEMICONDUCTORS, ANTIFERROMAGNETIC SPINTRONICS, ORGANIC AND CARBON-BASED SPIN TRANSPORT (Poster Session)**

Steven Bennett, Chair

U.S. Naval Research Laboratory, Washington, DC

**CM-01.** Fully compensated ferrimagnetic CoFeTiAl and CrVTiAl Heusler alloys for spintronic applications. V. Yenugonda1, S. Gupta2,1 and K.G. Suresh1 1. Physics, Indian Institute of Technology Bombay, Mumbai, India; 2. Tohoku University, Advanced Institute for Materials Research, Sendai, Japan

**CM-02.** Soft x-ray spectroscopy and first-principles calculation studies of the electronic structure of the novel high-\(T_C\) ferromagnetic semiconductor (Ga,Fe)\(\_\)Sb. S. Sakamoto1, N. Tu2, Y. Takeda1, S. Fujimori1, P. Hai4, L. Anh2, Y.K. Wakabayashi2, G. Shibata1, M. Horio1, K. Ikeda1, Y. Saitoh3, H. Yamagami3,4, M. Tanaka5 and A. Fujimori1 1. Department of Physics, The University of Tokyo, Tokyo, Japan; 2. Department of Electrical Engineering and Information Systems, The University of Tokyo, Tokyo, Japan; 3. Materials Sciences Research Center, Japan Atomic Energy Agency, Hyogo, Japan; 4. Department of Electrical and Electronic Engineering, Tokyo Institute of Technology, Tokyo, Japan; 5. Department of Physics, Kyoto Sangyo University, Kyoto, Japan
CM-03. Control of indirect exchange interaction in semiconductor nanostructures, I. Rozhansky1,2, I. Krainov1,2, N. Averkiev1 and E. Lähderanta2. 1. Ioffe Institute, St.Petersburg, Russian Federation; 2. Lappeenranta University of Technology, Lappeenranta, Finland


CM-05. Magnetic characteristics of CuCr2S4 nanospinels obtained by mechanical alloying and heat treatment. E. Maciazek1, E. Malicka1, M. Karolus2, J. Panek2, Z. Stoklosa2, T. Gron3 and A. Gudwanski3. 1. Institute of Chemistry, University of Silesia, Katowice, Poland; 2. Institute of Material Science, University of Silesia, Chorzow, Poland; 3. Institute of Physics, University of Silesia, Katowice, Poland

CM-06. Local structure and phonon vibrational modes of Mn-doped GeTe phase change magnetic materials thin films with different concentrations. A.A. Adam1,2, X. Cheng2 and X. Miao2. 1. Applied Physics (Electronics), Al-Neelain University, Khartoum, Sudan; 2. School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan, China

CM-07. Quantitative Studies of Magnetic Anisotropy in Insulating Dilute Ferromagnet (Ga,Mn)N. K. Gas1,2, G. Kunert1,2, D. Sztienkiel3, S. Figge4, T. Baraniecki3, R. Jakiela2, D. Hommel3,1 and M. Sawicki2. 1. Institute of Experimental Physics, University of Wroclaw, Wroclaw, Poland; 2. Institute of Physics, Polish Academy of Sciences, Warsaw, Poland; 3. Wroclaw Research Center EIT+, Wroclaw, Poland; 4. Institute of Solid State Physics, University of Bremen, Bremen, Germany

CM-08. Withdrawn

CM-09. Spin transport properties in thermally-evaporated pentacene films by using the spin-pump. Y. Tani1, T. Kondo1, Y. Tanaka1, Y. Teki1, H. Tsuji moto1 and E. Shikoh1. 1. Osaka City University, Osaka, Japan

CM-10. Magnetic Fullerene at Fe/C60 Interface. S. Mallik1, S. Mattauch2, T. Brückel2, M. Dalai2 and S. Bedanta1. 1. Physics, National Institute of Science Education and Research (NISER), Bhubaneswar, India; 2. Forschungszentrum Juelich, Juelich Center for Neutron Science, Garching, Germany; 3. National Physical Laboratory, Delhi, India

CM-11. Spin transport in organic semiconductors: from spin pumping by ferromagnetic resonance to lateral spin-valves. S. Wang1, A. Wittmann1, K. Kang1, S. Schott1, G. Schweicher1, R. Di Pietro2, J. Wunderlich2, D. Venkateshvaran1, M. Cubukcu1 and H. Sirringhaus1. 1. Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom; 2. Hitachi Cavendish Laboratory, Cambridge, United Kingdom

CM-13. Anisotropic magnetoresistance of a body centered tetragonal bimetallic antiferromagnet: a route towards room temperature antiferromagnetic spintronics. H. Wu1, M. Abid1, A. Kalitsov2, P. Zarzhitsky2, M. Abid1, Z. Liao3, C. O’Coileain1-4, H. Xu1, J. Wang4, H. Liu2, O.N. Mryasov2, C. Chang5 and I.V. Shvets1. 1. School of Physics, Beijing Institute of Technology, Beijing, China; 2. MINT Center, University of Alabama, Tuscaloosa, AL; 3. State Key Laboratory for Mesoscopic Physics, Department of Physics, Peking University, Beijing, China; 4. School of Physics and CRANN, Trinity College Dublin, Dublin, Ireland; 5. Institute of Plasma Physics, Chinese Academy of Sciences, Hefei, China; 6. National Taiwan University, Department of Physics and Institute of Applied Physics, Taipei, Taiwan


CM-15. Spintronic generator of ultrashort pulses based on an antiferromagnetic film. I. Lisenkov1,2, R. Khymyn3, V.S. Tiberkevich4 and A.N. Slavin1. 1. School of Electrical Engineering and Electronics, Oregon State University, Corvallis, OR; 2. Kotelnikov Institute of Radioengineering and Electronics, Moscow, Russian Federation; 3. Department of Physics, University of Gothenburg, Gothenburg, Sweden; 4. Department of Physics, Oakland University, Rochester, MI

CM-16. Large influence of capping layers on tunnel magnetoresistance in magnetic tunnel junctions. J. Zhou1,2, W. Zhao1,2, Y. Wang1, S. Peng1,2, J. Qiao1,2, L. Su1,2, L. Zeng1,2, N. Lei1,2, L. Liu4, Y. Zhang1,2 and A. Bournel4. 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. Department of Physics and the Center of Theoretical and Computational Physics, The University of Hong Kong, Hong Kong, China; 4. Nanoacademic Technologies Inc., Brossard, QC, Canada; 5. Centre for Nanoscience and Nanotechnology, Université Paris Saclay, Orsay, France

CM-17. Tunneling magnetoresistance in M2N/MgO/M2N (M = Fe, Co, Ni) magnetic tunnel junctions. B. Yang1,2, L. Tao1, L. Jiang1, 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. Department of Physics and the Center of Theoretical and Computational Physics, The University of Hong Kong, Hong Kong, Hong Kong

WEDNESDAY THE FORUM
MORNING
8:30

Session CN

SPIN CURRENTS, SWITCHING AND SPIN SEEBECK EFFECT II
(Poster Session)
Ron Jansen, Co-Chair
AIST, Tsukuba, Japan
Mario Carpentieri, Co-Chair
Politecnico di Bari, Bari, Italy

CN-01. Spin injection and transport properties of individual functionalized MWCNT behaving as 1D Moiré crystals. R. Bonnet$^1$, C. Barraud$^1$, C. Salhani$^1$, M. Della Rocca$^1$ and P. Lafarge$^1$. 1. Laboratoire MPQ, Université Paris Diderot, Paris, France

CN-02. Hanle magnetoresistance: the role of edge spin accumulation and interfacial spin current. H. Wu$^1$, X. Zhang$^1$, C. Wan$^1$, B. Tao$^1$, L. Huang$^1$, W. Kong$^1$ and X. Han$^1$. 1. Institute of Physics, Chinese Academy of Sciences, Beijing, China

CN-03. Spin relaxation time determined by second harmonic electrical transport measurement. X. Han$^1$, C. Fang$^1$, C. Wan$^1$, B. Yang$^1$, J. Qin$^1$, B. Tao$^1$, H. Wu$^1$, X. Zhang$^1$, A. Hoffmann$^3$, Z. Jin$^4$ and X. Liu$^1$. 1. State Key Lab of Magnetism, Institute of Physics, Beijing, China; 2. University of Chinese Academy of Sciences, Beijing, China; 3. Argonne National Laboratory, Lemont, IL; 4. Shanghai University, Shanghai, China

CN-04. Large spin signals in metallic lateral spin-valves made with CoFe electrodes. G. Zahnd$^1$, V. Pham$^1$, P. Laczkowski$^1$, A. Marty$^1$, L. Vila$^1$ and J. Attané$^1$. 1. SPINTEC, CEA-INAC-CNRS/Univ. Grenoble Alpes, Grenoble, France

CN-05. Highly Efficient Spin-Current Operation in a Cu Nano-Ring. M. Samiepour$^1$, B. Murphy$^1$, A. Vick$^1$ and A. Hirohata$^1$. 1. University of York, York, United Kingdom
CN-06. Electrical and optical characterisation of Fe/n-GaAs non-local spin valve. J. Kim1, M. Samiepour1, J. Ryu2, D. Iizasa3, T. Saito1, M. Kohda2, J. Nitta3, H.E. Beere1, I. Farrer1, A.D. Ritchie3 and A. Hirohata1. 1. Physics/Electronics, University of York, York, United Kingdom; 2. Material Science, Tohoku University, Sendai, Japan; 3. Physics, University of Cambridge, Cambridge, United Kingdom; 4. Electronic and Electrical Engineering, University of Sheffield, Sheffield, United Kingdom.

CN-07. Electric field control of deterministic current-induced magnetization switching in a hybrid ferromagnetic/ferroelectric structure. M. Yang1, K. Cai1 and K. Wang1. 1. Institute of Semiconductors, Chinese Academy of Sciences, Beijing, China.

CN-08. Transport Mechanism of the Magnetoresistance Effects in Ta-CoFe2O4 Nanostructures. Y. Hui1,2, W. Cheng1, Z. Zhang2, H. Wang1, C. Xie1 and X. Miao1,2. 1. Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, China; 2. School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan, China.

CN-09. Spin pumping near the magnetic phase transition in δ-doped Pd(Fe) layers. J. Greser1, S. Keller1, M. Schweizer1, H. Stopfel2, V. Kapaklis2 and E. Papaioannou1. 1. Department of Physics, TU Kaiserslautern, Kaiserslautern, Germany; 2. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden.

CN-10. Spin wave resonance induced spin pumping effect in yttrium iron garnet. Y. Chen1, S.Y. Huang2 and J.G. Lin1. 1. Center for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan; 2. Department of Physics, National Taiwan University, Taipei, Taiwan.

CN-11. Thickness dependent spin-pumping in cobalt thin films. Y. Weng1,2, G. Luo1, C. Liang1 and J.G. Lin1. 1. Graduate Institute of Applied Physics, National Taiwan University, Taipei, Taiwan; 2. Center for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan.

CN-12. Probe temperature and temperature gradient in Hall crosses with 3ω method: towards thermal reading of the magnetic state. Y. Xu1, S. Petit-Watelot1, F. Montaigne1, G. Parent2, V. Polewczyk1, G. Sala1, D. Lacroix2, S. Mangin1, J. Wegrowe1, M. Hehn1 and D. Lacour1. 1. Institut Jean Lamour, Nancy, France; 2. LEMTA, Nancy, France; 3. Ecole Polytechnique, Paris, France.

CN-13. Magnetoresistance ratio through Si semiconductor using a magnetic tunnel junction. N. Tezuka1, S. Oikawa1, M. Matsuura1, S. Sugimoto1 and Y. Saito2. 1. Graduate School of Engineering, Tohoku University, Sendai, Japan; 2. Toshiba Corporation, Kawasaki, Japan.

CN-14. Crystal, Electronic Structures and Spin Signals CoFeAl0.5Si0.5/n-GaAs Junctions. N. Tezuka1, K. Kataoka1, T. Saito1, M. Matsuura1 and S. Sugimoto1. 1. Graduate School of Engineering, Tohoku University, Sendai, Japan.
Investigation of interfacial spin dependent transport and magnetic proximity effect in CoFeTaB/Pt bilayers.

O.A. Inyang
1. Centre for Material Physics, Department of Physics, Durham University, Durham, United Kingdom

Spin accumulation generated by magnetization gradient in asymmetric topological insulator thin films.
Z. Su
1. National University of Singapore, Singapore, Singapore

Evaluation of Correlation Between Orientation of Y₃Fe₅O₁₂(YIG) Thin Film and Spin Seebeck Effect.
A. Yamamoto
1. Electrical Engineering, Faculty of Engineering, Tokyo University of Science, Tokyo, Japan

Static and dynamic magnetic properties of two-dimensional Ni₈₀Fe₂₀ annular antidot lattices.
N. Porwal
1. Physics, Indian Institute of Technology Kharagpur, Kharagpur, India

Artificially controlled graded magnonic materials.
L. Flajsman
1. CEITEC BUT, Brno University of Technology, Brno, Czech Republic

Spin wave beam propagation through the area with graded refractive index.
P. Gruszecki
1. Faculty of Physics, Adam Mickiewicz University, Poznan, Poland

Magnon density control of room temperature supercurrents in yttrium iron garnet films.
D.A. Bozhko
1. Fachbereich Physik and Landesforschungszentrum OPTIMAS, Technische Universität Kaiserslautern, Kaiserslautern, Germany

WEDNESDAY THE FORUM MORNING 8:30

Session CO MAGNONICS, ULTRAFAST AND ALL-OPTICAL SWITCHING (Poster Session)
Giovanni Finocchio, Chair
University of Messina, Messina, Italy

Static and dynamic magnetic properties of two-dimensional Ni₈₀Fe₂₀ annular antidot lattices. N. Porwal1, A. Barman2 and P.K. Datta1
1. Physics, Indian Institute of Technology Kharagpur, Kharagpur, India

Artificially controlled graded magnonic materials. L. Flajsman1, J. Gloss2, M. Horký1, V. Krizakova3, M. Vanatka4, T. Sikola1,3, P. Varga2,1 and M. Urbánek1,3
1. CEITEC BUT, Brno University of Technology, Brno, Czech Republic
2. Institute of Applied Physics, Technische Universität Wien, Vienna, Austria
3. Institute of Physical Engineering, Brno University of Technology, Brno, Czech Republic

Spin wave beam propagation through the area with graded refractive index. P. Gruszecki1 and M. Krawczyk1
1. Faculty of Physics, Adam Mickiewicz University, Poznan, Poland

Magnon density control of room temperature supercurrents in yttrium iron garnet films. D.A. Bozhko1,2, A.J. Kreil1, A.A. Serga3 and B. Hillebrands1
1. Fachbereich Physik and Landesforschungszentrum OPTIMAS, Technische Universität Kaiserslautern, Kaiserslautern, Germany
2. Graduate School Materials Science in Mainz, Mainz, Germany
CO-05. Optical excitation of magnetization dynamics in magnetic optical microcavity. A. Kalish1,2, M. Kozhavaev1,3, A. Chernov1,3, A. Shaposhnikov4, V. Berzhansky4, A. Zvezdin1,3 and V. Belotelov1,4 1. Russian Quantum Center, Skolkovo, Russian Federation; 2. Faculty of Physics, Lomonosov Moscow State University, Moscow, Russian Federation; 3. Prokhorov General Physics Institute RAS, Moscow, Russian Federation; 4. Vernadsky Crimean Federal University, Simferopol, Russian Federation

CO-06. High frequency modes in patterned arrays of magnetic stripes. R. Dutra1, D. Gonzalez-Chavez1 and R.L. Sommer1 1. Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil

CO-07. Withdrawn

CO-08. Spin wave surface states in one-dimensional planar magnonic crystals. J. Rychly1 and J. Klos1 1. Faculty of Physics, Adam Mickiewicz University, Poznan, Poland

CO-09. Frequency modulation spin waves generator via oscillating vortex core in NiFe disk array. L. Chang1, M. Kao1, L. Tsai1, J. Liang2 and S. Lee1 1. Institute of Physics, Academia Sinica, Taipei, Taiwan; 2. Department of Physics, Fu Jen Catholic University, New Taipei city, Taiwan

CO-10. Control of defect modes in coupled magnonic crystals. A. Sharaevskaya1,2 and E. Beginin1 1. Saratov State University, Saratov, Russian Federation; 2. Kotel’nikov Institute of Radioengineering and Electronics, Russian Academy of Sciences, Moscow, Russian Federation


CO-12. Femtosecond laser induced magnetization reversal domain in TbCo film. W. Cheng1,2, X. Li1, Y. Hui2, H. Wang2, K. Dong1, C. Xie2 and X. Miao1,2 1. School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan, China; 2. Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, China; 3. School of Automation, China University of Geosciences, Wuhan, China

CO-13. Femto- and pico-second laser-induced domain wall motion in Co/Pt thin films showing all-optical helicity-dependent switching. Y. Quessab1,2, R. Medapalli2, M. El Hadri1, M. Henh1, G. Malinowski1, E. Fullerton2 and S. Mangin1 1. Institut Jean-Lamour, UMR CNRS 7198, Université de Lorraine, Vandoeuvre-lès-Nancy, France; 2. Center for Memory and Recording Research, University of California San Diego, La Jolla, CA
CO-14. Helicity Independent All Optical Switching of GdFeCo via Hot Electrons. Y. Xu1,2, M. Deb1, W. Zhao2, G. Malinowski1 and S. Mangin1 1. Institut Jean Lamour, Nancy, France; 2. Beihang University, Fertting Institute, Beijing, China

CO-15. Giant Tunability of Spin Wave Dynamics in Two-Dimensional Hexagonal Antidot Lattices. S. Choudhury1, S. Pan2, Y. Otani2,3 and A. Barman1 1. S. N. Bose National Centre for Basic Sciences, Kolkata, India; 2. Institute for Solid State Physics, Kashiwa, Japan; 3. RIKEN-CEMS, Wako, Japan

CO-16. Investigation of the imprint of spin polarization on ultrafast demagnetization in Heusler alloys with different stoichiometric compositions. S. Pan1, T. Seki2,3, K. Takanashi2,3 and A. Barman1 1. Department of Condensed Matter Physics and Material Sciences, S. N. Bose National Centre for Basic Sciences, Kolkata, India; 2. Institute of Materials Research, Tohoku University, Sendai, Japan; 3. Center for Spintronics Research Network, Tohoku University, Sendai, Japan

WEDNESDAY THE FORUM MORNING 8:30

Session CP THIN FILMS AND MULTILAYERS II (Poster Session)
Erol Girt, Co-Chair
Simon Fraser University, Burnaby, Canada
Weisheng Zhao, Co-Chair
Beihang University, Beijing, China

CP-01. Correlation between growth, structure and magnetic properties of Ga rich Fe100-xGax alloys. A. Muñoz-Noval1,2, S. Gallego3, J. Cerdá3, S. Fin4, E. Salas-Colera1,2, C. de Dios5,6, M. Petrova6, G. Herráiz6, D. Bisero7,4 and R. Ranchal6 1. Hiroshima University, Hiroshima, Japan; 2. BM25-Spline, ESRF, Grenoble, France; 3. Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain; 4. Dipartimento di Fisica, Università di Ferrara, Ferrara, Italy; 5. Instituto de Microelectrónica de Madrid, CSIC, Madrid, Spain; 6. Física de Materiales, Universidad Complutense de Madrid, Madrid, Spain; 7. CNISM, Università di Ferrara, Ferrara, Italy

CP-02. Observation of magnetic reversal process in tuned exchange spring nanomagnet by XMCD spectroscopy. K. Son1, Y. Chen1, S. Tripathi1, T. Tietze1, P. Nagel2, S. Schuppeler2, G. Schütz1 and E. Goering1 1. Modern Magnetic Systems, Max-Planck Institute for Intelligent Systems, Stuttgart, Germany; 2. Institute for Solid State Physics (IFP), Karlsruhe Institute for Technology, Eggenstein-Leopoldshafen, Germany
CP-03. Underlayer-dependent perpendicular magnetic anisotropy of Co$_2$Fe$_{69}$Mn$_{31}$Si Heusler alloy ultra-thin films. M. Sun$^{1,2}$, S. Takahashi$^3$, T. Kubota$^{1,4}$, A. Tsukamoto$^3$, Y. Sonobe$^3$ and K. Takanashi$^{1,4}$ 1. Institute for Materials Research, Tohoku University, Sendai, Japan; 2. Graduate School of Engineering, Tohoku University, Sendai, Japan; 3. Samsung R&D Institute Japan, Yokohama, Japan; 4. Center for Spintronics Research Network, Tohoku University, Sendai, Japan; 5. Department of Electronic Engineering, College of Science and Technology, Nihon University, Funabashi, Japan

CP-04. Interlayer exchange coupling in perpendicularly magnetized Co/Ir/Co structures. M. Gabor$^1$, T. Petrisor, Jr.$^1$, B. Mos$^1$, C. Baciu$^1$ and C. Tiusan$^1,2$ 1. Center for Superconductivity, Spintronics and Surface Science, Technical University of Cluj-Napoca, Cluj-Napoca, Romania; 2. Institut Jean Lamour, CNRS, Université de Lorraine, Vandoeuvre, France

CP-05. Antiferromagnetic coupling strength between Co films across NiRu, CoRu, and FeRu. Z. Nunn$^1$ and E. Girt$^1$ 1. Physics, Simon Fraser University, Burnaby, BC, Canada

CP-06. Femtosecond laser pulse-induced perpendicular magnetization in Co ultra-thin films with diverse surroundings. J. Kiselewska$^1$, I. Sveklo$^1$, Z. Kurant$^1$, D. Mitin$^2$, M. Albrecht$^2$, A. Wawro$^1$ and A. Maziewski$^1$ 1. Faculty of Physics, University of Bialystok, Bialystok, Poland; 2. Institute of Physics, University of Augsburg, Augsburg, Germany; 3. Institute of Physics, Polish Academy of Sciences, Warsaw, Poland

CP-07. Inhomogeneous spatial distribution of the magnetic transition in a FeRh thin film. C. Gatel$^1$, B. Warot-Fonrose$^1$, N. Biziere$^1$, L.A. Rodriguez$^1$, D. Reyes$^1$ and M. Casanove$^1$ 1. CEMES, CNRS/University of Toulouse, Toulouse, France

CP-08. Ferromagnetic resonance investigation of origins of the perpendicular magnetic anisotropy in Pd/Co bi-layer and Pd/Co/Pd tri-layer films. C. Lueng$^1$, F. Zighem$^2$, D. Faurie$^2$ and M. Kostylev$^1$ 1. University of Western Australia, Crawley, WA, Australia; 2. 2LSPM (CNRS-UPR 3407), Universite Paris 13, Viteleneuse, France

CP-09. Inducing coercivity in coherently strained [Fe-Co/Au-Cu]$_n$ multilayers. G. Giannopoulos$^1$, R. Salikhov$^2$, G. Varvaro$^3$, A. Testa$^1$, M. Farle$^2$, V. Psycharis$^1$ and D. Niarchos$^1$ 1. Institute of Nanoscience and Nanotechnology, NCSR Demokritos, Athens, Greece; 2. Fakultät für Physik and Center for Nanointegration (CeNIDE), University of Duisburg-Essen, Duisburg, Germany; 3. ISM-CNR, Rome, Italy

CP-10. Indirect exchange coupling driven magnetization switching of CoNi/Cu/CoPt pseudo spin-valves with perpendicular magnetic anisotropy. A. Ognev$^1$, A. Kolesnikov$^1$, M. Stiebly$^1$, A.S. Samardak$^1$, L. Chebotkevich$^1$, H. Wu$^2$ and X. Han$^2$ 1. School of Natural Sciences, Far Eastern Federal University, Vladivostok, Russian Federation; 2. State Key Laboratory of Magnetism, Institute of Physics, Beijing, China
CP-11. Second harmonic generation in non-collinear magnetic system due to spin current: theory and experiment. E. Karashtin1,2, N. Gusev1, K. Sladkov1, I. Kolmychevk, T. Murzina3 and A. Fraerman1,2 1. Institute for Physics of Microstructures RAS, Nizhny Novgorod, Russian Federation; 2. University of Nizhny Novgorod, Nizhny Novgorod, Russian Federation; 3. Department of Physics, Moscow State University, Moscow, Russian Federation

CP-12. Modification of interlayer coupling in Co/Mo/Co structures by ion irradiation. A. Wawro1, Z. Kurant2, M. Tekielak2, M. Jakubowski1, A. Pietruczik1, M. Jakubowski1, A. Pietruczik1, P. Aleszkiewicz2, R. Böttger3 and A. Maziewski2 1. Institute of Physics, Polish Academy of Sciences, Warsaw, Poland; 2. Faculty of Physics, University of Białystok, Białystok, Poland; 3. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden Rossendorf, Dresden, Germany

CP-13. Effect of annealing on the Dzyaloshinskii-Moriya interaction in Ta/CoFeB/MgO, R.A. Khan1, P.M. Shepley1, A. Hrabec1,3, A.W. Wells1, B. Ocker2, C.H. Marrows1 and T.A. Moore1 1. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 2. Singleus Technologies AG, Kahl am Main, Germany; 3. Laboratoire de Physique des Solides, CNRS, Orsay, France

CP-14. Zeeman magnetoresistance as a three-dimensional spin texture detector in Bi2Se3 single layer. P. He1, D. Zhu1, Y. Liu1, Y. Wang1, J. Yu1 and H. Yang1 1. National University of Singapore, Singapore, Singapore

CP-15. Large negative uniaxial magnetic anisotropy in epitaxially strained nickel ferrite films. M. Matsumoto1, S. Sharmin1, J. Inoue1, E. Kitu1,2 and H. Yanagihara1. 1. Applied Physics, University of Tsukuba, Tsukuba, Japan; 2. NIT, Ibraki College, Hitachinaka, Japan

CP-16. Extraordinary Hall effect in GeTe/Sb2Te3 topological superlattices and perpendicular magnetic anisotropy Tb/Co films. D. Bang1,2, H. Awan1, Y. Saito3 and J. Tominaga3 1. Toyota Technological Institute, Nagoya, Japan; 2. Institute of Materials Science, Ha Noi, Vietnam; 3. Nanoelectronics Research Institute, National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan

CP-17. Magnetic Coupling Behaviour in Gd/Mn/Fe Trilayers Studied by X-Ray Magnetic Circular Dichroism. D. Walecki1, A.K. Puri1, A. Smekhova2, K. Olles1, A. Terwey1, S. Webers1, M. Gubbins3, C. Autieri4, B. Sanyal4 and H. Wende1 1. Faculty of Physics and CENIDE, University of Duisburg-Essen, Duisburg, Germany; 2. Peter Grienberg Institut, Forschungszentrum Jülich, Jülich, Germany; 3. Seagate Technology, Derry, United Kingdom; 4. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden

CP-18. Nanoscale coupling roughness in exchange-coupled double layers. A.O. Mandru1, X. Zhao1, J. Schwenk1,2, M.A. Marion1 and H.J. Hug1,2 1. Empa, Materials Science and Technology, Dübendorf, Switzerland; 2. Department of Physics, University of Basel, Basel, Switzerland

Wednesday
CQ-01. Vertex symmetry and magnon band structure in the artificial square ice ground state. S. Gliga1,2, E. Iacocca3,4, A. Kakay5, L. Heyderman6,7, R. Stamps1, R. Hertel7 and O. Heinonen8,9 1. School of Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom; 2. Department of Applied Mathematics, University of Colorado, Boulder, CO; 3. Department of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 4. Laboratory for Mesoscopic Systems, Department of Materials, ETH Zurich, Zurich, Switzerland; 5. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 6. Institute of Mesoscopic Physics, Department of Materials, ETH Zurich, Switzerland; 7. IPCMS UMR7504, CNRS and UdS, Strasbourg, France; 8. Materials Science Division, Argonne National Laboratory, Argonne, IL; 9. Northwestern-Argonne Institute for Science and Engineering, Evanston, IL

CQ-02. On the mechanism underlying the magnetic separation of rare earth ions in aqueous solution. Z. Lei1,2 and K. Eckert1,2 1. Institute of Processing Engineering and Environment Technology Department of Transport Process at Interface, TU Dresden, Dresden, Germany; 2. Institute of Fluid Dynamics Department of Transport Process at Interface, Helmholtz-Zentrum Dresden-Rossendorf (HZDR), Dresden, Germany


CQ-04. Dynamical neuromorphic computing with nanoscale magnetic oscillators. F. Abreu Araujo1, J. Torrejon1, M. Riou1, S. Tsunegi2, G. Khalsa1, D. Querlioz3, P. Bortolotti1, V. Cros1, A. Fukushima2, H. Kubota2, S. Yuasa2, M. Stiles3 and J. Grollier1 1. Unité Mixte de Physique, CNRS/Thales, Paris, France; 2. Spintronic Research Center, AIST, Tsukuba, Japan; 3. Center for Nanoscale Science and Technology, NIST, Gaithersburg, MD; 4. Univ. Paris-Sud, CNRS, Institut d’Électronique Fondamentale, Orsay, France

CQ-05. Improved Figure-of-Eight Coil for Transcranial Magnetic Stimulation Using Magnetic Resonant Coupling. Z. Zhang1, W. Ai1 and B. Deng1 1. School of Electrical and Information Engineering, Tianjin University, Tianjin, China

CQ-06. Spin Nernst Effect in Platinum. A. Bose1, S. Bhuktare1, H. Singh1 and A. Tulapurkar1 1. Electrical Engineering, Indian Institute of Technology Bombay, India, Mumbai, India
CQ-07. Between single ion magnets and macromolecules: poly(4-vinyl pyridine) – Co(II) based thin magnetic films. A.M. Majcher1, P. Dabczynski1, M. Ceglarska1 and O. Stefanczyk1. 1. Institute of Physics, Jagiellonian University, Krakow, Poland; 2. Department of Chemistry, The University of Tokyo, Tokyo, Japan

CQ-08. Surface acoustic wave generation by ferromagnetic resonance. S.S. Bhuktare1, A. Bose1, H. Singh1 and A. Tulapurkar1. 1. Electrical Engineering, IIT Bombay, Mumbai, India

CQ-09. Microfluidics without walls. P. Dunne1,2, T. Adachi3, A. Sorrenti2, M. Coey1, B. Doudin1 and T.M. Hermans2. 1. Institut de Physique et de Chimie des Matériaux de Strasbourg, Université de Strasbourg, Strasbourg, France; 2. Institut de Science et d'Ingénierie Supramoléculaires, Université de Strasbourg, Strasbourg, France; 3. School of Physics, Trinity College Dublin, Dublin, Ireland

CQ-10. Magnetic structure of quasi-two-dimensional honeycomb lattice tellurate Na2Ni2TeO6 in ground state. A. Korshunov1,2, A. Kurbakov1,2 and S. Podcheshertsev1. 1. Petersburg Nuclear Physics Institute, Saint Petersburg, Russian Federation; 2. Saint Petersburg State University, Saint Petersburg, Russian Federation

CQ-11. Baromagnetic effect in the hexagonal Mn3Sn system. K. Xu1, Y. Zhang1, Y. Cao1, Z. Li1, H. Xijia1, S. Wei1, Y. Kang1 and C. Jing1. 1. Center for Magnetic Materials and Devices, Qujing Normal University, Qujing, China; 2. Department of Physics, Shanghai University, Shanghai, China

CQ-12. Withdrawn

WEDNESDAY THE FORUM
MORNING
8:30

Session CR
MAGNETOCALORIC MATERIALS
(Poster Session)
Ekkes Brück, Co-Chair
TU Delft, Delft, Netherlands
Alexander Barcza, Co-Chair
Vacuumschmelze GmbH & Co. KG, Hanau, Germany

CR-01. Magnetocaloric demonstrator with optimized nested Halbach cylinders made of recycled Nd-Fe-B. D. Benke1, J. Wortmann1, T. Gottschall1, L.A. Radulov1, K. Skokov1, O. Gutfliesch1, D. Prosperi2, P. Afuiny2 and M. Zakotnik2. 1. Funktionale Materialien, TU Darmstadt, Darmstadt, Germany; 2. Urban Mining Company, Austin, TX
CR-02. Effect of Annealing Atmosphere Pressure and Annealing Time on Phase Formation of La_{0.7}Ce_{0.3}Fe_{11.78}Mn_{0.22}Si_{1.5} Strip. J. Xue1, J. Shi2, Y. Long1 and J. Liu1 1. School of Material Science and Engineering, University of Science and Technology Beijing, Beijing, China; 2. Graduate School of Engineering, Hokkaido University, Sapporo, Japan; 3. Ningbo Institute of Materials Technology and Engineering, Ningbo, China

CR-03. Electric field tuning of magnetocaloric effect. D. Wang1 1. Physics Department, Nanjing University, Nanjing, China

CR-04. Key characteristics of well performing magneto-caloric materials from first principles. E.K. Delczeg-Czirjak1, M. Pereiro1, L. Vitos2,3 and O. Eriksson1 1. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden; 2. Department of Materials Science and Engineering, Royal Institute of Technology (KTH), Stockholm, Sweden; 3. Research Institute for Solid State Physics and Optics, Wigner Research Center for Physics, Budapest, Hungary

CR-05. Magnetocaloric effect in Pd_{0.5}Ni_{0.5}Mn_{1.2}Sn_{0.5} Heusler alloy. H. Yako1, T. Shima1 and M. Doi1 1. Tohoku Gakuin University, Tagajo, Japan

CR-06. Experimental and numerical study on the behavior of a multilayer for active magnetic refrigerator based on La-Fe-Co-Si. Y. Chiba1 1. Mechanical Engineering, University of Médéa, Médéa, Algeria

CR-07. Magnetostuctural transition and magnetocaloric effect in MnNiGe-Fe_{2}Ge system. J. Liu1, Y. Si1, Y. You1, H. Yang1, Y. Gong1 and F. Xu1 1. School of Materials Science and Engineering, Nanjing University of Technology, Nanjing, China

CR-08. The deviation from the mean-field theory in Ni_{43}Mn_{46}Sn_{8}X_{3} (X = In and Cr) Heusler alloys. W. Nan1, D. Tran1, B. Jeon1, G. Nam1, T. You1, H. Piao2, L. Pan2 and S.C. Yu1 1. Chungbuk National University, Cheongju, The Republic of Korea; 2. China Three Gorges University, Yichang, China

CR-09. Magnetic property and magnetocaloric effect in La_{1-x}Sr_{x}CoO_{3} compounds (x = 0.2-0.4). D. Pham1, D. Tran1 and S.C. Yu1 1. Chungbuk National University, Cheongju, The Republic of Korea

CR-10. Large change of magnetic moment in Ni_{13}Co_{3}Mn_{13}Sn_{3} and Ni_{13}Co_{3}Mn_{13}Sn_{3}Al, Heusler alloys at martensitic transitions: investigation from first principles. V. Buchelnikov1, V. Sokolovskiy1, M.A. Zagrebin1 and D. Baygutlin1 1. Condensed Matter Physics, Chelyabinsk State University, Chelyabinsk, Russian Federation

CR-11. A multiscale model of thermo-magneto-elastic phase transition in Mn-Fe-Co-Si. A. Bartok1, O. Hubert2, A. Pasko3, F. Mazaleyrat4, L. Daniel3 and M. Lo Bue1 1. SATIE, ENS Paris-Saclay, Cachan, France; 2. LMT, ENS Paris-Saclay, Cachan, France; 3. GeePs, CentraleSupelec, Gif-sur-Yvette, France
CR-12. Direct and Inverse Magnetocaloric Effects in Metamagnetic Ni-Mn-In-based Alloys in High Magnetic Fields.
I. Koshkidko1, S. Pandey2, A. Quetz2, A. Aryal2, I. Dubenko2, J. Cwik1, E. Dilmiev2, A. Granovsky3, E. Låhderanta4, A. Zhukov5,6, S. Stadler2 and N. Ali2 1. International Laboratory of High Magnetic Fields and Low Temperatures, Wroclaw, Poland; 2. Department of Physics, Southern Illinois University, Carbondale, IL; 3. Faculty of Physics, Lomonosov Moscow State University, Moscow, Russian Federation; 4. Lappeenranta University of Technology, Lappeenranta, Finland; 5. Dpto. de Física de Materiales, San Sebastian, Spain; 6. IKERBASQUE, Basque Foundation for Science, Bilbao, Spain; 7. Department of Physics and Astronomy, Louisiana State University, Baton Rouge, LA

CR-13. Element specific insight into the magnetocaloric system LaFe_{13-x}Si_{x}.
H. Wende1, M.E. Gruner1, W. Keune1, B. Roldan Cuenya2, C. Weis1, J. Landers1, A. Terwey1, S. Salamon1, S.I. Makarov1, D. Klär1, M.Y. Hu1, E.E. Alp3, J. Zhao3, M. Krautz4 and O. Gutfleisch5 1. Faculty of Physics and CENIDE, University of Duisburg-Essen, Duisburg, Germany; 2. Department of Physics, Ruhr-University Bochum, Bochum, Germany; 3. Advanced Photon Source, Argonne National Laboratory, Argonne, IL; 4. IFW Dresden, Dresden, Germany; 5. Materials Science, TU Darmstadt, Darmstadt, Germany

CR-14. The influence of noise on the determination of the Curie temperature from magnetocaloric measurements.
L.M. Moreno-Ramirez1, V. Franco2, M. Pekala2 and A. Conde1 1. University of Sevilla, Sevilla, Spain; 2. University of Warsaw, Warsaw, Poland

A. Taubel1, T. Gottschall1, K. Skokov1 and O. Gutfleisch1 1. Material Science, TU Darmstadt, Darmstadt, Germany

WEDNESDAY THE FORUM
MORNING
8:30

Session CS
FERRITES AND FE-SI STEELS
(Poster Session)
Maz Shirkoohi, Chair
London South Bank University, London, United Kingdom

CS-01. On the homogeneity and isotropy of non-grain oriented electrical steel sheets for the modeling of basic magnetic properties from microstructure and texture. N. Leuning1, S. Steenjes1 and K. Hameyer1 1. Institute of Electrical Machines (IEM), RWTH Aachen University, Aachen, Germany

CS-02. Relation between magnetic property changes and microstructure changes on austenitic stainless steel sensitized by heat treatment. H. Kikuchi1, H. Yanagiwara1 and T. Murakami1 1. Iwate University, Morioka, Japan
CS-03. Domain wall dynamics controlled through magnetoelastic interaction. K. Chichay1,2, V.V. Rodionova1,2, V. Zhukova3, N.S. Perov1,4 and A. Zhukov5,6. 1. Science and Technology Park “Fabrika”, Immanuel Kant Baltic Federal University, Kaliningrad, Russian Federation; 2. Center for Functionalized Magnetic Materials, Immanuel Kant Baltic Federal University, Kaliningrad, Russian Federation; 3. Dpto. Fisica de Materiales, Fac. Quimicas, UPV/EHU, San Sebastian, Spain; 4. Faculty of Physics, Lomonosov Moscow State University, Moscow, Russian Federation; 5. Ikerbasque, Basque Foundation for Science, San Sebastian, Spain


CS-05 Flexible Magnetic Tape with High Permeability. Y. Yen1, C. Lee1 and P. Lin1. 1. Material Science and Engineering, National Tsing Hua University, Taichung City, Taiwan

CS-06. Site preference and hyperfine structure in doped Z-type hexaferrite Ba1.5Sr1.5Co2(Fe1-xAlx)24O41 investigated by Mössbauer spectroscopy. J. Lim1, T. Kouh1 and C. Kim1. 1. Kookmin University, Seoul, The Republic of Korea

CS-07. Magnetostriiction Behaviors of Ni100-xFe x and Ni100-yCo y (001) Single-Crystal Films with fcc Structure under Rotating Magnetic Fields. K. Serizawa1, T. Kawai1, M. Ohtake2,1, M. Futamoto1, F. Kirino3 and N. Inaba4. 1. Faculty of Science and Engineering, Chuo University, Koganei, Japan; 2. Faculty of Engineering, Kogakuin University, Hachioji, Japan; 3. Graduate School of Fine Arts, Tokyo University of the Arts, Taito-ku, Japan; 4. Faculty of Engineering, Yamagata University, Yonezawa, Japan


CS-10. Tunable permeability and permittivity of low loss NiZnCo ferrite by sintering temperature for VHF-UHF applications. Z. Zheng1 and Q. Feng1. 1. School of Information Science and Technology, Southwest Jiaotong University, Chengdu, China
Improvement of Power Inductor Performance by Adding Fe Nanoparticle to Fe-Si Soft Magnetic Composite. S. Lee1, D. Kim1, J. Yeo1,2, S. An3, J. Kim2 and B. Lee1 1. Department of Physics and Oxide Research Center, Hankuk University of Foreign Studies, Yongin-si, The Republic of Korea; 2. Corporate R&D Institute, Samsung Electro-Mechanics, Suwon-si, Gyeonggi-do, The Republic of Korea

Crystallographic orientation and microstructure dependent magnetic behaviors of arrays of Ni nanowires. M. Ko1, S. Kim1 and Y.K. Kim1 1. Materials Science and Engineering, Korea University, Seoul, The Republic of Korea

Characterization of Soft Ferromagnetic Materials in AC Magnetic Fields with Regard to Magnetic Losses. R. Hiergeist1, K. Wagner1 and G. Ross1 1. Magnet-Physik Dr. Steingroever GmbH, Köln, Germany

Modelling of temperature dependence of saturation magnetisation of silicon-iron steels. G. Shirkoohi1 1. Engineering, London South Bank University, London, United Kingdom

Session CT
MOTORS, GENERATORS AND ACTUATORS III
(Poster Session)
Antonino Laudani, Chair
Università degli Studi Roma Tre, Roma, Italy

Proposal and Design of Transverse-Flux Flux-Reversal Linear Motor with Consequent-Pole Structure. J. Luo1, B. Kou1, L. Zhang1 and X. Yang1 1. Electrical Engineering, Harbin Institute of Technology, Harbin, China

A Novel Consequent-Pole Hybrid Excited Vernier Permanent-Magnet Machine for EV/HEV Applications. H. Wang1, S. Fang1, H. Yang1, H. Lin1, Y. Li1 and J. Jiang1 1. Southeast University, Nanjing, China

2D Finite Element Analysis of Hybrid Excitation Synchronous Machines with Radial/Axial Flux Paths via Magnetic Equivalent Circuit. Y. Liu1, Z. Zhang1, W. Geng1 and J. Li1 1. Nanjing University of Aeronautics and Astronautics, Nanjing, China

Investigation of Stator Flux Density and Iron Loss in 3rd Order Harmonic Shaped Surface-Mounted Permanent Magnet Machines. X. Chen1 and K. Wang1 1. Nanjing University of Aeronautics and Astronautics, Nanjing, China
CT-05. Regulation of High Efficiency Region in Permanent Magnet Machines According to a Given Driving Cycle. Q. Chen1,2, X. Fan1 and G. Liu1,2 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China; 2. Jiangsu Key Laboratory of Drive and Intelligent Control for Electric Vehicle, Zhenjiang, China

CT-06. Thermal Analysis of Consequent-Pole Hybrid Vernier Permanent-Magnet Machine for EV/HEV Applications. H. Wang1, S. Fang1, H. Yang1, H. Lin1, Y. Li3 and J. Jiang3 1. Southeast University, Nanjing, China


CT-08. Cost-Effective Vernier Permanent-Magnet Machine with High Torque Performance. G. Liu1,2, G. Xu1, M. Chen1 and X. Du1 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China; 2. Jiangsu Key Laboratory of Drive and Intelligent Control for Electric Vehicle, Zhenjiang, China

CT-09. 3-D Magnetic Field Analysis Taking Account of Magnetic Hysteresis Property of Electrical Motor under Inverter Excitation. S. Odawara1, K. Fujisaki1, M. Nakagawa2, N. Kitano2 and Y. Asano1 1. Toyota Technological Institute, Nagoya, Japan; 2. Technology Research Association of Magnetic Materials for High-Efficiency Motors (MagHEM), Osaka, Japan

CT-10. Optimal Design of an Inset PM Motor with Assisted Barriers and Magnet Shifting for Improvement of Torque Characteristics. G. Liu1,2, X. Du1, G. Xu1 and X. Fan1 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China; 2. Jiangsu Key Laboratory of Drive and Intelligent Control for Electric Vehicle, Zhenjiang, China

CT-11. A Design of Rotor Bar Inclination in Squirrel Cage Induction Motor. C. Heo1, H. Kim1 and G. Park1 1. Electrical and Computer Engineering, Pusan National University, Busan, The Republic of Korea

CT-12. Analysis and Experimental Validation of Dynamic Performance for Slotted Limited-Angle Torque Motor. G. Yu1, J. Zou1, Y. Xu1, H. Lan1 and Q. Wang1 1. Harbin Institute of Technology, Harbin, China

CT-13. Design and Analysis of a Linear Slotless Generator with Improved Halbach PM Arrays for Wave Energy Conversion. J. Zhang1, H. Yu1, M. Hu1, L. Huang1 and T. Xia1 1. Engineering Research Center of Motion Control of Ministry of Education, Southeast University, Nanjing, China

CT-15. Investigation of a Novel Hybrid Excitation Machine with Auxiliary Winding for Energy Recycle. X. Zhao\textsuperscript{1} and S. Niu\textsuperscript{1}
\textsuperscript{1}. Electrical Engineering, The Hong Kong Polytechnic University, Kowloon, Hong Kong

CT-16. Transverse-Flux Motor Design with Skewed and Unequally Distributed Armature Cores for Reducing Cogging Torque. Y. Ueda\textsuperscript{1} and H. Takahashi\textsuperscript{1}
\textsuperscript{1}. Mechanical Systems Laboratory, Corporate Research & Development Center, Toshiba Corp., Kawasaki, Japan

CU-01. Iron Loss Analysis and Reduction Techniques of Magnetic Geared Permanent Magnet Motors. C. Kim\textsuperscript{1}, K. Shin\textsuperscript{1}, J. Kim\textsuperscript{1}, J. Ahn\textsuperscript{1,2} and J. Choi\textsuperscript{1}
\textsuperscript{1}. Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea; 2. R&D, MAGNETAR, Daejeon, The Republic of Korea

CU-02. Electromagnetic Analysis and Experimental Verification of Double-Sided Permanent Magnet Linear Synchronous Generator with Slotted Stator Using Analytical Method. S. Seo\textsuperscript{1}, K. Kim\textsuperscript{2}, K. Hong\textsuperscript{2} and J. Choi\textsuperscript{1}
\textsuperscript{1}. Electrical Engineering, Chung-Nam National University, Daejeon, The Republic of Korea; 2. Korea Research Institute of Ships and Ocean Engineering, Daejeon, The Republic of Korea

CU-03. Reduction of Switching Loss of DC to AC Power Inverter with PID-Like Fuzzy Controller. C. Hsu\textsuperscript{1,2}, C. Chang\textsuperscript{3}, M. Hsieh\textsuperscript{4}, Y. Huang\textsuperscript{2} and C. Tao\textsuperscript{2}
\textsuperscript{1}. Research and Development Center, Fortune Electric Company, Taoyuan, Taiwan; 2. Department of Mechanical Engineering, National Central University, Taoyuan, Taiwan; 3. Department of Information and Telecommunications Engineering, Ming Chuan University, Taoyuan, Taiwan; 4. Department of Systems and Naval Mechatronic Engineering, National Cheng Kung University, Taoyuan, Taiwan; 5. Department of Electrical Engineering, National Ilan University, Taoyuan, Taiwan

CU-04. Analysis on Electro-Magnetic Vibration for Interior Permanent Magnet Synchronous Motor due to Temperature and Loads. Z. Wang\textsuperscript{1}, J. Ha\textsuperscript{1} and K. Kim\textsuperscript{1}
\textsuperscript{1}. Dept. of Electrical Engineering, Hanbat National University, Daejeon, The Republic of Korea

CU-05. A Novel Approach for Power Factor Improvement in Dual Stator Vernier Permanent Magnet Machine. Q. Lin\textsuperscript{1} and S. Niu\textsuperscript{1}
\textsuperscript{1}. Electrical Engineering, The Hong Kong Polytechnic University, Kow Long, Hong Kong

Session CU
MOTORS, GENERATORS AND ACTUATORS IV
(Poster Session)
Kazuhiro Muramatsu, Chair
Saga University, Saga, Japan

Wednesday 99
CU-06. Magnetic Field Analysis of Edge Effect of Flux Distribution in Induction Motor Core Taking Account of Laminated Structure. Y. Gao1, Y. Uchio1, H. Dozono1 and K. Muramatsu1
1. Department of Electrical and Electronic Engineering, Saga University, Saga, Japan

CU-07. Experimental and Analytical Study of a Single-Phase Squirrel-Cage Induction Motor Considering End Ring Porosity Rate. K. Lee1,2, S. Lee1, J. Park1, J. Kim2 and J. Choi2

CU-08. AC copper loss estimation of armature windings in flux-switching permanent-magnet double-rotor machine. L. Mo1. Huaiyin Institute of Technology, Huaiyan, China


CU-10. Hybrid Rectangular Bar Wave Windings to Minimize Winding Losses of Permanent Magnet Machines for EV/HEVs over a Driving Cycle. X. Fan1, R. Qu1, D. Li1, J. Li1, C. Wang4 and H. Fang1
1. School of Electricity and Electronic Engineering, Huazhong University of Science and Technology, State Key Laboratory of Advanced Electromagnetic Engineering and Technology, Wuhan, China

1. Oita University, Oita, Japan; 2. Nippon Bunri University, Oita, Japan

CU-12. Experimental Verification of a Magnetic-CVT Motor. E. Morimoto1, N. Niguchi2 and K. Hirata3
1. Osaka University, Suita, Japan

100 Wednesday
Session DA

ADDITIVE MANUFACTURING AND 3D PRINTING OF MAGNETS
Thomas Schrefl, Chair
Danube University Krems, Wiener Neustadt, Austria

2:00

DA-01. Tailoring magnetic field sources by 3D printing. *(Invited)*
C. Huber¹, M. Groenefeld², S. Schuschnigg³ and D. Suess⁴
1. CD Laboratory AMSEN, TU - Wien, Vienna, Austria;
2. Magnetfabrik Bonn, Bonn, Germany;
3. Department of Polymer Engineering and Science, Montanuniversitaet Leoben, Leoben, Austria

2:30

DA-02. Net Shape Processing of AlNiCo Magnets by Additive Manufacturing. *(Invited)*
E.M. White¹, A.G. Kassen¹,², E. Simsek¹, W. Tang¹, R.T. Ott¹ and L.E. Anderson¹,²

3:00

DA-03. Additive Manufacturing of High Performance NdFeB Permanent Magnets. *(Invited)*
M.P. Paranthaman¹
1. Chemical Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN

3:30

DA-04. Net Shape 3D Printed NdFeB Permanent Magnet. *(Invited)*
J. Jacimovic¹
1. Energy & Materials, ABB Corporate Research, Baden-Daettwil, Switzerland

Session DB

BIO-MEDICAL MAGNETIC THERAPIES I
Maria del Puerto Morales, Chair
Instituto de Ciencia de Materiales de Madrid, Madrid, Spain

2:00

DB-01. Magnetic nanowire arrays initiate mesenchymal stem cell differentiation. *J.E. Perez¹, T. Ravasi¹ and J. Kosel¹*
1. King Abdullah University of Science and Technology, Thuwal, Saudi Arabia
DB-02. Magnetic Field-induced Cytoskeleton Remodeling of Mesenchymal Stem Cells. O. Lunov¹, V. Zablotskii¹, T. Devillers¹, T. Polyakova¹, S. Kubinova¹,² and A. Dejneka¹
1. Institute of Physics CAS, Prague, Czech Republic; 2. University of Grenoble Alpes Institute Néel, Grenoble, France; 3. CNRS, Institute Néel, Grenoble, France; 4. Institute of Experimental Medicine, CAS, Prague, Czech Republic

DB-03. Cell Electrophysiology and Mechanics in High-Gradient Magnetic Fields. (Invited) V. Zablotskii¹, O. Lunov¹, T. Polyakova¹, S. Kubinova¹,² and A. Dejneka¹ 1. Institute of Physics CAS, Prague, Czech Republic; 2. University of Grenoble Alpes Institute Néel, Grenoble, France; 3. CNRS, Institute Néel, Grenoble, France; 4. Institute of Experimental Medicine, CAS, Prague, Czech Republic

3:00

DB-04. Magnetically actuated micropillars for mechanobiology studies. M. Monticelli¹, D.S. Jokhun², D. Petti¹, G.V. Shivashankar² and R. Bertacco¹ 1. Physics, Politecnico di Milano, Milan, Italy; 2. MBI, National University of Singapore, Singapore, Singapore

3:15

DB-05. Direct functionalization of magnetic hollow spheres with (3-aminopropyl)triethoxysilane (APTES) for targeted drug delivery. P. B. Patil¹, V. C. Karade², P. P. Waifalkar³ and P. S. Patil³ 1. Department of Physics, The New College, Kolhapur, India; 2. School of Nanoscience and Technology, Shivaji University, Kolhapur, India; 3. Department of Physics, Shivaji University, Kolhapur, India

3:30

DB-06. The osteogenesis promotion effect of iron oxide nanoparticles. (Invited) Q. Wang¹ and N. Gu¹ 1. Department of Biological Sciences and Medical Engineering, Southeast University, Nanjing, China

WEDNESDAY AFTERNOON THE LIFFEY A

2:00

Session DC MAGNONICS III
Maciej Krawczyk, Chair
Adam Mickiewicz University in Poznan, Poznan, Poland

2:00

DC-01. Route toward high-speed nano-magnonics. B. Divinskiy¹, V.E. Demidov¹, S.O. Demokritov¹ and S. Urazhdin² 1. Institute for Applied Physics, University of Muenster, Muenster, Germany; 2. Department of Physics, Emory University, Atlanta, GA
Excitation and detection of short-waved spin waves in ultrathin Ta/CoFeB/MgO-layer system suitable for spin-orbit-torque magnonics. T. Brächer1, M. Fabre1, T. Meyer2, T. Fischer2, O. Bouillé1, U. Ebels1, P. Pirro2 and G. Gaudin1. 1. SPINTEC, Univ. Grenoble Alpes / CEA / CNRS, Grenoble, France; 2. Fachbereich Physik and Landesforschungszentrum OPTIMAS, Technische Universität Kaiserslautern, Kaiserslautern, Germany

Curvature-Induced Asymmetry of Spin-Wave Dispersion. A. Kakay1, J.A. Otaílora2, M. Yan1, H. Schultheiss1, J. Lindner1, J. Faßbender1 and R. Hertel1. 1. IBC, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. Universidad Técnica Federico Santa María, Valparaíso, Chile; 3. Shanghai University, Shanghai, China; 4. IPCMS, CNRS and UdS, Strasbourg, France

Tailoring the spin waves band structure of one-dimensional magnonic crystals consisting of L-shaped iron/permalloy nanowires. G. Gubbiotti1, R. Silvani2, S. Tacchi1, M. Madami2, G. Carlotti2, Z. Yang3, A. Adeyeye3 and M. Kostylev4. 1. Istituto Officina dei Materiali-Consiglio Nazionale delle Ricerche, Perugia, Italy; 2. Dipartimento di Fisica, Università di Perugia, Perugia, Italy; 3. Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; 4. University of Western Australia, Perth, WA, Australia

New magnonic architectures in circuit QED. A.D. Karenowska1, A. van Loo1, R. Morris1 and S. Kosen1. 1. Department of Physics, University of Oxford, Oxford, United Kingdom

Reconfigurable nano-scale spin-wave directional coupler. Q. Wang1, P. Pirro1, R.V. Verba2, A.N. Slavin1, B. Hillebrands1 and A. Chumak1. 1. Fachbereich Physik and Landesforschungszentrum OPTIMAS, Technische Universität Kaiserslautern, Kaiserslautern, Germany; 2. Institute of Magnetism, National Academy of Sciences of Ukraine, Kyiv, Ukraine; 3. Department of Physics, Oakland University, Rochester, MI

X-Ray Microscopic Observation of Spin Wave Focussing by a Fresnel Lens. J. Gräfe1, M. Decker2, K. Keskinbora1, M. Noske1, P. Gawronski3, H. Stoll1, C.H. Back2, G. Schütz1 and E. Goering1. 1. Modern Magnetic Systems, Max Planck Institute for Intelligent Systems, Stuttgart, Germany; 2. Department of Physics, University of Regensburg, Regensburg, Germany; 3. Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, Krakow, Poland
DC-08. Magnetic Domain Wall Depinning Assisted by Spin Wave Bursts. S. Woo1,2, T. Delaney2 and G. Beach2 1. Center for Spintronics, Korea Institute of Science and Technology, Seoul, The Republic of Korea; 2. Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA

WEDNESDAY  LIFFEY HALL 1
AFTERNOON

2:00

Session DD
SKYRMIONS AND VORTEX MOTION
Hans Hug, Chair
Empa, Swiss Federal Laboratories for Materials Science and Technology, Duebendorf, Switzerland

DD-01. Influence of thermal gradients on the vortex dynamics in CoFeB MTJs. M. Kuepferling1, F. Garcia-Sanchez1, T. Boehnert2, R. Ferreira2, R. Dutra3, R.L. Sommer3 and M. Pasquale1 1. Nanoscience and Materials, INRIM, Torino, Italy; 2. Spintronics, INL, Braga, Portugal; 3. CBPF, Rio de Janeiro, Brazil

2:15

DD-02. Straight motion of topological defects in thin films of FeN with stripe magnetic domains. S. Fin1, R. Silvani2, L. Garnier3,4, S. Tacchi5, M. Eddrief6,7, V.H. Etgens1,4, M. Pini7, A. Rettori8,9 and M. Marangolo3,6 1. Dipartimento di Fisica e Scienze della Terra, Universita degli Studi di Ferrara, Ferrara, Italy; 2. Dipartimento di Fisica e Geologia, Universita di Perugia, Perugia, France; 3. Institut des Nanosciences de Paris, Universit Pierre et Marie Curie, Paris, France; 4. LISV, Universite Versailles St-Quentin, Versailles, France; 5. Istituto Officina dei Materiali del CNR, Perugia, Italy; 6. INSF, CNRS, Paris, France; 7. Istituto dei Sistemi Complessi del CNR, Firenze, Italy; 8. Dipartimento di Fisica ed Astronomia, Universita di Firenze, Florence, Italy; 9. NANO, CNR, Modena, Italy; 10. CNISM, CNR, Ferrara, Italy

2:30

DD-03. Chiral bistability and strong frequency downshifting of the vortex gyrotropic resonance. M. Sushruth1, J. Fried1, A. Anane2, S. Xavier3, C. Deranlot2, V. Cros2 and P. Metaxas1 1. School of Physics, University of Western Australia, Perth, WA, Australia; 2. Unité Mixte de Physique CNRS/Thales, Université Paris-Sud and Université Paris-Saclay, Palaiseau, France; 3. Thales Research and Technology, Palaiseau, France
2:45


3:00


3:15


3:30

DD-07. Comparison of static and switching dynamical properties between radial and circular vortices. G. Siracusano, R. Tomasello, A. Giordano, V. Puliafito, B. Azzerboni, O. Ozatay, M. Carpentieri and G. Finocchio. 1. Department of Electric, Electronic and Computer Engineering, University of Catania, Catania, Italy; 2. Department of Engineering, University of Perugia, Terni, Italy; 3. Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina, Messina, Italy; 4. Department of Engineering, University of Messina, Messina, Italy; 5. Department of Physics, Bogazici University, Istanbul, Turkey; 6. Department of Electrical and Information Engineering, Technical University of Bari, Bari, Italy

3:45

Session DE
RECORDING MEDIA: RECORDING PHYSICS AND LUBRICANTS
Hans Juergen Richter, Chair
WD, San Jose, CA

2:00

2:15
DE-02. Improving BER Performance by Using V-shaped Read Head Array in Heat Assisted Magnetic Recording. Y. Wang\textsuperscript{1} and V. Bhagavatula\textsuperscript{1} 1. Electrical and Computer Engineering Department, Carnegie Mellon University, Pittsburgh, PA

2:30
DE-03. Write Architectures and Their Impact on Hard Disk Drive Capacity. K. Gao\textsuperscript{1} 1. International Business and Technology Service, North Oaks, MN

2:45
DE-04. A Soft-5/6 Modulation Code with Iterative ITI Subtraction Scheme in Multi-Reader TDMR Systems. K. Pitusuo\textsuperscript{1}, C. Warisarn\textsuperscript{1} and D. Tongsompor\textsuperscript{2} 1. College of Advanced Manufacturing Innovation, KMITL, Bangkok, Thailand; 2. Seagate Technology, Samutprakarn, Thailand

3:00
DE-05. A TMR Mitigation Method with 3-Track Data Detection for Multi-Track Multi-Head BPMR System. C. Warisarn\textsuperscript{1}, W. Busyrat\textsuperscript{1}, L.M.M. Myint\textsuperscript{2}, S. Koonkarnkhai\textsuperscript{2} and P. Kovintawewat\textsuperscript{3} 1. College of Advanced Manufacturing Innovation, KMITL, Bangkok, Thailand; 2. Shinawatra University, Bangkok, Thailand; 3. Nakhon Pathom Rajabhat University, Nakhon Pathom, Thailand

3:15
DE-06. Two-Dimensional Signal Processing Schemes for High Areal Density Bit-Patterned Media Magnetic Recording Based on Channel Polarization. H. Saito\textsuperscript{1} 1. School of Advanced Engineering, Kogakuin University, Tokyo, Japan

3:30
DE-07. Friction characteristics of ultra-thin perfluoropolyether boundary lubricant films subjected to laser irradiation heating in heat-assisted magnetic recording. N. Tagawa\textsuperscript{1} 1. Mechanical Engineering, Kansai University, Suita, Japan
Real-time Observation of Molecularly Thin Lubricant Films on Head Sliders Using Rotating-Compensator-Based Ellipsometric Microscopy. K. Fukuzawa1, K. Miyata1, C. Yamashita1, S. Itoh1 and H. Zhang1 1. Department of Micro/Nano Systems Engineering, Nagoya University, Nagoya, Japan; 2. Department of Complex Systems Science, Nagoya University, Nagoya, Japan

Session DF
THEORY OF HYSTERESIS AND COERCIVITY I
Leonard Spinu, Chair
University of New Orleans, New Orleans, LA

2:00
DF-01. Enhancement of magnetization in Mn-Ga alloys doped with typical elements: a first-principles study. M. Tsujikawa1,2 and M. Shirai1,2 1. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 2. Center for Spintronics Research Network, Tohoku University, Sendai, Japan

2:15
DF-02. Theoretical study of magnetocrystalline anisotropy in iron based ferromagnets from first principles. O. Vekilova1, O. Eriksson1 and H. Herper1 1. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden

2:30
DF-03. Systematic ab initio investigation of RE lean REFe12−xMxNy phases. H. Herper1, O. Vekilova1 and O. Eriksson1 1. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden

2:45
DF-04. Ab initio study of magnetic properties of Ni-Mn-Ga alloys along the tetragonal deformation path. M. Zelený1,2, A. Sozinov3, T. Björkman4, L. Straka5 and R.M. Nieminen6 1. Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic; 2. Institute of Materials Science and Engineering, NETME Centre, Faculty of Mechanical Engineering, Brno University of Technology, Brno, Czech Republic; 3. Material Physics Laboratory, Lappeenranta University of Technology, Savonlinna, Finland; 4. Physics/Department of Natural Sciences, Åbo Akademi University, Turku, Finland; 5. Institute of Physics, Academy of Sciences of the Czech Republic, Prague, Czech Republic; 6. COMP/Department of Applied Physics, Aalto University School of Science, Aalto, Finland
3:00

**DF-05. Coercivity reduction in Nd-Fe-B particles due to local anomalous magnetic anisotropy around thier interfaces.**  
H. Tsuchiura¹,² and T. Yoshioka¹  
1. Applied Physics, Tohoku University, Sendai, Japan; 2. ESICMM, National Institute for Materials Science, Tsukuba, Japan

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3:15

**DF-06. First-principles study on element-doping effects in Nd-Fe-B sintered magnets.**  
Y. Tatetsu¹, S. Tsuneyuki¹² and Y. Gohda¹,³  
1. Physics, The University of Tokyo, Tokyo, Japan; 2. Institute for Solid State Physics, The University of Tokyo, Kashiwa, Japan; 3. Department of Materials Science and Engineering, Tokyo Institute of Technology, Yokohama, Japan

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**WEDNESDAY WICKLOW HALL 2A AFTERNOON**

**2:00**

**Session DG**

**CRYSTALLINE SOFT MAGNETIC MATERIALS**  
Zsolt Gercsi, Chair  
Trinity College, Dublin, Dublin, Ireland

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**DG-01. Single crystalline FeCo nanoparticles with tuneable size, shape and composition: towards unique magnetic properties.**  
L. Lacroix¹, C. Garnero¹, A. Pierrot¹, R. Arenal²³, C. Gatel¹, K. Soulantica¹, B. Chaudret¹ and T. Blon¹  
1. LPCNO, Toulouse, France; 2. Laboratorio de Microscopias Avanzadas, Instituto de Nanociencia de Aragon, Zaragoza, Spain; 3. Fundacion ARAID, Zaragoza, Spain; 4. CEMES, Toulouse, France

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**DG-02. Magnetic losses versus frequency in non-oriented steel sheets and their prediction: the limits of the analytical approach.**  
C. Ragusa¹, H. Zhao¹², M. Khan¹, O. de la Barriere³, C. Appino⁴ and F. Fiorillo⁴  
1. Energy Department, Politecnico di Torino, Torino, Italy; 2. Province-Ministry Joint Key Laboratory of Electromagnetic Field and Electrical Apparatus, Hebei University of Technology, Tianjin, China; 3. Laboratoire SATIE, CNRS - ENS Cachan, Cachan, France; 4. Nanoscience and Materials Division, INRiM, Turin, Italy

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**DG-03. New insight in the magnetocrystalline anisotropy of iron borate.**  
J. Kliava¹, M. Strugatsky² and K. Seleznyova²  
1. LOMA, University of Bordeaux, Bordeaux, France; 2. V.I. Vernadsky Crimean Federal University, Simferopol, Russian Federation

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108 Wednesday
DG-04. Influence of Interlocking on Magnetic Properties of Electrical Steel Laminations. S. Imamori\(^1,2\), S. Steentjes\(^2\) and K. Hameyer\(^2\). 1. Fuji Electric Co., Ltd., Hino, Japan; 2. Institute of Electrical Machines (IEM), RWTH Aachen University, Aachen, Germany

DG-05. Effect of Arbitrary Shear Stress on Vector Magnetic Properties of a Non-Oriented Electrical Steel Sheet. Y. Kai\(^1\) and M. Enokizono\(^2\). 1. Kagoshima University, Kagoshima, Japan; 2. Vector Magnetic Characteristic Technical Laboratory, Oita, Japan

DG-06. Experimental study of iron losses generated by a uniform rotating field. A. Bernot\(^1\), A. Giraud\(^1\), Y. Lefevre\(^2\) and J. Llibre\(^2\). 1. Aéronef plus électrique, IRT Saint-Exupéry, Toulouse, France; 2. Université de Toulouse, Toulouse, France


DG-08. Withdrawn

Wednesday 109
DH-03. Non-linear magnetic modeling of aircraft variable frequency synchronous generators. P. Wilson1. University of Bath, Bath, United Kingdom

DH-04. Fault-Tolerant Control Technique of Open-Winding Brushless Doubly-Fed Wind Power Generator Based on Dual Three-Level Converters. S. Jin1, L. Shi2, L. Zhu1,2, G. Liu1 and Y. Zhang1. Shenyang University of Technology, Shenyang, China; 2. University of Science and Technology Liaoning, Anshan, China; 3. Queens University Belfast, Belfast, United Kingdom

DH-05. Analysis and Testing of a Hybrid Halbach Magnetic Gearbox. J. Bird1,2, K. Li1, J. Kadel1, J. Wright1, D. Som2 and W. Williams1. Electrical and Computer Engineering, Portland State University, Portland, OR; 2. University of North Carolina at Charlotte, Charlotte, NC

DH-06. Design of a novel two-degree-of-freedom in-wheel motor. L. Gan1, F. Chai1, Y. Pei1 and Y. Yu1. Department of Electrical Engineering, Harbin Institute of Technology, Harbin, China


Session ZA
PLENARY
Nora Dempsey, Chair
CNRS/Institute Néel, Grenoble, France

ZA-01. Recent advances in nano-characterization of magnetic materials and devices. (Invited) K. Hono1. National Institute for Materials Science, Tsukuba, Japan
Session EA
WHEN THZ MEETS X-RAYS: AN ULTRAFAST VIEW ON MAGNETISM

Ilie Radu, Chair
Max Born Institute Berlin, Berlin, Germany

9:00
EA-01. Towards probing strong-field THz magnetization dynamics in complex materials with x-rays. (Invited) C.P. Hauri1
1. SwissFEL, Paul Scherrer Institute, Villigen-PSI, Switzerland

9:30
EA-02. THz driven spin-orbit scattering in ferromagnets. (Invited) H. Dürr1 1. SLAC National Accelerator Laboratory, Menlo Park, CA

10:00

10:30
EA-04. X-ray imaging the ultrafast dynamics in non-trivial spin textures. (Invited) P. Fischer1,2 1. Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA; 2. Physics Department, UC Santa Cruz, Santa Cruz, CA

11:00
EA-05. Efficient nonlinear control of spins by ultrashort THz-fields. (Invited) S. Baier1, J. Mentink2, M. Hohenleutner1, C. Lange1, T. Do1, L. Braun3, A. Sell4, A. Zvezdin5, M. Fiebig6, G. Woltersdorf7, T. Kampfrath1, A. Kimel2,5, R. Mikhailovskiy2 and R. Huber1 1. University of Regensburg, Regensburg, Germany; 2. Institute for Molecules and Materials, Radboud University, Nijmegen, Netherlands; 3. Department of Physical Chemistry, Fritz Haber Institute of the Max Planck Society, Berlin, Germany; 4. Toptica Photonics, Munich, Germany; 5. Moscow Technological University (MIREA), Moscow, Russian Federation; 6. Department of Materials, ETH Zurich, Zurich, Switzerland; 7. Institute of Physics, Martin Luther University Halle-Wittenberg, Halle, Germany

11:30
EA-06. Femtosecond laser-induced demagnetization: Importance of ultrafast magnon and coherent acoustic phonon generation. (Invited) P.M. Oppeneer1, P. Maldonado1 and K. Carva1,2 1. Dept. of Physics and Astronomy, Uppsala University, Uppsala, Sweden; 2. Department of Condensed Matter Physics, Charles University, Prague, Czech Republic
Session EB

BIO-MEDICAL MAGNETIC THERAPIES II

Vitalii Zablotskii, Chair
Institute of Physics AS CR, Prague, Czech Republic

9:00

EB-01. Stimuli-Regulated Cancer Theranostics Based on Magnetic Nanoparticles. Y. Hou1, Y. Ju1 and J. Qian2 1. Department of Materials Science and Engineering, Peking University, Beijing, China; 2. General Research Institute for Nonferrous Metals, Beijing, China

9:15

EB-02. Microfluidic platform for investigating penetration of human mucus by magnetotactic bacteria. M.P. Pichel1,2, T.A. Hageman1,2, N. Korkmaz1, X.E. Murgia1, P.A. Löhman1,2, C. Lehr3, A. Manz1 and L. Abelmann1,2 1. KIST Europe, Saarbrücken, Germany; 2. MESA+ Research Institute, University of Twente, Enschede, Netherlands; 3. Helmholtz Institut für Pharmazeutische Forschung, Saarbrücken, Germany

9:30

EB-03. Dynamic magnetization properties and heat generation of platelet ferromagnetic nanoparticles injected in tumors of mice. (Invited) E. Kita1,2, H. Yanagihara1, M. Kishimoto1, R. Miyamoto2, T. Oda2 and N. Ohkohchi1 1. Institute of Applied Physics, University of Tsukuba, Tsukuba, Japan; 2. National Institute of Technology Ibaraki College, Hitachinaka, Japan; 3. Department of Surgery, Division of Medicine, University of Tsukuba, Tsukuba, Japan

10:00

EB-04. In vitro studies using multifunctional FePt/SiO2/Au nanoparticles with magnetic and optical properties for advanced cancer treatments. K. Zuzek Rozman1,2, N. Kostevsek1,2, I. Abramovic1, S. Kobe1,2, M. Erdani Kreft2, S. Hudoklin3, M. Spreitzer1 and S. Sturm1,2 1. Jožef Stefan Institute, Ljubljana, Slovenia; 2. Jožef Stefan Postgraduate School, Ljubljana, Slovenia; 3. Institute for Cell Biology, University of Ljubljana, Medical Faculty, Ljubljana, Slovenia

10:15

EB-05. Magnetic fluorescent nanoparticles binding to beta-amyloid: silica coated, thioflavin-T functionalized iron oxide. A. Tsolakis1, E. Halevas1, E. Gounari1, G. Koliakos1, A. Salifoglou2 and G. Litsardakis1 1. Electrical and Computer Engineering, Aristotle University of Thessaloniki, Thessaloniki, Greece; 2. Chemical Engineering, Aristotle University of Thessaloniki, Thessaloniki, Greece; 3. Medical School, Aristotle University of Thessaloniki, Thessaloniki, Greece
EB-06. Design of hybrid plasmonic-magnetic nanoparticles for hyperthermia applications. T. Nguyen1, J. Volatron2, F. Gazeau2, F. Mammeri1 and S. Ammar1 1. ITODYS, CNRS UMR-7086, Université Paris Diderot, Sorbonne Paris Cité, Paris, France; 2. MSC, CNRS UMR-7057, Université Paris Diderot, Sorbonne Paris Cité, Paris, France


EB-08. Core/shell nanoparticles and nonmagnetic interlayer: magnetic and hyperthermia properties. D. Serantes1,2, C. Martinez-Boubeta3, K. Simeonidis4, S. Ruta1, O. Chubykalo-Fesenko5, M. Angelakeris4 and R. Chantrell1 1. University of York, York, United Kingdom; 2. Universidade de Santiago de Compostela, Santiago de Compostela, Spain; 3. Freelancer, Bilbao, Spain; 4. Aristotle University of Thessaloniki, Thessaloniki, Greece; 5. Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain

EB-09. Experimental demonstration of swimming magneto-elastic micro-robots. M.T. Bryan1, J.K. Hamilton1, P.G. Petrov1, C.P. Winlove1, A.D. Gilbert1 and F. Ogrin1 1. College of Engineering, Mathematics and Physical Sciences, University of Exeter, Exeter, United Kingdom

EB-10. Magnetically remote control over self-propelled swimmers for biomedical applications. M.A. Ramos1, P. Schattling2, V. Salgueiriño1 and B. Studler2 1. Applied Physics Department, University of Vigo, Vigo, Spain; 2. Interdisciplinary Nanoscience Center (iNANO), Aarhus University, Aarhus, Denmark

EB-11. An interventional suite for delivering therapeutics to cancer cells using magnetotactic bacteria. S. Martel1 1. Polytechnique Montreal, Montreal, QC, Canada
Session EC
SPIN–ORBIT TORQUES AND SPIN–ORBIT EFFECTS II
Mathias Kläui, Chair
Universität Mainz, Mainz, Germany

9:00
EC-01. A fast-track and direct determination of spin-orbit torque efficiencies in magnetic heterostructures with perpendicular magnetic anisotropy. C. Pai1,2, M. Mann2, A. Tan2 and G. Beach2. 1. Materials Science and Engineering, National Taiwan University, Taipei, Taiwan; 2. Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA

9:15
EC-02. On local sensing of Spin Hall effect in tungsten film by using STM-type tunneling. T. Xie1, M. Dreyer2, D. Bowen1, D. Hinkel3, R.E. Butera3, C. Kraft3 and I.D. Mayergoyz1. 1. Department of Electrical and Computer Engineering, University of Maryland, College Park, MD; 2. Department of Physics, University of Maryland, College Park, MD; 3. Laboratory for Physical Sciences, College Park, MD

9:30
EC-03. Switching of Co/Pt multilayer structures by spin-orbit torque. B. Jinnai1, C. Zhang1, A. Kurenkov1, M. Bersweiler1, H. Sato1, S. Fukami1 and H. Ohno1. 1. Tohoku University, Sendai, Japan

9:45
EC-04. Spin-orbit torques and spin Hall magnetoresistance in antiferromagnetic hexagonal ε-Mn3Ga/CoFeB bilayers. Y. Lau1,2, H. Lee2 and M. Hayashi1,2. 1. Department of Physics, The University of Tokyo, Tokyo, Japan; 2. National Institute for Materials Science, Tsukuba, Japan

10:00
EC-05. Chiral asymmetry driven by unidirectional magnetic anisotropy in spin-orbitronic systems. F. Ajejas1,2, D. Maccariello1,2, R. Guerrero1, I. Camarero1,2, R. Miranda1,2 and P. Perna1. 1. IMDEA Nanoscience, Madrid, Spain; 2. Universidad Autonoma de Madrid, Madrid, Spain; 3. CNRS Thales, Paris, France

10:15
EC-06. Spin orbital torque induced effective field modulation in synthetic antiferromagnetic structures. S. Krishna1, P. Sethi1, W. Gan1, Q. Wong2 and W. Lew1. 1. School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore
EC-07. Spin to charge conversion at non-magnetic interfaces. *(Invited)* M. Viret¹, J. Chauveau¹, S. Sangiao¹,², M. Boselli², S. Gariglio², G. de Loubens¹ and J. Triscone¹. 1. DRF/IRAMIS/SPEC, CEA Saclay, Gif-sur-Yvette, France; 2. Département de Physique de la Matière Quantique, University of Geneva, Geneva, Switzerland; 3. Instituto de Nanociencia de Aragón, Universidad de Zaragoza, Zaragoza, Spain

11:00

EC-08. Current-induced switching in a magnetic insulator. C. Avcı², A.U. Quindeau¹, C. Pai¹, M. Mann¹, L. Caretta¹, A. Tang¹, M. Onbaslı¹, C.A. Ross¹ and G. Beach¹. 1. Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA

11:15

EC-09. Efficient Spin-Charge Conversion with the Topological Insulator α-Sn. Q. Barbedienne¹,², H. Jaffrès¹,², N. Reyren¹,², A. Fert¹,², J. George¹,², P. Noel¹,², A. Marty³,⁴, C. Vergnaud¹,², L. Vila³,⁴, M. Jamet³,⁴, A. Taleb-Ibrahimi³, P. Le Fevre³, F. Bertran³ and A. Lemaître³. 1. Unité Mixte de Physique CNRS Thales, CNRS, Palaiseau, France; 2. Université Paris Saclay, Saint-Aubin, France; 3. Spintec, CEA, Grenoble, France; 4. Université Grenoble Alpes, Grenoble, France; 5. UR1 CNRS/Synchrotron SOLEIL, Gif-sur-Yvette, France; 6. Centre de Nanosciences et de Nanotechnologies, CNRS, Marcoussis, France

11:30

EC-10. Antiferromagnetic Spin-Orbitronics. *(Invited)* J. Sinova¹. 1. University of Mainz, Mainz, Germany

Thursday 115

9:45

ED-03. DC-biased high-power impedance measurement of planar magnetic cores up to 70 MHz. M. Yamaguchi1, U. Erdenebat1, K. Suzuki1, A. Itagaki2 and Y. Ishizuka3 1. Department of Electrical Engineering, Tohoku University, Sendai, Japan; 2. Research and Development Division, Ryowa Electronics, Sendai, Japan; 3. Division of Electrical Engineering and Computer Science, Nagasaki University, Nagasaki, Japan

10:00


10:15

ED-05. SQUID-detected broadband ferrimagnetic resonance in bulk poly- and single-crystalline Y2Fe12O19. J. O'Reilly1 and P.S. Stamenov1 1. School of Physics and CRANN, Trinity College Dublin, Dublin, Ireland

10:30

ED-06. Development of an active shielding-type MI gradiometer: its application for magnetocardiography. T. Takiya1 and T. Uchiyama1 1. Nagoya University, Nagoya, Japan

10:45

ED-07. The Magnetic Differentiation Technique for GMI Sensor. J. Yonnet1,2 and A. Asfour1,3 1. G2E Lab, St Martin d’Heres, France; 2. CNRS / INP-Grenoble, Grenoble, France; 3. UGA / INP-Grenoble, Grenoble, France

11:00

ED-08. Temperature effects on the magnetoimpedance in glass-coated amorphous wires. A. Dzhumazoda1, L.V. Panina1,2, A.T. Morechenko1, A. Adam1,3, R. Awale1 and S.V. Podgornaya1 1. National University of Science and Technology, MISIS, Moscow, Russian Federation; 2. Institute for Design Problems in Microelectronics RAS, Moscow, Russian Federation; 3. Physics Department, Faculty of Science, Sohag University, Sohag, Egypt
Effect of stress on magnetic properties of annealed glass-coated Co$_71$Fe$_5$B$_{11}$Si$_{10}$Cr$_3$ amorphous microwires.

M.G. Nematov$^1$, M.M. Salem$^{1,2}$, A. Adam$^{1,3}$, M. Ahmed$^1$, L.V. Panina$^{1,4}$ and A.T. Morchenko$^1$

1. National University of Science and Technology “MISiS”, Moscow, Russian Federation; 2. Physics Department, Faculty of Science, Tanta University, Tanta, Egypt; 3. Physics Department, Faculty of Science, Sohag University, Sohag, Egypt; 4. Institute for Design Problems in Microelectronics RAS, Moscow, Russian Federation

Magnetoimpedance in samples with patterned surfaces for the detection of ferrofluids.

A. García-Arribas$^{1,2}$, M. Goiriena-Goikoetxea$^2$, E. Fernández$^{3,2}$ and J. Barandiaran$^{2,1}$

1. Departamento de Electricidad y Electrónica, Universidad del País Vasco, UPV/EHU, Leioa, Spain; 2. Basque Center for Materials, Applications and Nanostructures, BCMaterials, Derio, Spain; 3. Department of Material Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA

Effect of current annealing on magnetic anisotropy in glass-coated amorphous microwires with positive magnetostriction.

A. Adam$^{1,2}$, M.M. Salem$^{1,3}$, M.G. Nematov$^4$, A. Uddin$^5$ and L.V. Panina$^{5,6}$

1. Technology for Electronic Materials, National University of Science and Technology, Moscow, Russian Federation; 2. Physics Department, Faculty of Science, Tanta University, Tanta, Egypt; 3. Physics Department, Faculty of Science, Sohag University, Sohag, Egypt; 4. Technology for Electronic Materials, National University of Science and Technology, Moscow, Russian Federation; 5. Technology for Electronic Materials, National University of Science and Technology, Moscow, Russian Federation; 6. Institute for Design Problems in Microelectronics RAS, Moscow, Moscow, Russian Federation

Origin of in-plane component for L10-FePt granular films deposited on MgO single crystal substrate. (Invited) J. Wang, Y. Takahashi, H. Sepehri Amin and K. Hono. 1. Research Center for Magnetic and Spintronic Materials, Magnetic Materials Group, National Institute for Materials Science (NIMS), Tsukuba, Japan

Probing thermal transport and layering in disk media using scanning thermal microscopy. S. Poon, J. Spièce, A. Robson, O.V. Kolosov and S. Thompson. 1. Physics, University of York, York, United Kingdom; 2. Physics, University of Lancaster, Lancaster, United Kingdom

Methodology for identifying the Curie temperature distributions of magnetic granular systems. J.M. Waters, A. Berger, G. Ju, D. Kramer, H. Fangohr and O. Hovorka. 1. Engineering and the Environment, University of Southampton, Southampton, United Kingdom; 2. CIC nanoGUNE Consorlider, Donostia-San Sebastian, Spain; 3. Seagate Technology, Fremont, CA

Magnetically decoupled L10-FePt/spacer/L10-FePt trilayers for 3D magnetic recording. A. Kaidatzis, G. Giannopoulos, G. Varvaro, G. Dimitrakopoulos, V. Psycharis, J. Garcia-Martin, A. Testa, G. Barucca, T. Karakostas, P. Kominou and D. Niarchos. 1. NCSR Demokritos, Aghia Paraskevi, Greece; 2. ISM-CNR, Roma, Italy; 3. Department of Physics, Aristotle University of Thessaloniki, Thessaloniki, Greece; 4. Instituto de Microelectronica de Madrid, Tres Cantos, Spain; 5. Università Politecnica delle Marche, Ancona, Italy

11:00
EE-08. DC noise reduction in HAMR media: the effect of an FeRh interlayer in composite Fe/FePt grains. C. Vogler¹, C. Abert¹, F. Bruckner¹ and D. Suess¹ ¹. Institute of Solid State Physics, TU Wien, Vienna, Austria

11:15
EE-09. First order reversal curve diagram analysis of ion irradiated bit patterned MnGa film. D. Oshima¹, T. Kato² and S. Iwata¹ ¹. Institute of Materials and Systems for Sustainability, Nagoya University, Nagoya, Japan; ². Electrical Engineering and Computer Science, Nagoya University, Nagoya, Japan

11:30
EE-10. High Density Shingled Heat Assisted Recording Using Bit Patterned Media Subject to Track Misregistration. A. Venugopal¹. Electrical Engineering, University of Minnesota, Minneapolis, MN

11:45
EE-11. High Energy Density Plasma Based Carbon Overcoat on the CoCrPt-Oxide Perpendicular Recording Media. S. Bhatti¹, B. Ouyang², M. Ranjbar¹, R. Rawat² and S.N. Piramanayagam¹ ¹. School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore; ². Natural Sciences and Science Education, National Institute of Education, Nanyang Technological University, Singapore, Singapore

THURSDAY WICKLOW HALL 1
MORNING
9:00
Session EF
GIANT AND TUNNELING MAGNETORESISTANCE II
Felix Casanova, Chair
CIC nanoGUNE, Donostia-San Sebastian, Spain

9:00
EF-01. Heusler Alloys for Spintronic Applications. (Invited) W.H. Butler¹,², J. Ma¹, V.I. Hegde³, A.W. Ghosh³ and C. Wolverton⁴ ¹. Department of Physics and Astronomy, University of Alabama, Tuscaloosa, AL; ². Center for Materials for Information Technology, University of Alabama, Tuscaloosa, AL; ³. Department of Electrical and Computer Engineering, University of Virginia, Charlottesville, VA; ⁴. Department of Materials Science and Engineering, Northwestern University, Evanston, IL

9:30
EF-02. Strain engineering in MgO magnetic tunnel junctions. L. Loong¹, W. Lee², X. Qiu¹, H. Kawai¹, M. Saeys³, J. Ahn² and H. Yang¹ ¹. National University of Singapore, Singapore, Singapore; ². Yonsei University, Seoul, The Republic of Korea; ³. Institute of Materials Research and Engineering, Singapore, Singapore; 4. Ghent University, Ghent, Belgium
EF-03. Epitaxial magnetic tunnel junctions with a low barrier height spinel MgGa2O4. H. Sukegawa1, Y. Kato2, M. Belmoubarik1, P. Cheng1,2, T. Daibou2, N. Shimomura2, Y. Kamiguchi2, J. Ito3, Y. Yoda2, T. Ohkubo1, S. Mitani1,3 and K. Hono1,3. 1. Research Center for Magnetic and Spintronics Materials, National Institute for Materials Science (NIMS), Tsukuba, Japan; 2. Toshiba Corporation, Kawasaki, Japan; 3. Graduate School of Pure and Applied Sciences, University of Tsukuba, Tsukuba, Japan

EF-04. Influence of the MgO Thickness and MgO Interface on the Thermovoltage of a Magnetic Tunnel Junction. T. Boehnert1, R. Dutra2, R.L. Sommer2, E. Paz1, S.S. Serrano-Guisan1, R. Ferreira1 and P. Freitas1. 1. Spintronics, International Iberian Nanotechnology Laboratory (INL), Braga, Portugal; 2. Centro Brasileiro de Pesquisas Fisicas, Rio de Janeiro, Brazil

EF-05. Negative TMR induced by an oxygen vacancy gradient in MgO tunnel barriers. E. Monteblanco1, F. Schleicher2, B. Taudul2, F. Montaigne1, U. Halisdemir2, E. Beaurepaire2, S. Boukari2, M. Alouani2, D. Lacour1, M. Hehn1 and M. Bowen1. 1. Institut Jean Lamour, Université de Lorraine - CNRS, Vandoeuvre les Nancy, France; 2. Institut de Physique et Chimie des Matériaux de Strasbourg, Strasbourg, France

EF-06. Ultra High TMR Magnetic Tunnel Junction Nano-Pillar with CoFe Insertion Layer Between MgO and CoFeB. Y. Zhang1,2, J. Adam2, W. Cai1, K. Cao1,2, G. Aghasu1, Y. Zhang1, C. Zhao1,2, D. Raveloson3a and W. Zhao1,2. 1. Fert Beijing Institute, BDBC, Beihang University, Beijing, China; 2. Centre de Nanosciences et de Nanotechnologies (C2N–Orsay), University of Paris-Sud, Orsay, France; 3. Institute of Microelectronics, Chinese Academy of Science, Beijing, China

EF-07. Magnetic Tunnel Junctions with MgO Tunnel Barrier Formed by Post-Oxidation Process for STT-MRAM. H. Tomita1, K. Ando2, Y. Tanaka1, K. Nagasaka1, K. Nakamura1, S. Furukawa1, H. Kubota1, A. Fukushima1, K. Yashiki2, S. Yuasa3, H. Maehara2 and N. Watanabe1. 1. Tokyo Electron Yamanashi Limited, Nirasaki, Japan; 2. Tokyo Electron Limited, Yamanashi, Japan; 3. AIST Spintronics Research Center, Tsukuba, Japan

EF-08. Metallic Spin Filtering Ferromagnet-Graphene-Ferromagnet Junctions up to Room Temperature. (Invited) E. Cobas3. 1. U.S. Naval Research Laboratory, Washington, DC
Session EG
MICROMAGNETISM AND MULTISCALE MODELING II
Gino Hrkac, Chair
University of Exeter, Exeter, United Kingdom

9:00
EG-01. A fast finite-difference algorithm for topology optimization. C. Abert¹, C. Huber¹, F. Bruckner¹, C. Vogler¹ and D. Suess¹
1. Institute of Solid State Physics, TU Wien, Wien, Austria

9:15
EG-02. Fast coarse grid demagnetization tensor computation with local refinement for micromagnetics. M.J. Donahue¹
1. Applied and Computational Mathematics Division, National Institute of Standards and Technology, Gaithersburg, MD

9:30
EG-03. Simultaneous resolution of the micromagnetic and spin transport equations applied to current-induced domain wall dynamics. (Invited) M. Sturma¹,², C. Bellegarde¹, J. Toussaint² and D. Gusakova¹. SPINTEC, Univ. Grenoble Alpes/CEA/CNRS, Grenoble, France; 2. Institut Néel, Univ. Grenoble Alpes/CNRS, Grenoble, France

10:00
EG-04. Analysis of Thermal Switching and Chaotic Dynamics in AC-Driven Magnetic Nanoparticles. M. d'Aquino³, C. Serpico³, G. Bertotti³, A. Quercia³, S. Perna³, I.D. Mayergoyz⁴ and P. Ansalone³ 1. Engineering Department, University of Naples “Parthenope”, Naples, Italy; 2. DIETI, University of Naples Federico II, Naples, Italy; 3. Istituto Nazionale di Ricerca Metrologica, Turin, Italy; 4. ECE Department, University of Maryland, College Park, MD
Coercivity improvement through nano-structuring of rare-earth free L1_0 FeNi magnet. A. Kovacs1, J. Fischbacher1, H. Özelt1, T. Schrefl1, A. Kaidatzis2, R. Salikhov2, M. Farle2, G. Giannopoulos2 and D. Niarchos2. 1. Center for Integrated Sensor Systems, Danube University Krems, Wiener Neustadt, Austria; 2. Institute of Nanoscience and Nanotechnology, NCSR Demokritos, Athens, Greece

Description of statistical switching in perpendicular STT-MRAM within a numerical micromagnetic framework. G. Siracusano1, R. Tomassello1, M. d'Aquino3, V. Puliafito4, A. Giordano4, B. Azzerboni4, P. Braganca5, G. Finocchio4 and M. Carpentieri6. 1. Department of Computer Engineering and Telecommunications, University of Catania, Catania, Italy; 2. Department of Engineering, Polo Scientifico Didattico di Terni, University of Perugia, Terni, Italy; 3. Department of Engineering, University of Naples, Naples, Italy; 4. Department of Engineering, University of Messina, Messina, Italy; 5. HGST, San Jose, CA; 6. Department of Electrical and Information Engineering, Politecnico of Bari, Bari, Italy

Conjugate gradient methods for micromagnetics. (Invited) T. Schrefl1, J. Fischbacher1 and L. Exl2,3. 1. Danube University Krems, Wiener Neustadt, Austria; 2. Faculty of Mathematics, University of Vienna, Vienna, Austria; 3. Institute of Solid State Physics, TU Wien, Vienna, Austria

Current induced configurations in composite spring magnets. C.A. Lambert1,2, M. Kuteifan3,4, M. Lubarda4,5, E. Fullerton4,5, V. Lomakin4,5 and S. Mangin1. 1. EECS, UC Berkeley, Berkeley, CA; 2. Institut Jean Lamour, Vandoeuvre les Nancy, France; 3. EEC, UC San Diego, La Jolla, CA; 4. Center for Magnetic Recording Research, UC San Diego, La Jolla, CA; 5. University of Donja Gorica, Podgorica, Montenegro

Atomic modelling of laser induced ultrafast reversal of inhomogeneous ferrimagnetic GdFeCo. Z. Fu1,2, S. Ruta3, T. Ostler1, T. Liu4, T. Rasing5, H. Dürr4, R.F. Evans2 and R. Chantrell2. 1. Tongji University, Shanghai, China; 2. Physics Department, University of York, York, United Kingdom; 3. University of Liège, Liège, Belgium; 4. Stanford Institute for Materials and Energy Sciences, SLAC National Accelerator Laboratory, Menlo Park, CA; 5. Institute for Molecules and Materials, Radboud University, Nijmegen, Netherlands

Session EH
MOTORS, GENERATORS AND ACTUATORS VI
Jing Zhao, Chair
Beijing Institute of Technology, Beijing, China

9:00
EH-01. Cogging torque of fractional-slot permanent magnet motors due to even harmonics of pole pair originated from non-uniform magnetization of permanent magnet. J. Song¹, K. Kang¹, C. Kang¹ and G. Jang¹ ¹. Department of Mechanical Convergence Engineering, Hanyang University, Seoul, The Republic of Korea

9:15
EH-02. Design and Analysis of a Linear Halbach Magnetic Actuator for an Aerospace Vehicle. V.R. Bommadevara¹ ¹. Electrical Engineering, IIT Hyderabad, Hyderabad, India

9:30
EH-03. Optimization for 4/4 Stator/Rotor Single-Phase Asymmetric-Stator-Poles Doubly Salient Permanent Magnet Machine. W. Xu¹, M. He¹ and C. Ye¹ ¹. School of Electrical and Electronic Engineering, Huazhong University of Science and Technology, Wuhan, China

9:45
EH-04. Analysis of Electromagnetic Performance of Doubly Salient Brushless DC Generator with Distributed Field Magnetomotive Force. L. Sun¹, Z. Zhang¹, L. Yu¹ and W. Geng¹ ¹. Department of Electrical Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing, China

10:00
EH-05. A novel linear machine with amorphous primary core. (Invited) J. Ou¹ ¹. Karlsruhe Institute of Technology, Karlsruhe, Germany

10:30
EH-06. Electromagnetic Performance of Wound Field Salient Rotor Flux Switching Machine. F. Khan¹, E. Sulaiman² and M. Ahmad² ¹. Electrical Engineering, COMSATS Institute of Information Technology, Abbottabad, Pakistan; ². University Tun Hussein Onn Malaysia, Johor, Malaysia

10:45
EH-07. Formalism and finite element study of actuator with toothed coupling. P. Enrici¹, N. Ziegler², J. Jac², F. Dumas¹, N. Bekka², P. Kenfack¹ and D. Matt¹ ¹. Institut D’Electronique et des Systèmes, Université de Montpellier, Montpellier, France; ². ERNEO Society, Montpellier, France
11:00
EH-08. A Novel Asymmetric and Unconventional Stator Winding Configuration and Placement for Dual Three-Phase Surface PM Motor. Y. Demir1,2 and M. Aydin1,2 1. MDS Motor Ltd., Kocaeli, Turkey; 2. Dept. of Mechatronics Eng., Kocaeli Uni., Kocaeli, Turkey

11:15
EH-09. Investigation of the Key Dimension Parameters of the Co-Axial Dual-Mechanical-Port Flux-Switching PM Machine for Fuel-Based Extended Range Electric Vehicles. L. Zhou1 and W. Hua1 1. School of Electrical Engineering, Southeast University, Nanjing, China

11:30
EH-10. Experimental Evaluation of the Static Characteristics of Multi-Degree-of-Freedom Spherical Actuators. K. Takahara1, K. Hirata1, N. Niguchi1, Y. Nishiura1 and Y. Sakaidani1 1. Osaka University, Suita-city, Japan

11:45
EH-11. Air-Gap Force and Vibration of an Advanced PM Vernier Machine. H. Fang1, R. Qu1, D. Li1 and J. Li1 1. Huazhong University of Science and Technology, Wuhan, China

THURSDAY THE FORUM MORNING
8:30
Session EM MAGNETIZATION DYNAMICS III (Poster Session)
Martina Ahlberg, Chair
University of Gothenburg, Gothenburg, Sweden

EM-01. Creep turns linear in narrow ferromagnetic nanostrips. J. Leliaert1, B. Van de Wiele2, A. Vansteenkiste1, L. Laurson3, G. Durin4,5, L. Dupré2 and B. Van Waeyenberge1 1. Dept. of Solid State Sciences, Ghent University, Ghent, Belgium; 2. Dept. of Energy Systems and Automation, Ghent University, Ghent, Belgium; 3. Dept. of Applied Physics, Aalto University, Espoo, Finland; 4. INRIM, Turin, Italy; 5. ISI Foundation, Turin, Italy

EM-02. Magnetization dynamics triggered by surface acoustic waves: systematic study of magnetoelastic interaction in thin films of iron gallium. C. Hepburn1, M. Marangolo1, M. Eddrief1, L. Thevenard1, L. Becerra1 and J. Duquesne1 1. Paris Institute of Nanosciences, Paris, France

EM-03. Pulse laser-induced spin dynamics with electric field bias in a micron sized tunnel junction. Y. Sasaki1,2, K. Suzuki3, A. Sugihara1, A. Kaminaki1,2, S. Iihama2, Y. Ando2 and S. Mizukami1 1. WPI Advanced Institute for Materials Research, Tohoku University, Sendai, Japan; 2. Department of Applied Physics, Tohoku University, Sendai, Japan
EM-04. A theoretical approach to strain-mediated nanomagnet reversal through spin-transfer torque. N. Kani1, J. Heron2 and A. Naeemi1 1. Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, GA; 2. Materials Science and Engineering, University of Michigan, Ann Arbor, MI

EM-05. Comparative study of CoFeAlB and CoFeB FMR properties for spin torque devices. A. Conca1, T. Meyer1, T. Nakano2, Y. Ando2 and B. Hillebrands1 1. Physics, FB Physik und Landesforschungszentrum OPTIMAS, TU Kaiserslautern, Germany, Kaiserslautern, Germany; 2. Department of Applied Physics, Tohoku University, Japan, Sendai, Japan

EM-06. Large spin Hall angle in β-tungsten thin films stabilized on CoFeB. R. Bansal1, G. Nirala1, A. Kumar1, S. Chaudhary1 and P. Muduli1 1. Physics, Indian Institute of Technology, New Delhi, Delhi, India

EM-07. Effects of Field Annealing on Gilbert Damping of Polycrystalline CoFe Thin Films. Z. Jing1, S. Chen1, W. Lin1, Q. Qin1, L. Lu1, S. He2 and J. Chen1 1. Material Science & Engineering, National University of Singapore, Singapore, Singapore; 2. Data Storage Institution (DSI), Singapore, Singapore

EM-08. Nano-Surfaces and Layers Characterized Using Spin-Polarized Electrons. J. Williams1, S. Samarin1 and O. Artamonov2 1. Physics, University of Western Australia, Perth, WA, Australia; 2. Physics, Research Institute Physics St Petersburg, St Petersburg, Russian Federation

EM-09. Micron sized tapered spin Hall oscillators under the influence of external microwave signals. K. Wagner1,2, A. Smith1, T. Hache1, J. Lindner1, I. Krivorotov3 and H. Schultheiss1,2 1. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden - Rossendorf, Dresden, Germany; 2. Institute for Physics of Solids, TU Dresden, Dresden, Germany; 3. Department of Physics and Astronomy, University of California, Irvine, CA

EM-10. Composition dependent magnetodynamic properties of Pt/Ni$_x$Fe$_{1-x}$ nano-constrictions. M. Haidar1, P. Dürrenfeld1,2 and J. Åkerman1,3 1. Physics Department, University of Gothenburg, Gothenburg, Sweden; 2. School of Electronic Science and Engineering, Nanjing University, Nanjing, China; 3. Materials and Nano Physics, School of ICT, KTH Royal Institute of Technology, Kista, Sweden

EM-11. Numerical analysis of a scalable synchronization of spin-Hall oscillators. V. Puliafito1, A. Giordano2, A. Laudani3, F. Garesci1, M. Carpentieri4, B. Azzerboni1,5 and G. Finocchio2,5 1. Department of Engineering, University of Messina, Italy, Messina, Italy; 2. Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina, Italy, Messina, Italy; 3. Department of Engineering, University of Roma Tre, Roma, Italy; 4. Department of Electrical and Information Engineering, Politecnico di Bari, Bari, Italy; 5. Istituto Nazionale di Geofisica e Vulcanologia (INGV), Roma, Italy

EM-13. Prospects of non-equilibrium magnetic phenomena in the light of a seeded free electron laser. M. Malvestuto. 1. Elettra Sincrotrone Trieste, Trieste, Italy


EM-17. Effects of the in-plane rotation of weak stripe domains on the dynamic properties of FeN thin films. I. Camara, L. Garnier, S. Tacchi, G. Carlotti, M. Eddrief and M. Marangozio. 1. Institut des Nanosciences de Paris, Université Pierre et Marie Curie, Paris, France; 2. LISV, Université Versailles St-Quentin, Versailles, France; 3. Istituto Officina dei Materiali del CNR, CNR, Perugia, Italy; 4. Dipartimento Fis & Geol, Univ Perugia, Perugia, Italy; 5. NANO, CNR, Modena, Italy; 6. INSP, CNRS, Paris, France

EM-18. Effect of ferromagnetic interlayer coupling on magnetisation dynamics in [Co/Pd]8-NiFe thin films using VNA-FMR. A. Johansson. 1. School of Computer Science, University of Manchester, Manchester, United Kingdom
EN-01. Spin-transfer driven dynamics of magnetic vortices and antivortices in dots with crystalline cubic anisotropy.
A. Janutka¹ and P. Gawronski² ¹. Department of Theoretical Physics, Wroclaw University of Science and Technology, Wroclaw, Poland; ². Department of Applied Informatics and Computational Physics, AGH University of Science and Technology, Krakow, Poland

EN-02. Non-Degeneracy and Effects of Asymmetries in Strongly Coupled Vortex Pairs.
E. Holmgren¹, A. Bondarenko¹,², B. Koop¹, B. Ivanov² and V. Korenivski¹ ¹. Nanostructure Physics, KTH, Stockholm, Sweden; ². Institute of Magnetism, Kiev, Ukraine

EN-03. Effect of annealing on domain wall mass in amorphous FeCoMoB microwires.
P. Klein¹, R. Varga²,¹, J. Onufer², J. Ziman², G.A. Badini-Confalonieri² and M. Vázquez² ¹. RVmagnetics, a.s., Kosice, Slovakia; ². Institute of Physics, Faculty of Sciences, UPJS, Kosice, Slovakia; ³. Department of Physics, TU Kosice, Kosice, Slovakia; ⁴. ICMM CSIC, Madrid, Spain

EN-04. Current and magnetic field induced domain wall creep motion in a (Ga,Mn)(As,P) thin film.
R. Diaz Pardo¹, N. Moisan¹, A. Lemaître² and V. Jeudy¹ ¹. Laboratoire de Physique des Solides, University Paris-Sud Orsay, Orsay, France; ². Centre de Nanosciences et de Nanotechnologies (C2N), CNRS, Orsay, France

EN-05. Trajectories of skyrmions in the presence of pinning centers.
C. Navau¹, N. Del-Valle¹ and A. Sanchez¹ ¹. Department of Physics, Universitat Autònoma de Barcelona, Bellaterra, Spain

EN-06. Excitation modes of nucleation-controlled spin structures in permalloy nanodisks.
M. Vanatka¹, M. Urbánek¹,², L. Flajsman¹, V. Uhlik² and T. Sikola¹,² ¹. CEITEC BUT, Brno University of Technology, Brno, Czech Republic; ². Institute of Physical Engineering, Brno University of Technology, Brno, Czech Republic

J. Kim¹ and M. Yoo¹ ¹. Centre for Nanoscience and Nanotechnology (C2N), CNRS, Univ. Paris-Sud, Universite Paris-Saclay, Orsay, France

EN-08. Hysteretic Synchronization in Magnetic Vortex Spin-Torque Nano-Oscillators.
M. d'Aquino¹, S. Perma², A. Quercia², V. Scalera² and C. Serpico² ¹. Engineering Department, University of Naples “Parthenope”, Naples, Italy; ². DIETI, University of Naples Federico II, Naples, Italy
EN-09. Walker Breakdown Behavior of Bloch-Point Domain Wall in Cylindrical Ferromagnetic Nanowire. H. Piao1, Y. Zhao1, X. Ma1,2, M. Liu1, D. Kim2 and L. Pan1. 1. Physics, China Three Gorges University, Yichang, China; 2. Physics, Chungbuk National University, Cheongju, The Republic of Korea

EN-10. Characterization of turbostratic graphene non-local spin valve device geometries and investigation of domain wall motion. F. Musseau1, M. Voto1, A. Pfeiffer1,2, R.M. Reeve1, L. Lopez-Diaz1 and M. Kläui1,2 1. Physics, Johannes Gutenberg University, Mainz, Germany; 2. Departamento de Fisica Aplicada, Salamanca, Spain; 3. Graduate School of Excellence Materials Science in Mainz (MAINZ), Mainz, Germany


EN-12. Dynamic domain wall depinning in disordered ultra-thin Co films. S. Moretti1, M. Voto1, K. Shahbazi2, C.H. Marrows2 and E. Martinez1 1. Applied Physics Department, University of Salamanca, Salamanca, Spain; 2. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom

EN-13. Domain wall kinetics and micro-structural parameter determination for Cr3+ - substituted polycrystalline yttrium iron garnet. K.B. Modi1, P.U. Sharma2, P.Y. Raval1, P.R. Pansara1, K.G. Saija1 and K.B. Zankat3 1. Department of Physics, Saurashtra University, Rajkot, India; 2. Physics, M N College, Visnagar, India; 3. Physics, Goverment Science College, Gandhinagar, India

EN-14. Simultaneous characterization of the effective fields of spin-orbit torque in in-plane magnetic anisotropy structures. F. Luo1, S. Goolaup1, W. Law1, S. Li1, F. Tan1, C. Engel1 and W. Lew1 1. School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore

EN-15. Chiral Antisymmetric Contribution in Domain Wall Speed. D. Kim1, M. Park1, Y. Park1,2, D. Kim1, J. Kim1, Y. Nam1, 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

EN-16. Interplay between spin waves and the chiral domain wall in perpendicular magnetic anisotropy materials with the Dzyaloshinskii-Moriya interaction. L. Chang1, M. Kao1, L. Tsai1, J. Liang2 and S. Lee1 1. Institute of Physics, Academia Sinica, Taipei, Taiwan; 2. Department of Physics, Fu Jen Catholic University, New Taipei city, Taiwan
Session EO
MICROWAVE AND MAGNETO-OPTIC MATERIALS
(Poster Session)
Taichi Goto, Chair
Toyohashi University of Technology, Toyohashi, Japan

EO-01. Radiation from Pseudo-Traveling Wave Resonators Composed of Nonreciprocal Composite Right/Left-Handed Transmission Lines Operating in Guided-Wave Region.
K. Yoshida¹, T. Ueda¹ and T. Itoh² ¹. Kyoto Institute of Technology, Kyoto, Japan; ². Univeristy of California, Los Angeles, CA

EO-02. FeCoNi coated glass fabric/polycarbonate composite sheets for electromagnetic absorption and shielding. J. Lee¹, B. Jung², S. Lee², S. Lee² and K. Kim¹ ¹. Physics, Yeungnam University, Gyeongsan, The Republic of Korea; ². Composites Research Division, Korea Institute of Materials Science, Changwon, The Republic of Korea

EO-03. Characterization of UHF band LC filter with RF spiral inductor using carbonyl-iron-particle/epoxy composite magnetic and chip capacitor. M. Sonehara¹², Y. Miyajima², S. Yamaguchi² and T. Satou¹² ¹. Spin Device Technology Center, Shinshu University, Nagano, Japan; ². Department of Electrical and Computer Eng., Shinshu University, Nagano, Japan

EO-04. Magneto-Optical Spectroscopy and Spectroscopic Ellipsometry of Co₉₀Fe₂₀B₂₀ Thin Films. A. Sharma¹, M. Almeida¹, P. Matthes¹, R. Ecke¹, D. Zahn¹, S. Schulz²³ and G. Salvan¹ ¹. Semiconductor Physics, Chemnitz University of Technology, Chemnitz, Germany; ². Center for Microtechnologies, Chemnitz University of Technology, Chemnitz, Germany; ³. Department Back-End of Line, Fraunhofer Institute for Electronic Nanosystems, Chemnitz, Germany

EO-05. Quasi-periodic regimes of spin-wave self-generation in ferrite-film active ring oscillator. A.B. Ustinov¹, A. Kondrashov¹ and B.A. Kalinikos¹ ¹. Department of Physical Electronics and Technology, St. Petersburg Electrotechnical University, St. Petersburg, Russian Federation

EO-06. The Measurement of Mn-Zn Particle Orientation in a Polymer Matrix due to Thermoforming Using Magnetic Permeability. K. Miura¹, H. Okubo¹ and H. Osada¹ ¹. Faculty of Science and Engineering, Iwate University, Morioka, Japan
Magnetic Reversal and All-Optical Switching Properties of Nanostructured Tb-Fe Alloy Thin Films. S. Arekapudi1,2, C. Schubert1, C. Riedel1, J. Osten3, B. Hebler2, A. Hassdenteufel1, F. Radu4, O. Hellwig1,3, H. Schultheiss3 and M. Albrecht1 Institute of Physics, Technische Universität Chemnitz, Chemnitz, Germany; 2. Institute of Physics, University of Augsburg, Augsburg, Germany; 3. Institute for Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 4. Helmholtz-Zentrum Berlin für Materialien und Energie, Berlin, Germany

Architecture and magnetic properties of hybrid composites based on gold and magnetite nanoparticles. O. Moscoso Londono1,2, D. Muraca1,3, P. Tancredi4,5, L. Souza da Costa6, S.K. Sharma7, F. Garcia8, D. Zanchet6, L. Socolovsky4,5 and M. Knobel1,9 1. Institute of Physics Gleb Wataghin, University of Campinas, Campinas, Brazil; 2. Engineering Faculty, Autonomous University of Manizales, Manizales, Colombia; 3. Center for Natural and Human Sciences, Federal University of ABC, Santo Andre, Brazil; 4. Engineering Faculty, University of Buenos Aires, Buenos Aires, Argentina; 5. National Scientific and Technical Research Council (CONICET), Buenos Aires, Argentina; 6. Institute of Chemistry, University of Campinas, Campinas, Brazil; 7. Federal University of Maranhao, Department of Physics, Sao Luis, Brazil; 8. Brazilian Center for Research in Physics, Rio de Janeiro, Brazil; 9. Brazilian Nanotechnology National Laboratory, Campinas, Brazil

FMR measurements of highly bismuth-substituted neodymium iron garnet thin films. G. Lou1, T. Kato2, S. Iwata2 and T. Ishibashi1 1. Nagaoka University of Technology, Niigata, Japan; 2. Nagoya University, Nagoya, Japan

Multi-Level Magneto-Optic Three-Dimensional Display. H. Takagi1, T. Goto1,2, P. Lim1, H. Uchida1 and M. Inoue1 1. Toyohashi University of Technology, Toyohashi, Japan; 2. PRESTO, Kawaguchi, Japan

Experimental demonstrations of unpinning domains in a saturated bismuth-substituted iron garnet. L. Bauer1, N. Prabhu Gaunkar1, M. Mina1 and R. Weber1 1. Department of Electrical and Computer Engineering, Iowa State University, Ames, IA

Investigations of sharp plasmon resonances in periodically arranged nickel nanocylinders. O. Loiselet1, L. Vila2 and J. Bellessa1 1. ILM UMR5306 CNRS, Villeurbanne, France; 2. SPINTEC, CEA, Grenoble, France

Faraday effect in one-dimensional bi-periodic photonic-magnonic crystal. M. Krawczyk1, Y. Dadoenko1,2, N. Dadoenko2,3, I. Lyubchanskii3 and J. Klos1 1. Faculty of Physics, Adam Mickiewicz University, Poznan, Poland; 2. Ulyanovsk State University, Ulyanovsk, Russian Federation; 3. Donetsk Physical and Technical Institute of the National Academy of Sciences of Ukraine, Donetsk, Ukraine
EO-14. Garnet-based magnetoplasmmonic heterostructures with 1D photonic crystals for highly effective chemo- and biosensing. D. Ignatyeva1,2, S. Sekatskiil, P. Kapralov1,2, G.A. Knyazev1,2, A. Kalish1,2, M. Nur-E-Alam2, M. Vasiliev2, K. Alameh3 and V. Belotelov1,2. 1. Russian Quantum Center, Skolkovo, Russian Federation; 2. Faculty of Physics, Lomonosov Moscow State University, Moscow, Russian Federation; 3. Institute of the Physics of Biological Systems, École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland; 4. Prokhorov General Physics Institute of RAS, Moscow, Russian Federation; 5. Electron Science Research Institute, Edith Cowan University, Joondalup, WA, Australia

EO-15. Magneto-optical study of strain influence on electronic transitions in ultra-thin layers of La2/3Sr1/3MnO3. M. Zahradník1,2, T. Maroutian2, G. Kurij2, G. Agnus2, P. Lecoeur2, L. Beran1 and M. Veis1. 1. Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic; 2. Centre de Nanosciences et de Nanotechnologies, Université Paris-Sud XI, Orsay Cedex, France

EO-16. Photostructurable sol-gel matrix doped with magnetic nanoparticles for magneto-optical applications. D. Berlingi, C. Bidaud1,2, E. Gamet2, F. Royer2, S. Neveu3, D. Jamon2 and O. Soppera1. 1. Institut de Science des Matériaux de Mulhouse - UMR 7361 - CNRS, Université de Haute Alsace, Mulhouse, France; 2. Laboratoire Hubert Curien - UMR 5516 - CNRS, Université Jean Monnet, Saint Etienne, France; 3. Laboratoire PHENIX - UMR 8234 - CNRS, Université Pierre et Marie Curie, France, France


EO-18. Effect of anisotropy on magnetic properties of crystalline TbxFe100-x (0 ≤ x ≤ 100) thin films. P. Rajasekhar1 and G. Markandeyulu1. 1. Indian Institute of Technology Madras, Chennai, India

THURSDAY THE FORUM MORNING 8:30

Session EP FERRITES, GARNETS AND OTHER MATERIALS (Poster Session) Paola Tiberto, Chair Istituto Nazionale di Ricerca Metrologica, Turin, Italy

EP-01. High-frequency magnetic and dielectric properties of Ca-substituted Z-type barium hexaferrites. Z. Zheng1, Q. Feng1, Y. Chen2 and V. Harris2. 1. School of Information Science and Technology, Southwest Jiaotong University, Chengdu, China; 2. Department of Electrical and Computer Engineering, Northeastern University, Boston, MA
EP-02. Intrinsic and induced magnetic anisotropies in NiZn and NiZnCo spinel ferrites: a determination of their respective contributions by using either microwave (FMR) or static (Single Point Detection) measuring methods. J. Mattei, A. Maalouf, V. Laur and A. Chevalier. 1. Functional Materials, Lab-STICC, Brest, France


EP-06. Effect of Zn doping on the magnetic and dielectric properties of nanocrystalline GaFeO₃. T. Han, C. Yen, Y. Chung and Y. Lee. 1. Department of Applied Physics, National University of Kaohsiung, Kaohsiung, Taiwan


EP-08. Time evolution of magnetic properties of MgFe₂O₄: role of cation distribution. S. Raghuvanshi, F. Mazaleyrat, A. Pasko and S. Kane. 1. School of Physics, Devi Ahilya University, Indore, India; 2. SATIE, ENS Cachan, CNRS, Universite Paris-Saclay, Cachan, France


EP-12. Structural characterization and magnetic properties of Zn-doped Fe₃O₄ nanoparticles for biomedical applications. H. Choi¹, S. Kim¹, E. Hahn² and C. Kim¹ ¹ Department of Physics, Kookmin University, Seoul, The Republic of Korea; ² Department of Physics, Suwon University, Suwon, The Republic of Korea

EP-13. Uncharacteristic magnetic moment in nanocrystalline C₀.₆Zn₀.₄Fe₂O₄ thin films. P. Rajagiri¹, B. Sahu¹, V. Narayanan², S. Prasad¹ and R. Krishnan¹ ¹ Physics, Indian Institute of Technology Bombay, Mumbai, India; ² Metallurgical Engineering and Materials Science, Indian Institute of Technology Bombay, Mumbai, India; ³ CNRS/Universite de Versailles-Saint-Quentin, Versailles Cedex, France

EP-14. Hyperfine structure and magnetic properties of BaSrCo₂(Fe₁₋ₓAlₓ)₁₂O₂₂ synthesized by polymerizable complex method. J. Lim¹, I. Shim¹, B. Lee² and C. Kim¹ ¹ Kookmin University, Seoul, The Republic of Korea; ² Hankuk University of Foreign Studies, Yongin, The Republic of Korea

EP-15. Effect of deposition rate on morphology and magnetic properties of cobalt ferrite films grown by pulsed laser deposition. F. Eskandari¹,², P. Kameli¹, M. Venkatesan³, M. Coey² and H. Salamati¹ ¹ Department of Physics, Isfahan University of Technology, Isfahan, The Islamic Republic of Iran; ² School of Physics and CRANN, Trinity College Dublin, Dublin, Ireland

EP-16. Evaluation of Exchange Stiffness from Temperature Dependent Magnetization in ZnFe₂O₄ Thin Films. B. Sahu¹, P. Rajagiri¹, V. Narayanan², S. Prasad¹ and R. Krishnan¹ ¹ Physics, Indian Institute of Technology Bombay, Mumbai, India; ² Metallurgical Engineering and Materials Science, Indian Institute of Technology Bombay, Mumbai, India; ³ CNRS/Universite de Versailles-Saint-Quentin, Versailles Cedex, France

EP-17. Effects of Mixed Solvents on Morphologies, Cation Distribution and Magnetic Properties of ZnFe₂O₄ Nanoparticle by the Hydrothermal Method. K. Hyun Sung¹, D. Kim¹, C. Liu¹ and B. Lee¹ ¹ Department of Physics and Oxide Research Center, Hankuk University of Foreign Studies, Yongin-si, The Republic of Korea

EP-18. Comparison of Limiting Loop Model and Elemental Operator Model for Magnetic Hysteresis of Ferromagnetic Material. W. Xu¹, N. Duan¹, Y. Li², S. Wang¹, Y. Guo¹ and J. Zhu¹ ¹ Xi’an Jiaotong University, Xi’an, China; ² Hebei University of Technology, Tianjin, China; ³ University of Technology Sydney, Sydney, NSW, Australia
S. Nikitov\textsuperscript{1,2}, Y. Barabanenkov\textsuperscript{1}, S. Osokin\textsuperscript{1,2} and D. Kalyabin\textsuperscript{1,2}
\textsuperscript{1}. IRE RAS, Moscow, Russian Federation; \textsuperscript{2}. MIPT, Moscow, Russian Federation

EQ-02. A Polymer Based Air Gap Length Prediction Method with Current Injection and Fuzzy Logic Observer. E. Cheng\textsuperscript{1} and Y. Zou\textsuperscript{1}. Electrical Engineering, Hong Kong Polytechnic University, Hong Kong, Hong Kong; \textsuperscript{2}. Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China

EQ-03. Phase coexistence and magnetic glass like phase associated with the Morin type spin reorientation phase transition in SmCrO\textsubscript{3}. M. Tripathi\textsuperscript{1}, R.J. Choudhary\textsuperscript{1} and D.M. Phase\textsuperscript{2}
\textsuperscript{1}. Thin Film Magnetization, UGC DAE Consortium for Scientific Research, Indore, India; \textsuperscript{2}. Pulsed Laser Deposition, UGC DAE Consortium for Scientific Research, Indore, India

EQ-04. Building block magneto-luminescent nanomaterials of iron-oxide/ZnS@La\textsubscript{F}$_3$:Ce\textsuperscript{3+},Gd\textsuperscript{3+},Tb\textsuperscript{3+} with green emission.
N. Shrivastava\textsuperscript{1}, L. Khan\textsuperscript{2}, Z. Khan\textsuperscript{1}, J. Vargas\textsuperscript{4}, C. Ospina\textsuperscript{5}, H. Brioto\textsuperscript{2}, M. Knobel\textsuperscript{6}, M. Felinto\textsuperscript{6}, A. Menezes\textsuperscript{7}, Y. Javed\textsuperscript{7} and S.K. Sharma\textsuperscript{1}. Physics, Federal University of Maranhao, Sao Luis, Brazil; \textsuperscript{2}. Institute of Chemistry, University of Sao Paulo, Sao Paulo, Brazil; \textsuperscript{3}. Institute of Biomedical Sciences-IV, Sao Paulo, Brazil; \textsuperscript{4}. Bariloche Atomic Center (CNEA), Balseiro Institute (U.N. Cuyo), Bariloche, Argentina; \textsuperscript{5}. Brazilian Nanotechnology National Laboratory, Sao Paulo, Brazil; \textsuperscript{6}. Nuclear and Energy Research Institute, IPEN, University of Sao Paulo, Sao Paulo, Brazil; \textsuperscript{7}. Physics, University of Agriculture, Faislabad, Pakistan

EQ-05. Withdrawn

EQ-06. Interplay between epitaxial strain and low dimensionality effects in a ferrimagnetic oxide. E. Popova\textsuperscript{1}, M. Debi\textsuperscript{1}, L. Bocher\textsuperscript{2}, A. Gloter\textsuperscript{2}, O. Stéphan\textsuperscript{2}, B. Warot-Fonrose\textsuperscript{2}, B. Berini\textsuperscript{1}, Y. Dumont\textsuperscript{1} and N. Keller\textsuperscript{1}. CNRS-UVSQ, GEMaC, Versailles, France; \textsuperscript{2}. LPS, Orsay, France; \textsuperscript{3}. CEMES, Toulouse, France
EQ-07. Interplay of ferromagnetism and superconductivity in Ni nanowires with Nb leads. H. Ren1,2, S. Manna1,3 and E. Fullerton1 1. Center for Memory Recording Research, University of California San Diego, La Jolla, CA; 2. Materials Science and Engineering, University of California San Diego, La Jolla, CA; 3. Nanoengineering, University of California San Diego, La Jolla, CA

EQ-08. The electronic structure of FeSe superconductor probed by soft x-ray spectroscopy and density functional theory. I.O. Perez Lopez1 1. Physics and Mathematics, Universidad Autónoma de Ciudad Juárez, Juárez, Mexico

EQ-09. 3D New Calculation Principle of Levitation Force Between Permanent Magnet and Hard Type-II Superconductor Using Integral Approach. A. Azzouza1, A. Hicham1, J. Yonnet2 and P. Tixador2 1. L2EI Laboratory, University of Jijel, Jijel, Algeria; 2. G2E Lab, St Martin d’Hères, France

EQ-10. Spin Diffusion Length in Ferromagnet/Superconductor Bilayers. S. Cheng1,2, T.H. Chuang2 and J.G. Lin1 1. Center for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan; 2. Department of Materials Science and Engineering, National Taiwan University, Taipei, Taiwan

EQ-11. A New Thin Approximation Simulation Method of Screening Current in REBCO Tape Considering Tape’s Thickness. S. Noguchi1,2, A. Ishiyama3 and H. Ueda4 1. Graduate School of Information Science and Technology, Hokkaido University, Sapporo, Japan; 2. National High Magnetic Field Laboratory, Tallahassee, FL; 3. Waseda University, Tokyo, Japan; 4. Oayama University, Okayama, Japan

EQ-12. Improved flux pinning in Mn-doped YBa2Cu3O7_x thin film by low fluorine MOD. Z. Dong1,2, H. Gu1,2, F. Ding1,2, H. Zhang1,2, H. Zhang1,2 and F. Qu1,2 1. Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China; 2. Key Laboratory of Applied Superconductivity, Chinese Academy of Sciences, Beijing, China

EQ-13. Magnetic Vortex Resonance in Hybrid Ferromagnetic/Superconducting Structures. S. Lendinez1, J. Ding1, P. Lapa1,2, G. Karapetrov1, A.Y. Smirnov4 and V. Novosad1 1. Materials Science Division, Argonne National Laboratory, Argonne, IL; 2. Department of Physics and Astronomy, Texas A&M University, College Park, TX; 3. Department of Physics, Drexel University, Philadelphia, PA; 4. National University of Science and Technology (“MISIS”), Moscow, Russian Federation
Session ER
ELECTROMAGNETIC COMPATIBILITY AND MOTORS
(Poster Session)
Yasushi Endo, Chair
Tohoku University, Sendai, Japan

ER-01. Magnetic Circuit Evaluation of Conductive and Near-Field Noise Suppression using Co-Zr-Nb Film. S. Muroga1 and Y. Endo2 1. Electrical and Electronics Engineering, National Institute of Technology, Toyota College, Toyota, Japan; 2. Graduate School of Engineering, Tohoku University, Sendai, Japan

ER-02. Radiated EMI Modeling and Performance Analysis for PWM PMSM Drive System Based on Field-Circuit Coupled FEM. Y. Huangfu1,2, S. Wang1 and L. Di Rienzo2 1. State Key Laboratory of Electrical Insulation and Power Equipment, School of Electrical Engineering, Xi’an Jiaotong University, Xi’an, China; 2. Dipartimento di Elettronica, Informazione e Bioingegneria, Politecnico di Milano, Milano, Italy

ER-03. Suspension Force Modeling for a Novel Bearingless Flux-Switching Permanent Magnet Motor. C. Zhao1, H. Zhu1 and Y. Qin1. Jiangsu University, Zhenjiang, China

ER-04. An Electromagnet-Assisted Ferrite Magnet Motor. T. Fukami1, K. Motoki1, R. Kirihiata1, K. Shima1, M. Koyama1, T. Mori2 and M. Nakano2 1. Division of Electrical Engineering, Kanazawa Institute of Technology, Nonoichi, Japan; 2. Advanced Technology R&D Center, Mitsubishi Electric Corporation, Amagasaki, Japan

ER-05. A Novel Dual-Stator Vernier Permanent Magnet Machine. Y. Gao1, R. Qu1, D. Li1 and J. Li1 1. Huazhong University of Science and Technology, Wuhan, China

ER-06. A Partitioned-Stator Flux-Switching Permanent-Magnet Machine with Mechanical Flux Adjusters for Hybrid Electric Vehicles. C. Lee1 1. Research Laboratory of Electronics, Massachusetts Institute of Technology, Cambridge, MA


ER-08. Modeling and Analysis of Spoke-Type Permanent Magnet Vernier Machine Based on Equivalent Magnetic Network Method. S. Jiang1, G. Liu1, L. Xu1 and Q. Chen1 1. Jiangsu University, Zhenjiang, China
ER-09. Parametric Model of Electrical Machines with Air Gap Windings Based on Bivariate Fourier Approximations of Air Gap Flux Density. N. Borchardt1 1. Otto von Guericke University, Magdeburg, Germany

ER-10. Characteristic Analysis of Surface Permanent Magnet Vernier Motor with Concentrated Winding According to Pole Ratio and Winding Pole Number. H. Shi1 and K. Hirata1 1. Osaka University, Suita, Japan


ER-12. Torque Improvement of Dual Three-Phase Permanent Magnet Machine Using Zero Sequence Components. K. Wang1, J. Zhang1, Z. Gu1 and H. Sun1 1. Nanjing University of Aeronautics and Astronautics, Nanjing, China

ER-13. Reluctance Torque Ripple Reduction in High-Saliency-Ratio V-Type Interior Permanent Magnet Synchronous Machines by Rotor Design. W. Ren1 and Q. Xu1 1. School of Electrical and Electronic Engineering, Huazhong University of Science and Technology, Wuhan, China

ER-14. Cogging Torque Prediction in Permanent Magnet Machines with Axial-Varying Rotor Eccentricity by Superposition Method. Y. Li1 and Z.Q. Zhu1 1. The University of Sheffield, Sheffield, United Kingdom

ER-15. Tooth Tip Step-Shift for Cogging Torque and Torque Ripple Reduction in Permanent Magnet Machines with Segmented Stators. L. Wu1,2, R. Qu1 and H. Fang2 1. School of Automation and Electrical Engineering, Linyi University, Linyi, China; 2. School of Electrical and Electronic Engineering, Huazhong University of Science and Technology, Wuhan, China


ER-17. Research on Effect of Rotor Geometry on Irreversible Demagnetization in Permanent Magnets of Interior Permanent Magnet Machine. L. Guo1, C. Xia1 and Z. Wang2 1. School of Electrical Engineering and Automation, Tianjin University, Tianjin, China; 2. Tianjin Engineering Center of Electric Machine System Design and Control, Tianjin, China

ER-18. Influence of Magnetic Slot Wedge Defect on Starting Performance of High Voltage Line-Start Permanent Magnet Synchronous Motor. W. Li1, Z. Cao1, J. Li2, X. Zhang1 and J. Cao1 1. School of Electrical Engineering, Beijing Jiaotong University, Beijing, China; 2. School of Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, China
Session ES
MOTORS, GENERATORS AND ACTUATORS VII
(Poster Session)
Peter Rasmussen, Chair
Aalborg University, Aalborg, Denmark

ES-01. A Novel Split Translator Secondary Stator Permanent
Magnet Linear Generator for Oceanic Wave Energy
Conversion. M.R. Islam1, O. Farrok2, Y. Guo3 and J. Zhu3
1. Department of Electrical and Electronic Engineering,
Rajshahi University of Engineering and Technology, Rajshahi,
Bangladesh; 2. Department of Electrical and Electronic
Engineering, Ahsanullah University of Science and Technology,
Dhaka, Bangladesh; 3. Faculty of Engineering and Information
Technology, University of Technology Sydney, Sydney, NSW,
Australia

ES-02. Improved Rotor Structures for Increasing Flux per Pole of
PMSM. H. Kim1 and J. Moon1
1. Rotating Machinery Center,
Korea Testing Certification, Gunpo-si, The Republic of Korea

ES-03. Design and Analysis of Electromagnetic Gears with Variable
Gear Ratios. L. Cao1, K. Chau1, C. Lee2,1 and W. Li1
1. Electrical and Electronic Engineering, The University of
Hong Kong, Hong Kong, Hong Kong; 2. Research Laboratory
of Electronics, Massachusetts Institute of Technology,
Cambridge, MA

ES-04. Stator Shape Design Method for Improving Power Density
in PM Motor. N. Soda1 and M. Enokizono2
1. Ibaraki
University, Hitachi, Japan; 2. Vector Magnetic Characteristic
Technical Laboratory, Usa, Japan

ES-05. Cogging Torque Analysis of BLDC Motor Considering
Oriented Electrical Steel Sheet. J. Lee1, K. Lee1, S. Rhyu1 and
I. Jung1
1. Korea Electronics Technology Institute, Bucheon-si,
Gyeonggi-do, The Republic of Korea

ES-06. Analytical Modeling and Experimental Verification for
Electromagnetic Performance Analysis of Magnetic Geared
Permanent Magnet Machines. K. Shin1, H. Park2, H. Cho3 and
J. Choi1
1. Dept. of Electrical Engineering, Chungnam National
University, Daejeon, The Republic of Korea; 2. Advanced Brake
Engineering Team, Hyundai Mobis, Yongin-si, The Republic of
Korea; 3. Dept. of Electric, Electronic and Communication
Engineering Edu., Chungnam National University, Daejeon,
The Republic of Korea

ES-07. Comparative study of E-core and C-core modular PM linear
machines with different slot/pole combinations. Y. Yao1,
Q. Lu1 and Y. Ye1
1. College of Electrical Engineering,
Zhejiang University, Hangzhou, China
ES-08. An Improved Equivalent Magnetic Circuit Model of Coreless Axial Flux Permanent Magnet Synchronous Machine. G. Zhao1, J. Zhao1 and L. Yang1 1. School of Automation, Beijing Institute of Technology, Beijing, China

ES-09. Modular Dual Three-Phase Fractional-Slot Overlapping Windings for Reducing Rotor Losses of Permanent Magnet Synchronous Machines. K. Wang1, H. Lin1, H. Yang1, J. Jiang1, S. Fang1, Y. Huang1, X. Zhao2, J. Xia2 and D. Wang2 1. Engineering Research Center for Motion Control of MOE, Southeast University, Nanjing, China; 2. Goldwind Science and Creation Wind Power Equipment Co., Ltd., Beijing, China


ES-11. A practical approach to iron loss analysis of PMSMs. S. Hall1, R. Andersson1 and A. Reinap1 1. Industrial Electrical Engineering and Automation, Lund, Sweden

ES-12. A Fast Algorithm for Computation of Efficiency Map of Permanent Magnet Synchronous Machines Accounting for Different Control Strategies. W. Li1,2 and W. Fu1 1. Electrical Engineering, Tongji University, Shanghai, China; 2. Hong Kong Polytechnic University, Hong Kong, Hong Kong


THURSDAY THE FORUM MORNING 8:30

Session ET

POWER AND CONTROL MAGNETICS (Poster Session)

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

ET-01. Energy-Encrypted Contactless Charging for Swarm Robots. J. Wang1, Z. Liang1 and Z. Zhang1 1. School of Electrical and Information Engineering, Tianjin University, Tianjin, China

ET-02. Decoupling control for a magnetic levitation wind turbine using neural network inverse scheme plus model reference adaptive controllers. Y. Yu1 1. Jiangsu University, Zhenjiang, China
ET-03. Flux Weakening Performance of Permanent Magnet Synchronous Motors with a Conical Rotor. F. Chai¹, K. Zhao¹², Z. Li¹ and L. Gan¹. Harbin Institute of Technology, Harbin, China; 2. Jiamusi University, Jiamusi, China

ET-04. A strategy of wheel torque control by co-simulation in railway vehicle with independently rotating wheelsets. Y. Oh¹, J. Won¹, S. Cho² and H. Hong¹. Hanyang University, Seoul, The Republic of Korea; 2. Korea Automotive Technology Institute, Cheonan-si, The Republic of Korea

ET-05. Analysis of a Novel Doubly-Fed Doubly-Salient Transverse-Flux Machine for Wind Power Application. X. Zhao¹ and S. Niu¹. The Hong Kong Polytechnic University, Kowloon, Hong Kong

ET-06. Initial Rotor Position Detection for Sensorless Interior PMSM with Square-Wave Voltage Injection. X. Wu¹, S. Huang¹ and X. Liu¹. College of Electrical and Information Engineering, Hunan University, ChangSha, China

ET-07. Comparison and Analysis of Bearingless Permanent Magnet Synchronous Motor with Different Magnetized Rotor. Z. Tao¹². 1. Faculty of Automation, Huaiyin Institute of Technology, Huaiian, China; 2. School of Electrical and Computer Engineering, Royal Melbourne Institute of Technology, Melbourne, VIC, Australia

ET-08. Decoupling Control for Bearingless Synchronous Reluctance Motor Based on Support Vector Machine Inverse Optimized by Ant Colony Algorithm. X. Diao¹ and H. Zhu¹. Jiangsu University, Zhenjiang, China

ET-09. Automatic ball balancer using permanent magnets to reduce transient vibration. Y. Cho¹ and G. Jang¹. Department of Mechanical Convergence Engineering, Hanyang University, Seoul, The Republic of Korea

ET-10. Investigation on the Coordinate Control of Drive and Flux-Regulation for Hybrid Permanent Magnet Axial Field Flux-Switching Memory Machine. G. Yang¹, M. Lin¹, N. Li¹ and K. Liu¹. Engineering Research Center for Motion Control of MOE, Southeast University, Nanjing, China

ET-11. Design of Position Estimation Strategy of Sensorless Interior PMSM at Standstill Using Minimum Voltage Vector Injection Method. X. Wu¹, S. Huang¹ and X. Liu¹. College of Electrical and Information Engineering, Hunan University, ChangSha, China
Session FA
MAGNETIC MICRO- AND NANO-ACTUATORS AND ROBOTS
Andreas Berger, Co-Chair
CIC nanoGUNE, San Sebastian, Spain
Riccardo Bertacco, Co-Chair
Politecnico di Milano, Milano, Italy

2:00
FA-01. Modeling, Characterization and Control of Multiple Superparamagnetic Bolus-Type Microrobots Navigating in Microfluidic Channels. (Invited) A. Ferreira1, Laboratoire PRISME, INSA Centre Val de Loire, Bourges, France

2:30
FA-02. Magnetically Guided Microrobots for Medical Applications. (Invited) B. Nelson1. Mechanical and Process Engineering, ETH Zurich, Zurich, Switzerland

3:00
FA-03. Tri-segmented magnetic nanowires with antiparallel alignment: suitable platforms for biomedical applications with minimized agglomeration? (Invited) J. Sort1,2, J. Zhang1, S. Agramunt1, N. Del-Valle1, C. Navau1, S. Estrade3, F. Peiró1, S. Pané4, ÁLVAR. Sánchez1, E. Pellicer1 and J. Nogues2,5 1. Physics, Universitat Autonoma de Barcelona, Bellaterra, Spain; 2. ICREA, Barcelona, Spain; 3. Universitat de Barcelona, Barcelona, Spain; 4. ETH, Zurich, Switzerland; 5. ICN2, Bellaterra, Spain

3:30
FA-04. Nanoactuated magneto-mechanical systems. (Invited) P. Vavassori1,2, M. Pancalidì1, M.J. Perez-Roldan1,2, A. Chuvilin1,2 and A. Berger1. CIC nanoGUNE, San Sebastian, Spain; 2. Ikerbasque, Bilbao, Spain; 3. FEI Electron Optics, Eindhoven, Netherlands

4:00
FA-05. Magnetoelectric small-scale robots: a step towards highly integrated machines. (Invited) S. Pané1. Mechanical and Process Engineering, ETH Zurich, Zurich, Switzerland

4:30
FA-06. Magnetic nanoactuation in fluids and nanorobots that penetrate tissue. (Invited) P. Fischer1,2 1. Max Planck Institute for Intelligent Systems, Stuttgart, Germany; 2. Inst. of Physical Chemistry, University of Stuttgart, Stuttgart, Germany
Session FB
NOVEL MAGNETIC MATERIALS AND EMERGING TOPICS
Solveig Felton, Chair
Queen’s University Belfast, Belfast, United Kingdom

2:00

2:15
FB-02. Magneto-transport in ultra-thin two-dimensional superconducting Mo2C crystals. N. Kang, L. Wang, C. Xu and W. Wen. 1. Department of Electronics, Peking University, Key Laboratory for the Physics and Chemistry of Nanodevices, Beijing, China; 2. Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences, Shenyang, China

2:30
FB-03. Ferromagnet-nanodiamond platform for enhanced solid state qubit coupling and nanoscale sensing. P. Andrich, C. de las Casas, L. Liu, H. Bretschler, J. Berman, F. Heremans, P. Nealey, and D. Awschalom. 1. Institute for Molecular Engineering, University of Chicago, Chicago, IL; 2. Materials Science Division, Argonne National Laboratory, Argonne, IL

3:00

3:15
FB-05. A new artificial spin system: the four state dipolar Potts model. D. Louis, F. Montaigne, D. Lacour, M. Hehn and T. Hauet. Institut Jean Lamour, Université de Lorraine - CNRS, Vandoeuvre les Nancy, France

3:30
FB-07. Engineering the magnetic coupling at the molecule-magnetic surface interface in molecular spintronic devices. J. Moussy¹, L. Tortech², V. Campbell¹, Q. Arnoux², Y. Dappe¹, A. Smogunov¹ and T. Mallah³. 1. SPEC, CEA, Gif-sur-Yvette, France; 2. IPCM, Université Pierre et Marie Curie, Paris, France; 3. ICMMO, Université Paris Sud, Orsay, France

FB-08. Direct magnetic anisotropy manipulation through piezoelectromagnetism in a magnetic insulator (Ga,Mn)N. M. Sawicki¹, D. Sztenkiel¹, M. Votyn¹, G.P. Mazur¹, R. Adhikari², K. Kosiei³, K. Gas⁴, M. Zgirski¹, R. Kruszka¹, R. Jakiela¹, T. Li², A. Piotrowska³, A. Bonanni² and T. Dietl¹⁵ 1. Institute of Physics, Polish Academy of Sciences, Warsaw, Poland; 2. Institut für Halbleiter- und Festkörperphysik, Johannes Kepler University, Linz, Austria; 3. Institute of Electron Technology, Warsaw, Poland; 4. Institute of Experimental Physics, University of Wroclaw, Wroclaw, Poland; 5. WPI-Advanced Institute for Materials Research, Tohoku University, Sendai, Japan

FB-09. Turbulence-driven macroscopic magnetic self-assembly with adjustable level of agitation. T.A. Hageman¹,², P.A. Löthman¹,², M. Dürnberger¹, M. Elwenspoek², A. Manz² and L. Abelmann¹,² 1. KIST Europe, Saarbrücken, Germany; 2. University of Twente, Enschede, Netherlands; 3. Max Planck Institute for Informatics, Saarbrücken, Germany

FB-10. Imaging current-induced switching of antiferromagnetic domains in CuMnAs. M.J. Grzybowski¹,², P. Wadley¹, K. Edmonds¹, R. Beardsley¹, V. Hills¹, R. Campion¹, B. Gallagher¹, J. Chauhan¹, V. Novák³, T. Jungwirth³,¹, F. Maccherozzi⁴ and S. Dhesi³ 1. School of Physics and Astronomy, University of Nottingham, Nottingham, United Kingdom; 2. Institute of Physics, Polish Academy of Sciences, Warsaw, Poland; 3. Institute of Physics ASCR, Praha, Czech Republic; 4. Diamond Light Source, Didcot, United Kingdom

FB-11. Atomistic Study of Transition Metals Doped Topological Insulators. A. Ghasemi¹, D. Kepaptsoglou², Q. Ramasse², T. Hesjedal³ and V.K. Lazarov¹ 1. Department of Physics, University of York, York, United Kingdom; 2. SuperSTEM Laboratory, SciTech Daresbury Campus, Daresbury, United Kingdom; 3. Department of Physics, University of Oxford, Oxford, United Kingdom

Thursday 143
Session FC
SPIN–ORBIT TORQUES AND SPIN–ORBIT EFFECTS III
Can Onur Avci, Chair
Massachusetts Institute of Technology, Cambridge, MA

2:00
FC-01. Interfacial and bulk spin-orbit effects in Pt/Co(t)/AlOx probed by the ferromagnetic thickness dependence.
G. Vijay Karnad1, R. Lo Conte1,2, E. Martinez2, K. Lee1, N. Kim4, D. Han5, J. Kim4, S. Prenzel3, T. Schulz2, C. You4, H. Swagten3 and M. Kläui1,2 1. Johannes Gutenberg University- Mainz, Mainz, Germany; 2. MAINZ Graduate School, Mainz, Germany; 3. Universidad de Salamanca, Salamanca, Spain; 4. DGIST, Daegu, The Republic of Korea; 5. Eindhoven University of Technology, Eindhoven, Netherlands

2:15
FC-02. Minimizing the critical current for spin-orbit torque switching in Co-Tb ferrimagnetic alloys. T. Pham1, S. Je2,3, P. Vallobra1, T. Fache1, M. Cyrille4, O. Boulle2, G. Gaudin2, D. Lacour1, G. Malinowski2, M. Hehn1, J. Rojas-Sanchez3 and S. Mangin1 1. Institut Jean Lamour, UMR 7198 CNRS-Université de Lorraine, Nancy, France; 2. SPINTEC, CEA-INAC/CNRS/Univ. Grenoble Alpes, Grenoble, France; 3. Université de Lorraine, Nancy, France; 4. CEA-LETI, Grenoble, France

2:30
FC-03. Time- and space-resolved spin-orbit torque induced magnetization switching of Pt/Co/AlOx dots. (Invited) M. Baumgartner1, K. Garello1,2, J. Mendil3, E. Grimaldi1, C. Avci1, C. Murer1, J. Feng1, C. Stamm1, M. Gabureac1, Y. Acremann3, S. Finizio4, S. Wintz4, J. Raabe4 and P. Gambardella1 1. Department of Materials, ETH Zurich, Zurich, Switzerland; 2. IMEC, Leuven, Belgium; 3. Laboratory for Solid State Physics, ETH Zurich, Zurich, Switzerland; 4. Paul Scherrer Institut, Villigen, Switzerland

3:00
FC-04. Enhancement of Spin Orbit Torque in Ultra-Thin Chromium. A. Boxe1, S.S. Bhuktare1, H. Singh1 and A. Tulapurkar1 1. Electrical Engineering, Indian Institute of Technology Bombay, India, Mumbai, India

3:15
FC-05. Under Layer Effect on Perpendicular Magnetic Anisotropy Energies in Co20Fe60B20MgO. P.J. Chen1 and R. Shull1 1. National Institute of Standards and Technology, Gaithersburg, MD
FC-06. Spin Hall magnetoresistance in FeMn/Pt bilayers and multilayers. Y. Yang¹, Z. Luo¹, Y. Xu¹, B. Xu² and Y. Wu¹
1. Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; 2. Data Storage Institute, Singapore, Singapore

FC-07. Analysis of spin Hall effects in CuPt alloy. R. Ramaswamy¹, Y. Wang¹, M. Elyasi¹, M. Motapothula², T. Venkatesan¹,¹, X. Qu¹ and H. Yang¹,² 1. Dept. of ECE, National University of Singapore, Singapore, Singapore; 2. NUSNNI-Nanocore, National University of Singapore, Singapore, Singapore; 3. Institute of Solid State Physics and School of Physics Science, Tongji University, Shanghai, China

FC-08. Electrical detection of spin Hall effect torques induced auto-oscillations in nanometer thick YIG/Pt stripe. M. Collet¹, L. Soumah¹, P. Bortolotti¹, M. Muñoz², V. Cros¹ and A. Anane¹ 1. Unité Mixte de Physique CNRS, Thales, Univ. Paris-Sud, Université Paris-Saclay, Palaiseau, France; 2. IMM-Instituto de Microelectronic de Madrid (CNM-CSIC), PTM, Tres Cantos, Madrid, Spain

FC-09. Temperature dependence of the spin Hall angle and switching current in the nc-W(O)/CoFeB/MgO system with perpendicular magnetic anisotropy. N. Lukas¹, D. Meier¹, J.M. Schmalhorst¹, K. Rott¹, G. Reiss¹ and M. Meinert¹ 1. Faculty of Physics, Bielefeld University, Bielefeld, Germany

FC-10. Phase-Resolved Detection of the Spin-orbit Torques by Optical Ferromagnetic Resonance in Ultra-Thin Perpendicularly Magnetized Films. A. Capua¹,², T. Wang¹,², T. Phung¹,², S. Yang¹, C. Rettnere² and S. Parkin¹,² 1. IBM Almaden Research Center, San Jose, CA; 2. Micro-Structure Physics, Max Planck Institute, Halle, Germany; 3. International Center for Quantum Materials, Peking University, Beijing, China

FC-11. Propagating spin wave spectroscopy for spin-orbitronics. O. Gladiii¹, M. Collet², K. Garcia-Hernandez², C. Cheng², S. Xavier³, P. Bortolotti², V. Cros², J. Kim², A. Anane², Y. Henry¹ and M. Bailleul¹ 1. Institut de Physique et Chimie des Matériaux de Strasbourg, CNRS-Université de Strasbourg, Strasbourg, France; 2. UMPhy CNRS Thales, Palaiseau, France; 3. Thales RT, Palaiseau, France; 4. Centre de Nanosciences et de Nanotechnologies, Orsay, France
Session FD

MAGNETIC IMAGING
Peter Fischer, Chair
Lawrence Berkeley National Laboratory, Berkeley, CA

2:00

FD-01. Stripes Rotation in Fe$_{88}$Si$_{9}$B$_{13}$ Thin Films with Perpendicular Anisotropy by Field-Dependent Magnetic Force Microscopy.  
M. Coisson$^1$, G. Barrera$^1$, F. Celegato$^1$ and P. Tiberto$^1$  
1. Nanoscience and Materials, INRIM, Torino, Italy

2:15

O. Kazakova$^1$, V. Panchal$^1$, H. Corte-León$^1$,  
B. Gribkov$^{1,2}$, L.A. Rodriguez$^1$, E. Sноек$^1$ and V. Neu$^1$  
1. NPL, Teddington, United Kingdom; 2. Institute for Physics of Microstructures RAS, Nizhny Novgorod, Russian Federation; 3. CEMES-CNRS, Toulouse, France; 4. Leibniz Institute for Solid State and Materials Research, Dresden, Germany

2:30

FD-03. Magnetic Imaging and Manipulation of Molecular-Based Nanoparticles on a Surface. (Invited)  
A. Forment-Aliaga$^1$, E. Pinilla-Cienfuegos$^{1,2}$, S. Mañas-Valero$^1$ and E. Coronado$^1$  
1. Instituto de Ciencia Molecular, Paterna, Spain; 2. Centro de Tecnologia Nanofotónica de Valencia, Universidad Politécnica de Valencia, Valencia, Spain

3:00

FD-04. Nano-imaging of magnetic domain walls in GaMnAs with a scanning NV magnetometer.  
T. de Guillebon$^1$, T. Hingant$^1$, L. Martinez$^2$, V. Jeudy$^3$, S. Rohart$^2$, A. Thiaville$^1$, A. Lemaître$^2$, C. Ulysse$^2$, L. Rondin$^1$, V. Jacques$^2$ and J. Roche$^1$  
1. Laboratoire Aime Cotton, CNRS, Université Paris-Sud and ENS Cachan, Orsay, France; 2. Laboratoire Charles Coulomb, Universite de Montpellier and CNRS, Montpellier, France; 3. Laboratoire de Physique des Solides, Universite Paris-Sud, CNRS UMR 8502, Orsay, France; 4. Laboratoire de Photonique et Nanostructures, LPN/CNRS, Marcoussis, France

3:15

P.S. Keatley$^1$, T.H. Loughran$^1$, E. Hendry$^1$, W. Barnes$^1$, R.J. Hicken$^1$, J.R. Childress$^2$ and J.A. Katine$^2$  
1. Department of Physics and Astronomy, University of Exeter, Exeter, United Kingdom; 2. San Jose Research Center, HGST, a Western Digital Company, San Jose, CA
FD-06. Evolution of Magnetic States from Bubble Skyrmions to Radial Vortices. V. Karakas¹, A. Gokce¹, A.T. Habiboglu¹, S. Arpacı¹, K. Ozbouduman¹, I. Cinar¹, G. Siracuso², R. Tomasello¹, M. Carpentieri³, S. Tacchi⁴, G. Finocchio⁷ and O. Ozatay¹. 1. Department of Physics, Bogazici University, Istanbul, Turkey; 2. Physics, Karamanoglu Mehmetbey University, Karaman, Turkey; 3. Department of Computer Engineering and Telecommunications, University of Catania, Catania, Italy; 4. Department of Engineering, Polo Scientifico Didattico di Terni, University of Perugia, Perugia, Italy; 5. Department of Electrical and Information Engineering, Politecnico di Bari, Bari, Italy; 6. IOM-CNR, Perugia, Italy; 7. Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina, Messina, Italy

FD-07. Nanoscale Mallison-Halbach Effect Based on Chiral Thin Film Multilayer with Interfacial DMI. H.J. Hug¹,², M.A. Marioni¹, M. Penedo¹ and M. Bacani¹. 1. Nanoscale Materials Science, Empa, Swiss Federal Laboratories for Materials Science and Technology, Duebendorf, Switzerland; 2. Department of Physics, University of Basel, Basel, Switzerland

FD-08. Direct observation of room temperature antiferromagnetism in individual goethite nanoparticles. D.M. Bracher¹, T.M. Savchenko¹, M. Wyss², G. Olivieri³, M.A. Brown³, F. Nolting¹, M. Poggio² and A. Kleibert¹. 1. Paul Scherrer Institut, Villigen, Switzerland; 2. Department of Physics, University of Basel, Basel, Switzerland; 3. Department of Materials, ETH Zürich, Zürich, Switzerland

FD-09. Detection of Spin Hall Effect Switching by Conductive Atomic Force Microscopy. B. Parks¹, S.D. Oberdick¹, M. Bapna¹ and S. Majetich¹. 1. Carnegie Mellon University, Pittsburgh, PA

FD-10. Skyrmion spin profiles and supporting Dzyaloshinskii-Moriya interaction by quantitative magnetic force microscopy. M.A. Marioni¹, M. Baćani¹, J. Schwenk¹,² and H.J. Hug¹,². 1. Empa, Materials Science and Technology, Duebendorf, Switzerland; 2. Department of Physics, University of Basel, Basel, Switzerland

FD-11. Magnetic force microscopy imaging using a domain wall. H. Corte-Lein¹,², L. Rodriguez², M. Pancaldi³, D. Cox¹,³, E. Snoeck³, V. Antonov⁴, P. Vavassori⁴,⁵ and O. Kazakova¹. 1. TQEM, National Physical Laboratory, Teddington, United Kingdom; 2. Physics, Royal Holloway University of London, Egham, United Kingdom; 3. CEMES-CNRS, Toulouse, France; 4. CIC nanoGUNE, Donostia, Spain; 5. University of Surrey, Guildford, United Kingdom; 6. IKERBASQUE, Bilbao, Spain
Session FE
RECORDING HEADS AND MATERIALS, PLUS RECORDING PHYSICS AND MODELLING
Simon Greaves, Chair
Tohoku University, Sendai, Japan

2:00

2:15
FE-02. Control of hybrid domain wall states in recessed trilayer synthetic antiferromagnet TGMR reader by tuning RKKY exchange coupling strengths. A. Dobrynin, D. O'Donnell and K. McNeill 1. Research and Development, Seagate Technology, Derry, United Kingdom

2:30

2:45

3:00

3:15
FE-06. Acceleration of HAMR simulations on granular media with precomputed switching probabilities based on the Landau-Lifshitz-Bloch equation. C. Vogler, C. Abert, F. Bruckner, F. Slanovc and D. Sues 1. Institute of Solid State Physics, TU Wien, Vienna, Austria
3:30

FE-07. Dual Freelayer Reader for Improved Linear Density.
M. Kief1, T. Boonstra1, D. Dimitrov1 and D. Song1 1. Seagate Technology, Bloomington, MN

3:45

FE-08. High-Frequency Modes of the Dual Free Layer Sensor.
E. Auerbach1, S. Gider2, G. Albuquerque2, N. Leder3, H. Arthaber2 and D. Süss1 1. Institute of Solid State Physics, Vienna University of Technology, Vienna, Austria; 2. Recording Head Modeling, Western Digital Corporation, San Jose, CA; 3. Institute of Electrodynamics, Microwave, and Circuit Engineering, Vienna University of Technology, Vienna, Austria

4:00

FE-09. A model of spin torque transfer in a non-zero temperature system described by most probable path. J. Talbot1 and J. Miles1 1. Computer Science, University of Manchester, Manchester, United Kingdom

4:15

FE-10. Heusler Alloys with Tungsten Seed Layers for CPP-GMR Junctions. W.J. Frost1 and A. Hirohata1 1. Department of Electronics, University of York, York, United Kingdom

THURSDAY WICKLOW HALL 1
AFTERNOON

2:00

Session FF
SENSORS AND MEMS: DEVICES AND APPLICATIONS I
Weinong Fu, Chair
The Hong Kong Polytechnic University, Hong Kong, Hong Kong

2:00

FF-01. A miniaturized force sensor based on hair-like flexible magnetized cylinders deposited over a giant magnetoresistive sensor. P.M. Ribeiro1,2, A. Alfhadel3, J. Kosel4, F. Franco1,2, S. Cardoso1,2, A. Bernardino4, L. Jamone5 and J. Santos-Victor1 1. INESC - Microsistemas e Nanotecnologias and IN, Lisbon, Portugal; 2. Physics Department, Instituto Superior Técnico, Lisbon, Portugal; 3. Computer, Electrical and Mathematical Sciences and Engineering Division, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia; 4. Instituto de Sistemas e Robótica, Instituto Superior Técnico, Lisbon, Portugal; 5. Advanced Robotics Centre, Queen Mary University, London, United Kingdom
2:15

FF-02. Ferromagnetic swimmer: A microfluidic pump prototype.  
J.K. Hamilton¹, P.G. Petrov¹, C.P. Winlove¹, A.D. Gilbert²,  
M.T. Bryan³ and F. Ogrin¹ ¹. Department of Physics, University  
of Exeter, Exeter, United Kingdom; ². Department of  
Mathematics, University of Exeter, Exeter, United Kingdom

2:30

FF-03. Contactless piston position transducer with axial excitation.  
P. Ripka¹, A. Chirtsov¹ and V. Grim² ¹. Czech Technical  
University, Prague, Czech Republic

2:45

FF-04. Foil Sensors for Magnetic Off-Plane Flux Detection Between  
Inner Laminations of Machine Cores.  
G. Shilyashki¹, H. Pfützner¹, M. Palkovits¹, A. Windischhofer¹ and M. Giefing¹  
¹. EMCE, TU Wien, Vienna, Austria

3:00

FF-05. Battery-less Hall sensor operated by energy harvesting from  
a single Wiegand pulse. (Invited) N. Fujinaga¹, A. Takebuchi¹,  
T. Yamada¹ and Y. Takemura¹ ¹. Yokohama National  
University, Yokohama, Japan

3:30

FF-06. A Room-Temperature Resettable Thermomagnetic-  
Piezoelectric MEMS Magnetic Sensor. T. Chung¹,², C. Tseng¹  
and C. Chen¹ ¹. Department of Mechanical Engineering,  
National Chiao Tung University, Hsinchu, Taiwan; ². International College of Semiconductor Technology, National  
Chiao Tung University, HsinChu, Taiwan

3:45

FF-07. Improved guiding efficiency of magnetic flux concentrators  
through a double layer architecture with vertical tapering.  
J. Valadeiro¹,², D.C. Leitao¹,², S. Cardoso¹,² and P. Freitas¹,³  
¹. INESC - Microsystems and Nanotechnologies, Lisboa,  
Portugal; ². Physics Department, Instituto Superior Técnico,  
Lisbon, Portugal; ³. INL, Braga, Portugal

4:00

FF-08. High Performance Single Element MI Magnetometer with  
Peak-to-Peak Voltage Detector by Synchronized Switching.  
J. Ma¹ and T. Uchiyama¹ ¹. Graduate School of Engineering,  
Nagoya University, Nagoya, Japan

4:15

FF-09. Fabrication and Performance of Integrated Fluxgate for  
Current Sensing Applications. D. Lee¹, M. Eissa¹, A. Gabrys¹,  
B. Shulver², E. Mazotti², S. Lavangkul², S. Chevacharaenkul²,  
N. Murphy², F. Wang², Y. Zhang², W. French², M. Jenson² and  
R. Jackson² ¹. Texas Instruments Incorporated, Santa Clara,  
CA; ². Texas Instruments Incorporated, Dallas, TX
4:30

FF-10. A Novel Magnetic Sensor Based on the Love-Type Surface-Acoustic Wave Resonator. X. Liu1, X. Yang1, S. Chen1, J. Ouyang1, Z. Guo1, B. Zhu1 and Y. Zhang1 1. School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan, China

4:45

FF-11. Detection of inner cracks in thick steel plates using non-saturated AC magnetic flux leakage testing with a magnetic resistance gradiometer. K. Tsukada1, Y. Majima1, Y. Nakamura1, T. Yasugi1, K. Sakai1 and T. Kiwa1 1. Okayama University, Okayama, Japan

THURSDAY WICKLOW HALL 2A
AFTERNOON

2:00

Session FG

CE SUBSTITUTION, RECYCLING AND NOVEL PERMANENT MAGNETS

Dimitris Niarchos, Chair
NCSR Demokritos, Athens, Greece

2:00

FG-01. Manufacturing of die-upset rare earth – iron – boron magnets with (Ce,La)-mischmetal. A. Gabay1 and G. Hadjipanayis1 1. University of Delaware, Newark, DE

2:15

FG-02. Spectroscopic valence of cerium in Ce-La-Fe-B compounds. M. Ito1,2, M. Yano1,2, T. Shoji1,2, A. Manabe2, N. Dempsey1,4 and D. Givord1,4 1. Toyota Motor Corporation, Susono, Japan; 2. Technology Research Association of Magnetic Materials for High-Efficiency Motors (MagHEM) Higashifuji-Branche, Susono, Japan; 3. CNRS, Institut Néel, Grenoble, France; 4. Univ. Grenoble Alpes, Institut Néel, Grenoble, France

2:30

FG-03. Mössbauer study on nanocrystalline (Ce1-xNdx)16Fe78B6 alloys. L. Zhao1,2, H. Yu1, Z. Liu1 and J. Greneche2 1. School of Materials Science and Engineering, South China University of Technology, Guangzhou, China; 2. Institut des Molécules et Matériaux du Mans CNRS UMR-6283, Université du Maine, Le Mans, France

3:00

FG-05. Microstructural influence on surface and bulk magnetisation behaviour in hexagonal ferrites observed by in-situ Magnetic Force Microscopy (MFM) and SQUID magnetometry. T.O. Helbig1, F. Rhein1,2, V. Neu3, M. Krispin2 and O. Gutfleisch1. I. Materials Science, TU Darmstadt, Darmstadt, Germany; 2. Corporate Technology, Siemens AG, Munich, Germany; 3. IFW Dresden, Dresden, Germany

3:15

FG-06. High Coercive Rare Earth-Free Magnets for Medium Temperature Applications: from Quasi-Isotropic to Highly Textured MnBi Films. E. Céspedes1, M. Villanueva1, F.J. Mompeán2, C. Navío1, J. Rial1, A. Inchausti1, P. Pedraz1, M.R. Osorio1, M. García-Hernández2 and A. Bollero1. IMDEA Nanoscience, Madrid, Spain; 2. Instituto de Ciencia de Materiales de Madrid – ICMM-CSIC, Madrid, Spain

3:30

FG-07. RE-free iron-based systems containing refractory metals as candidates for permanent magnets. (Invited) D. Goll1, R. Loeffler1, T. Gross1, T. Grubesa1, U. Pflanz1 and G. Schneider1. I. Materials Research Institute, Aalen University, Aalen, Germany

4:00

FG-08. Synthesis and magnetic properties of (Fe,Co)3B based semi-hard magnets. S.K. Pal1, L.V. Diop1, K. Skokov1, S. Ener1 and O. Gutfleisch1. I. Institut für Materialwissenschaft, Technische Universität Darmstadt, Darmstadt, Germany

4:15

FG-09. Structural transformations during an environmentally friendly process for recycling Nd-Fe-B permanent magnets. V. Nachbaur1, N. Maat1, S. Jouen1 and J. Le Breton1. I. Groupe de Physique des Matéraux, Normandie Univ, UNIROUEN, INSA Rouen, CNRS, Rouen, France

4:30

FG-10. Closing the loop: approaches and progress in recycling of Nd-Fe-B sintered magnets employing hydrogen decrepitation and melt-spinning processes. E. Brouwer1, O. Diehl1, M. Schönfeldt2, A. Dirks1, K. Racht1, J. Gassmann1, K. Güth1, A. Buckow1, R. Stauber2 and O. Gutfleisch1,3. I. Fraunhofer Project Group Materials Recycling and Resource Strategies IWKS, Hanau, Germany; 2. Functional Materials, Technische Universität Darmstadt, Darmstadt, Germany
FG-11. Microstructure and Magnetic Properties of Recycled NdFeB Magnets with Blending Addition of Ce-Rich Alloy. H. Feng¹, Y. Zhang¹, A. Li¹, Y. Zhao¹ and W. Li¹. Division of Functional Materials, China Iron and Steel Research Institute Group, Beijing, China.

THURSDAY WICKLOW HALL 2B
AFTERNOON

2:00

Session FH

SHIELDING, LEVITATION AND PROPULSION WITH MOTORS, GENERATORS AND ACTUATORS

Mochimitsu Komori, Co-Chair
Kyushu Institute of Technology, Kitakyushu, Japan
Masatsugu Takemoto, Co-Chair
Hokkaido University, Sapporo, Japan

2:00

FH-01. Torque Quality and Skin/Proximity Effect Investigation of a Fractional Slot PM Assisted Synchronous Reluctance Motors. O.F. Payza¹ and M. Aydin¹. Kocaeli University, Kocaeli, Turkey

2:15

FH-02. A Novel Torque Quality Improvement of an Asymmetric Windings Permanent Magnet Synchronous Motor. E. Yolacan¹, M. Gaven² and M. Aydin¹. Kocaeli University; Kocaeli, Turkey;
2. Schlumberger, Sugar Land, TX

2:30

FH-03. Design and Optimization of Direct Drive 8/6 External-Rotor Switched Reluctance Motor (Ex-R SRM) for Low Speed Application. R.M. Azhagar¹ and A. Kavitha¹. Electrical and Electronics Engineering, College of Engineering, Anna University, Chennai, India

2:45

2. Department of Electrical and Computer Engineering, University of North Carolina at Charlotte, Charlotte, NC

3:00

FH-05. A Novel Brushless Dual-Mechanical-Port Dual-Electrical-Port Machine. X. Ren¹, D. Li¹ and R. Qu¹. Huazhong University of Science and Technology, Wuhan, China
FH-06. Anisotropic Magnetic Shielding Effectiveness of Magnetic Shielded Package. K. Yamada1. Wireless System Laboratory, Corporate Research & Development Center, Toshiba Corporation, Kawasaki, Japan

3:30

FH-07. Design Principles of a Magnetic-Passive and Sliding Conjugated Bearing. (Invited) R.A. Pavani2 and O. Horikawa1 1. Escola Politécnica of University of São Paulo, São Paulo, Brazil

4:00

FH-08. An Improved Magnetic Circuit Model of a 3-DOF Magnetic Bearing Considering Leakage and Cross Coupling Effects. Y. Zhong1, L. Wu1, X. Huang1, Y. Fang1 and J. Zhang1 1. College of Electrical Engineering, Zhejiang University, Hangzhou, China

4:15

FH-09. Magnetic Bearing with Uniaxial Control Using Radial Layers Repulsive Type Magnetic Bearing. R.I. Yamamoto1 and O. Horikawa1 1. Escola Politécnica da USP, São Paulo, Brazil

4:30

FH-10. Analysis of Acceleration Characteristics in Single Stage Electromagnetic Theta Gun. Y. Chen1, X. Bao1, Y. Zhou1, P. Fu2 and L. Yang2 1. School of Electrical Engineering and Automation, Hefei University Of Technology, Hefei, China; 2. Institute of Plasma Physics, Chinese Academy of Science, Hefei, China

4:45

Session FM
BIO-MEDICAL MAGNETIC THERAPIES III
(Poster Session)
Jeyadevan Balachandran, Co-Chair
The University of Shiga Prefecture, Hikone, Japan
Yuko Ichiyanagi, Co-Chair
Yokohama National University, Yokohama, Japan

FM-01. Tuning applied field characteristics to improve the efficiency of magnetic hyperthermia. O. Laslett¹, R. Woodward², H. Fangohr¹ and O. Hovorka¹ 1. Computational Engineering and Design, University of Southampton, Southampton, United Kingdom; 2. Department of Physics, University of Western Australia, Perth, WA, Australia

FM-02. Modeling and Analysis of Thyroid Gland Tissue Temperature Distribution for Electromagnetic Induction Ablation Using Thermotherapy Needle. Y. Chen¹, C. Chen², C. Tai³, Y. Du¹ and Y. Liu¹ 1. Department of Electrical Engineering, National Cheng Kung University, Tainan, Taiwan; 2. Medical Devices and Opto-Electronics Equipment Department, Metal Industries Research & Development Centre, Kaohsiung, Taiwan; 3. National Cheng Kung University Hospital, Tainan, Taiwan

FM-03. Sub/Supraliminal Stimulus with Pseudo-“Blindsight” under Exposure to ELF fields. H. Nakagawa¹ and S. Ueno² 1. Department of Electrical and Electronic Engineering, Tokyo Denki University, Adachi-ku, Japan; 2. Department of Applied Quantum Physics, Kyushu University, Fukuoka, Japan

FM-04. Quadruple Butterfly Coil with Passive Magnetic Shielding for Focused Transcranial Magnetic Stimulation. P. Rastogi¹, Y. Tang¹, B. Zhang¹, E.G. Lee², R. Hadimani³,¹ and D. Jiles¹ 1. Department of Electrical and Computer Engineering, Iowa State University, Ames, IA; 2. Department of Psychiatry, Massachusetts General Hospital, Harvard Medical School, Boston, MA; 3. Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA

FM-05. Synthesis, structural, physical and chemical characterization of hybrid magnetic liposome nanocarriers of novel antioxidants for targeted drug delivery. E. Halevas¹,², T.A. Papadopoulos³, A. Hatzidimitriou¹, D. Reid⁴, A. Salifoglou⁵ and G. Litsardakis⁶ 1. Electrical and Computer Engineering, Aristotle University of Thessaloniki, Thessaloniki, Greece; 2. Chemical Engineering, Aristotle University of Thessaloniki, Thessaloniki, Greece; 3. Department of Natural Sciences, University of Chester, Chester, United Kingdom; 4. Department of Chemistry, Aristotle University of Thessaloniki, Thessaloniki, Greece; 5. Department of Chemistry, University of Cambridge, Cambridge, United Kingdom
FM-06. Improving Reliability of High-Current Magnetic Field Generator (HCMFG) for Transcranial Magnetic Stimulation. J. Selvaraj1, P. Rastogi1 and M. Mina1
1. Electrical and Computer Engineering, Iowa State University, Ames, IA

FM-07. Magnetohydrodynamic Study for Magnetic Therapy. H. Nakagawa1 and M. Ohuchi1
1. Department of Electrical and Electronic Engineering, Tokyo Denki University, Adachi-ku, Japan

FM-08. Brain Responses Evoked by Different-Mode Magnetic Stimulation of Acupuncture Point. L. Fu1, G. Xu1, H. Yu2 and S. Tian1
1. Electrical Engineering, Hebei University of Technology, Tianjin, China; 2. Biomedical Engineering, Hebei University of Technology, Tianjin, China

FM-09. Magnetically Targeted Stem Cell Delivery in Spinal Cord Injury: Rat Model. A. Dejneka1, V. Zabloitskii1, O. Lunov1 and S. Kubinova1,2
1. Department of Optics, Institute of Physics CAS, Prague, Czech Republic; 2. Institute of Experimental Medicine AS CR, Prague, Czech Republic

FM-10. Effects of organic coating on hyperthermic efficiencies. M. Cobianchi1,2, A. Lascialfari1,3, V. Kusigerki4, A. Mrakovic4, N. Knezevic5, D. Peddis6,7 and E. Illes4
1. Fisica, Università degli studi di Pavia, Pavia, Italy; 2. INSTM, Pavia, Italy; 3. Università degli studi di Milano, Milano, Italy; 4. The Vinca Institute, Belgrade, Serbia; 5. Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia; 6. Istituto di Struttura della Materia, CNR, Roma, Italy

FM-11. Targeting of TRAIL-conjugated maghemite nanoparticles for cancer therapy. H. Belkahla1,2, E. Mazario1, C. Whilem1, O. Micheau1, S. Ammar2, M. Hemadi2 and T. Gharbi1
1. nanomedicineLab, Université Franche Comté, Besançon, France; 2. ITODYS Laboratory, Université Paris Diderot, Paris, France; 3. MSC Laboratory, Université Paris Diderot, Paris, France; 4. Litéides Nutrition Cancer, Facultés de Médecine et de Pharmacie, INSERM, UMR-866, Université de Bourgogne, Dijon, France

FM-12. Numerical study of the temperature field in the magnetic hyperthermia. I. Astefanoaei1, H. Chiriac2 and A. Stancu1
1. Department of Physics and CARPATH Center, Alexandru Ioan Cuza University, Iasi, Romania; 2. National Institute of Research & Development for Technical Physics, Iasi, Romania

1. Mechanical and Nuclear Engineering, Virginia Commonwealth University, Glen Allen, VA

FM-14. Factors Affecting the Measurement of Magnetic Hyperthermia in Nanoparticle Suspensions. G. Vallejo-Fernandez1, A. Drayton1, J. Zehner1, J. Timmis2, V. Patel1 and K. O’Grady1,2
1. University of York, York, United Kingdom; 2. Liquids Research Limited, Bangor, United Kingdom
FM-15. Magnetic Nanoparticles Coated with Anti-Tumor Drug for Hyperthermia-Boosted Cancer Therapy. H. Chiriac\(^1\), D. Herea\(^1\), E. Radu\(^1,2\), E. Carasevici\(^1,4\), C. Tiron\(^4\), F. Zugun-Eloae\(^1,4\), O. Nedelcu\(^1,2\) and N. Lupu\(^1\). \(^1\) National Institute of Research and Development for Technical Physics, Iasi, Romania; \(^2\) University “Al. I. Cuza”, Iasi, Romania; \(^3\) University of Medicine and Pharmacy “Gr. T. Popa”, Iasi, Romania; \(^4\) Regional Institute of Oncology, Iasi, Romania

FM-16. Reversible Permeabilization of Cancer Cells by High Pulsed Sub-Microsecond Magnetic Field. V. Novickij\(^1\), I. Girkontaite\(^2\), A. Grainys\(^1\), A. Zinkeviciute\(^2\), E. Lastauskiene\(^3\), A. Paskevicius\(^4\), J. Svediene\(^4\), E. Lastauskiene\(^3\), A. Novickij\(^1\). \(^1\) Institute of High Magnetic Fields, Vilnius Gediminas Technical University, Vilnius, Lithuania; \(^2\) Department of Immunology, State Research Institute Centre for Innovative Medicine, Vilnius, Lithuania; \(^3\) Department of Microbiology and Biotechnology, Vilnius University, Vilnius, Lithuania; \(^4\) Laboratory of Biodeterioration Research, Nature Research Centre, Vilnius, Lithuania; \(^5\) Laboratory of Mycology, Nature Research Centre, Vilnius, Lithuania

FM-17. In vitro magneto-mechanical cancer cell destruction efficacy under biaxial DC pulsed magnetic field. D. Wong\(^1\), W. Gan\(^1\), N. Liu\(^1\) and W. Lew\(^1\). \(^1\) Physics and Applied Physics, Nanyang Technological University, Singapore, Singapore

FM-18. Multifunctionality of maghemite nanoparticles functionalized by HSA for drug delivery. J. Hai\(^1\), H. Piraux\(^1\), E. Mazario\(^1\), J. Volatron\(^2\), N. Ha-Duong\(^1\), P. Decorse\(^1\), A. Espinosa\(^2\), C. Whilemi\(^2\), P. Verbeke\(^1\), F. Gazeau\(^2\), S. Ammar\(^1\), J. El Hage Chahine\(^1\) and M. Hemadi\(^1\). \(^1\) ITODYS Laboratory, Université Paris Diderot, Paris, France; \(^2\) MSC Laboratory, Université Paris Diderot, Paris, France; \(^3\) UMR 1149 Inserm, Université Paris Diderot, Paris, France

THURSDAY THE FORUM

THURSDAY AFTERNOON

1:30

Session FN

MAGNETIC NANOPARTICLES, NANOWIRES, AND 3D STRUCTURES II (Poster Session)

Oscar Iglesias, Chair
University of Barcelona, Barcelona, Spain

FN-01. Microstructure and magnetic properties of CoFeV nanosprings. D. Nam\(^1\), S. Kim\(^1\), Y. Jeon\(^1\) and Y.K. Kim\(^1\). \(^1\) Materials Science and Engineering, Korea University, Seoul, The Republic of Korea
FN-02. Morphology and magnetic properties of $\alpha^\text{Fe}_{16}\text{N}_2$ nanoparticles synthesized from iron hydroxide with various kinds of shape. M. Tobise¹, H. Amano², Y. Yamaguchi², Y. Nomura² and S. Saito² ¹ Tohoku University, Sendai, Japan; ² Taiyo Nippon Sanso Corp., Yamanashi, Japan

FN-03. Magnetic field dependence of Ni nanorod Brownian relaxation. H. Remmer¹, M. Gratz², A. Tschoepe² and F. Ludwig¹ ¹ Institute of Electrical Measurement and Fundamental Electrical Engineering, TU Braunschweig, Braunschweig, Germany; ² Experimentalphysics, Universität des Saarlandes, Saarbrücken, Germany

FN-04. Magneto-plasmonic nanoparticles embedded in a matrix synthesized by cluster deposition. O. Loiselet¹, F. Tournus¹, V. Dupuis¹ and J. Bellessa¹ ¹ ILM UMR5306 CNRS, Villeurbanne, France

FN-05. Cubic chemically ordered FeRh and FeCo nanomagnets prepared by mass-selected low energy clusters beam deposition, a comparative study. V. Dupuis¹ and A. Robert¹ ¹ ILM CNRS/University Lyon, Villeurbanne, France

FN-06. Tetragonalization of (Cu,Co)Fe₂O₄ particles via the Jahn-Teller effect induced by Cu²⁺ ions. H. Latiff¹, M. Kishimoto¹, S. Sharmin¹, E. Kita¹, H. Yanagihara¹ and T. Nakagawa¹ ¹ Institute of Applied Physics, University of Tsukuba, Tsukuba, Japan; ² Department of Management of Industry and Technology, Graduate School of Engineering, Osaka University, Suita, Japan

FN-07. Magnetic particle spectrometry of Fe₃O₄ nanoclustered particles. L. Abelmann¹ ², A. Blaudszun¹, M. Ledwig¹, L. Pan⁴, B. Park⁴ and Y. Kim⁴ ¹ KIST Europe, Saarbrücken, Germany; ² University of Twente, Enschede, Netherlands; ³ Pure Devices, Würzburg, Germany; ⁴ Materials Science and Engineering, Korea University, Seoul, The Republic of Korea

FN-08. The anisotropy of the ac susceptibility of immobilized magnetic nanoparticles – the influence of intra-potential-well contribution on the ac susceptibility spectrum. F. Ludwig¹, C. Balceris¹ and C. Johansson² ¹ Institute of Electrical Measurement and Fundamental Electrical Engineering, TU Braunschweig, Braunschweig, Germany; ² Acreo Swedish ICT AB, Göteborg, Sweden

FN-09. Porous iron oxide particles with heat generation ability under alternating magnetic field. S. Fujieda¹, Y. Imaizumi¹, Y. Hayasaka¹, T. Akiyama¹, K. Shinoda¹, J. Balachandran¹ and S. Suzuki¹ ¹ Tohoku University, Sendai, Japan; ² The University of Shiga Prefecture, Hikone, Japan

FN-10. Morphological controlled synthesis and magnetic studies of ferrite nanoparticles. Y. Eom¹ and C. Kim¹ ¹ Emerging Materials Science, DGIST, Daegu, The Republic of Korea
FN-11. Direct synthesis of L10 nanoparticle alloys from salt layered precursor: an in-situ XAS study. A. Capobianchi¹, G. Varvaro¹, P. Imperatori², F. D’Acapito³ and S. Laureti¹
1. nM2-Lab, Istituto di Struttura della Materia - CNR, Monterotondo Scalo, Italy; 2. Istituto di Struttura della Materia, CNR, Monterotondo Scalo, Italy; 3. CNR-JOM-OGG c/o ESRF, GILDA CRG, Grenoble, France

FN-12. Morphology Control of Magnetic Properties in Cobalt Nanowires. H. Xu¹, Q. Wu¹, M. Yue¹, C. Li² and H. Li³
1. Beijing University of Technology, Beijing, China


FN-14. Magnetic Core-Size Distribution of Magnetic Nanoparticles Estimated from Magnetization, AC Susceptibility and Relaxation Measurements. A.L. Elrefai¹, T. Sasayama¹, T. Yoshida¹ and K. Enpuku¹
1. Electrical and Electronic Engineering, Kyushu University, Fukuoka, Japan; 2. Electrical Power and Machines, Cairo University, Giza, Egypt

FN-15. Magnetism and structure of Co₃₀Tb₂₀ nanoclusters. A. Robert¹, A. Tamion¹, D. Le Roy¹ and V. Dupuis¹ I. iLM CNRS/University Lyon, Villeurbanne, France

FN-16. Preparation of Oxidatively Stable Metal Nanoparticles. J. Timmis¹, I. Jones¹, S. Wells¹, V. Patel¹ and K. O’Grady²
1. Liquids Research Ltd, Bangor, United Kingdom; 2. Department of Physics, University of York, York, United Kingdom

FN-17. Organization and magnetic properties of FePt nanoparticles on moiré pattern. P. Capiod¹, F. Tournus¹, L. Bardotti¹, G. Renaud² and V. Dupuis¹ I. iLM CNRS/University Lyon, Villeurbanne, France; 2. ESRF, CEA / INAC, Grenoble, France

FN-18. Application of Asymmetric Flow Field-Flow Fractionation Coupled to Magnetic Particle Spectroscopy for Characterization of Magnetic Nanoparticles. N. Löwa¹, R. Welz², F. Meier², T. Klein² and F. Wiekhorst¹
1. Physikalisch-Technische Bundesanstalt, Berlin, Germany; 2. Postnova Analytics GmbH, Landsberg, Germany
AMORPHOUS AND NANOCRYSTALLINE ALLOYS II (Poster Session)
Alexander Chizhik, Chair
Universidad del Pais Vasco, San Sebastian, Spain

FO-01. NANOMET® and FINEMET®: Investigation on the crystallization mechanism between different kinds of Fe-based soft magnetic nano-composite alloys. Y. Zhang1, Y. Wang1 and A. Makino2 Institute for Materials Research, Tohoku University, Sendai, Japan; 2. Tohoku University, Sendai, Japan

FO-02. Magnetic and structural peculiarities of rapidly solidified glass-coated FINEMET nanowires. H. Chiriac1, N. Lupu1, G. Stoeniu1, S. Corodeanu1 and T.A. Ovari1. National Institute of Research and Development for Technical Physics, Iasi, Romania

FO-03. Determination of the effects of oblique angle on the damping factor of nanogranular FeCoTiO magnetic films. Y. He2, Y. Wang1, Z. Zhong1 and F. Bai2. State Key Laboratory of Electronic Thin Films and Integrated Devices, University of Electronic Science and Technology of China, Chengdu, China

FO-04. Effect of manganese on the microstructure and magnetic properties of Fe-Mn-Nb-B glassy ribbons. L. Whitmore1, G. Ababei1, L.C. Budeanu1, M. Grigoras1, H. Chiriac1 and N. Lupu1. MDM, National Institute of Research and Development for Technical Physics, Iasi, Romania; 2. Faculty of Physics, “AI.I. Cuza” University, Iasi, Romania

FO-05. Highly textured FeCo thin films deposited by low temperature Pulsed Laser Deposition. G. Varvaro1, D. Peddis1, G. Barucca2, P. Menguetti2, V.V. Rodionova3, K. Chichay3, A. Testa1, E. Agostinelli1 and S. Laureti1. nM2-Lab, Istituto di Struttura della Materia - CNR, Monterotondo Scalo, Italy; 2. Dipartimento SIMAU, Università Politecnica Delle Marche, Ancona, Italy; 3. Innovation Park and Institute of Physics and Technology, Immanuel Kant Baltic Federal University, Kaliningrad, Russian Federation

FO-06. Investigation of the magnetization reversal mechanism on thick magnetic wire using the dynamic FORC: experiment and theory. I. Dumitru1, D. Cimpoesu1 and A. Stancu1. 1. Department of Solid State and Theoretical Physics, “Alexandru Ioan Cuza” University, Iasi, Romania

FO-07. Comparison Between Magnetic Behavior of FINEMET Cold Drawn and Glass-Covered Microwires. A. Damian1,2, S. Corodeanu1, H. Chiriac1, N. Lupu1 and T.A. Ovari1. 1. National Institute of Research and Development for Technical Physics, Iasi, Romania; 2. Faculty of Physics, Alexandru Ioan Cuza University, Iasi, Romania
FO-08. Effect of chloride salts in plating baths on soft magnetic properties of electroplated Fe-Ni films. K. Koda¹, K. Sugihara¹, K. Eguchi¹, K. Takashima¹, T. Yanai¹, M. Nakano¹ and H. Fukunaga¹ 1. Nagasaki University, Nagasaki, Japan

FO-09. Quasistatic AC FORC Measurements for Soft Magnetic Materials and their Differential Interpretation. M. Rivas¹, J.C. Martinez-Garcia¹ and P. Gorria¹ 1. Physics Department, Universidad de Oviedo, Gijón, Spain

FO-10. High frequency magnetic properties of stripe patterned FeCoSiB/SiO₂/FeCoSiB multilayer films. Y. Liu¹ 1. Graduate student, ChengDu, China

FO-11. Performance factor comparison of nanocrystalline, amorphous and crystalline soft magnetic materials for medium frequency applications. T. Kauder¹ and K. Hameyer¹ 1. Institute of Electrical Machines (IEM), Aachen, Germany

FO-12. Effect of additives in DES-based plating baths on structural and magnetic properties of Fe-Ni films. T. Yamaguchi¹, T. Akiyoshi¹, K. Azuma¹, K. Takashima¹, T. Yanai¹, M. Nakano¹ and H. Fukunaga¹ 1. Nagasaki University, Nagasaki, Japan


FO-14. Surface conditions on magnetic properties of Fe-based amorphous ribbon. M. Kim¹, J. Lee¹ and K. Kim¹ 1. Physics, Yeungnam University, Gyeongsan, The Republic of Korea

THURSDAY THE FORUM

AFTERNOON 1:30

Session FP

MAGNETOElastic MATERIALS I
(Poster Session)
Franca Albertini, Co-Chair
IMEM-CNR, Parma, Italy
Arcady Zhukov, Co-Chair
University of Basque Country and Ikerbasque, San Sebastian, Spain

FP-01. Design of a velocity-driven magnetostrictive device based on Gallenol alloy for automotive and railways applications. D. Davino¹, D. Leone¹ and C. Visone¹ 1. University of Sannio, Benevento, Italy
FP-02. Voltage controlled magnetisation reversal in magnetostrictive bilayer thin films. D.P. Pattnaik1, K. Edmonds1 and A. Rushforth1. 1. School of Physics and Astronomy, University of Nottingham, Nottingham, United Kingdom

FP-03. Experimental characterization of a three rods magnetostrictive device for energy harvesting. C.S. Clemente1, D. Davino1 and C. Visone1. 1. Department of Engineering, University of Sannio, Benevento, Italy

FP-04. Structural health monitoring using magnetostrictive sensors. Z. Leung1, A. Al-Taher1, L. Chan1, N. Walters1, M. McGahan1, S. Hayes1, N. Lupu1, I. Murgulescu2 and N. Morley1. 1. Materials Science and Engineering, University of Sheffield, Sheffield, United Kingdom; 2. National Institute of Research and Development for Physical Technical Physics, Iasi, Romania

FP-05. Correct estimation of surface acoustic wave amplitude for efficient magnetization control. L. Thevenard1, I. Camara1, L. Largeau2, J. Duquesne1, C. Gourdon1, P. Rovillain1 and B. Croset1. 1. Institut des Nanosciences de Paris, UPMC CNRS, Paris, France; 2. Centre de Nanosciences et de Nanotechnologies, CNRS, Universite Paris Sud, Orsay, France

FP-06. Structural and magnetostriction properties of FeCo films with different thicknesses. S. Baco1, Q. Abbas1, T. Hayward1 and N. Morley1. 1. Material Science and Engineering, The University of Sheffield, Sheffield, United Kingdom

FP-07. Ab initio study of magnetic properties of Fe1-xGax alloys. M. Matyunina1, V. Sokolovskiy1,2, M.A. Zagrebin1,3 and V. Buchelnikov1. 1. Chelyabinsk State University, Chelyabinsk, Russian Federation; 2. National University of Science and Technology ‘MIS&S’, Moscow, Russian Federation; 3. National Research South Ural State University, Chelyabinsk, Russian Federation

FP-08. Consolidation of magnetostrictive (001)-oriented Fe-Ga flakes for 3D printing powder materials. S. Na1, J.D. Galuardi2 and A.B. Flatau1,2. 1. Aerospace Engineering, University of Maryland, College Park, MD; 2. Materials Science and Engineering, University of Maryland, College Park, MD

FP-09. Effect of Ta and B Addition on the Magnetic and Mechanical Properties of Fe-Ni-Co-Al-Based Rapidly Quenched Superelastic Microwires. F. Borza1, N. Lupu1, I. Murgulescu1, V. Dobrea1, G. Stoian1, G. Ababei1, M. Grigoras1 and H. Chiriac1. 1. National Institute of R&D for Technical Physics, Iasi, Romania

FP-10. Temperature driven changes of electronic structure through the phase transition in magnetocaloric compound Mn1.1Fe0.9P0.6As0.4. J. Kubacki1,2, K. Balin1,2, J. Goraus1,2, M. Kulpa1,2, L. Havelék1, P. Wlodarczyk3, Z. Mackiewicz4, M. Kowalczyk4 and J. Szade1,2. 1. A. Chelkowski Institute of Physics, University of Silesia, Katowice, Poland; 2. Silesian Center for Education and Interdisciplinary Research, Chorzów, Poland; 3. Institute of Non-Ferrous Metals, Gliwice, Poland; 4. Faculty of Materials Science and Engineering, Technical University of Warsaw, Warsaw, Poland
FP-11. Magnetic field controlled stiffness coefficient in \( \text{Fe}_{82}\text{Ga}_{13.5}\text{Al}_{4.5} \) spring. M. Li\(^1\), J. Li\(^1\), X. Gao\(^1\) and Y. Liu\(^1\)
1. State Key Laboratory for Advanced Metals and Materials, University of Science and Technology Beijing, Beijing, China

FP-12. An Experimental Observation of the Rotational Motion of a Magnetostrictive Motor about an Arbitrary Axis. H. Lee\(^1\), Y. Park\(^1\), E. Yoo\(^1\) and M.D. Noh\(^1\)
1. Mechatronics Engineering, Chungnam National University, Daejeon, The Republic of Korea

FP-13. Composition and ferromagnetic properties of sputtered Fe-Ga thin films for magnetostrictive applications. D.B. Gopman\(^1\), V. Sampath\(^2\), H. Ahmed\(^2\), S. Bandyopadhyay\(^2\) and J. Atulasimha\(^2\)
1. Materials Science and Engineering Division, National Institute of Standards and Technology, Gaithersburg, MD; 2. Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA

FP-14. Influence of shape anisotropy and temperature on magnetostrictive behaviors in single crystal Galfenol alloys. A. Orr\(^1\), J.R. Downing\(^1\), H. Kim\(^2\), J. Paglione\(^2\), S. Na\(^2\) and A.B. Flatau\(^1,2\)
1. Materials Science and Engineering, University of Maryland, College Park, MD; 2. Department of Physics, University of Maryland, College Park, MD; 3. Aerospace Engineering, University of Maryland, College Park, MD

FP-15. Magnetostriction Properties of Polycrystalline \( \text{CoFe}_2\text{O}_4 \) under Compressive and Tensile Stresses. J. Wang\(^1\), X. Gao\(^1\), J. He\(^1\), Z. Guo\(^1\) and M. Zhang\(^2\)
1. University of Science and Technology Beijing, Beijing, China; 2. Yangzhou University, Yangzhou, China

FP-16. Magnetostriction of non-modulated Ni-Mn-Ga. V. Khovaylo\(^1\), I. Tereshina\(^2\), G. Politova\(^2\), A. Karpenkov\(^3\), S.V. Taskaev\(^4\) and T. Palewski\(^5\)
1. National University of Science and Technology “MIS&SS”, Moscow, Russian Federation; 2. Baikov Institute of Metallurgy and Materials Science RAS, Moscow, Russian Federation; 3. Tver State University, Tver, Russian Federation; 4. Chelyabinsk State University, Chelyabinsk, Russian Federation; 5. International Laboratory for High Magnetic Fields and Low Temperatures, Wroclaw, Poland

FP-17. Exchange bias and spin glass transition of the magnetic ground state in quaternary MnCuNiSn Heusler alloy. C. Jing\(^1\), C. Liu\(^1\), Y. Liu\(^1\), J. Sun\(^1\), Y. Zhang\(^1,2\), Y. Huang\(^1\), B. Kang\(^1\), D. Deng\(^1\), Z. Feng\(^1\) and Z. Li\(^1,2\)
1. Department of Physics, Shanghai University, Shanghai, China; 2. Qujing Normal University, Qujing, China
Session FQ
MICROMAGNETISM AND MULTISCALE MODELING III
(Poster Session)
Jonathan Leliaert, Co-Chair
Ghent University, Ghent, Belgium
Mykola Dvornik, Co-Chair
University of Gothenburg, Gothenburg, Sweden

FQ-01. Ground state skyrmion and helical states in confined FeGe nanostructures. R. Pepper1, M. Beg1, D.I. Cortes1, R. Carey1, W. Wang2, M. Albert1, D. Chernyshenko1 and H. Fangohr1
1. Faculty of Engineering and the Environment, University of Southampton, Southampton, United Kingdom; 2. Faculty of Science, Ningbo University, Ningbo, China

FQ-02. Modelling compensated antiferromagnetic interfaces with Mumax3. J. De Clercq1 and B. Van Waeyenberge1
1. DyNaMat, Solid State Sciences, Ghent University, Gent, Belgium

FQ-03. Clustering effect on frequency dependent magnetic properties of FeCo micro hollow fiber composites. M. Choi1, S. Lee1 and J. Kim1
1. Materials Engineering, Hanyang University, Ansan, The Republic of Korea

FQ-04. Micromagnetic simulation of Co nanowires array. H. Li1, M. Yue1, Y. Peng1, Y. Li1, Q. Wu1, W. Liu1 and D. Zhang1
1. Materials Science and Engineering, Beijing University of Technology, Beijing, China

FQ-05. Micromagnetic Studies at Finite Temperature on FePt-C Granular Films. J. Song2, J. Wang2, D. Wei1, Y. Takahashi2 and K. Hono2
1. School of Materials Science and Engineering, Tsinghua University, Beijing, China; 2. Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science, Tsukuba, Japan

FQ-06. Spin waves in periodic antidot waveguide of complex base. S. Pan1, J. Klos2, S. Mieszczak2, A. Barman1 and M. Krawczyk2
1. S. N. Bose National Centre for Basic Sciences, Kolkata, India; 2. Faculty of Physics, Adam Mickiewicz University, Poznan, Poland

FQ-07. Large-scale micromagnetic simulation of thermally demagnetized state and initial magnetization process in Nd-Fe-B hot-deformed nanocrystalline permanent magnet. H. Tsukahara1, K. Iwano1, C. Mitsumata2, T. Ishikawa1 and K. Ono1
1. High Energy Accelerator Research Organization, Tsukuba, Japan; 2. NIMS, Tsukuba, Japan

FQ-08. Numerical study on a novel Curie temperature controlled hybrid thermo-magnetic structure for magnetic random access memories. K. Machida1, Y. Sonobe2 and Y. Nakatani1
1. University of Electro-Communications, Chofu, Japan; 2. Samsung R&D Institute Japan, Yokohama, Japan
FQ-09. Petascale-native solution for accelerated computations in micromagnetics and spintronics - PETASPIN. A. Giordano1, S. Chiappini2, A. Messina2, G. Siracusano3 and G. Finocchio1,2 1. Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina, Messina, Italy; 2. Instituto Nazionale di Geofisica e Vulcanologia, Messina, Italy; 3. University of Catania, Catania, Italy


FQ-11. Universal depinning behaviour of magnetic domain walls driven by spin-orbit torque. H. Whang1 and S. Choe1 1. Department of Physics and Astronomy, Seoul National University, Seoul, The Republic of Korea

FQ-12. Micromagnetic Simulation of Spatial Distribution of Magnetization in Ultra-Thin Cobalt Layers with Gradient of Magnetic Anisotropy. M. Kisielewski1, J. Kisielewski1, I. Sveklo1, A. Wawro2 and A. Maziewski1 1. Faculty of Physics, University of Bialystok, Bialystok, Poland; 2. Institute of Physics, Polish Academy of Sciences, Warsaw, Poland

FQ-13. Influence of Interfacial Dzyaloshinskii-Moriya Interaction on Spin-Torque Oscillators. Y. Xu1. Nanjing University, Nanjing, China


FQ-15. Modelling inter-grain exchange coupling in recording media. M.O. Ellis1,2, R.V. Ababei1, R.W. Wood3, R.F. Evans1 and R. Chantrell1 1. Department of Physics, University of York, York, United Kingdom; 2. CRANN and School of Physics, Trinity College Dublin, Dublin, Ireland; 3. Recording Systems, Western Digital Corp., San Jose, CA

FQ-16. Magnetization reversal and spin dynamics in patterned ferromagnetic dots. J. Ding1, S. Lendinez1, P. Lapa1,2, T. Khaire1, J. Pearson1, A. Hoffmann1 and F. Novosad1 1. Materials Science Division, Argonne National Laboratory, Argonne, IL; 2. Department of Physics and Astronomy, Texas A&M University, College Station, TX

FQ-17. Study of the magnetic Bloch skyrmion configuration in magnetic dots as a function of the uniaxial perpendicular anisotropy. S. Allende1 and M. Castro1 1. Universidad de Santiago de Chile, Santiago, Chile
J. Miao1, D. Wei1 and C. Liu2,3 1. School of Materials Science and Engineering, Tsinghua University, Beijing, China; 2. Center for High Energy Physics, School of Physics, Peking University, Beijing, China; 3. Collaborative Innovation Center of Quantum Matter, Beijing, China

THURSDAY AFTERNOON
THE FORUM
1:30

Session FR
SENSING, MAGNETOIMPEDANCE, MAGNETODYNAMICS
(Poster Session)
Andrei Slavin, Co-Chair
Oakland University, Rochester Hills, MI
Vasil Tiberkevich, Co-Chair
Oakland University, Rochester, MI

FR-01. High frequency properties of compacted Fe-4.5 wt% Si powders with insulating layer synthesized by modified dew point treatment. K. Lee1, M. Choi1 and J. Kim1 1. Materials Engineering, Hanyang University, Ansan, The Republic of Korea

FR-02. Chemically synthesized Co-Fe-B amorphous nanoparticles for high frequency applications. G. Ababei1, M. Gaburici1, L.C. Budeanu1, M. Grigoras1, N. Lupu1 and H. Chiriac1 1. MDM, National Institute of Research and Development for Technical Physics, Iasi, Romania

FR-03. Effect of DC bias current on sensitivity of thin-film magnetoimpedance element. C. Sumida1, H. Kikuchi1, S. Hashi2, K. Ishiyama2 and T. Nakai2 1. Iwate University, Morioka, Japan; 2. Tohoku University, Sendai, Japan; 3. Industrial Technology Institute, Miyagi Prefectural Government, Sendai, Japan

FR-04. Investigation of bending stress effect in diagonal and off-diagonal GMI sensors. J. Nabias1,2, A. Asfour1,2 and J. Yonnet1,3 1. Grenoble Electrical Engineering Lab (G2ELab), Grenoble, France; 2. University Grenoble Alpes, Grenoble, France; 3. CNRS, Grenoble, France

FR-05. Numerical analysis on spin dynamics in multilayer nanodots with interlayer antiferromagnetic coupling. X. Ya1, T. Tanaka1 and K. Matsuyama1 1. Kyushu University, Fukuoka, Japan

FR-06. On the origin of multi-peak and asymmetric behaviour of microstructured thin-film Permalloy GMI devices in the high frequency regime. G. Büttel1 and U. Hartmann1 1. University of Saarland, Saarbrücken, Germany
FR-07. Temperature dependent magnetic properties of substituted Co lithium ferrites. A. Adenot-Engelvin1, N. Vukadinovic2, R. Lebourgeois3, N. Najmi4 and N. Malléjac1. 1. CEA Le Ripault, Monts, France; 2. Dassault Aviation, Saint Cloud, France; 3. Thales TRT, Palaiseau, France; 4. CRITT Strasbourg, Strasbourg, France

FR-08. Decoupling Soft Ferromagnetic Fe-Co-Hf-N Films from WC-Co Substrates for Sensor Applications. S. Beirle1 1. Institute for Applied Materials (IAM-AWP), Karlsruhe Institute of Technology (KIT), Egggenstein-Leopoldshafen, Germany

FR-09. Broadband Permeability Spectra of Flake-Shaped Ferromagnetic Particle Composites. Z. Raolison1, Q. Clément2, A. Adenot-Engelvin3, N. Malléjac3, C. Lefevre1, G. Pourroy1, F. Boust4 and N. Vukadinovic2. 1. IPCMS, UMR 7504, CNRS Université de Strasbourg, Strasbourg, France; 2. Dassault Aviation Company, Saint-Cloud, France; 3. CEA-DAM Le Ripault, BP16, Monts, France; 4. Onera-The French Aerospace Lab, Palaiseau, France

FR-10. Effect of Film Thickness on High Frequency Magnetic Properties of Poly crystalline Fe-Ga Films. Y. Endo1,2, T. Sakai3, T. Miyazaki3 and Y. Shimada1. 1. Department of Electrical Engineering, Tohoku University, Sendai, Japan; 2. Center for Spintronics Research Network, Tohoku University, Sendai, Japan; 3. Department of Electrical, Information and Physics Engineering, Tohoku University, Sendai, Japan; 4. Technical Division, School of Engineering, Tohoku University, Sendai, Japan

FR-11. An instrument for measurement of spin-wave excitation via thermoelectric detection. I. Turčan1, L. Flajsman2, M. Vanatka2, T. Sikola1,2 and M. Urbánek1,2. 1. Institute of Physical Engineering, Brno University of Technology, Brno, Czech Republic; 2. CEITEC BUT, Brno University of Technology, Brno, Czech Republic

FR-12. Spin Hall effect induced SOT fields in perpendicular magnetized Co/Ni multilayer systems. S. Li1, S. Goolaup1, F. Luo1 and W. Lew1. 1. School of Physics and Physical Science, Nanyang Technological University, Singapore, Singapore

FR-13. High frequency magnetic properties of multistripe patterned FeCoBSi thin films. X. Weng1, H. Zheng1, L. Zhang1, W. Zhu1, M. Li1, M. Zhang1, Y. Liu1, X. Wang1, N. Wang1, J. Xie1 and L. Deng1. 1. School of Microelectronics and Solid-State Electronics, University of Electronic Science and Technology of China, Chengdu, China

FR-14. Thickness dependence of magnetization dynamics of an in-plane anisotropy ferromagnet under a crossed spin torque polarizer. N. Rahman1 and R. Sbiaa1. 1. Sultan Qaboos University, Muscat, Oman
FR-15. Atomic scale simulations (LLG and MC) of magnetization reversal at finite temperatures. S. Miyashita1,2, M. Nishino2,3, Y. Toga1, A. Sakuma1, S. Hirosawa2, T. Miyake5,2, H. Akai6,2 and S. Doi6,2 1. Physics, University of Tokyo, Tokyo, Japan; 2. ESCIMM, NIMS, Tsukuba, Japan; 3. MANA, NIMS, Tsukuba, Japan; 4. Applied Physics, Tohoku University, Sendai, Japan; 5. CD-DMat, AIST, Tsukuba, Japan; 6. ISSP, University of Tokyo, Kashiwa, Japan

FR-16. Microscale Magnetization Dynamics in a Soft Nanocrystalline Ribbon. A. Stupakov1, O. Perevertov1 and Y. Melikhov2 1. Institute of Physics CAS, Prague, Czech Republic; 2. Cardiff University, Cardiff, United Kingdom

FR-17. Pump-induced damping term in thin CoFeB film. L. Bo1, X. Ruan1 and Y. Xu1,2 1. Nanjing University, Nanjing, China; 2. University of York, York, United Kingdom

THURSDAY AFTERNOON 1:30

Session FS
SHIELDING, LEVITATION AND PROPULSION (Poster Session)
Masahide Oshima, Chair
Tokyo University of Science, Suwa, Tokyo, Japan

FS-01. Sensorless Direct Torque Control of Permanent Magnet Synchronous Motor Drives Using Polynomial Chaos Theory. Z. Zhang1, R. Tong1 and H. Yu1 1. School of Electrical and Information Engineering, Tianjin University, Tianjin, China

FS-02. Performance Comparison Between the Normal-Conducting Magnet and the Superconducting Magnet in LSM for High-Speed Propulsion. C. Park1 1. Department of Railway Operation System Engineering, Korea National University of Transporation, Uiwang-si, The Republic of Korea

FS-03. Analysis and Experimental Verification of Normal Force of Linear Induction Motor for Maglev Vehicle. J. Lim1, J. Jeong2, C. Kim1, C. Ha3 and D. Park1 1. KIMM, Daejeon, The Republic of Korea; 2. Ch wingnam National University, Daejeon, The Republic of Korea

FS-04. Influence of Inductance Properties on a Magnetic Levitation for Thin Steel Plates. Y. Takada1, T. Kimura1 and T. Nakagawa1 1. Department of Electrical and Electronic Engineering, Tokyo City University, Setagaya, Japan

FS-05. Modeling and Analysis of a Magnetic Levitation Vibration Isolation System Using Passive Magnetic Gravity Compensators. Y. Zhou1, B. Kou1, X. Yang1 and J. Luo1 1. School of Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, China
FS-06. Maximum Limit of Superconducting Persistent Current for Superconducting Magnetic Suspension System. M. Komori, A. Minoda, K. Nemoto, K. Asami and N. Sakai. Kyushu Institute of Technology, Kitakyushu, Japan

FS-07. Reduction of Eddy Current Loss in Flux-Switching Permanent-Magnet Machines Using Rotor Magnetic Flux Barriers. J. Lu, J. Ji and Y. Zhang. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China

FS-08. A High-Speed Magnetic-Geared Machine for Electric Unmanned Aerial Vehicles. C. Liu and J. Yu. School of Energy and Environment, City University of Hong Kong, Hong Kong, China

FS-09. Design of a High Force Density Linear Electromagnetic Actuator Based on Magnetic Screw. W. Zhao, Z. Ling and J. Ji. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China

FS-10. Quantitative Design and Comparison of Two Types of Permanent Magnet Transmission Device. M. Yang, X. Zhu, Z. Xiang, D. Fan and W. Wu. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China


FS-13. Control and Analysis of Magnetic Levitation Device Based on Induced Eddy Current. Y. Jin, S. Wang, K. Qiu, P. Yu, P. Hao and H. Li. Xi’an Jiaotong University, Xi’an, China; 2. Shenzhen Power Supply Bureau Co., Ltd., Shenzhen, China


FS-16. Design of hybrid thrust magnetic bearing for heavy rotating shaft considering self-weight compensation according to axial load. J. Ahn1,2, C. Han1,2, C. Kim3, C. Park3 and J. Choi2

FS-17. Trial of Linear Motor Using Superconducting Coil for Cryogenic Pump. M. Komori1, H. Sagara1, K. Asami1 and N. Sakai1 1. Kyushu Institute of Technology, Kitakyushu, Japan


THURSDAY
THE FORUM
AFTERNOON
1:30

Session FT
MOTORS, GENERATORS AND ACTUATORS WITH SHIELDING, LEVITATION AND PROPULSION
(Poster Session)
Shuangxia Niu, Chair
Hong Kong Polytechnic University, Hong Kong, Hong Kong

FT-01. A Novel Design of the Rotary Electromagnetic Actuator and the Analysis of Critical Demagnetization State for its Permanent Magnet. J. You1, R. Wang1, H. Chen1, F. Chen2 and H. Liang1 1. Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, China; 2. Research and Design Center, Zhenhua Quanying Relay Co., Ltd., GuiYang, China


FT-03. Application of Underactuated Mechanism Motor Control in Ball and Beam System. C. Hsu1,2, C. Chang3, M. Hsieh4, Y. Huang5 and C. Tao1 1. Research and Development Center, Fortune Electric Company, Taoyuan, Taiwan; 2. Department of Mechanical Engineering, National Central University, Taoyuan, Taiwan; 3. Department of Information and Telecommunications Engineering, Ming Chuan University, Taoyuan, Taiwan; 4. Department of Systems and Naval Mechatronic Engineering, National Cheng Kung University, Taoyuan, Taiwan; 5. Department of Electrical Engineering, National Ilan University, Taoyuan, Taiwan
A New 9-Phase Permanent Magnet Synchronous Motor with Consequent Pole Rotor for High Power Traction Applications. M. Onsal1,2, Y. Demir1,2 and M. Aydin1,2 1. MDS Motor Ltd., Kocaeli, Turkey; 2. Kocaeli Uni., Kocaeli, Turkey

Permanent Magnet Flux Linkage Variation Monitoring Based on Torque Ripple Order Tracking Filtering. M. Zhu1, W. Hu2, M. Kelly3 and N.C. Kar1 1. Electrical and Computer Engineering, University of Windsor, Windsor, ON, Canada; 2. Great Wall Motor, Baoding, China; 3. D&V Electronics Ltd., Woodbridge, ON, Canada

The Effect of Modulating Ring Design on Magnetic Gear Torque. D.Z. Abdelhamid1 and A. Knight1 1. Electrical and Computer Engineering, University of Calgary, Calgary, AB, Canada

Permanent Magnet Flux Linkage Variation Monitoring Based on Torque Ripple Order Tracking Filtering. M. Zhu1, W. Hu2, M. Kelly3 and N.C. Kar1 1. Electrical and Computer Engineering, University of Windsor, Windsor, ON, Canada; 2. Great Wall Motor, Baoding, China; 3. D&V Electronics Ltd., Woodbridge, ON, Canada

The Effect of Modulating Ring Design on Magnetic Gear Torque. D.Z. Abdelhamid1 and A. Knight1 1. Electrical and Computer Engineering, University of Calgary, Calgary, AB, Canada

Partial Demagnetization Detection in Surface Mounted PMSMs Through Co-Analysis of dq-Axis Current Ripple. M. Zhu1, W. Hu2,1, J. Tjong2 and N.C. Kar1 1. Electrical and Computer Engineering, University of Windsor, Windsor, ON, Canada; 2. Great Wall Motor, Baoding, China; 3. Ford Motor Company, Windsor, ON, Canada


FT-11. Comparison of Magnetic Characteristics of Three Ironless BLDC Machines. H. Hu1 and J. Zhao1 1. School of Automation, Beijing Institute of Technology, Beijing, China

FT-12. Investigation and Analysis of a Shaded-Pole Main Exciter for Aircraft Starter-Generator. J. Li1, Z. Zhang1, J. Lu1, H. Li1 and Z. Chen1 1. Nanjing University of Aeronautics and Astronautics, Nanjing, China

FT-13. A new electro-magnetic brake for actuator locking mechanism in aerospace vehicle. V.R. Bommadavara1 1. Electrical Engineering, IIT Hyderabad, Hyderabad, India


Thursday 171
FT-15. Dual Three-Phase Permanent Magnet Synchronous Machine Investigation for Battery Electric Vehicle Power-train. N. Zhao1 and N. Schofield1. Electrical and Computer Engineering, McMaster University, Hamilton, ON, Canada

FT-16. Design and Analysis of a Dual-Stator Permanent Magnet Machine for the Refrigerator Linear Compressor. F. Zhao1 and L. Li2. 1. Harbin Institute of Technology, Shenzhen, Shenzhen, China; 2. Harbin Institute of Technology, Harbin, China

FT-17. Accurate Real-time Control Model for Maglev Plane Motor Based on Two-Dimensional Interpolation Method. F. Xing1, B. Kou1, L. Zhang1 and Y. Zhou1. Harbin Institute of Technology, Harbin, China


THURSDAY THE FORUM
AFTERNOON 1:30

Session FU
MOTORS, GENERATORS AND ACTUATORS VIII
(Poster Session)
Jean-Paul Yonnet, Chair
G2E Lab, St Martin d’Heres, France


FU-03. Magnetic-Thermal Coupling Analysis of the Forward Converter Designed with Magnetic Integration Technology. D. Yuan1,2, S. Wang1, H. Li1, S. Wang1, A. Wang1 and K. Liu3. 1. Faculty of Electrical Engineering, Xi’an Jiaotong University, Xi’an, China; 2. State Key Laboratory of Electrical Insulation and Power Equipment, Xi’an, China; 3. Lanzhou Institute of Physics, CAST, Lanzhou, China

FU-05. The study of Fe83Ga17 films act as magnetostrictive actuator on PZT substrate. J. Shi1 and J. Zhu1 1. State Key Laboratory for Advanced Metals and Materials, University of Science and Technology Beijing, Beijing, China

FU-06. Novel Stator-Magnet Moving-Iron Transversal-Flux Hybrid-Magnetic-Circuit Linear Oscillatory Machine. W. Xu1, X. Li1 and C. Ye1 1. School of Electrical and Electronic Engineering, Huazhong University of Science and Technology, Wuhan, China

FU-07. Design and Analysis of a Memory Motor for Wide-Speed-Range Linear Drive. Y. Liu1,2, S. Niu2 and W. Fu2 1. Huaiqiao University, Xiamen, China; 2. The Hong Kong Polytechnic University, Hong Kong, Hong Kong

FU-08. Research on a field-modulated tubular linear generator with quasi-Halbach magnetization for ocean wave energy conversion. T. Xia1, H. Yu1 and X. Liu1 1. Southeast University, Nanjing, China


FU-10. An Innovative Off-Grid Permanent Magnet Flux Switching Generator for Micro Gas Turbine in Rural Areas. S. Syed Othman1, M. Jenal1 and E. Sulaiman1 1. Research Centre for Applied Electromagnetics, Universiti Tun Hussein Onn Malaysia, Batu Pahat, Malaysia


FU-14. Power Loss Compensation of Magnetic Steel Sheets in a Rotational Magnetic Field with Sensing Coil Angle Error searched by PSO Algorithm. J. Park¹, B. Xia¹, D. Um¹ and C. Koh¹ ¹. Chungbuk National University, Chungju-si, The Republic of Korea

THURSDAY EVENING
5:30

Session YA
SPECIAL SESSION: 50 YEARS OF RARE EARTH PERMANENT MAGNETS
Dominique Givord, Chair
CNRS, Grenoble, France

5:30
YA-01. Development of Sm-Co permanent magnets. (Invited)
A. Gabay¹ and G. Hadjipanayis¹ ¹. University of Delaware, Newark, DE

5:50
YA-02. Nd-Fe-B magnet-past, present and future. (Invited)
M. Sagawa¹,² ¹. Intermetallics Co., Ltd., Kyoto, Japan; 2. Daido Steel, Nagoya, Japan

6:10
YA-03. The use of hydrogen in the processing of RE-TM magnets. (Invited) I.R. Harris¹ and A. Walton¹ ¹. University of Birmingham, Birmingham, United Kingdom

FRIDAY MORNING
9:00

Session GA
STT-MRAM: TOWARD VOLUME PRODUCTION
Bernard Dieny, Chair
Spintec, Grenoble, France

9:00
GA-01. Low Switching Current Spin-Transfer-Torque MRAM. (Invited) D. Worledge¹, G. Hu¹, J. Nowak¹, G. Lauer¹, J. Sun¹, A.J. Annunziata¹, S. Brown¹, M. Hopstaken¹, Y. Kim¹, C. Kothandaraman¹, J.H. Lee¹, N. Marchack¹, D. Neumayer¹, E.J. O’Sullivan¹, J. Park¹, M. Reuter¹, R.P. Robertazzi¹, S. Rossnagel¹, P.L. Trouilloud¹ and Y. Zhu¹ ¹. IBM-Samsung MRAM Alliance, IBM TJ Watson Research Center, Yorktown Heights, NY
GA-02. Advancing STT-MRAM technology towards manufacturable embedded memory. (Invited) J. Park1, W. Kim1, Y. Kim1, W. Lim1, J. Kim1, Y. Song1, J.H. Lee1, K. Kim1, U. Pi1, S. Oh1, J. Park1, S. Park1, G. Koh1, G. Jeong1, K. Hwang1, H. Kang1 and E. Jung1. 1. Samsung Electronics, Hwaswong-si, The Republic of Korea

10:00

GA-03. Spin-Torque MRAM Product Status and Technology for 40nm, 28nm and 22nm Nodes. (Invited) J.M. Slaughter1, K. Nagel1, R. Whig1, S. Deshpande1, S. Aggarwal1, M. DeHerrera1, J. Janesky1, M. Lin1, H. Chia1, M. Hossain1, S. Ikegawa1, F. Mancoff1, G. Shimon1, J. Sun1, M. Tran1, T. Andre1, S. Alam1, F. Poh1, J. Lee2, Y. Chow2, Y. Jiang2, H. Liu2, C. Wang2, S. Noh2, T. Tahmasebi2, S. Ye3 and D. Shum2. 1. Everspin Technologies, Inc, Chandler, AZ; 2. GLOBALFOUNDRIES Singapore Pte, Ltd., Singapore, Singapore

10:30

GA-04. Development of STT-MRAM for embedded memory applications. (Invited) P. Wang1, G. Jan1, L. Thomas1, A. Wang1, T. Zhong1, T. Torng1, Y. Lee1, H. Liu1, J. Zhu1, S. Le1, S. Serrano-Guisan1, R. Tong1, J. Haq1, J. Teng1, D. Shen1, R. He1 and V. Lam1. 1. TDK-Headway Technologies, Inc., Milpitas, CA

11:00


11:30

GA-06. STT-MRAM is moving to large scale commercialization (at last!). (Invited) Y. de Charentenay1. 1. Yole Developpement, Villeurbanne, France
Session GB
MAGNETIC NANOPARTICLES, NANOWIRES, AND 3D STRUCTURES III
Sara Majetich, Chair
Carnegie Mellon University, Pittsburgh, PA

9:00
GB-01. Towards Comprehension of the True Magnetic Properties of Magnetite at Nanoscales. (Invited) J. Balachandran1,
H. Fukumoto1 and H. Mamiya2 1. Materials Science, The University of Shiga Prefecture, Hikone, Japan; 2. National Institute of Materials Science, Tsukuba, Japan

9:30
GB-02. Analysis of AC susceptibility spectra for the characterization of magnetic nanoparticles. F. Ludwig1,
C. Balceris1, C. Jonasson2 and C. Johansson2 1. Institute of Electrical Measurement and Fundamental Electrical Engineering, TU Braunschweig, Braunschweig, Germany; 2. Acreo Swedish ICT AB, Göteborg, Sweden

9:45
GB-03. Magnetic size-dependent properties of Co-ferrite nanoparticles and strongly exchange coupled core|shell nanoparticles with high magnetic anisotropy: a novel strategy towards Rare Earth - free permanent magnets. A. López-Ortega1, 2, E. Lottini2, G. Bertoni3, S. Turner4, M. Meledina4, G. Van Tendeloo4, C. de Julian Fernandez1 and C. Sangregorio5 1. Nanomagnetism, CIC nanoGUNE, Donostia– San Sebastian, Spain; 2. Chemistry Department, INSTM and University of Florence, Sesto Fiorentino, Italy; 3. IMEM-CNR, Parma, Italy; 4. University of Antwerp, Antwerp, Belgium; 5. INSTM and CNR-ICCOM, Sesto Fiorentino, Italy

10:00
GB-04. Mapping the structure and chemical composition of nanoparticles with wide size distributions: a ferromagnetic nuclear resonance study of cobalt based nanoparticles. C. Meny1, Y. Shin1, Y. Liu2 and C. Pham Huu2 1. DMONS, IPCMS, Strasbourg, France; 2. ICPEES, ECPM, Strasbourg, France

10:15
GB-05. Effect of Particle Size on the Properties of As-Made L10 FePt Nanoparticles Doped with Bi Made by Chemical Synthesis. F.M. Abel1, V. Tzitzios1 and G. Hadjipanayis1 1. Physics and Astronomy, University of Delaware, Newark, DE
GB-06. Aligned iron nanoparticles with in-plane magnetic anisotropy by epitaxial electrodeposition. K. Leistner¹, Y. Mingze², S. Oswald¹, A. Petr¹, K. Nielsch¹ and K.L. Kavanagh² 1. IFW Dresden, Dresden, Germany; 2. Department of Physics, Simon Fraser University, Burnaby, BC, Canada


GB-08. Instrument-Based Noise Analysis of First Order Reversal Curve (FORC) Measurements. C. Dennis¹, S. Lund¹, R. Shull¹, C. Schopphoven² and A. Tschoepe² 1. NIST, Gaithersburg, MD; 2. Universität des Saarlandes, Saarbrücken, Germany

GB-09. Asymmetric hysteresis loop shifts in exchange bias coupled Ni core - Ni(OH)₂ shell nano particles. T. Maity¹ and S. Roy¹ 1. Tyndall National Institute, Cork, Ireland

GB-10. Assessment of a biocompatible nanovehicle with adjustable magnetic properties. P. Granitzer¹, K. Rumpf¹, P. Poelt² and M. Reissner³ 1. Institute of Physics, University of Graz, Graz, Austria; 2. Institute for Electron Microscopy, University of Technology Graz, Graz, Austria; 3. Institute of Solid State Physics, Vienna University of Technology, Vienna, Austria

GB-11. Co nanorods: large-scale synthesis and compaction into nano-structured permanent magnets. L. Lacroix¹, E. Anagnostopoulou¹, S. Ener², M. Pousthomis¹, F. Ott³, O. Gutfleisch¹ and G. Vianu¹ 1. LPCNO, Toulouse, France; 2. Institut für Materialwissenschaft, TU Darmstadt, Darmstadt, Germany; 3. Lab. Léon Brillouin, CEA/ CNRS Centre d’Etudes de Saclay, Gif-sur-Yvette, France
Session GC
ULTRA-FAST AND ALL-OPTICAL SWITCHING
Markus Münzenberg, Chair
Greifswald University, Greifswald, Germany

9:00

9:15
GC-02. Relaxation-Free and Inertial Switching in Synthetic Antiferromagnets Subject to Super-Resonant Excitation. B. Koop¹, T. Descamps¹, E. Holmgren¹ and V. Korenivski¹ 1. Nanostructure Physics, KTH, Stockholm, Sweden

9:30
GC-03. Surface acoustic waves for magnetization switching in precessional geometry: effect of the wave frequency. L. Thevenard¹, I. Camara¹, N. Biarrotte¹, J. von Bardeleben¹, L. Becerra¹, A. Lemaître², C. Gourdon¹ and J. Duquesne¹ 1. Institut des Nanosciences de Paris, UPMC CNRS, Paris, France; 2. Centre de Nanosciences et de Nanotechnologies, CNRS, Université Paris Sud, Orsay, France

9:45

10:00
GC-05. All-optical magnetization switching of FePt magnetic recording medium. (Invited) M. Münzenberg¹ 1. Institut of Physics, Greifswald University, Greifswald, Germany

10:30
GC-06. All-optical magnetization reversal through spin-dependent diffusive transport and spin-orbit interaction. M. Elyasi² and H. Yang² 1. Institute for Materials Research, Tohoku University, Sendai, Japan; 2. Electrical and Computer Engineering Department, National University of Singapore, Singapore, Singapore

10:45
GC-07. SOT induced magnetization reversal in Pt/[Co/Ni]/Co/Ta multilayer Hall bars without external magnetic field. S. Li¹, S. Goolaup¹, W. Gan¹ and W. Lew¹ 1. School of Physics and Physical Science, Nanyang Technological University, Singapore, Singapore
GC-08. Influence of Spin Reorientation Transition on Ultra-Fast Spin Dynamics in Ferrimagnetic DyCo$_5$. A. Donges$^1$, S. Khmelevskyi$^2$, A. Deak$^3$, R. Abrudan$^{4,5}$, F. Radu$^4$, I. Radu$^{4,6}$, L. Szunyogh$^3$ and U. Nowak$^1$

1. Fachbereich Physik, Universität Konstanz, Konstanz, Germany; 2. Center for Computational Materials Science, Institute for Applied Physics, Vienna University of Technology, Vienna, Austria; 3. Department of Theoretical Physics and MTA-BME Condensed Matter Research Group, Budapest University of Technology and Economics, Budapest, Hungary; 4. Helmholtz-Zentrum Berlin für Materialien und Energie, Berlin, Germany; 5. Institut für Experimentalphysik/Festkörperphysik, Ruhr-Universität Bochum, Bochum, Germany; 6. Max-Born Institute, Berlin, Germany

11:15

GC-09. Tunable narrow-band spintronic THz emitters. N. Awari$^{1,2}$, S. Kovalev$^1$, C. Fowell$^1$, K. Rode$^1$, Y. Lau$^1$, D. Betto$^3$, N. Thiyyagarajah$^4$, B. Green$^1$, O. Yildirim$^1$, J. Lindner$^1$, J. Faßbender$^1$, M. Coey$^5$, A. Deac$^1$ and M. Gensch$^1$

1. Radiation Physics, Helmholtz Zentrum Dresden Rossendorf, Dresden, Germany; 2. Optical Condensed Matter Physics, Zernike Institute for Material Science, University of Groningen, Groningen, Netherlands; 3. CRANN, AMBER and School of Physics, Trinity College Dublin, Dublin, Ireland

11:30

GC-10. Magnetisation manipulation with light and electrons femto-second pulses. (Invited) S. Mangin$^1$

1. Institut Jean Lamour, Universite de Lorraine, Vandoeuvre-lès-Nancy, France

Friday 179
9:30
GD-03. Thermal stability and topological protection of skyrmions in nanotracks. D.J. Cortes, W. Wang, M. Beg, R. Pepper, M. Bisotti, R. Carey, M. Voudsen, T. Kluyver, O. Hovorka and H. Fangohr. 1. Faculty of Engineering and the Environment, University of Southampton, Southampton, United Kingdom; 2. Department of Physics, Ningbo University, Ningbo, China

9:45
GD-04. Spin Torque Efficiency of Skyrmion Racetrack Memory. D. Suess, C. Vogler, F. Bruckner and C. Abert. 1. TU - Wien, Vienna, Austria

10:00
GD-05. The skyrmion switch: turning magnetic skyrmion bubbles on and off with an electric field. (Invited) A. Bernard-Mantel, M. Schott, L. Ranno, S. Pizzini, J. Vogel, H. Béa, C. Baraduc, S. Aufré, G. Gaudin and D. Givord. 1. Institut Néel, Grenoble, France; 2. Université Grenoble Alpes, Grenoble, France; 3. Spintec, Grenoble, France; 4. CEA/INAC, Grenoble, France

10:30
GD-06. Electrical signature of individual skyrmions in thin magnetic films with interfacial DMI. D. Maccariello, W. Legrand, N. Reyren, K. Garcia-Hernandez, C. Moreau-Luchaire, V. Cros and A. Fert. 1. Unité Mixte de Physique, CNRS, Thales, Univ. Paris-Sud, Université Paris-Saclay, Palaiseau, France

10:45

11:00
GD-08. Tunable skyrmion confinement in Ir/Fe/Co/Pt nanodots. P. Ho, A.L. Gonzalez Oyarce, A. Tan, L. Huang, M. Raju, F. Ernult, A. Soumyanarayanan and C. Panagopoulos. 1. A*STAR Data Storage Institute, Singapore, Singapore; 2. School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, Singapore

11:15
GD-09. Effect of nanopatterning on magnetic texture in multilayers with lack of inversion symmetry. C. Bouard, P. Warin, V. Pham, J. Attané, L. Vila and A. Marty. 1. SPINTEC, Univ. Grenoble Alpes/CEA/CNRS, Grenoble, France
11:30

GD-10. Anisotropic Dzyaloshinskii-Moriya interaction in ultra-thin epitaxial films. L. Camosi1, S. Rohart2, O. Fruchart3, S. Pizzini1, M. Belmeguenai4, Y. Roussigné4 and J. Vogel1 1. Institut Néel (CNRS), Grenoble, France; 2. LPS, Orsay, France; 3. SPINTEC, Grenoble, France; 4. LSPM-CNRS, Villeteaune, France

GD-11. An Artificial Neural Network with an Analogue Spin-Orbit Torque Device. W.A. Borders1, H. Akima1, S. Fukami1, S. Moriya1, S. Kurihara1, A. Kurenkov1, Y. Horio1, S. Sato1 and H. Ohno1 1. Tohoku University, Sendai, Japan

11:45

FRIDAY LIFFEY MEETING ROOM 2
MORNING
9:00

Session GE
MICROSCOPY AND SPECTROSCOPY
Agustina Asenjo, Chair
CSIC, Madrid, Spain

9:00

GE-01. Magnetic resonance spectroscopy with torsional optomechanics. (Invited) M.R. Freeman1,2 1. Physics, University of Alberta, Edmonton, AB, Canada; 2. National Institute for Nanotechnology, Edmonton, AB, Canada

9:30


9:45


10:00

10:15
GE-05. Quadratic magneto-optic Kerr effect investigations of 
Fe(100) grown on Ir(100). A.V. Pradeep1, S. Ghosh1, 
K.G. Ajesh3 and P.S. Anil Kumar3 1. Physics, Indian Institute of 
Science, Bangalore, India

10:30
GE-06. Characterization of the interfacial Dzyaloshinskii-Moriya 
interaction in Pt/Co2FeAl0.5Si0.5 ultra-thin films by Brillouin 
light scattering. M. Belmeguenai1, M. Gabor2, Y. Roussigné1, 
S.M. Chéria2, A. Stachkévitch1, T. Petrisor, Jr.2, R. Mos2 and 
C. Tiusan1 1. Université Paris 13, LSPM, Villetaneuse, France; 
2. Technical University of Cluj-Napoca, Cluj-Napoca, Romania

10:45
GE-07. High-throughput measurement of x-ray magnetic circular 
dichroism spectroscopy with machine learning. T. Ueno1,2, 
H. Hino3, A. Hashimoto2, Y. Takeichi2 and K. Ono2 1. National 
Institute for Materials Science, Tsukuba, Japan; 2. High Energy 
Accelerator Research Organization, Tsukuba, Japan; 
3. University of Tsukuba, Tsukuba, Japan

11:00
GE-08. AMR and ME response reconstruction via 2nd order 
magneto-optical effects. N.O. Urs1 and J. McCord1 1. Institute 
for Materials Science, Kiel University, Kiel, Germany

11:15
GE-09. Probing a device’s active atoms. M. Studniarek1, 
U. Halisdemir1, F. Schleicher1, B. Taudul1, E. Urbain1, 
M. Hervé2, C. Lambert3, A. Hamadeh3, S. Petit-Watetol3, 
O. Zill1, D. Lacour1, S. Boukari1, L. Joly1, F. Scheurer1, 
G. Schmerber1, V. Da Costa1, A. Dixit1, P. Guitard1, M. Acosta1, 
F. Leduc1, F. Choueikani1, E. Otero1, W. Wulfhekel1, 
F. Montaigne3 and E. Monteblanco3 1. Institut de Physique et 
Chimie des Matériaux de Strasbourg, Strasbourg, France; 
2. Karlsruhe Institute of Technology, Karlsruhe, Germany; 
3. Institut Jean Lamour, Université de Lorraine - CNRS, 
Vandoeuvre les Nancy, France; 4. CEA, Saclay, France; 
5. Synchrotron SOLEIL, Gif-sur-Yvette, France

11:30
GE-10. 3D magnetometry in micrometer-wide and nanometer-thick 
magnetite crystals using XMCDE-PEEM. S. Ruiz-Gomez1,2, 
L. Perez1, A. Quesada1, P. Prieto1, I. Palacio1, 
L. Martin-García4, M. Foerster1, L. Aballe5 and J. de la Figuera5 
1. Fisica de Materiales, Universidad Complutense, Madrid, 
Spain; 2. Unidad Asociada IQFR(CSIC)-UCM, Universidad 
Complutense, Madrid, Spain; 3. Instituto de Ceramica y Vidrio, 
CSIC, Madrid, Spain; 4. Dpto. de Física Aplicada, Universidad 
Autonoma de Madrid, Madrid, Spain; 5. Instituto de Ciencia de 
Materiales de Madrid, CSIC, Madrid, Spain; 6. Instituto de 
Química Física “Rocasolano, CSIC, Madrid, Spain; 7. Alba 
Synchrotron Light Facility, CELLS, Barcelona, Spain

182 Friday
GE-11. Imaging magnetic domains and vortices in continuous and patterned Ni films under voltage control via ferroelectric substrates. M. Ghidini1,2, R. Mansell1, J. Hu4, F. Maccherozzi2, D. Pesquera1, X. Moya1, L. Phillips1, S. Farokhipoor1, B. Nair1, W. Yan1, R. Cowburn2, C. Barnes3, S. Dhesi2 and N.D. Mathur3
1. Materials Science, University of Cambridge, Cambridge, United Kingdom; 2. Diamond Light Source, Didcot, United Kingdom; 3. Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom; 4. Materials Science and Engineering, University of Wisconsin-Madison, Madison, WI

FRIDAY WICKLOW HALL 1
MORNING
9:00

Session GF
THEORY OF HYSTERESIS AND COERCIVITY II
Antonio Faba, Chair
University of Perugia, Perugia, Italy

GF-01. Magnetic structures and low frequency dynamics of cubic nanoparticles: vortex line networks and vortex line dances. J.S. Levy1 1. Physics, University Paris Diderot, Paris, France

GF-02. Effect of Canting in the Domains on Magnetic Domain Wall Motion. S. Nasseri1, E. Martinez2 and G. Durin1,3 1. ISI Foundation, Torino, Italy; 2. Applied Physics, University of Salamanca, Salamanca, Spain; 3. Istituto Nazionale di Ricerca Metrologica (INRiM), Torino, Italy

GF-03. Periodic production of magnetic textures via spin currents. M. Sitte1, K. Everschor-Sitte1, T. Valet1, D.R. Rodrigues2, J. Sinova1,3 and A. Abanov2 1. Institute of Physics, Johannes Gutenberg University, Mainz, Germany; 2. Department of Physics and Astronomy, Texas A&M University, College Station, TX; 3. Institute of Physics, Academy of Sciences of the Czech Republic, Praha, Czech Republic

GF-04. Implementation of the Anisotropic Stoner-Wohlfarth Model for Rotational Magnetization. H. ElBidweihy1 1. Department of Electrical and Computer Engineering, United States Naval Academy, Annapolis, MD

GF-05. Magnetic Field Analysis for Dimensional Resonance in Mn-Zn Ferrite Core and Comparison with Permeability Measurement. A. Furuya1, Y. Uehara1, K. Shimizu1, J. Fujisaki1, T. Ataka1, T. Tanaka1 and H. Oshima2 1. Fujitsu Ltd., Kawasaki, Japan; 2. Fujitsu Laboratories Ltd., Atsugi, Japan

Friday 183
10:15

**GF-06.** In-Plane Magnetic Anisotropy Detection for Crystal Grain Orientation in Goss-Textured Ferromagnets. E. Cardelli¹, D. Candeloro², A. Faba¹, M. Pompei¹ and S. Quondam Antonio¹
1. Department of Engineering, University of Perugia, Spoleto, Italy; 2. University of Perugia, Perugia, Italy

10:30

**GF-07.** Separating magnetic contributions with Preisach model: a system of two phases. F.M. Rhen¹,² and F.P. Missell³
1. Physics, University of Limerick, Limerick, Ireland; 2. Bernal Institute, University of Limerick, Limerick, Ireland; 3. Centro de Ciências Exatas e Tecnologia, Universidade de Caxias do Sul, Caxias do Sul, Brazil

10:45

**GF-08.** Elman neural network-based identification of Krasnosel’skii-Pokrovskii model for magnetic shape memory alloys actuator. R. Xu¹ and M. Zhou¹
1. Department of Control Science and Engineering, Jilin University, ChangChun, China

11:00

**GF-09.** A New Anisotropic Vector Hysteresis Model Based on Play Hysterons. D. Lin¹, P. Zhou¹ and M. Rahman²
1. Ansys Inc., Pittsburgh, PA; 2. Memorial University of Newfoundland, St. John’s, NL, Canada

11:15

**GF-10.** Modeling of hysteresis in nanocrystalline ribbons annealed under transverse field. N. Boust¹,², O. Geoffroy¹, H. Chazal¹ and J. Roudet¹
1. Madea, G2ELab, Grenoble Cedex 1, France; 2. Alloys Amilly, APERAM, Amilly, France

11:30

**GF-11.** Modeling of Dynamic Iron Loss in Grain-Oriented Soft Magnetic Steel Sheets. M. Petrun¹, S. Steentjes², K. Hameyer² and D. Dolinar¹
1. FERI, University of Maribor, Maribor, Slovenia; 2. IEM, RWTH Aachen University, Aachen, Germany

FRIDAY WICKLOW HALL 2A

**MORNING 9:00**

Session GG

**MAGNETOELASTIC MATERIALS II**

Kelly Morrison, Chair
Loughborough University, Loughborough, United Kingdom

9:00

**GG-01.** When does magnetostriction not conserve volume? Y. He³, P.S. Stamenov¹, C. Jiang² and M. Coey¹
1. School of Physics, Trinity College Dublin, Dublin, Ireland; 2. Beihang University, Beijing, China
GG-02. Magnetic gas sensing exploiting a magneto-elastically coupled nanostructured hybrid heterostructures.
R. Ciprian¹, G. Vina², P. Torelli², B. Ressel³, R. Ciancio² and M. Malvestuto¹. 1. Magnedyn Beamline, Elettra Sincrotrone di Trieste, Trieste, Italy; 2. Instituto Officina dei Materiali - CNR, Trieste, Italy; 3. University of Nova Gorica, Ajdovščina, Slovenia

9:30

GG-03. An Engineering Model for Fe-Ga Magnetostriective Strain Sensor. J. Yoo¹ and N.J. Jones¹. 1. Carderock Division, Naval Surface Warfare Center, West Bethesda, MD

9:45

GG-04. Demagnetizing Field Effect on the Detection Range of a Galfenol-Based Magnetic Field Sensor. V. Apicella¹, M. Caponero², C. Cianfrani², D. Davino¹, A. Polimadei² and C. Visone¹. 1. Engineering Department, University of Sannio, Benevento, Italy; 2. Enea C.R., Frascati, Italy

10:00


10:15

GG-06. Crystal orientation dependence of magnetization and magnetostriction behaviors in highly textured Galfenol and Alfenol thin sheets. S. Na¹, J. Eng-Morris², J.R. Downing² and A.B. Flatau¹. 1. Aerospace Engineering, University of Maryland, College Park, MD; 2. Materials Science and Engineering, University of Maryland, College Park, MD

10:30

GG-07. Quantifying the magnetostrictive role of fcc Co on electrically tuned perpendicular anisotropy in [Co/Ni] / PMN-PT multiferroic composites. D.B. Gopman¹, P. Chen¹, C. Dennis¹, P. Finkel², M. Staruch² and R. Shull¹. 1. Materials Science and Engineering Division, National Institute of Standards and Technology, Gaithersburg, MD; 2. US Naval Research Laboratory, Washington, DC

10:45

GG-08. Development of Amorphous FeGaSiB Films. Q. Abbas¹, C. Barton², T. Thomson² and N. Morley¹. 1. Materials Science and Engineering, University of Sheffield, Sheffield, United Kingdom; 2. School of Computer Science, University of Manchester, Manchester, United Kingdom

11:00

GG-09. Piezomagnetic performance of a stress annealed FeAlB alloy. C. Bormio-Nunes¹ and M. de Souza Dias¹. 1. Engenharia de Materiais, Universidade de São Paulo - Escola de Engenharia de Lorena, Lorena, Brazil
11:15

GG-10. Magnetoelastic properties of the epitaxially grown layers of Co$_2$Fe$_{0.4}$Mn$_{0.6}$Si and Co$_2$FeGa$_{0.5}$Ge$_{0.5}$ Heusler alloys.
O.M. Chumak$^{1,2}$, A. Nabialek$^1$, R. Zuberek$^1$, L.T. Baczewski$^1$, I. Radeytskyy$^1$, H. Szymczak$^1$, T. Yamamoto$^3$, T. Seki$^{3,4}$ and K. Takanashi$^{3,4}$
1. Institute of Physics, Polish Academy of Science, Warsaw, Poland; 2. O. Galkin Donetsk Institute for Physics and Engineering, National Academy of Science of Ukraine, Kyiv, Ukraine; 3. Institute for Materials Research, Tohoku University, Sendai, Japan; 4. Center for Spintronics Research Network, Tohoku University, Sendai, Japan

11:30

GG-11. Magnetic properties of Ni-Mn-Ga-Co-Cu single crystals exhibiting magnetic shape memory effect.
L. Straka$^{1,2}$, O. Heczko$^{1,2}$, M. Rames$^1$, A. Soroka$^1$, K. Ullakko$^3$ and A. Sozinov$^3$
1. Institute of Physics CAS, Prague, Czech Republic; 2. Charles University in Prague, Prague, Czech Republic; 3. Material Physics Laboratory, Lappeenranta University of Technology, Savonlinna, Finland

11:45

GG-12. The new multiferroic composite materials consisted of ferromagnetic, ferroelectric and polymer components.
L.A. Makarova$^1$, Y.A. Alekhina$^1$, T.S. Rusakova$^1$, V.V. Rodionova$^2$, A.S. Omelyanchik$^2$ and N.S. Perov$^1$
1. Faculty of Physics, Lomonosov MSU, Moscow, Russian Federation; 2. Immanuel Kant Baltic Federal University, Kaliningrad, Russian Federation

FRIDAY WICKLOW HALL 2B
MORNING
9:00

Session GH
MOTORS, GENERATORS AND ACTUATORS IX
Luc Dupré, Chair
Universiteit Gent, Ghent, Belgium

9:00

GH-01. A novel three dimensional lift platform based on direct-drive coordinated linear switched reluctance machines.
N. Cheung$^1$ and B. Zhang$^2$
1. Electrical Engineering, Hong Kong Polytechnic University, Hong Kong, Hong Kong; 2. Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China

9:15

M.D. Noh$^1$, H. Lee$^2$ and Y. Park$^3$
9:30
GH-03. A basic theory of induction heating for wind powered thermal energy system. T. Matsuo and T. Okazaki. 1. Kyoto University, Kyoto, Japan; 2. The Institute of Applied Energy, Tokyo, Japan

9:45

10:00

10:15
GH-06. Ambient Temperature Influence on Temperature of MCCB Bimetal. S. Lv and M. Zong. 1. School of Electrical Engineering, Shenyang University of Technology, Shenyang, China

10:30

10:45
GH-08. Optimal Coordination for Multiple Linear Switched Reluctance Machines. E. Cheng, N. Cheung and J. Pan. 1. Electrical Engineering, Hong Kong Polytechnic University, Hong Kong, Hong Kong; 2. Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China

11:00
GH-09. Iron Loss Calculation for High-Speed PM Machine Based on 3D Orthogonal Magnetic Field. G. Liu, M. Liu, S. Jin and Y. Zhang. 1. Shenyang University of Technology, Shenyang, China; 2. Queens University Belfast, Belfast, United Kingdom

11:15

FRIDAY THE FORUM

MORNING

8:30

Session GM

BIO-MEDICAL DIAGNOSIS AND IMAGING

(Poster Session)

Ning Gu, Co-Chair
Southwest University, Nanjing, China
Héctor Corte-León, Co-Chair
National Physical Laboratory, Teddington, United Kingdom

GM-01. Frequency-based spintronic detection of magnetic particles.
M. Sushruth\(^1\), J. Fried\(^1\), S. Xavier\(^2\), A. Anane\(^3\), C. Deranlot\(^3\), K. Yakushiji\(^2\), A. Fukushima\(^4\), H. Kubota\(^4\), V. Cros\(^3\), S. Yuasa\(^4\) and P. Metaxas\(^1\) 1. School of Physics, University of Western Australia, Perth, WA, Australia; 2. Thales Research and Technology, Palaiseau, France; 3. Unité Mixte de Physique CNRS/Thales, Université Paris-Sud and Université Paris-Saclay, Palaiseau, France; 4. Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan

S. Delshadi\(^1,2\), G. Blaire\(^2\), P. Kauffman\(^2\), M. Fratzl\(^2,3\), T. Devillers\(^3\), M. Weidenhaupt\(^4\), N. Dempsey\(^3\), F. Bruckert\(^4\), O. Cuqat\(^2\) and P.N. Marche\(^1\) 1. Institute of Advanced Bioscience, Grenoble, France; 2. G2Elab, Grenoble, France; 3. Institut Néel, Grenoble, France; 4. LMGP, Grenoble, France

GM-03. Estimation of Magnetocardiography Current Sources Using Reconstructed Magnetic Field Data.
W. Sun\(^1\) and K. Kobayashi\(^1\) 1. Iwate University of Japan, Morioka, Japan

Y. Geng\(^1\), Y. Xing\(^1\), C. Wang\(^2\), H. Yu\(^1\) and G. Xu\(^2\) 1. Province-Ministry Joint Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability, Hebei University of Technology, Tianjin, China

T. Sasayama\(^1\), Y. Gotobi\(^2\) and K. Enpuku\(^1\) 1. Kyushu University, Fukuoka, Japan; 2. Oita University, Oita, Japan

GM-06. High frequency magnetic response of microfabricated magnetic discs.
P.A. Löttmann\(^1,2\), T. Janson\(^1\), Y. Klein\(^2\), A. Blaudszun\(^1\), M. Ledwig\(^3\) and L. Abelmann\(^1,2\) 1. KIST Europe, Saarbrücken, Germany; 2. University of Twente, Enschede, Netherlands; 3. Pure Devices, Würzburg, Germany
GM-07. Mn-Zn ferrite nanoparticles with silica and titania coatings: synthesis, MRI properties and cytotoxicity. O. Kaman1, J. Kulicekova1, M. Maryska1, P. Veverka1, V. Herynek2, R. Havelek3, K. Kralovec4, D. Kubaniova2, J. Kohout2 and Z. Jirak1. 1. Institute of Physics, AS CR, Praha, Czech Republic; 2. Institute for Clinical and Experimental Medicine, Praha, Czech Republic; 3. Faculty of Medicine in Hradec Kralove, Charles University, Hradec Kralove, Czech Republic; 4. Faculty of Chemical Technology, University of Pardubice, Praha, Czech Republic; 5. Faculty of Mathematics and Physics, Charles University, Praha, Czech Republic

GM-08. Mapping and estimating magnetic field variations due to a one-sided magnet. N. Prabhu Gaunkar1, M. Mina1, R. Weber1 and D. Jiles1. 1. Department of Electrical and Computer Engineering, Iowa State University, Ames, IA

GM-09. Analysis of the hyperthermia efficiency and MRI quality trade off in PMMA-based bone cements loaded with magnetic nanoparticles. N. De Geeter1, M. Harabech1, G. Crevecoeur1 and L. Dupre1. 1. Department Electrical Energy, Systems and Automation (EESA), Ghent University, Ghent, Belgium

GM-10. Controlled manipulation and monitoring of particles/cells via magnetophoretic transport system. B. Lim1, S. Torati1 and C. Kim1. 1. EMS, DGIST, Daegu, The Republic of Korea


GM-12. Development of Compact Ultra-Low-Field MRI System Using an Induction Coil. D. Oyama1, Y. Adachi1, M. Higuchi1, N. Tsuyuguchi1 and G. Uehara1. 1. Kanazawa Institute of Technology, Kanazawa, Japan; 2. Asahikawa Medical University, Asahikawa, Japan

GM-13. Magnetic Properties and MR Effect of Co0.5Fe3-xO4 Nanoparticles. Y. Ichiyanagi1, K. Miike1, A. Usui2, Y. Hosokai2, T. Ishikawa1, Y. Machida2 and H. Saito2. 1. Yokohama National University, Yokohama, Japan; 2. Tohoku University, Sendai, Japan

GM-14. Magnetically Engineered MnMg-Nanoferrite Particles and its Application to an Agent of Miniaturized-Nuclear Magnetic Resonance Biosensor for Highly Sensitive Detection of Biomarkers. M. Jeun1, S. Park1,2, H. Lee3 and K. Lee4. 1. Center for Biomaterials, Biomedical Research Institute, Korea Institute of Science and Technology, Seoul, The Republic of Korea; 2. Department of Biomedical Engineering, Korea University of Science and Technology (UST), Seoul, The Republic of Korea; 3. Center for Systems Biology, Massachusetts General Hospital, Harvard Medical School, Boston, MA

GM-15. Withdrawn
GM-16. Identification of biogenic magnetic nanoparticles in *Sus domestica* lung tissue using EPR spectroscopy. S. Gorobets¹, O. Gorobets¹, O. Medviediev¹, V. Golub² and L. Kuzminykh¹
1. National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Kyiv, Ukraine; 2. Institute of Magnetism NASU and MESYSU, Kyiv, Ukraine

GM-17. Detection of biogenic magnetic nanoparticles in human’s aortic aneurysms. Y.A. Darmenko¹, S. Gorobets¹, O. Gorobets¹, O. Gorobets¹, I. Sharau² and O. Lazarenko² 1. Faculty of Biotechnology and Biotechnics, National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, Kiev, Ukraine; 2. Institute of Magnetism NASU and MES of Ukraine, Kiev, Ukraine; 3. State Scientific Institution “SPCPCM”, Kiev, Ukraine


FRIDAY THE FORUM
MORNING
8:30

Session GN
FUNDAMENTAL PROPERTIES WITH RELEVANCE TO APPLICATIONS II
(Poster Session)
Taro Wakamura, Chair
University Paris-Sud, Orsay, France

GN-01. Drag Friction Control in Laminar Airflow in Circular Pipe Using Permanent Magnets. H. Tani¹, T. Matsui², S. Koganezawa¹ and N. Tagawa¹ 1. Mechanical Engineering Dept., Kansai University, Suita-shi, Japan; 2. Graduate School of Kansai University, Suita-shi, Japan

GN-02. Analysis of Submarine Magnetic Signature Using 2D Fourier Transform. J. Zhou¹, J. Chen¹ and Z. Shan¹ 1. Naval Aeronautical Engineering Institute, Yantai, China

GN-03. Synchrotron radiation spectroscopy study of the electronic structure of Prussian blue analogue: (Rb, Ba)Mn[Fe(CN)₆]. E. Lee¹, H. Kim¹, S. Seong¹, J. Kang¹, S. Yusuf², B. Kim³ and B.I. Min³ 1. Physics, The Catholic University of Korea, Bucheon, The Republic of Korea; 2. Solid State Physics, Bhabha Atomic Research Centre, Mumbai, India; 3. Physics, POSTECH, Pohang, The Republic of Korea
High temperature magnetic susceptibility study of oxygen-induced magnetic moment in single crystal LaMnO$_3$.
T. Ou-Yang$^1$ 1. CCMS, NTU, Taipei, Taiwan

Soft Cobalt Ferrite: Tuning the Magnetic Properties of Cobalt Ferrite by Controlling the Nanoscale Architecture.
S. Robbenolt$^1$, A. Buditama$^2$, H. Kang$^2$, P. Nordeen$^3$, G. Carman$^3$ and S. Tolbert$^2$ 1. Department of Physics, Universitat Autònoma de Barcelona, Bellaterra, Spain; 2. Department of Chemistry and Biochemistry, UCLA, Los Angeles, CA; 3. Department of Mechanical and Aerospace Engineering, UCLA, Los Angeles, CA

Monte Carlo Investigation of the Magnetoelectric Properties of Frustrated Delafossite Oxides CuCr$_{1-x}$Ga$_x$O$_2$ ($0 \leq x \leq 0.3$).
A. Albaalbaky$^1$, Y. Kvashnin$^2$, D. Ledue$^1$, R. Patte$^1$ and R. Frébard$^3$ 1. Normandie Univ., INSA Rouen, UNIROUEN, CNRS, GPM, Rouen, France; 2. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden; 3. Normandie Univ., ENSICAEN, UNICAEN, CNRS, CRISMAT, Caen, France

Electric field tunable Landau levels of Weyl semimetals in the absence of magnetic fields.
C. Yesilyurt$^1$, Z. Siu$^1$, S. Tan$^{2,1}$, G. Liang$^1$ and M.B. Jalil$^1$ 1. Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; 2. Data Storage Institute, Agency of Science, Technology and Research (A*STAR), Singapore, Singapore

Magnetic and structural studies of Mg$_2$Fe$_x$Si$_{1-x}$ – hydrides.
T.T. Trinh$^{1,2}$ 1. Nuclear Physics, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. TU Dresden, Dresden, Germany

Effect of cooling rate on the structural and magnetic properties of Mn$_5$NiGa Heusler alloys.
M. Vagadia$^1$, K. Priolkar$^2$ and A.K. Nigam$^1$ 1. Department of Condensed Matter Physics and Materials Science, Tata Institute of Fundamental Research, Mumbai, India; 2. Department of Physics, Goa University, Goa, India

Spin polarization and magnetotransport properties of Ne$^+$ ion irradiated Fe$_{60}$Al$_{40}$ thin films: the role of the $s$-$d$ exchange coupling.
K. Borisov$^1$, R. Bali$^2$, C. Fowley$^2$, J. Ehrler$^2$, S. Cornelius$^2$, K. Potzger$^2$, J. Lindner$^2$, J. Faßbender$^2$ and P.S. Stamenov$^1$ 1. School of Physics, CRANN and AMBER, Trinity College Dublin, Dublin, Ireland; 2. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Denmark
Session GO  
VOLTAGE-CONTROLLED MAGNETISM/ MAGNETORESISTIVE AND HALF-METALLIC MATERIALS I
(Poster Session)
Hiroshi Imamura, Co-Chair
AIST, Tsukuba, Japan
Karsten Rode, Co-Chair
Trinity College, Dublin, Dublin, Ireland

GO-01. Voltage-controlled magnetization switching in elliptical pMTJ. J. Deng¹, G. Gupta¹ and G. Liang¹ 1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore

GO-02. Electric field control of spin-orbit torque polarity in ferromagnets. R. Mishra¹, X. Qiu² and H. Yang¹ 1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; 2. School of Physics Science and Engineering, Tongji University, Shanghai, China

GO-03. Piezo Voltage Controlled Planar Hall Effect Devices. B. Zhang¹ 1. Institute of Semiconductors, CAS, Beijing, China

GO-04. Electric-field control of magnetism in multiferroic heterostructures. Y. Zhao¹, Y. Liu¹, P. Li¹, X. Han², D. Pierce³, J. Unguris³, H. Piao⁴, H. Luo⁵, S. Li⁶, X. Zhang⁶ and C. Nan⁶ 1. Physics, Tsinghua University, Beijing, China; 2. Beijing National Laboratory for Condensed Matter Physics, Chinese Academy of Sciences, Beijing, China; 3. Center for Nanoscale Science and Technology, National Institute of Standards and Technology, Gaithersburg, MD; 4. School of Materials Science and Engineering and Key Laboratory of Advanced Materials (MOE), Tsinghua University, Beijing, China; 5. Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai, China; 6. State Key Laboratory of Surface Physics and Department of Physics, Fudan University, Shanghai, China

GO-05. Electric field-induced multi-jump magnetic switching. Z. Guo¹, X. Yang¹, B. Yan¹, X. Liu¹, J. Ou-yang¹, B. Zhu¹, S. Chen¹ and Y. Zhang¹ 1. School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan, China

GO-06. Pure electric-field driven domain wall motion in perpendicularly magnetized multilayers. D. López González¹, B. Van de Wiele², Y. Shirahata¹, K. Franken¹, A. Casagrandi¹, T. Taniyama³ and S. van Dijken¹ 1. Aalto University, Espoo, Finland; 2. Ghent University, Ghent, Belgium; 3. Tokyo Institute of Technology, Yokohama, Japan; 4. ISI Foundation, Turin, Italy

GO-07. Electric on/off switching of magnetism in iron/iron oxide nanostructures at room temperature. K. Duschek¹, A. Petr¹, K. Nielsch¹,² and K. Leistner¹,² 1. IFW Dresden, Dresden, Germany; 2. TU Dresden, Dresden, Germany
GO-08. Tuning magnetic anisotropy in CoFeB/MgO thin films by ionic liquid gating. Y. Liu, S. Oho, J. Adam, J. Langer, B. Ocker, D. Ravelosona and L. Herrera Diez. 1. Centre de Nanosciences et de Nanotechnologies, Orsay, France; 2. Central Research Institute of Electric Power Industry, Yokosuka, Japan; 3. Singulus Technology, Kahl am Main, Germany

GO-09. Electric Field Control of Magnetic Anisotropy in Ultra-Thin FeRh/MgO Bilayers Across the Metamagnetic Transition. N.G. Kioussis, G. Zheng, J. Kim, S. Ke, R. Ramesh and M. Miao. 1. Physics, California State University, Northridge, Northridge, CA; 2. School of Physics Science and Engineering, Tongji University, Shanghai, China; 3. Materials Science, University of California Berkeley, Berkeley, CA

GO-10. Voltage-controlled magnetic anisotropy in Tb-Fe-Co/MgO/Gd-Fe MTJ devices. N. Funabashi, H. Kinjo, T. Ueno, S. Aso, D. Kato, K. Aoshima, K. Kuga, M. Motohashi and K. Machida. 1. Science and Technology Research Laboratories, Japan Broadcasting Corporation (NHK), Tokyo, Japan; 2. Graduate School of Engineering, Tokyo Denki University, Tokyo, Japan

GO-11. Doping of perpendicularly magnetized ferrimagnetic Mn$_2$Ge thin films. J. Balluff, M. Meinert and G. Reiss. 1. Center for Spintronic Materials and Devices, Bielefeld University, Bielefeld, Germany


GO-13. Analysis of conductive electron spin-polarization in half-metallic Co$_2$FeGa$_{0.5}$Ge$_{0.5}$ thin films having different compositions and chemical orderings. Y. Sakuraba, S. Kokado, T. Nakatani, S. Li, T. Furubayashi, H. Tajiri, Y. Miura and K. Hono. 1. Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science, Tsukuba, Japan; 2. Graduate School of Engineering, Shizuoka University, Hamamatsu, Japan; 3. Japan Synchrotron Radiation Research Institute/SPRing-8, Aioi, Japan; 4. Kyoto Institute of Technology, Kyoto, Japan


GO-15. Magnetic properties of ferrimagnetic (Mn$_{1-x}$Co$_x$)$_2$VAl full-Heusler epitaxial thin films. K. Fukuda, M. Oogane and Y. Ando. 1. Department of Applied Physics, Graduate School of Engineering, Tohoku University, Sendai, Japan

GO-17. Growth and Characterisation of Antiferromagnetic Polycrystalline Mn3Ga Films. H. Wu1, I. Sudoh2, J. Kim1, G. Vallejo-Fernandez2 and A. Hirohata3 1. Department of Physics, University of York, York, United Kingdom; 2. Extreme Energy-Density Research Institute, Nagaoka University of Technology, Nagaoka, Japan; 3. Department of Electronics, University of York, York, United Kingdom

GO-18. Surface structure of (110) terminated half-metallic magnetite. B. Walls1, O. Lübben1, K. Palotás2,3, K. Fleischer1, K. Walshe1 and I.V. Shvets1 1. School of Physics and Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN), Trinity College Dublin, Dublin, Ireland; 2. Department of Theoretical Physics, Budapest University of Technology and Economics, Budapest, Hungary; 3. Slovak Academy of Sciences, Institute of Physics, Bratislava, Slovakia

FRIDAY THE FORUM MORNING 8:30

Session GP
SENSORS AND MEMS: DEVICES AND APPLICATIONS II (Poster Session)
Thibaut Devillers, Co-Chair CNRS Grenoble /Univ. Grenoble Alpes, Grenoble, France Marie Frénéa-Robin, Co-Chair Ampere Laboratory, Ecully, France

GP-01. Slack inspection method of high tension bolt using electromagnetic field without influence of lift-off between bolt head and inspection sensor. Y. Gotoh1, N. Shigematsu1 and T. Yamaguchi1 1. Mechanical and Energy Systems Engineering, Oita University, Oita, Japan

GP-02. Calibration system for magnetometer in low magnetic field range. P. Park1,2, W. Kim1,2, S.M. Amran1,2 and V.Y. Shifrin3 1. Korea Research Institute of Standards and Science (KRISS), Daejeon, The Republic of Korea; 2. University of Science and Technology, Daejeon, The Republic of Korea; 3. D. I. Mendelejev Institute for Metrology (VNIIM), St. Petersburg, Russian Federation

GP-03. 4-sensor Yokeless Electric Current Transducer. P. Ripka1 1. Czech Technical University, Prague, Czech Republic

GP-04. Orthogonal fluxgate gradiometer with multiple coil pairs. M. Butta1 and M. Janosek1 1. Czech Technical University, Czech Republic

GP-05. A long baseline fluxgate gradiometer with electrical alignment and its calibration method. Y. Adachi1, D. Oyama1, H. Toba2 and G. Uehara1 1. Applied Electronics Laboratory, Kanazawa Institute of Technology, Kanazawa, Japan; 2. DAIWA Exploration & Consulting Co., Ltd., Tokyo, Japan

GP-07. New Process of the Eddy Current Probe Impedance Calculation for Plate Inspection Using Bidimensional Magnetically Coupled Elements. A. Belhamri1, A. Hicham2, J. Yonnet3 and M. Chebout1 1. Electrical Engineering Laboratory of Bejaia, Bejaia University, Bejaia, Algeria; 2. L2EI Laboratory, University of Jijel, Jijel, Algeria; 3. G2E Lab, St Martin d’Heres, France

GP-08. Proposal of Thickness Measurement Method of Steel Plate with High Lift-Off Using Pulsed Magnetic Field. S. Yoshioka1, Y. Gotoh1 and K. Shimamoto1 1. Oita University, Oita, Japan

GP-09. Miniature tri-axis magnetometer with in-plane GMR sensors. X. Trinh1, J. Jeng1, M. Lan1, B. Chen1, V. Luong2 and C. Lu2 1. Department of Mechanical Engineering, National Kaohsiung University of Applied Sciences, Kaohsiung, Taiwan; 2. Institute of Mechatronic Engineering, National Taipei University of Technology, Taipei, Taiwan

GP-10. Improvement of detection accuracy of magnetic marker of wireless magnetic motion capture system using multi-excitation method. S. Hashi1, Y. Osaki1, S. Yabukami2, H. Kanetaka1 and K. Ishiyama1 1. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 2. Department of Electrical Engineering and Information Technology, Tohoku-Gakuen University, Tagajo, Japan; 3. Graduate School of Dentistry, Tohoku University, Sendai, Japan

GP-11. A Novel Compact AC/DC Current Sensor. Y. Wang1, F. Niu1, S. Huang2, L. Ge1 and K. Li1 1. School of Electrical Engineering, Hebei University of Technology, Tianjin, China; 2. School of Electrical Engineering, Zhejiang University, Hangzhou, China; 3. School of Electrical Engineering and Automation, Tianjin University, Tianjin, China

GP-12. Current Reconstruction of Bundle Conductors Based on Tunneling Magnetoresistive Sensors. G. Zhao1, J. Hu1, S. Zhao1, Z. Wang1, S.X. Wang2 and J. He1 1. Tsinghua University, Beijing, China; 2. Stanford University, Stanford, CA

GP-13. Application of High Permeability Magnetic Core Sensor for IoTs Device. C. Hsu1, Y. Huang2 and M. Hsieh1 1. Research and Development Center, Fortune Electric Company, Taoyuan, Taiwan; 2. Department of Mechanical Engineering, National Central University, Taoyuan, Taiwan; 3. Department of Systems and Naval Mechatronic Engineering, National Cheng Kung University, Taoyuan, Taiwan

GP-14. Output characteristic model of cantilever-like tactile sensor based on the inverse magnetostrictive effect. L. Wan1, B. Wang1, Y. Sun1, L. Weng1, W. Huang1 and S. Cao1 1. Hebei University of Technology, Tianjin, China
GP-15. Novel magnetic tactile sensor design using flexible magnetoresistive sensor array. M. Neto¹, R. Dias², J. Gaspar³, A. Bernardino³, S. Cardoso¹,⁴ and P. Freitas² ¹. Instituto de Engenharia de Sistemas e Computadores – Microsistemas e Nanotecnologias (INESC MN), Lisbon, Portugal; 2. Iberian Nanotechnology Laboratory (INL), Braga, Portugal; 3. Institute for Systems and Robotics (ISR), Lisbon, Portugal; 4. Instituto Superior Técnico (IST), Lisbon, Portugal

GP-16. Magnetic energy harvesting property of a nonlinear resonant electrodynamic scavenger. Z. Wang¹, J. Hu¹ and G. Zhao¹ ¹. Electrical Engineering, Tsinghua University, Beijing, China

GP-17. Heterogeneous integrated wireless displacement sensor. M.G. Kisic¹, N. Blaz¹, L. Zivanov¹ and M.S. Damnjanovic¹ ¹. Department of Power, Electronic and Telecommunication Engineering, Faculty of Technical Sciences, University of Novi Sad, Novi Sad, Serbia

GP-18. A simple process for fabricating flat composite micromagnet arrays based on PDMS and rare earth magnetic powders. D. Royet¹, J. Marchalot¹, A. Seth¹, N. Dempsey², T. Devillers², S. Le Denmat² and M. Fréneka-Robin³ ¹. Univ Lyon, ECL, Insa Lyon, UCB Lyon 1, CNRS, Ampère, Villeurbanne, France; 2. Univ. Grenoble Alpes - CNRS, Inst Néel, Grenoble, France

FRIDAY THE FORUM
MORNING
8:30

Session GQ
MOTOR AND GENERATORS
(Poster Session)

Jiang Quan, Co-Chair
Data Storage Institute, Singapore, Singapore
Chunhua Liu, Co-Chair
City University of Hong Kong, Hong Kong, Hong Kong

GQ-01. New Single Phase Flux Switching Axial Flux Permanent Magnet Motor. Q. Syed¹, H. Kurtovic¹ and I. Hahn¹ ¹. Electrical Drives and Machines, University of Erlangen-Nürnberg, Erlangen, Germany


GQ-03. A Novel Structure Single-Phase Tubular Switched Reluctance Linear Motor. H. Chen¹, R. Nie¹ and W. Yan¹ ¹. China University of Mining and Technology, Xuzhou, China

GQ-04. 2D Coupled Spectral Element Model for Magnetic-Thermal Analysis of Linear Synchronous Motors. M. Curti¹, T. van Beek¹, B.L. Gysen², H. Jansen², J. Paulides¹ and E. Lomonova¹ ¹. Electrical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands
GQ-05. Analysis of Variable Flux Memory Motor according to Rotor Structure Using Magnetic Equivalent Circuit. J. Song1, J. Lee1, Y. Kim2 and S. Jung1 1. Electronic, Electrical and Computer Engineering, Sungkyunkwan University, Suwon, The Republic of Korea; 2. Department of Electrical Engineering, Chosun University, Gwangju, The Republic of Korea

GQ-06. Analysis of Suspension Characteristics of New Bearingless Reluctance Machine with Independent DC Bias Winding. L. Yu1, Z. Zhang1, W. Lu1 and Y. Shi1 1. Department of Electrical Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing, China

GQ-07. A Novel Heteropolar Radial Hybrid Magnetic Bearing with Low Rotor Core Loss. W. Xu1, R. Zhu1 and C. Ye1 1. School of Electrical and Electronic Engineering, Huazhong University of Science and Technology, Wuhan, China

GQ-08. Force Characteristic Analysis of a Linear Magnetic Bearing with Rhombus Magnet Array for Magnetic Levitation Positioning System. Y. Zhou1, B. Kou1, X. Yang1 and J. Luo1 1. School of Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, China

GQ-09. A Design of Field Circuit for Improvement of Running Efficiency by Circular Rotating Field in Single-Phase Induction Motor. K. Kim1, H. Kim1 and G. Park1 1. Electrical and Computer Engineering, Pusan National University, Busan, The Republic of Korea

GQ-10. Analysis of Electromagnetic Torque with Two Different Double Skewed Rotors Induction Motor. J. Fang1 and X. Bao1 1. School of Electrical Engineering and Automation, Hefei University of Technology, Hefei, China

GQ-11. Doubly Salient Dual-PM Linear Machines for Regenerative Shock Absorbers. H. Fan1, K. Chau1, C. Liu2 and W. Li1 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, Hong Kong

GQ-12. Analysis of a Direct Drive Two Dimensional Hybrid-Flux Planar Generator for Wave Energy Conversion. E. Cheng1, N. Cheung1 and J. Pan2 1. Electrical Engineering, Hong Kong Polytechnic University, Hong Kong, Hong Kong; 2. Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China

GQ-13. Analysis of a Fall-Back Transverse Flux Permanent Magnet Generator. M.A. Patel1 and S.C. Vora1 1. Department of Electrical Engineering, Institute of Technology, Nirma University, Ahmedabad, India

GQ-15. Quantitative discrimination of dynamic eccentricity in induction motor considering Carter’s coefficient. Y. Zhou\textsuperscript{1} and X. Bao\textsuperscript{1}. School of Electrical Engineering and Automation, Hefei University Of Technology, Hefei, China

GQ-16. Reduction of Iron Loss on Laminated Electrical Steel Sheet Cores by Means of Secondary Current Heating Method. Y. Tsuchida\textsuperscript{1}, N. Yoshino\textsuperscript{1} and M. Enokizono\textsuperscript{2,3}. 1. Oita University, Oita, Japan; 2. Vector Magnetic Characteristic Technical Laboratory, Usa, Japan; 3. Nippon Bunri University, Oita, Japan

GQ-17. Experimental Analysis for Core Losses Prediction in Electric Machines by Using Soft Magnetic Composite. S. Lee\textsuperscript{1}, Y. Kim\textsuperscript{2}, K. Lee\textsuperscript{1} and S. Kim\textsuperscript{2}. 1. Automotive Components and Materials Group, Korea Institute of Industrial Technology, Gwangju, The Republic of Korea; 2. Electrical Engineering, Chosun University, Gwangju, The Republic of Korea

GQ-18. Iron Loss Model under DC Dias Flux Density Considering Temperature Influence. S. Xue\textsuperscript{1}, J. Feng\textsuperscript{2}, S. Guo\textsuperscript{2}, Z. Chen\textsuperscript{2}, J. Peng\textsuperscript{2}, W. Chu\textsuperscript{2}, L. Huang\textsuperscript{1} and Z.Q. Zhu\textsuperscript{1}. 1. Department of Electronic and Electrical Engineering, University of Sheffield, Sheffield, United Kingdom; 2. CRRC Zhuzhou Institute Co. Ltd., Zhuzhou, China

FRIDAY THE FORUM
MORNING
8:30
Session GR
MOTORS, GENERATORS AND ACTUATORS X (Poster Session)
Min-Fu Hsieh, Co-Chair
National Cheng Kung University, Tainan, Taiwan
Ping Zheng, Co-Chair
Harbin Institute of Technology, Harbin, China

GR-01. Study on Correlation Between Rotor Vibration and Mechanical Stress in Ultra-High-Speed Permanent Magnet Synchronous Motor. J. Ahn\textsuperscript{1,2}, C. Han\textsuperscript{1,2}, C. Kim\textsuperscript{2}, C. Park\textsuperscript{3}, T. Yoon\textsuperscript{1} and J. Choi\textsuperscript{1}. 1. R&D, MAGNETAR, Daejeon, The Republic of Korea; 2. Electrical Engineering Department, Chungnam National University, Daejeon, The Republic of Korea; 3. Advanced Manufacturing Systems Research Division, Korea Institute of Machinery and Materials, Daejeon, The Republic of Korea

GR-02. Axial unbalanced magnetic force in permanent magnet motors due to skewed magnet and rotor eccentricity. K. Kang\textsuperscript{1}, C. Kang\textsuperscript{1}, J. Song\textsuperscript{1}, S. Sung\textsuperscript{1} and G. Jang\textsuperscript{1}. 1. Dept of Mechanical Convergence Engineering, Hanyang University, Seoul, The Republic of Korea
¹. Dept. of Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea; ². Dept. of Electric, Electronic and Communication Engineering Edu., Chungnam National University, Daejeon, The Republic of Korea

GR-04. Integrated Motor Propulsor Magnet Design with Hybrid Halbach Array for Torque Ripple Reduction. J. Ahn¹,², C. Han¹,², C. Kim², C. Park³ and J. Choi¹. ¹. R&D, MAGNETAR, Daejeon, The Republic of Korea; ². Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea; ³. Advanced Manufacturing Systems Research Division, Korea Institute of Machinery and Materials, Daejeon, The Republic of Korea

GR-05. Characteristic Analysis of Eddy Current Loss in Permanent Magnet Linear Synchronous Generator Considering Tapped Holes in Movers using 3D Analytical Method. G. Jang¹, M. Koo¹, J. Kim¹, K. Kim² and J. Choi¹. ¹. Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea; ². Offshore Plant Research Division, Korea Research Institute of Ships and Ocean Engineering, Daejeon, The Republic of Korea

GR-06. Characteristics Analysis of LIM and PMLSM Capability Hybrid Operating System in Port Search System using Analytical Method. G. Jang¹, J. Jeong¹, S. Seo¹ and J. Choi¹. ¹. Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea

GR-07. Development and Analysis of a Slot-less Linear Motor with Quasi-Halbach Permanent Magnets for Aircraft Actuation Applications. Q. Wang¹, F. Gao¹, H. Lan¹ and J. Zou¹. ¹. Dept. of Electrical Engineering, Harbin Institute of Technology, Harbin, China

GR-08. Cogging Torque Reduction by Elementary-Cogging-Unit Shift for Permanent Magnet Machines. J. Gao¹, G. Wang¹, X. Liu¹, W. Zhang² and S. Huang¹. ¹. College of Electrical and Information Engineering, Hunan University, Changsha, China; ². Changsha University, Changsha, China


GR-10. Optimization Design of PMSM with Hybrid Type Permanent Magnet Considering Irreversible Demagnetization. C. Jeong¹ and J. Hur¹. ¹. Incheon National University, Incheon, The Republic of Korea
GR-11. Analysis on Eddy Current Formation Characteristic in a Rotor Assembly Including Retaining Plate with Pole Slot Combinations. H. Jun1, D. Jung1, H. Liu1 and S. Kim2

GR-12. Design and Analysis of a Less-Rare-Earth Flux-Intensifying Permanent Magnet Motor Utilizing Partitioned-Flux-Barrier Rotor. F. Liu1, X. Zhu1, L. Quan1, Z. Xiang1 and W. Wu1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China

GR-13. Demagnetization Investigation for Partitioned Rotor Permanent Magnet Flux Switching Machines Response to Three-Phase Symmetrical Short-Circuit Faults. D. Fan1, X. Zhu1, L. Quan1, Z. Xiang1 and W. Wu1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China

GR-14. Quantitative design of a high performance permanent magnet vernier generator. A. Tounzi1, J. Zhang1, V. Leontidis2, P. Delarue1, F. Pirio1, G. Caignaert2, A. Dazin2 and A. Libaux3. 1. L2EP, University Lille 1 - L2EP, Villeneuve d'Ascq, France; 2. LML, ENSAM, Lille, France; 3. EDF, Lille, France

GR-15. Magnetic field distribution prediction of the linear tubular field-modulated permanent magnet generator for ocean wave energy conversion. T. Xia1, H. Yu1, L. Huang1 and X. Liu1. 1. Southeast University, Nanjing, China


GR-17. Optimal Current Trajectory Control of PMSM Considering Cross Saturation Effects. H. Li1. 1. Hunan University, Changsha, China

Session GS
MOTORS, GENERATORS AND ACTUATORS XI
(Poster Session)
Chang-Chou Hwang, Chair
Feng Chia University, Taichung City, Taiwan

GS-01. Dynamic Characteristic Analysis of Permanent Magnet Linear Oscillatory Actuator Considering Resonance Frequency. J. Kim¹, J. Choi¹, K. Lee¹,² and S. Lee². 1. Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea; 2. Automotive Components and Materials Group, Korea Institute of Industrial Technology, Gwangju, The Republic of Korea

GS-02. Withdrawn.


GS-04. A Novel Hybrid-Excited Electrical Continuously Variable Transmission System. Y. Mao¹ and S. Niu¹. 1. The Hong Kong Polytechnic University, Hong Kong, Hong Kong

GS-05. Design and optimization of d-axis inductance-enhanced PMBL machine capable of wide speed range. J. Huang¹, X. Zhu¹, Z. Xiang¹ and W. Wu¹. 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China

GS-06. Electrical-Thermal Two-Way Coupling Analysis of an Outer-Rotor I-Shaped Flux-Switching Permanent Magnet Motor. C. Liu¹, X. Zhu¹, L. Quan¹, D. Fan¹ and W. Wu¹. 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China

GS-07. Design and Electromagnetic Field Characteristic Analysis of High-Speed Permanent Magnet Synchronous Generator for Unmanned Aerial Vehicle. J. Kim¹, C. Kim¹, S. Jang¹ and J. Choi¹. 1. Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea

GS-08. Reduced Q Axis Nonlinear MEC Model for Single Layer IPM. H. Garleyen¹ and E. Mese². 1. Yildiz Technical University, Istanbul, Turkey; 2. Ege University, Izmir, Turkey
GS-09. Impact of Mechanical Stresses on Flat Double Sided Linear Electric Motor Multi-Air Gap Structure Guided or Friction Plates. P. Kenfack1, D. Matt1, P. Enrici1 and M. François2
1. Institut D’Electronique et des Systèmes, Université de Montpellier, Montpellier, France; 2. Hekyom, Palaiseau, France

GS-10. Slip Frequency Control of Linear Induction Motor Considering Normal Force in Semi-High Speed MAGLEV Train. H. Seo1, G. Choe1, J. Lim1 and J. Jeong1

1. University of Macau, Taipa, Macao; 2. The University of Hong Kong, Hong Kong, Hong Kong

GS-12. Development of a High-Speed Induction Motor for Active Magnetic Bearing Compressors. C. Wang1, T. Hsiao1 and C. Liu1
1. ITRI, Hsinchu, Taiwan

1. Electronic Systems Engineering, Hanyang University, Ansan, The Republic of Korea

GS-14. Detection of Inter-Turn Stator Faults in Induction Motors Using Short Term Averaging of Forwards and Backwards Rotating Stator Current Phasors for Fast Prognostics. D.G. Dorrell1 and K. Makhoba1
1. Discipline of Electrical, Electronics and Computer Engineering, University of KwaZulu-Natal, Durban, South Africa

1. Mechatronics Engineering, Kocaeli University, Kocaeli, Turkey

1. Electrical Energy Engineering, Keimyung University, Daegu, The Republic of Korea

GS-17. DNN Predictive Magnetic Flux Control for Harmonics Compensation in Magnetically Unbalanced Induction Motor. E. Ghosh1, A. Mollaeian1, S. Kim1 and N.C. Kar1
1. Department of Electrical and Computer Engineering, University of Windsor, Windsor, ON, Canada

GS-18. Acoustic Noise Based Permanent Magnet Flux Reduction Diagnosis and Current Compensation in PMSM. Q. Xie1, M. Zhu1, J. Tjong2 and N.C. Kar1
1. Electric and Computer Department, University of Windsor, Windsor, ON, Canada; 2. Ford Motor Company, Windsor, ON, Canada

202 Friday
GT-01. A New Mover Separated Linear Magnetic-Field Modulated Motor for Long Stroke Applications. S. Wang¹, W. Zhao¹ and J. Ji¹ ¹Jiangsu University, Zhenjiang, China

GT-02. A Novel Linear Permanent Magnet Vernier Machine with Consequent Poles and Halbach Permanent Magnet Array. C. Shi¹, R. Qu¹, Y. Gao¹, D. Li¹ and Y. Huo¹ ¹Huazhong University of Science and Technology, Wuhan, China

GT-03. A Novel Linear Wound Field Vernier Machine with Separated Armature and Field Windings. J. Faiz¹ and A. Nematsaberi¹ ¹Electrical and Computer Engineering, University of Tehran, Tehran, The Islamic Republic of Iran

GT-04. HTS Dual-Stator Spoke-Type Linear Vernier Machine for Leakage Flux Reduction. N. Baloch¹, S. Khaliq¹ and B. Kwon¹ ¹Electronic Systems Engineering, Hanyang University, Ansan, South Korea, The Republic of Korea

GT-05. A Hybrid Linear Switched Reluctance Motor with Zero Cogging Force. N. Cheung¹ and Y. Zou²,¹ ¹Electrical Engineering, Hong Kong Polytechnic University, Hong Kong, Hong Kong; ²Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China

GT-06. Design and Optimization of a Novel Linear Flux-Reversal Permanent Magnet Machines with Large Mover Slot Opening. C. Shi¹, R. Qu¹, Y. Gao¹, D. Li¹ and Y. Huo¹ ¹Huazhong University of Science and Technology, Wuhan, China

GT-07. Analysis of a Novel Linear Doubly Salient Slot Permanent Magnet Motor. Y. Shen¹, Q. Lu¹ and Y. Ye¹ ¹College of Electrical Engineering, Zhejiang University, Hangzhou, China

GT-08. A Position Estimation Method for Linear Switched Reluctance Motor Based on Fuzzy Logic Observer. E. Cheng¹ and Y. Zou²,¹ ¹Electrical Engineering, Hong Kong Polytechnic University, Hong Kong, Hong Kong; ²Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China

GT-09. Design and Analysis of a New HTS Electromagnetic Screw for Artificial Heart. J. Ji¹, Z. Ling¹ and W. Zhao¹ ¹School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China
GT-10. The Research on Equivalent Finite Element Models of
Magnet Screw. F. Gao¹, Q. Wang² and J. Zou¹ 1. Department
of Electrical Engineering, Harbin Institute of Technology,
Harbin, China

GT-11. Magnetic Modelling of a Linear Synchronous Machine with
Spectral Element Method. M. Curti¹, J. Paulides¹ and
E. Lomonova¹ 1. Electrical Engineering, Eindhoven University
of Technology, Eindhoven, Netherlands

GT-12. Modelling, Design Optimization and Verifications of
Permanent Magnet Linear Actuators for Structural
Vibration Mitigation Applications. Q. Wang¹, J. Wang² and
F. Gao¹ 1. Dept. of Electrical Engineering, Harbin Institute of
Technology, Harbin, China; 2. University of Sheffield, Sheffield,
United Kingdom

GT-13. Characteristic Analysis of Linear Oscillatory Actuator
Based on Subdomain Analytical Model Considering
End-Effect. K. Shin¹, H. Park², H. Cho³ and J. Choi¹
1. Department of Electrical Engineering, Chungnam National
University, Daejeon, The Republic of Korea; 2. Advanced Brake
Engineering Team, Hyundai Mobis, Yongin-si, The Republic of
Korea; 3. Department of Electric, Electronic, and
Communication Engineering Education, Chungnam National
University, Daejeon, The Republic of Korea

GT-14. Analysis of the eddy current loss of a linear-rotary
permanent magnet actuator. K. Guo¹, S. Fang², H. Lin¹,
J. Jiang¹ and Y. Huang¹ 1. Southeast University, Nanjing, China

GT-15. Torque Actuator Control of 2-Phase Outer Coreless Rotor
for Hybrid Multi-DOF System. K. Joo¹, J. Won¹, H. Hong¹
and S. Kim² 1. Electrical Engineering, Hanyang University,
Seoul, The Republic of Korea; 2. Yuhan University, Bucheon,
The Republic of Korea

GT-16. Distributed Parameter Model for Electromagnetic Valve
Actuator with Permanent Magnet. K. Zhang¹, H. Liang¹,
J. You¹ and H. Yu¹ 1. Harbin Institute of Technology, Harbin,
China

GT-17. A Disturbance Compensation Control for Linear Resonant
M. Kato¹, K. Hirata¹ and Y. Asai² 1. Osaka University,
Suita-shi, Japan; 2. Panasonic Corporation, Kadoma-shi, Japan

GT-18. Influence of End-Effect on Direct and Quadrature
Inductances in Linear Electromagnetic Actuators.
B.B. Boff¹, A.P. Zanatta¹, A.F. Flores Filho¹, D.G. Dorrell² and
P.R. Eckert¹ 1. Post-Graduate Program in Electrical
Engineering, Federal University of Rio Grande do Sul, Porto
Alegre, Brazil; 2. University of KwaZulu-Natal, Howard
College Campus, Durban, South Africa
Session HA

SPIN-DEPENDENT PHENOMENA IN 2D MATERIALS
AND VAN DER WAALS HETEROSTRUCTURES

Connie Li, Chair
U.S. Naval Research Laboratories, Washington, DC

2:00

HA-01. Direct electrical detection of spin-momentum locking in
topological insulators and Rashba 2DEG states. (Invited)
C. Li1. Naval Research Laboratory, Washington, DC

2:30

HA-02. Graphene-based heterostructures as spintronic devices.
(Invited) F. Casanova1,2 1. CIC nanoGUNE, Donostia-San
Sebastian, Spain; 2. Ikerbasque, Bilbao, Spain

3:00

HA-03. Giant Spin–Orbit Splitting of the Graphene Dirac States in
Graphene/Topological Insulator van der Waals
heterostructure. (Invited) L. Li1 1. Physics and Astronomy,
West Virginia University, Morgantown, WV

3:30

HA-04. Electrical generation and control of the valley carriers in a
monolayer transition metal dichalcogenid. (Invited) Y. Ye1
and X. Zhang2 1. Peking University, Beijing, China; 2. UC
Berkeley, Berkeley, CA

4:00

HA-05. Highly-crystalline 2D superconductors protected by
spin-valley locking. (Invited) Y. Saito1 1. Department of
Applied Physics, The University of Tokyo, Bunkyo-ku, Japan

4:30

HA-06. Multifunctional 2D Spintronics. (Invited) R. Kawakami1
1. Physics, Ohio State University, Columbus, OH
Session HB

COMPOSITES, NANOPARTICLES, AND MODELING

Carlo Ragusa, Chair
Politecnico di Torino, Torino, Italy

2:00

HB-01. MEMS-based Magnetoelectric Magnetic Field Sensors.  
(Invited) E. Quandt1. Materials Science, University of Kiel, Kiel, Germany

2:30

HB-02. Implementation of the single hysteron model in a finite element scheme. E. Cardelli1, A. Faba1, A. Laudani2, G. Lozito2, S. Quondam Antonio1, F. Riganti Fulginei2 and A. Salvini2 1. Department of Engineering, University of Perugia, Perugia, Italy; 2. Roma Tre University, Roma, Italy

2:45

HB-03. Magnetite Nanoparticles Assembled in Flower-Like Structures with Tunable Magnetic Properties from Superparamagnetic to Ferrimagnetic. H. Gavilán1, E. Hernández-Sánchez1, L. Asin2, M.E. Brollo3, C.J. Serna1, S. Veintemillas-Verdaguer1, L. Gutiérrez3,1 and M. Morales1 1. Energy, Environment and Health, Institute of Material Science of Madrid (ICMM-CSIC), Madrid, Spain; 2. Departamento 4: Materiales multifuncionales y biomateriales, ICMA, Zaragoza, Spain; 3. Dept. Química Analítica, Instituto de Nanociencia de Aragón, Universidad de Zaragoza, Zaragoza, Spain

3:00

HB-04. Properties of soft magnetic composite compacts produced by spark plasma sintering from pseudo core-shell powders like Me@MeFe2O4 type. I. Chicinas1, T. Marínca1, F. Popa1, B. Neamtu1, V. Pop1 and O. Isnard3,4 1. Materials Science and Engineering, Technical University of Cluj-Napoca, Cluj-Napoca, Romania; 2. Faculty of Physics, Babes-Bolyai University, Cluj-Napoca, Romania; 3. Université Grenoble-Alpes, Grenoble, France; 4. Institut Néel, CNRS, Grenoble, France

3:15

HB-05. Novel Metacomposites Containing Carbon Nanotube-Ferromagnetic Microwire Hybrid Fibers. D. Estevez1, F. Qin1, H. Wang1 and H. Peng1 1. Institute for Composites Science Innovation (InCS), School of Materials Science and Engineering, Zhejiang University, Hangzhou, China
HB-06. Intrinsic permeability of composites filled with sendust powders. S.N. Starostenko1, A.N. Lagarkov1, K.N. Rozanov1, A.O. Shiryaev1 and A.N. Shalygin2 1. Institute for Theoretical and Applied Electromagnetics, Moscow, Russian Federation; 2. Physical Faculty, Moscow State University, Moscow, Russian Federation

3:45

HB-07. Effect of waiting time in the reversal points of dynamic FORCs. D. Cimpoesu1, I. Dumitru1 and A. Stancu1 1. Department of Physics, Alexandru Ioan Cuza University of Iasi, Iasi, Romania

4:00

HB-08. Numerical Modeling on Initial Magnetization of Fe-Based Soft Magnetic Composites Considering Saturation. W. Guan1, F. Fang1 and Y. Gao2 1. Wuhan University, Wuhan, China; 2. Saga University, Saga, Japan

4:15

HB-09. Effect of Ni Doping on Particle Magnetic Moment of Antiferromagnetic Ferrhydrite Nanoparticles. C. Rana1 and S. Tiwari1 1. Thapar University Patiala, Patiala, India

Friday 207
HC-03. Magneto-optical Q-switch lasers generating kW order pulses based on domain motions in rare-earth iron garnet. (Invited) T. Goto1,2, R. Morimoto1, J. Pritchard3, H. Takagi1, Y. Nakamura1, H. Uchida1, M. Mina1, T. Taira2 and M. Inoue1 1. Toyohashi University of Technology, Toyohashi, Japan; 2. JST PRESTO, Kawaguchi, Japan; 3. Iowa State University, Ames, IA; 4. Institute for Molecular Science, Okazaki, Japan

3:00

HC-04. Plasmon-enhanced magneto-optical response: from mechanism to tunable waveplate. A. Shaimanov1,2, K. Khabarov1,3 and A. Baryshev1,4 1. All-Russia Research Institute of Automatics, Moscow, Russian Federation; 2. Moscow State University, Moscow, Russian Federation; 3. Moscow Institute of Physics and Technology, Moscow, Russian Federation; 4. Ioffe Physical-Technical Institute, Saint-Petersburg, Russian Federation

3:15

HC-05. Magnetic graphene enabled by N-doping for microwave absorbing application. L. Quan1, F. Qin1, H. Wang1 and H. Peng1 1. Zhejiang University, Hangzhou, China

3:30

HC-06. All-optical switching behaviours in synthetic ferrimagnetic heterostructures with different ferromagnetic-layer Curie temperatures. J. Liao1, P. Vallobra2, D. Petit1, T. Vemulkar1, L. O'Brien1, G. Malinowski2, M. Hehn2, S. Mangin2 and R. Cowburn1 1. Department of Physics, University of Cambridge, Cambridge, United Kingdom; 2. Institute Jean Lamour, UMR CNRS 7198, Universite de Lorraine, Vandoeuvre-les-Nancy, France

3:45


4:00

HC-08. Substrate integrated waveguide based on ferromagnetic nanowires. V. Van Kerckhoven1,2 1. Institute of Condensed Matter and Nanosciences, Université Catholique de Louvain, Louvain-la-Neuve, Belgium; 2. Institute of Information and Communication Technologies, Electronics and Applied Mathematics, Université Catholique de Louvain, Louvain-la-Neuve, Belgium

4:15

HC-09. Two micron pixel pitch magneto-optical spatial light modulator. H. Kinjo1, N. Funabashi1, K. Aoshima1, T. Usui1, S. Aso1, D. Kato1, K. Machida1, K. Kuga1, T. Ishibashi2 and H. Kikuchi1 1. Japan Broadcasting Corporation, Tokyo, Japan; 2. Nagaoka University of Technology, Niigata, Japan
HC-10. TEM Investigation of RF Sputtered YIG Thin Film Crystallization. T. Gage1, D. Flannigan1 and B. Stadler1
1. University of Minnesota, Minneapolis, MN

HC-11. Dynamic Magnetic Properties of Ferrites Prepared by Sol-Gel Auto combustion Method. M. Coisson1, G. Barrera1, F. Celegato1, L. Martino1, S. Kane2, S. Raghuvanshi2 and P. Tiberto1 1. Nanoscience and Materials, INRIM, Torino, Italy; 2. Physics, Devi Ahilya University, Indore, India

FRIDAY LIFFEY HALL 1
AFTERNOON
2:00

Session HD
DOMAIN WALL MOTION
Olga Kazakova, Co-Chair National Physical Laboratory, Teddington, United Kingdom
Sebastian Gliga, Co-Chair University of Glasgow, Glasgow, United Kingdom

2:00
HD-01. Droplet solitons in magnetic nanowires. M. Ahlberg1, M. Ranjbar1,2, P. Dürenfeld1,3, S. Mohseni4, S. Chung5,6 and J. Åkerman1,5 1. Department of Physics, University of Gothenburg, Gothenburg, Sweden; 2. School of Electrical, Computer and Energy Engineering, Arizona State University, Tempe, AZ; 3. School of Electronic Science and Engineering, Nanjing University, Nanjing, China; 4. Department of Physics, Shahid Beheshti University, Tehran, The Islamic Republic of Iran; 5. Materials Physics, KTH Royal Institute of Technology, Stockholm, Sweden; 6. Department of Physics, Uppsala University, Uppsala, Sweden

2:15
HD-02. Observation of abnormal switching-back phenomena in spin-orbit torque devices due to domain wall reflection. J. Yoon1, S. Lee3, J. Kwon1, J. Lee1, J. Son1, X. Qiu3, K. Lee2,4 and H. Yang1 1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; 2. Department of Materials Science and Engineering, Korea University, Seoul, The Republic of Korea; 3. Shanghai Key Laboratory of Special Artificial Microstructure Materials & School of Physics Science and Engineering, Tongji University, Shanghai, China; 4. KU-KIST Graduate School of Converging Science and Technology, Korea University, Seoul, The Republic of Korea
HD-03. Current-driven domain wall dynamics in exchange-coupled ferromagnetic layers by a synthetic antiferromagnet: A micromagnetic study. V. Raposo1, O. Alejos2, R. Tomasello3, G. Finocchio4 and E. Martínez4 1. Applied Physics, University of Salamanca, Salamanca, Spain; 2. University of Valladolid, Valladolid, Spain; 3. University of Perugia, Perugia, Italy; 4. University of Messina, Messina, Italy

2:45

HD-04. Straight domain wall instability triggered by in-plane magnetic field in films with perpendicular magnetic anisotropy and interfacial Dzyaloshinskii-Moriya interaction. J. Adam1, R. Souaille1, F. Garcia-Sanchez1, J. Kim1 and T. Devolder1 1. Centre des Nanosciences et des Nanotechnologies, Université Paris-Sud/CNRS, Orsay, France

3:00

HD-05. Observation of domain wall segment jump among quenched disorders. T. Taniguchi1, K. Kim1,2, T. Koyama3, D. Chiba3 and T. Ono1 1. Institute for Chemical Research, Kyoto University, Kyoto, Japan; 2. Korea Advanced Institute of Science and Technology, Daejeon, The Republic of Korea; 3. The University of Tokyo, Tokyo, Japan

3:15

HD-06. Magnetoelectric control of domain wall position or velocity in magnetoelectric nanostructures. T. Mathurin1, S. Giordano1, Y. Duschi1, N. Tiercelin1, P. Pernod1 and V. Preobajenski1 1. IEMN, Lille, France

3:30

HD-07. Performance of synthetic antiferromagnetic racetrack memory: domain wall vs skyrmion. R. Tomasello1, V. Puliafito2, E. Martínez3, A. Manchon4, M. Ricci5, M. Carpentieri6 and G. Finocchio6 1. Department of Engineering, University of Perugia, Terni, Italy; 2. Department of Engineering, University of Messina, Messina, Italy; 3. Department of Fisica Applicada, University of Salamanca, Salamanca, Spain; 4. Physical Science and Engineering Division (PSE), King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia; 5. Department of Electrical and Information Engineering, Technical University of Bari, Bari, Italy; 6. Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina, Messina, Italy

3:45

HD-08. Reliable and simultaneous control of circularity and polarity for an effective reconfiguration of vortex arrays. M. Im1, H. Han2, M. Jung3, W. Chao1, Y. Yu1, P. Fischer1, G. Meier4, J. Hong3 and K. Lee2 1. LBNL, Berkeley, CA; 2. UNIST, Ulsan, The Republic of Korea; 3. DGIST, Daegu, The Republic of Korea; 4. MPI, Hamburg, Germany
HD-09. Evaluation of Dzyaloshinskii-Moriya interaction from thermally activated and flow regime domain wall motion. S. Duttagupta\textsuperscript{1,2}, C. Zhang\textsuperscript{2}, S. Fukami\textsuperscript{3,4} and H. Ohno\textsuperscript{2,5}  
1. Center for Spintronics Research Network, Tohoku University, Sendai, Japan; 2. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 3. Center for Spintronics Integrated Systems, Tohoku, Sendai, Japan; 4. Center for Innovative Integrated Electronic Systems, Tohoku University, Sendai, Japan; 5. WPI-AIMR, Tohoku University, Sendai, Japan

HD-10. Fast Domain Wall Motion Induced by Antiferromagnetic Spin Dynamics at Angular Momentum Compensation Temperature of Ferrimagnets. K. Kim\textsuperscript{1,2}, S. Kim\textsuperscript{2}, T. Tono\textsuperscript{1}, S. Oh\textsuperscript{4}, T. Okuno\textsuperscript{1}, W. Ham\textsuperscript{1}, Y. Hirata\textsuperscript{1}, S. Kim\textsuperscript{1}, G. Go\textsuperscript{4}, Y. Tserkovnyak\textsuperscript{3}, A. Tsukamoto\textsuperscript{5}, T. Moriyama\textsuperscript{1}, K. Lee\textsuperscript{4} and T. Ono\textsuperscript{1} 1. Kyoto University, Kyoto, Japan; 2. KAIST, Daejon, The Republic of Korea; 3. UCLA, LA, CA; 4. Korea University, Seoul, The Republic of Korea; 5. Nihon University, Chiba, Japan

HD-11. Field- and Current-Driven Domain Wall Motion in Epitaxial Pt/Co/Pt\textsubscript{1-x}Au\textsubscript{x} Trilayers with Controlled Broken Inversion Symmetry. K. Shahbazi\textsuperscript{1}, A. Hrabec\textsuperscript{1,2}, S. Moretti\textsuperscript{3}, T.A. Moore\textsuperscript{1}, E. Martinez\textsuperscript{3} and C.H. Marrows\textsuperscript{1} 1. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 2. LPS, Université Paris-Sud, Orsay, France; 3. University of Salamanca, Salamanca, Spain

HD-12. Current Controlled Domain Wall Velocity in Amorphous Microwires. S. Corodeanu\textsuperscript{1}, H. Chiriac\textsuperscript{1}, N. Lupu\textsuperscript{1} and T.A. Ovari\textsuperscript{1} 1. National Institute of Research and Development for Technical Physics, Iasi, Romania

FRIDAY LIFFEY MEETING ROOM 2
AFTERNOON
2:00

Session HE
MULTIFERROICS: MATERIALS AND PHENOMENA
Martina Müller, Chair
Research Center Jülich, Jülich, Germany

2:00

HE-01. Bismuth iron garnet Bi\textsubscript{12}Fe\textsubscript{12}O\textsubscript{22}: a room temperature magnetoelectric material. E. Popova\textsuperscript{1}, A. Shengelaya\textsuperscript{2,3}, D. Daraselia\textsuperscript{2}, D. Japaridze\textsuperscript{2}, S. Cherifi-Hertel\textsuperscript{4}, L. Bocher\textsuperscript{5}, A. Gloter\textsuperscript{1}, O. Stéphan\textsuperscript{5}, Y. Dumont\textsuperscript{1} and N. Keller\textsuperscript{1} 1. GEMaC, CNRS-UVSQ, Versailles, France; 2. Department of Physics, Tbilisi State University, Tbilisi, Georgia; 3. Andronikashvili Institute of Physics, I. Javakhishvili Tbilisi State University, Tbilisi, Georgia; 4. IPCMS, CNRS-UNISTRA, Strasbourg, France; 5. LPS, CNRS-Université Paris Sud, Orsay, France
HE-02. Magnetic field induced spin-structure transitions in epitaxially strained multiferroic BiFeO3 thin films.  
A. Agbelele1, D. Sando2, R. Rüffer3, B. Dkhil4, M. Cazayous5, A. Zvezdin6,7, J. Le Breton1, A. Barthélémy8, J. Juraszek1 and M. Bibès8  
1. GPM, Université de Rouen Normandie, Saint-Étienne du Rouvray, France; 2. School of Materials Science and Engineering, University of New South Wales, Sydney, NSW, Australia; 3. ESRF, Grenoble, France; 4. Centrale-Supelec, Univ. Paris Sud, Univ Paris-Saclay, Châtenay-Malabry, France; 5. Univ. Paris-Diderot, LMPQ, Paris, France; 6. Prokhorov General Physics Institute, Russian Academy of Sciences, Moscow, Russian Federation; 7. Russian Quantum Center, Moscow, Russian Federation; 8. CNRS Thalès, Univ. Paris Sud, Univ Paris-Saclay, Palaiseau, France

C.D. Amorim1, F. Figueiras1,2, J.S. Amaral1,2, J.N. Gonçalves1, P.B. Tavares1, M.D. Rosário4, A. Baghizadeh5 and V.B. Amaral1  
1. Physics Department and CICECO, University of Aveiro, Aveiro, Portugal; 2. IFIMUP-IN, Science Faculty, Porto University, Aveiro, Portugal; 3. Chemistry Center, Tras-os-Montes and Alto-Douro University, Vila Real, Portugal; 4. Physics Department and I3N, University of Aveiro, Aveiro, Portugal; 5. Department of Materials and Ceramic Engineering and CICECO, University of Aveiro, Aveiro, Portugal

HE-04. Magnetoelectric coupling at the Co/Pb(Zr,Ti)O3(001) interface.  
R. Arras1, R. Jarrier2, F. Scheurer2, P. Ohresser3 and S. Cherifi-Hertel2  
1. CEMES-CNRS, Toulouse, France; 2. IPCMS, Strasbourg, France; 3. Synchrotron SOLEIL, Gif-sur-Yvette, France

L. Heyderman1  
1. ETH Zurich - Paul Scherrer Institute, Villigen-PSI, Switzerland

HE-06. Manipulation of antiferromagnetic distributions in BiFeO3 studied by second harmonic generation imaging.  
J. Chauleau1, E. Haltz1, M. Viret1, S. Fusil2 and C. Carretero2  
1. DFR/IRAMIS/SPEC, CEA/CNRS, Saclay, France; 2. Unite mixte de Physique CNRS/THALES, Palaiseau, France

A. Aubert1, V. Loyau1, F. Mazaleyrat1 and M. Lo Bue1  
1. SATIE UMR 8029, ENS Cachan, Cachan, France
Electric Field Induced Non-Linear Magnetoelectric Effects in M-type Single Crystal Strontium Hexaferrite.
I. Zavislyak1, M. Popov1 and G. Srinivasan2
1. Department of Radiophysics, Electronics and Computer Systems, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine; 2. Physics, Oakland University, Rochester, MI

Magnetoelectric coupling between ultra-thin Fe films and Pb (Mg1/3Nb2/3) O3 [1-x]-[PbTiO3] x, x = 0.32 (001) (PMN-PT) using x-ray magnetic circular dichroism. S. Avula Venkata1, J. Heidler1, J. Dreiser1, J. Vijayakumar1, L. Howald1, F. Nolting1 and C. Piamonteze1
1. Microscopy and Magnetism, Swiss Light Source, Paul Scherrer Institut, Villigen, Switzerland

New route to design vertically aligned multiferroic nanocomposites. S. Basov1,2
1. BSMA, Institute of Condensed Matter and Nanosciences, Louvain-la-Neuve, Belgium; 2. ICMCB, CNRS, Université de Bordeaux, Pessac, France

Magnetoelectric coupling in multiferroic ErFeO3 nanoparticles with excellent photocatalytic activity. M. Alam1
1. Condensed Matter Physics and Material Sciences, S. N. Bose National Centre for Basic Sciences, Coochbehar, India

Nanoscale Imaging of Electrically Controlled Magnetization in Artificial Multiferroics and Spin Hall Effect Devices. (Invited) I. Gilbert1
1. National Institute of Standards and Technology, Gaithersburg, MD

Tenfold Improvement of the Write-Error Rate of Voltage-Control Spintronics Memory (VoCSM) by Controlling Switching Energy Barrier Height. T. Inokuchi1, H. Yoda1, S. Shiratori1, Y. Kato1, N. Shimomura1, K. Koi1, Y. Kamiguchi1, K. Ikegami1, H. Sugiyama1, M. Shimizu1, S. Oikawa1, M. Ishikawa1, A. Buyandalai1, T. Ajay1, Y. Ohsawa1, Y. Saito1 and A. Kurobe1
1. Corporate R&D Center, Toshiba Corporation, Kawasaki, Japan
HF-03. Huge voltage-induced magnetic anisotropy change of 5d transition-metals on Fe(001) and Co(0001). M. Tsujikawa and M. Shirai. 1. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 2. Center for Spintronics Research Network, Tohoku University, Sendai, Japan

3:00

HF-04. Composition dependence of voltage-induced perpendicular magnetic anisotropy change in Ta/(Co_{x},Fe_{100-x})\textsubscript{80}B_{20}/MgO multilayers. Y. Shiota, T. Nozaki, S. Tamaru, K. Yakushiji, H. Kubota, A. Fukushima, S. Yuasa and Y. Suzuki. 1. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan; 2. Graduate School of Engineering Science, Osaka University, Toyonaka, Japan

3:15

HF-05. Magnetization switching using voltage-induced changes of magnetic anisotropy and Dzyaloshinskii-Moriya interaction. H. Imamura, T. Nozaki, S. Yuasa and Y. Suzuki. 1. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan; 2. Graduate School of Engineering Science, Osaka University, Toyonaka, Japan

3:30

HF-06. Electric field modulation of the non-linear areal magnetic anisotropy energy in CoFeB/MgO. Y. Lau, P. Sheng, S. Mitani, D. Chiba and M. Hayashi. 1. Department of Physics, The University of Tokyo, Tokyo, Japan; 2. National Institute for Materials Science, Tsukuba, Japan; 3. Department of Applied Physics, The University of Tokyo, Tokyo, Japan

3:45

HF-07. Enhanced CPP-GMR effect by improved B2-order of Co\textsubscript{2}(Mn\textsubscript{0.6}Fe\textsubscript{0.4})Ge Heusler layer deposited on amorphous CoFeBTa underlayer: a quantitative estimation of site-disordering by anomalous x-ray diffraction. S. Li, T. Nakatani, Y. Sakuraba, H. Tajiri, T. Furubayashi and K. Hono. 1. National Institute for Materials Science, Tsukuba, Japan; 2. Japan Synchrotron Radiation Research Institute, Sayo, Japan

4:00

HF-08. Atomic and spin-electronic structure of antiphase boundary in the full Heusler alloy Co\textsubscript{2}Fe(X\textsubscript{A}X\textsubscript{Si})\textsubscript{2}. Z. Nedelkoski, A. Sanchez, A. Ghasemi, K. Hamaya, R.F. Evans, G. Bell, A. Hirohata and V.K. Lazarov. 1. Physics, University of York, York, United Kingdom; 2. Physics, University of Warwick, Coventry, United Kingdom; 3. Systems Innovation, Osaka University, Osaka, Japan; 4. Electronics, University of York, York, United Kingdom
HF-09. Layer Thickness Dependence of CPP-GMR in Co$_2$Fe$_{6-}$Mn$_{6-}$Si | L$_1-1$-type Ag-Mg | Co$_2$Fe$_{6-}$Mn$_{6-}$Si Devices. 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


HF-11. Withdrawn

Friday 215

FRIDAY AFTERNOON

2:00

Session HG

MICROSTRUCTURE AND MAGNETIC CHARACTERIZATION

Alicia Forment-Aliaga, Chair
Instituto de Ciencia Molecular, Paterna, Spain

2:00


2:15

HG-02. Control of the magnetic vortex core dynamics in magnetostrictive microstructured elements through the Magneto-Elastic coupling. S. Finizio$^1$, S. Wintz$^{1,2}$, E. Kirk$^1$, A. Suszka$^1$, S. Gliga$^2$ and J. Raabe$^1$. 1. Paul Scherrer Institut, Villigen PSI, Switzerland; 2. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 3. University of Glasgow, Glasgow, United Kingdom
HG-03. Imaging and Analysis of Buried Defects at Interfaces. *(Invited)* A. Hirohata¹, E. Jackson¹, Y. Yamamoto², B. Murphy³, A. Vick³, S. Duttagupta³, S. Fukami⁴, H. Ohno⁴, T. Kubota⁵ and K. Takanashi⁵ ¹. Department of Electronics, University of York, York, United Kingdom; ². JEOL, Akishima, Japan; ³. Department of Physics, University of York, York, United Kingdom; ⁴. Research Institute of Electrical Communications, Tohoku University, Sendai, Japan; ⁵. Institute for Materials Research, Tohoku University, Sendai, Japan

HG-04. Enhanced Magnetic Coercivity in RF-Sputtered Oxide BaMnO₃ Thin Film on Si. S. Mirzadeh Vaghefi¹, A. Baghizadeh², A.A. Lourenço¹ and V.B. Amaral¹ ¹. Department of Physics and CICECO, University of Aveiro, Aveiro, Portugal; ². Department of Engineering of Materials and Ceramics and CICECO, University of Aveiro, Aveiro, Portugal

HG-05. Reversal Processes in CoCrPt thin films with Perpendicular Magnetic Anisotropy. D. Navas¹, N. Soriano², F. Beron³, C.T. Sousa¹, K.R. Pirotá¹, C. Redondo³, R. Morales⁴,⁵ and C.A. Ross³¹. IFIMUP-IN and Departamento de Física e Astronomia, Universidade do Porto, Porto, Portugal; ². Department of Chemical-Physics, University of the Basque Country, Leioa, Spain; ³. Instituto de Fisica Gleb Wataghin, Universidade Estadual Campinas, Campinas, Brazil; ⁴. Department of Chemical-Physics & BCMaterials, University of the Basque Country, Leioa, Spain; ⁵. Ikerbasque, Basque Foundation for Science, Bilbao, Spain; ⁶. Materials Science and Engineering Department, MIT, Cambridge, MA


HG-07. Super high frequency (SHF) detectors based on the spin-wave driven expulsion of the vortex core in magnetic tunnel junctions. A. Jenkins¹, P. Bortolotti², R. Lebrun², S. Menshawy², K. Merazzo³,⁴, L. Vila³, M. Cyrille³, U. Ebels³, V. Cros², D. Costa¹, E. Paz¹, R. Ferreira³ and P. Freitas¹ ¹. International Iberian Nanotechnology Laboratory, Braga, Portugal; ². Unité Mixte de Physique CNRS, Thales and Univ. Paris-Sud, Univ. Paris-Saclay, Palaiseau, France; ³. SPINTEC, Univ. Grenoble Alpes / CEA / CNRS, Grenoble, France; ⁴. CEA-LETI, MINATEC, Grenoble, France
HG-08. On the Understanding of the Microstructure and the Magnetic Properties of Fe-Implanted 6H-SiC at Fine Scale by Atom Probe Tomography. L. Diallo1, M. Diallo2, L. Lechevallier1,2, A. Fnidiki1, M. Viret1, M. Marteau4, D. Eyidi4, A. Declemy3, F. Cuvilly1 and I. Blum1. 1. Normandie Univ., INSA Rouen, UNIROUEN, CNRS, GPM, Rouen, France; 2. Département de GEII, Université de Cergy-Pontoise, Cergy-Pontoise, France; 3. Service de Physique de l’Etat Condensé (DSM/IRAMIS/SPEC), UMR 3680 CNRS, Bât. 772, Orme des Merisiers, CEA Saclay, Gif-sur-Yvette, France; 4. Institut PPRIME, UPR 3346 CNRS, Université de Poitiers, ENSMA, SP2MI, Futuroscope, Chasseneuil, France

4:15

HG-09. Twinning-induced large mechanical strains in directionally oriented FeGa samples. N.J. Jones1, Y. Amanuel2, J. Dukes2, P.K. Lambert3 and J. Yoo1. 1. Physical Metallurgy and Fire Protection Branch, Naval Surface Warfare Center, Carderock Division, Bethesda, MD; 2. Criteria and Assessment, Naval Surface Warfare Center, Carderock Division, Bethesda, MD; 3. Materials Science and Engineering, Johns Hopkins University, Bethesda, MD

4:30

HG-10. Magnetic Imaging System in Smartphones Based on Built-In Magnetometer. A.B. Sukmono1, D. Danudirdjo1, A.D. Setiawan1 and D. Rahmawati1. 1. School of Electrical Engineering and Informatics, Institut Teknologi Bandung, Bandung, Indonesia

4:45

HG-11. Magnetic domain wall creep dynamics in perpendicularly magnetised CoFeB/MgO microstructures. L. Herrera Diez1, G. Durin2, V. Jeudy3, Y. Liu1, B. Sarma4, G. Agnus1, J. Langer4, B. Ocker4 and D. Ravelosona4. 1. Centre for Nanoscience and Nanotechnology (C2N), CNRS, Université Paris-Sud, Université Paris-Saclay, Orsay, France; 2. ISI Foundation, Torino, Italy; 3. Laboratoire de Physique des Solides, CNRS, Univ. Paris-Sud, Université Paris-Saclay, Orsay, France; 4. Singulus Technology AG, Kahl am Main, Germany

Friday 217

WICKLOW HALL 2B

AFTERNOON

2:00

Session HH

MOTORS AND GENERATORS

Jianguo Zhu, Chair
University of Technology Sydney, Sydney, Australia

2:00

HH-01. 3D FEM Computation of Axial Flux in a Brushless Doubly-Fed Induction Machine. F. Wani1, X. Wang1, D. Lahaye1 and H. Polinder1. 1. TU Delft, Delft, Netherlands
2:15

HH-02. Slotted Permanent-Magnet Machines: Fourier-Based Analytical Modeling Considering Finite Permeability of Teeth. P. Pfister¹, Q. Wang¹, X. Qin¹ and Y. Fang¹. ¹. College of Electrical Engineering, Zhejiang University, Hangzhou, China

2:30

HH-03. Vector Magnetic Hysteresis Measurement of Non-Oriented Electrical Steel Sheets under Unidirectional Compressive Stress Applied by Piezo Actuators. (Invited) H. Kawano¹, H. Oshima¹, J. Fujisaki², A. Furuya², Y. Uehara² and T. Matsuose¹. ¹. Fujitsu Laboratories Ltd., Asuji, Japan; 2. Fujitsu Limited, Kawasaki, Japan; 3. Kyoto University, Kyoto, Japan

3:00

HH-04. Iron Loss Model for Electrical Machines Fed by Low Switching Frequency PWM. S. Xue¹, J. Feng², S. Guo², Z. Chen², J. Peng², W. Chu², P. Xue¹ and Z.Q. Zhu¹. ¹. Department of Electronic and Electrical Engineering, University of Sheffield, Sheffield, United Kingdom; 2. CRRC Zhuzhou Institute Co. Ltd, Sheffield, United Kingdom

3:15

HH-05. Power loss and demagnetization research for high speed permanent magnet electrical machine. Y. Zhang¹, S. McLoone¹ and W. Cao². ¹. Queens University Belfast, Belfast, United Kingdom; 2. Aston University, Birmingham, United Kingdom

3:30

HH-06. Analysis of Unipolar Leakage Flux in Series-Hybrid Permanent Magnet Machines. Z.Q. Zhu¹, H. Hua¹, A. Pride², R. Deodhar² and T. Sasaki². ¹. Electronic and Electrical Engineering, University of Sheffield, Sheffield, United Kingdom; 2. IMRA Europe S.A.S., U.K. Research Center, Brighton, United Kingdom

3:45

HH-07. Loss analysis for the hybrid linear switched reluctance motor with no cogging force. N. Cheung¹, E. Cheng¹ and J. Pan². ¹. Electrical Engineering, Hong Kong Polytechnic University, Hong Kong, Hong Kong; 2. Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China

4:00

HH-08. Teeth Analysis and Optimization for Linear Switched Reluctance Motor. N. Cheung¹, W. Fu¹, E. Cheng¹ and J. Pan². ¹. Electrical Engineering, Hong Kong Polytechnic University, Hong Kong, Hong Kong; 2. Shenzhen Key Laboratory of Electromagnetic Control, Shenzhen University, Shenzhen, China
HH-09. Modeling a Ironless Permanent-Magnet Actuator for 6-DOF Magnetic Levitation Systems. M. Lahdo¹, T. Ströhla² and S. Kovalev³ ¹. Department of Electrical Engineering and Mechatronics, University of Applied Sciences Mittelhessen Friedberg, Friedberg, Germany; ². Department of Mechatronics, University of Technology Ilmenau, Ilmenau, Germany

HH-10. Study of a Linear Halbach Passive Magnetic Damper. M. Parekh¹, A. Bissal², J. Magnusson¹,² and G. Engdahl¹ ¹. Electromagnetic Engineering (ETK), KTH Royal Institute of Technology, Stockholm, Sweden; ². ABB AB Corporate Research, Västerås, Sweden

HH-11. Analysis of Low-Speed IPMMs with Distributed and Fractional Slot Concentrated Windings Designed for Wind Energy Applications. K. Ahsanullah¹, R. Dutta¹ and F. Rahman¹ ¹. Electrical and Communication Engineering, University of New South Wales, Sydney, NSW, Australia

FRIDAY THE FORUM

1:30

SESSION HM

BIO- AND CHEMICAL MAGNETISM AND MAGNETIC FLUIDS

(Episode Session)

Eiji Kita, Chair

University of Tsukuba, Tsukuba, Japan

HM-01. Magnetic orientational properties of monosodium urate crystals. Y. Takeuchi¹, M. Sekiya¹, A. Hamasaki², M. Iwasaka³ and M. Matsuda¹ ¹. Muroran Institute of Technology, Muroran, Japan; ². Department of Chemistry, Shinshu University, Matsumoto, Japan; ³. RNBS, Hiroshima University, Higashi-hiroshima, Japan

HM-02. ELF Magnetic Control of Axolotl Metamorphosis Inspired by Administration of Thyroid Hormone. H. Nakagawa¹ and M. Ohuchi¹ ¹. Department of Electronic and Electrical Engineering, Tokyo Denki University, Adachi-ku, Japan

HM-03. Analysis of Magneto-Mechanical Coupling System on Adjustable Magnetic Fluid Damper. X. Yang¹, Q. Yang¹,², W. Yang¹, B. Guo¹ and L. Chen¹ ¹. Hebei University of Technology, Province-Ministry Joint Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability, Tianjin, China; ². Tianjin Key Laboratory of Advanced Electrical Engineering and Energy Technology, Tianjin Polytechnic University, Tianjin, China
HM-04. Synthesis carbon dots on magnetic Fe_{3}O_{4} nanoparticles. Y. Ju¹, K. Lin¹, C. Liao¹ and A. Sun¹ 1. Chemical Engineering and Material Science, Yuan-Ze University, Taoyuan City, Taiwan

HM-05. Transcranial Magnetic Stimulation Increases Proliferation of Dopaminergic Neurons. X. Zhong¹, J. Luo², A. Kanthasamy² and D. Jiles³ 1. Department of Electrical and Computer Engineering, Iowa State University, Ames, IA; 2. Department of Biomedical Sciences, Iowa State University, Ames, IA

HM-06. Computation of magnetic liquid free surface shape in a quasi-homogeneous magnetic field with Differential Evolution. M. Trbušič¹ and A. Hamler¹ 1. Faculty of Electrical Engineering and Computer Science, University of Maribor, Slovenia, Maribor, Slovenia

HM-07. The stability of the magnetic properties of dry magnetically controlled biosorbent on basis of yeast Sacharomyces cerevisiae. K.A. Hetmanenko¹, S. Gorobets¹, O. Gorobets¹ and A. Kovalyov¹ 1. Faculty of Biotechnology and Biotechnics, Kyiv Polytechnic Institute, Kyiv, Ukraine

HM-08. Carbonyl Iron Suspension with Magnetic CoFe_{2}O_{4} Nanoparticle Additive and Its Magnetorheological Characteristics. Y. Dong¹, S. Piao¹, K. Zhang² and H. Choi¹ 1. Dept. of Polymer Science and Engineering, Inha University, Incheon, The Republic of Korea; 2. School of Chemical Engineering and Technology, Harbin Institute of Technology, Harbin, China

HM-09. Magnetic force microscopy of the ethmoid bones of migratory and non-migratory fishes. M. Bulaevska¹, S. Gorobets¹, O. Gorobets¹ and I. Sharau² 1. Faculty of Biotechnology and Biotechnics, Igor Sikorsky Kyiv Polytechnic Institute, Kyiv, Ukraine; 2. Institute of Magnetism NAS of Ukraine and MESYS of Ukraine, Kyiv, Ukraine

HM-10. The Development of the Multi-Channel TMS Device. J. Li¹, H. Cao¹, Z. Zhao¹, M. Zheng¹, Z. Ren¹, Y. Sun¹, Y. Liu¹ and J. He¹ 1. Xi’an Jiaotong University, Xi’an, China

HM-11. Theoretical Energy Dissipation and Numerical Calculation of Passive Magnetic Fluid Damper. X. Yang¹, Q. Yang¹,², L. Chen¹, B. Guo¹ and W. Yang¹ 1. Hebei University of Technology, Province-Ministry Joint Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability, Tianjin, China; 2. Tianjin Key Laboratory of Advanced Electrical Engineering and Energy Technology, Tianjin Polytechnic University, Tianjin, China

HM-12. Novel thermal switch based on magnetic nanofluids with remote activation. M.M. Dias¹,², J. Puga¹, B. Bordalo¹,², D. Silva¹,², J.H. Belo¹,², J. Araújo¹,², J. Oliveira¹,², A. Pereira¹ and J. Ventura¹,² 1. Material Physics Institute of the University of Porto, Porto, Portugal; 2. Physics and Astronomy Department, University of Porto, Porto, Portugal; 3. CFP, Department of Engineering Physics, FEUP, Porto, Portugal

220 Friday
HM-13. Design of a New Sandwiched Wireless Charging System for Micro Medical Robotics on Cardiac Pacemaker. J. Song and C. Liu. 1. School of Energy and Environment, City University of Hong Kong, Hong Kong, Hong Kong

HM-14. Metamorphic Behaviors of T4-Administrated Mexican Axolotl under Exposure to Gradient Magnetic Field. H. Nakagawa and M. Ohuchi. 1. Department of Electrical and Electronic Engineering, Tokyo Denki University, Adachi-ku, Japan

HM-15. Iron Oxide Silica Core-Shell Nanoparticles Conjugated with Bovine Serum Albumin. Y. Teng and P. Pong. 1. Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong, Hong Kong


HM-17. Effects of Magnetic Stimulation of Acupuncture Point on Brain Network. L. Fu, G. Xu and H. Yu. 1. Electrical Engineering, Hebei University of Technology, Tianjin, China; 2. Biomedical Engineering, Hebei University of Technology, Tianjin, China

HM-18. Experimental Verification on Effects in an Emergency Stop by Installation of Magneto Rheological Fluid Damper to an Elevator. N. Kobayashi, K. Kawase, S. Sato and T. Nakagawa. 1. Electrical and Electronic Engineering, Tokyo City University, Tokyo, Japan; 2. Department of Electrical and Electronic Engineering, Tokyo City University, Tokyo, Japan; 3. Electrical and Electronic Engineering, Tokyo City University, Tokyo, Japan

FRIDAY THE FORUM
AFTERNOON
1:30

Session HN
MAGNETIC NANOPARTICLES, NANOWIRES, AND 3D STRUCTURES IV
(Poster Session)
Veronique Dupuis, Co-Chair
iLM CNRS/University Lyon, Villeurbanne France
Erik Wetterskog, Co-Chair
Uppsala University, Uppsala, Sweden

HN-02. Core-shell magnetic structure of $\text{La}_{1-x}\text{Sr}_x\text{MnO}_3+\delta$ nanocrystallites. N.M. Belozerova, S. Kichanov, D.P. Kozlenko, Z. Jirák and O. Kaman. 1. Joint Institute for Nuclear Research, Dubna, Russian Federation; 2. Institute of Physics, AS CR, Praha, Czech Republic


HN-05. Magnetic changes in CoFe$_2$O$_4$@SiO$_2$ nanoparticles stemming from interfaces. B. Rivas-Murias and V. Salgueiriño. 1. Applied Physics, Universidade de Vigo, Vigo, Spain

HN-06. Controlled tuning of magnetic interactions in silica-covered iron oxide nanoparticles. P.C. Rivas Rojas, P. Tancredi, O. Moscoso Londono and L. Socolovski. 1. Faculty of Engineering/CONICET/INTECIN, University of Buenos Aires, Buenos Aires, Argentina; 2. Institute of Physics Glib Wataghin, University of Campinas, Campinas, Brazil

HN-07. Magnetic response of hybrid ferromagnetic and antiferromagnetic core-shell nanostructures. U. Khan, W. Li, M. Irfan, A. Nairan, K. Javed and X. Han. 1. State Key Lab of Magnetism, Institute of Physics, Beijing, China


HN-10. Magnetic Properties of Co-B Nanotubes. F.M. Rhen and S. Kingston. 1. Physics, University of Limerick, Limerick, Ireland; 2. Bernal Institute, University of Limerick, Limerick, Ireland

HN-11. Diameter dependent anti-ferromagnetic functionality in hybrid core/shell nanowires. U. Khan, W. Li, A. Nairan, M. Irfan, C. Wan, K. Javed and X. Han. 1. State Key Lab of Magnetism, Institute of Physics, Beijing, China
HN-12. Magnetic characteristics of Ca$_{0.98}$Co$_{0.02}$MoO$_4$ and Ca$_{0.95}$Mn$_{0.05}$MoO$_4$ nanoparticles. T. Gron$^1$, M. Pawlikowska$^2$, E. Tomaszewicz$^2$, M. Oboz$^2$, B. Sawicki$^3$ and H. Duda$^1$
1. Institute of Physics, University of Silesia, Katowice, Poland; 2. Department of Inorganic and Analytical Chemistry, Faculty of Chemical Technology and Engineering, West Pomeranian University of Technology, Szczecin, Poland

HN-13. Structural and magnetic properties of ribbons and thin films of Fe$_x$Cu$_{1-x}$ electrochemically treated to create 3D nanoporosity. H. Zhang$^1$, S. Robbenol$^3$, A. Quintana$^2$, A. Gordó$^1$, E. Menéndez$^1$, J. Fornell$^1$, E. Pellicer$^1$ and J. Sort$^{1,2}$
1. Department of Physics, Universitat Autònoma de Barcelona, Bellaterra, Spain; 2. Institució Catalana de Recerca i Estudis Avançats (ICREA), Barcelona, Spain

HN-14. Domain wall pinning in cylindrical nanowires with modulation in diameter: analytical and micromagnetic models. J. Fernandez-Roldan$^1$, D. Gusakova$^2$, J. Toussaint$^{2,3}$, R.P. del Real$^1$, O. Chubykalo-Fesenko$^1$, O. Fruchart$^{2,3}$ and M. Vázquez$^1$
1. Institute of Materials Science of Madrid, CSIC, Madrid, Spain; 2. Univ. Grenoble Alpes, SPINTEC; CNRS, CEA, Grenoble, France; 3. Univ. Grenoble Alpes, Institut Néel, CNRS, Grenoble, France

HN-15. Complex magnetic domain configurations in cylindrical nanowires. C. Bran$^1$, E. Palmero$^1$, J. Fernández-Rodán$^1$, E. Berganza$^1$, A. Asenjo$^1$, A. Fraile Rodriguez$^2$, R.P. del Real$^1$, O. Chubykalo-Fesenko$^1$ and M. Vázquez$^1$
1. ICMM Madrid, Madrid, Spain; 2. Universitat de Barcelona, Barcelona, Spain

HN-16. Optimization of low-pinning magnetic alloys for domain wall motion in cylindrical nanowires. B. Trapp$^1$, S. Bochmann$^2$, A. Wartelle$^1$, M. Stano$^1$, L. Cagnon$^1$, J. Bachmann$^2$ and O. Fruchart$^{3,1}$

HN-17. Arrays of bi-metal nanostructures to control energy product. K. Rumpf$^1$, P. Granitzer$^1$, P. Poel$^1$ and H. Michor$^3$
1. Institute of Physics, University of Graz, Graz, Austria; 2. Institute for Electron Microscopy, University of Technology Graz, Graz, Austria; 3. Institute of Solid State Physics, Vienna University of Technology, Vienna, Austria

HN-18. MBE Growth and Characterization of Mn-Doped Ge Nanowire. I. Gunduz Aykac$^{1,2}$, A. Onel$^1$, O. Mercan$^1$ and L. Colakerol Arslan$^1$
1. Physics, Gebze Technical University, Kocaeli, Turkey; 2. Physics Engineering, Istanbul Medeniyet University, Istanbul, Turkey
Session HO
STT- MRAM AND SPIN-FET
(Poster Session)
Stéphane Mangin, Chair
Université de Lorraine, Vandoeuvre-lès-Nancy, France

HO-01. An interfacial anisotropy and Gilbert damping constant of double (Co)FeB-MgO interface structure of MgO/(Co)FeB/MgO. M. Bersweiler1, H. Sato1, S. Fukami1,2, F. Matsukura1 and H. Ohno1 1. Center for Spintronics Integrated Systems, Tohoku University, Sendai, Japan; 2. Center for Spintronics Research Network (CSRN), Tohoku University, Sendai, Japan

HO-02. Impact of sputtering condition for tungsten on magnetic and transport properties of magnetic tunneling junction with CoFeB/W/CoFeB free layer. H. Honjo1,2, H. Sato1,3, S. Ikeda1,3, T. Watanabe1,2, S. Miura1,2, T. Nasuno1,2, Y. Noguchi1,2, M. Yasuhira1,2, T. Tanigawa1,2, H. Koike1,2, M. Muruguchi1,4, M. Niwa1,2, K. Ito1, H. Ohno1,5 and T. Endoh1,4 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. Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University, Sendai, Japan

HO-03. Withdrawn

HO-04. Study of the effect of insert layers (Mo, W, Ta) for double barrier MTJ. S. Srivastava1, R. Ramaswamy1, J. Son1, K. Teo1 and H. Yang1 1. Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore


HO-06. Significant reduction of critical currents in MRAM designs using dual free layer with dynamical perpendicular and in-plane anisotropy. D. Suess1, C. Vogler1, F. Bruckner1, H. Sepehri Amin2 and C. Abert1 1. TU Wien, Vienna, Austria; 2. National Institute for Materials Science, Tsukuba, Japan


Voltage-tunable stochastic computing with magnetic bits. S. Rakheja.


HO-17. An Electrical Model of Spin Field Effect Transistors for Circuits Design and Performance Analysis. G. Wang¹, Z. Wang², J. Klein¹ and W. Zhao² 1. Centre de Nanosciences et de Nanotechnologies, Université Paris Saclay, Orsay, France; 2. Beihang University, Beijing, China

HO-18. Gate-driven pure spin current in graphene. L. Su¹,², X. Liu¹, Y. Zhang¹, B. Arnaud², V. Zhang¹, J. Klein², W. Zhao¹ and A. Fert¹,² 1. Fert Beijing Research Institute, Beihang University, Beijing, China; 2. Institut d’Electronique Fondamentale, Univ. Paris-Sud, Orsay, France; 3. Unité Mixte de Physique CNRS-Thales, Palaiseau, France

FRIDAY THE FORUM AFTERNOON 1:30

Session HP
SENSORS AND MEMS: MATERIALS AND DEVICES (Poster Session)
Jingsheng Chen, Co-Chair
National University of Singapore, Singapore, Singapore
Jai Lin Tsai, Co-Chair
National Chung Hsing University, Taichung, Taiwan

HP-01. The magnetic field sensor based on the longitudinal magnetophotonic effect in a magnetoplasmonic crystal. A. Kalish¹,², M. Kozhaev¹,³, P. Vetoshko¹, S. Dagesyan², P. Kapralov¹, G.A. Knyazev¹,², A. Zvezdin¹,³ and V. Belotelov¹,² 1. Russian Quantum Center, Skolkovo, Russian Federation; 2. Faculty of Physics, Lomonosov Moscow State University, Moscow, Russian Federation; 3. Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russian Federation

HP-02. Modeling of the Dynamic Characteristics of the Wheatstone Bridge Configured MgO-MTJ Sensors. S. Zhao¹, Z. Wang¹, J. Hu¹ and G. Zhao¹ 1. Tsinghua University, Beijing, China

HP-03. Influence of Geometrical Parameters on Noise in Magnetic Tunnel Junctions. M. Mouchel¹, L. Prejbeanu², Y. Conraux¹, J. Alvarez-Hérault¹, K. Mackay¹ and C. Baraduc² 1. Crocus Technology, Grenoble, France; 2. SPINTEC, Grenoble, France

HP-04. Revival of AlOₓ magnetic tunnel junctions: balancing moderate magnetoresistance with process simplicity. S. Knudde¹, D.C. Leitao¹,², S. Cardoso¹,² and P. Freitas¹ 1. INESC Microsystems and Nanotechnologies, Lisboa, Portugal; 2. Instituto Superior Técnico, Universidade de Lisboa, Lisboa, Portugal

HP-05. Metrology of a magnetic nanoparticle sensor using anomalous Nernst effect read-out. J. Wells¹,², R. Puttock¹, B. Kästner², P. Krzyzczko², E. Selezevna¹, H.W. Schumacher², R. Mansell¹, R. Cowburn³, A. Cuenat¹ and O. Kazakova¹ 1. National Physical Laboratory, London, United Kingdom; 2. PTB, Berlin, Germany; 3. University of Cambridge, Great Britain, United Kingdom
HP-06. Elimination of hysteresis in magnetoelectric DC magnetic field sensors. Y.K. Fetisov1, D.V. Chashin2, D.A. Burdin1, N.A. Ekonomov1 and L.Y. Fetisov1. 1. Moscow Technological University, Moscow, Russian Federation

HP-07. Enhanced magnetic field sensitivity in magnetoelectric sensor based on positive magnetostrictive/negative magnetostrictive/piezoelectric laminate heterostructure. L. Chen1 and Y. Wang2. 1. Key Lab of Computer Vision and Intelligent Information System, Chongqing University of Arts and Sciences, ChongQing, China; 2. Electrical and Computer Engineering Department, Carnegie Mellon University, Pittsburgh, PA

HP-08. Magnetoresistive sensor with high sensitivity: self-aligned magnetic structures. M. Chinenkov1, N. Djuzhhev1, V. Bespalov1, A. Iurov1 and N. Mazurkin1. 1. National Research University of Electronic Technology (MIET), Moscow, Russian Federation

HP-09. Field Dependent Noise Characterisation of Spin Valve GMR Sensors Based on Susceptibility Measurements. H. Weitensfelder1, H. Brueckl2, A. Satz2 and D. Suess1. 1. Institute of Solid State Physics, TU Vienna, Vienna, Austria; 2. Center for Integrated Sensor Systems, Danube University Krems, Wiener Neustadt, Austria; 3. Infiniteon Technologies Austria AG, Villach, Austria

HP-10. Magnetic strain sensor using GMR films with magnetostrictive FeSiB free layer. Y. Hashimoto1, N. Yamamoto1, T. Kato1, D. Oshima2 and S. Iwata2. 1. Electrical Engineering and Computer Science, Nagoya University, Nagoya-City, Japan; 2. Institute of Materials and Systems for Sustainability, Nagoya University, Nagoya-City, Japan

HP-11. Accuracy Improvement in GMR Linear Position Sensor. C. Lee1 and C. Lai1. 1. Department of Materials Science and Engineering, National Tsing Hua University, HsinChu City, Taiwan

HP-12. GMR-Based Single-Domain Magnetic Sensor for 500nm Single Particle Detection. W. Qiu1, L. Chang2,3, Y. Liang1 and D. Litvinov2,4. 1. Materials Science and Engineering, University of Houston, Houston, TX; 2. Electrical and Computer Engineering, University of Houston, Houston, TX; 3. Nanofabrication Facility, University of Houston, Houston, TX; 4. Chemical and Biomolecular Engineering, University of Houston, Houston, TX

HP-13. Tunable bias magnetic field of nano-granular TMR sensor using FePt film magnet. S. Koyama1, K. Minami1, H. Iwama2, J. Hayasaka1 and T. Shima2. 1. Daido Steel Co., Ltd., Nagoya, Japan; 2. Faculty of Engineering, Tohoku Gakuin University, Tagajo, Japan; 3. Research Institute for Electromagnetic Materials, Sendai, Japan

HP-15. Micro-flux concentration patterning of high performance hard magnetic films. A. Dias1, G. Shaw1, K. Hasselbach1, M. Bonfim2 and N. Dempsey1 1. Institut Néel, Grenoble, France; 2. DELT, Universidade Federal do Paraná, Curitiba, Brazil

HP-16. Research on Eddy Current Testing of Functional Polymer Composite Material. Z. Cai1, J. Song1 and C. Liu2 1. East China Jiaotong University, Nanchang, China; 2. Hebei University of Technology, Tianjin, China

HP-17. Detection of surface cracks using eddy current method with integrated magnetic tunnel junctions device. Z. Jin1, M. Abe1, K. Fujiwara1, M. Oogane1 and Y. Ando1 1. Applied Physics, Tohoku University, Aoba, Japan

HP-18. Linear wireless strain sensor using FeAlB and Metglas. E. Bastos1, A. Dalponte1, F.P. Missel1, G. Fulop2, M. de Souza Dias2 and C. Bormio-Nunes2 1. CCET, Universidade de Caxias do Sul, Caxias do Sul, Brazil; 2. EEL, Universidade de São Paulo, Lorena, Brazil

FRIDAY THE FORUM
AFTERNOON
1:30

Session HQ
CE-BASED AND OTHER RARE EARTH MAGNETS
(Poster Session)
Marko Soderznik, Co-Chair
Jozef Stefan Institute, Ljubljana, Slovenia
Aru Yan, Co-Chair
Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, Ningbo, China

HQ-01. Magnetic property enhancement of melt spun YCo5 ribbons by Fe and C doping. H.W. Chang1, W. Ou2, Y. Lee2, C. Shih2, W.C. Chang2, C. Yang3 and C. Shaw4 1. Department of Applied Physics, Tunghai University, Taichung, Taiwan; 2. Department of Physics, National Chung Cheng University, Chia-Yi, Taiwan; 3. Department of Physics, Chung-Yuan Christian University, Chungli, Taiwan; 4. Superrite Electronics Co. Ltd., Taipei, Taiwan

HQ-02. Development of precursor for improvement of magnetization of submicron-sized Sm2Fe17N3 powder. S. Okada1, K. Suzuki1, E. Node1, K. Takagi1, K. Ozaki1 and Y. Enokido2 1. Magnetic Powder Metallurgy Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan; 2. Materials Development Center, TDK Corporation, Narita, Japan

HQ-03. Microstructural Analysis During the Step-Cooling Annealing of Iron-Rich Sm(Co0.65Fe0.26Cu0.07Zr0.02)7.8 Anisotropic Sintered Magnets. K. Song1, Y. Fang1, W. Sun1, H. Chen1, N. Yu1, M. Zhu1 and W. Li1 1. Division of Functional Materials, Iron and Steel Research Institute, Beijing, China
HQ-04. Enhanced Coercivity of Spark Plasma Sintered (La,Ce)FeB Magnets. Q. Lu1, J. Niu1, W. Liu1, M. Yue1 and Z. Altounian2 1. College of Materials Science and Engineering, Beijing University of Technology, Beijing, China; 2. Physics Department and Centre for the Physics of Materials, McGill University, Montreal, QC, Canada

HQ-05. Influence of Ce Content on the Mechanical Properties of Sintered (Ce, Nd)-Fe-B Magnets. A. Li1, Y. Zhang1, W. Li1, H. Feng1, Y. Zhao1 and M. Zhu1 1. Division of Functional Materials, Central Iron and Steel Research Institute, Beijing, China

HQ-06. Magnetic properties of tetragonal SmFe12−xMox in bulk and melt-spun ribbons. D. Salazar1, B. Rodriguez1, C. Echevarria-Bonet1, R. Madugundo1, G. Hadjipanayis2 and J. Barandiaran1 1. BCMaterials, Derio, Spain; 2. Department of Physics and Astronomy, University of Delaware, Newark, DE

HQ-07. Study of magnetocrystalline anisotropy of Sm1−xCexFe9Co2Ti by magnetization and Mössbauer measurements. A.M. Schönhöbel1, D. Salazar1, A. Martin-Cid1, L.E. Zamora2, J.S. Garitaonandia1, J. Barandiaran1,4 and G. Hadjipanayis5 1. BCMaterials, Derio, Spain; 2. Department of Physics, University of Valle, Cali, Colombia; 3. Department of Applied Physics II, University of the Basque Country, Bilbao, Spain; 4. Department of Electricity and Electronics, University of the Basque Country, Bilbao, Spain; 5. Department of Physics and Astronomy, University of Delaware, Newark, DE

HQ-08. Comparative study on the influence of cerium and lanthanum used as substitutes for neodymium in Nd2Fe14B-based melt-spun ribbons and hot-deformed magnets. I. Poenaru1,2, A. Lixandru1,2, A. Dirks1, B. Fayyazi2, A. Taubel2, S. Sawatzki2, K. Guth1, R. Gauss1 and O. Gutfleisch2,1 1. Fraunhofer ISC, Project Group IWKS, Hanau, Germany; 2. Functional Materials, Technische Universität Darmstadt, Darmstadt, Germany

HQ-09. Magnetic property variation between misch-metal and (La0.27Ce0.53Pr0.03Nd0.17)-metal substitution in Nd-Fe-B sintered magnet. X. Yu1,2, M. Zhu2, W. Liu1, W. Li2 and M. Yue1 1. College of Materials Science and Engineering, Beijing University of Technology, Beijing, China; 2. Division of Functional Materials, Central Iron and Steel Research Institute, Beijing, China

HQ-10. Effects of Cu addition on the magnetic properties and microstructures of Pr-Fe-B thin films. Y. Lin1 and A. Sun1 1. Chemical Engineering and Materials Science, Yuan Ze University, Taoyuan City, Taiwan

HQ-11. Abnormal coercivity in Sm1-xREx(Co0.695Fe0.2Cu0.08Zr0.025)7.2 magnets (RE=Nd, Tb) with spin-reorientation-transition cell boundary phases. L. Liu1, Z. Liu1, D. Lee1 and A. Yan1 1. Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, Ningbo, China
The Influence of High Pressure Torsion on Magnetic Properties of Some Ferromagnetic 4f Elements.
S.V. Taskaev1, K. Skokov2,1, V. Khovaylo1, D.Y. Karpenkov1, A. Karpenkov1 and D. Bataev1
1. Physics Dept., Chelyabinsk State University, Chelyabinsk, Russian Federation; 2. FG Funktionale Materialien, TU Darmstadt, Darmstadt, Germany

High performance (Ce,Nd)-Fe-B sintered magnets without annealing process. L. Song1,2, M. Zhu1, W. Li1, N. Yu1,2, X. Shi1 and Q. Wang1 1. Division of Functional Materials, Central Iron and Steel Research Institute, Beijing, China; 2. Key Laboratory of National Education Ministry for Electromagnetic Processing of Materials, Northeastern University, Shenyang, China

Ce substituted rare earth balance magnets: magnetocrystalline anisotropy vs. coercivity. B. Fayyazi1, K. Skokov1, K. Löwe1, C. Schwöbel1 and O. Gutfleisch1,2 1. Material- und Geowissenschaften, Technische Universität Darmstadt, Darmstadt, Germany; 2. Fraunhofer-Projektgruppe für Wertstoffkreisläufe und Ressourcenstrategie IWKS, Hanau, Germany

X-ray magnetic circular dichroism study of Ce M4,5 absorption edges in CeFe11Ti intermetallic. S. Tripathi1, Y. Chen1, S. Schuppler2, P. Nagel2, F. Groot3, E. Goering1 and G. Schütz1 1. Modern Magnetic Systems, Max Planck Institute for Intelligent Systems, Stuttgart, Germany; 2. Institute for Solid State Physics, Karlsruhe Institute of Technology, Karlsruhe, Germany; 3. Department of Inorganic Chemistry and Catalysis, Utrecht University, Utrecht, Netherlands

Intrinsic magnetic properties of Ce2Fe14B modified by Al, Ni and Si. K. Orimoloye1, D. Ryan2, F.E. Pinkerton3 and M. Medraj1 1. Department of Mechanical Engineering, Concordia University, Montreal, QC, Canada; 2. Physics, McGill University, Montreal, QC, Canada; 3. Chemical and Materials Systems Lab, General Motors R&D Center, Warren, MI

A Simple Process to Obtain Anisotropic Self-Biased Magnets Constituted of Stacked Barium Ferrite Single Domain Particles. J. Mattei1, N. Le Cong1, A. Chevalier1, A. Maalouf2, N. Noutehou1 and V. Laur1 1. Functional Materials, Lab-STICC, Brest, France
HR-02. Synthesis of \(\alpha''\)-Fe\(_{16}\)N\(_2\) Powders with Tunable Size and Structure via Spray Drying. Y. Baek\(^1\) and J. Lee\(^1\) 1. Korea Institute of Materials Science (KIMS), Changwon, The Republic of Korea


HR-04. Nanocomposite exchange-spring permanent magnets. V. Nachbaur\(^1\), F. Ayadi\(^1\), K. Nakouri\(^1\) and J. Le Breton\(^1\) 1. Groupe de Physique des Matériaux, Normandie Univ, UNIROUEN, INSA Rouen, CNRS, Rouen, France

HR-05. Magnetic properties and microstructures of Zr-Co-Cu-B melt-spun ribbons. G. Lee\(^1\) and J. Kim\(^1\) 1. Materials Engineering, Hanyang University, Ansan, The Republic of Korea

HR-06. Direct recycling of high coercivity Fe-Nd-B based sintered magnets by doping with Nd-rich alloy. D. Joklitschke\(^1\), U. Pflanz\(^1\), R. Stein\(^1\), D. Goll\(^1\) and G. Schneider\(^1\) 1. Materials Research Institute Aalen, Aalen University, Aalen, Germany

HR-07. Magnetic properties of Fe\(_5\)SiB\(_2\) and its alloys with P, S, and Co. M. Werwinski\(^1,2\), S. Kontos\(^3\), K. Gunnarsson\(^3\), P. Svedlindh\(^3\), J. Cedervall\(^3\), V. Hoglin\(^3\), M. Sahlin\(^3\), A. Edström\(^3\), O. Eriksson\(^3\) and J. Rusz\(^1\) 1. Institute of Molecular Physics, Polish Academy of Sciences, Poznan, Poland; 2. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden; 3. Department of Engineering Sciences, Uppsala University, Uppsala, Sweden; 4. Department of Chemistry, Uppsala University, Uppsala, Sweden

HR-08. Effect of carbon addition on magnetic order in Mn-Al-C alloys. M. Tyrman\(^1,2\), A. Pasko\(^1\), L. Perriere\(^3\), V. Etgens\(^3\), O. Isnard\(^4\) and F. Mazaleyrat\(^1\) 1. SATIE, ENS Cachan, CNRS, Université Paris-Saclay, Cachan, France; 2. LISV - Université de Versailles Saint-Quentin-en-Yvelines, Vélizy, France; 3. ICMPE, CNRS/UPEC, Thiais, France; 4. Institut Néel, CNRS/UGA, Grenoble, France

HR-09. Electroplated Co-Pt thick-film-magnets prepared in citric-acid-based plating baths. R. Hamamura\(^1\), J. Honda\(^1\), A. Tomita\(^2\), T. Masaki\(^1\), K. Takashima\(^1\), T. Yanai\(^1\), M. Nakano\(^1\), N. Fujita\(^2\), H. Yamada\(^2\) and H. Fukunaga\(^1\) 1. Nagasaki University, Nagasaki, Japan; 2. National Institute of Technology, Nara College, Nara, Japan

HR-10. Nd-Fe-B/\(\alpha''\)-Fe nano-dispersed thick-film magnets prepared on various metal substrates using PLD with high laser energy density above 10 J/cm\(^2\). H. Kondo\(^1\), A. Yamashita\(^1\), T. Yanai\(^1\), M. Iikura\(^2\), M. Nakano\(^1\) and H. Fukunaga\(^1\) 1. Nagasaki University, Nagasaki, Japan; 2. Kyushu University, Fukuoka, Japan
HR-11. Exchanged Coupled SmCo$_5$/α-Fe Nanocomposite Magnets Obtained by Mechanical Milling and Spark Plasma Sintering. R. Hirian$^1$, R. Gavrea$^1$, B.V. Neamtu$^2$, A. Ferenczi$^1$, O. Isnard$^{3,4}$, I. Chicinas$^2$ and V. Pop$^1$ 1. Faculty of Physics, Babes-Bolyai University, Cluj-Napoca, Romania; 2. Materials Sciences and Technology, Technical University of Cluj-Napoca, Cluj-Napoca, Romania; 3. Institut Néel, University Grenoble Alpes, Grenoble, France; 4. Institut Néel, CNRS, Grenoble, France

FRIDAY THE FORUM
AFTERNOON 1:30

Session HS
MOTORS AND MAGNETIC GEARS
(Poster Session)
Makoto Sonehara, Chair
Shinshu University, Nagano, Japan

HS-01. Design of a Novel High-Torque-Density In-Wheel Switched Reluctance Motor for Electric Vehicles. J. Zhu$^1$, K.E. Cheng$^1$, X. Xue$^1$ and Y. Zou$^1$ 1. Electrical Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong

HS-02. Fast Optimal Design Method of Variable Flux Reluctance Machines for Maximizing the Average Torque. L. Huang$^1$, J. Feng$^2$, S. Guo$^2$, J. Shi$^2$, W. Chu$^2$ and Z.Q. Zhu$^1$ 1. Department of Electronic and Electrical Engineering, University of Sheffield, Sheffield, United Kingdom; 2. CRRC Zhuzhou Institute Co. Ltd, Zhuzhou, China

HS-03. A Comparative Study of Flux Switching PM Machine Topologies for Electric Vehicle Applications. C. Liu$^1$, C. Hwang$^2$ and C. Hong$^2$ 1. National Sun Yat-sen University, Kaohsiung, Taiwan; 2. Feng Chia University, Taichung City, Taiwan

HS-04. Analysis and Suppression of Cogging Torque in Flux-Reversal Permanent Magnet Machines During Design Stage. X. Zhu$^1$ and W. Hua$^1$ 1. School of Electrical Engineering, Southeast University, Nanjing, China

HS-05. Torque analysis of a DC-excited flux-modulated machine. J. Oh$^1$ 1. Karlsruhe Institute of Technology, Karlsruhe, Germany

HS-06. Relationship Between Iron Loss and Pole-Pair Number in Flux-Switching Permanent-Magnet Machines. J. Ji$^1$, J. Luo$^1$ and W. Zha$^1$ 1. School of Electrical and Information Engineering, Zhenjiang, China

HS-07. Optimal design of saturated switched reluctance machine for low torque ripple and high average torque. X. Cui$^1$, J. Sun$^1$ and C. Gu$^1$ 1. State Key Laboratory of Advanced Electromagnetic Engineering and Technology, Huazhong University of Science and Technology, Wuhan, China
Analysis on Iron Loss of Switched Reluctance Motor under Pulse Width Modulation. W. Yan1, H. Chen1, L. Chen1, K. Wang1 and M. Sun1. 1. China University of Mining and Technology, Xuzhou, China

Optimal Design of the Wound Field Synchronous Reluctance Machines to Improve Torque by Increasing Saliency Ratio. W. Choi1, W. Zhao2 and B. Kwon1. 1. Hanyang University, ANSAN, The Republic of Korea; 2. Shandong University, Jinan, China

Electromagnetic-Mechanical Design of Machine Rotors with Fine Features. C. Donaghy-Spargo1. 1. School of Engineering and Computing Sciences, Durham University, Durham, United Kingdom

A Novel Magnetic Gear with Asynchronous Torque. Q. Lin1 and W. Fu1. 1. Electrical Engineering, The Hong Kong Polytechnic University, Kow Long, Hong Kong

Electromagnetic Design and Analysis of a Novel Transmission System Supporting Multi-Path Power Flows for Electric Vehicles. Y. Shi1, L. Jian1 and Z. Deng1. 1. Department of Electrical and Electronic Engineering, Southern University of Science and Technology, Shenzhen, China

Construction of a Marine Current Power Generation System Based on a Magnetic Gear. N. Feng1, H. Yu1, L. Huang1, T. Xia1 and M. Hu1. 1. School of Electrical Engineering, Southeast University, Nanjing, China

Analytical Computation of the Magnetic Field Distribution in a Magnetic-Geared Machine. X. Zhang1, X. Liu2 and Z. Chen1. 1. Department of Energy Technology, Aalborg University, Aalborg, Denmark; 2. Hunan University, Changsha, China

Decoupling Control of Five-Phase Fault-Tolerant Permanent Magnet Motor by Radial Basis Function Neural Network Inverse. Q. Chen1,2, G. Liu1,2, X. Cai1 and G. Xu1. 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China; 2. Jiangsu Key Laboratory of Drive and Intelligent Control for Electric Vehicle, Zhenjiang, China

Time-Division Multiplexing Wireless Power Transfer for Separately Excited DC Motor Drives. C. Jiang1, K. Chau1, C. Liu2 and W. Han1. 1. The University of Hong Kong, Hong Kong, Hong Kong; 2. The City University of Hong Kong, Hong Kong, Hong Kong

Study on Operation Modes of Dual-Stator Brushless Doubly-Fed Generator. H. Liu1,2, F. Zhang1, J. Xu1 and T. Tong1. 1. School of Electrical Engineering, Shenyang University of Technology, Shenyang, China; 2. School of Electrical and Control Engineering, Henan University of Urban Construction, Pingdingshan, China
HS-18. Modeling the Field of a Coil Using the Magnetic Charge Method. D.T. van Casteren¹, J. Paulides¹ and E. Lomonova¹  
¹. Electrical Engineering/Electromechanics and Power Electronics, Eindhoven University of Technology, Eindhoven, Netherlands

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FRIDAY THE FORUM

AFTERNOON

1:30

Session HT

MOTORS, GENERATORS AND ACTUATORS XII

(Poster Session)

Yu-Seop Park, Chair

Korea National University of Transportation, Chungju-si, The Republic of Korea

HT-01. A Novel Consequent-Pole Transverse-Flux Machine with Improved Permanent Magnet Utilization. X. Zhao¹ and S. Niu¹ ¹. The Hong Kong Polytechnic University, Kowloon, Hong Kong

HT-02. Optimal Rotor Design of an 150kW-Class IPMSM by the 3D Voltage-Inductance-Map Analysis Method. J. Kim¹, T. Jeong¹ and J. Lee¹ ¹. Energy Conversion Lab, Hanyang University, Seoul, The Republic of Korea

HT-03. Rotor Fault Analysis in a Doubly-Fed Induction Generator Using Impedance Matrix Technique. D.G. Dorrell², A. Salah² and Y. Guo² ². Department of Electrical, Electronics and Computer Engineering, University of KwaZulu-Natal, Durban, South Africa; ². School of Electrical Engineering, University of Technology Sydney, Sydney, NSW, Australia

HT-04. Optimal skew angle for improving electromagnetic torque in induction motor with double skewed rotor. W. Xu¹ and X. Bao¹ ¹. School of Electrical Engineering and Automation, Hefei University Of Technology, Hefei, China

HT-05. Modulating ring influence in dual air-gap magnetic gear electric machine and its improved structure using 3D printing; with FEA and Experimental validations. C.U. Ubadigha¹, M. Tsai¹ and P. Huang¹ ¹. Mechanical Engineering Department, National Cheng Kung University, Tainan, Taiwan; ². Electrical Motor Technology Research Center, National Cheng Kung University, Tainan, Taiwan

HT-06. Design of VCM Actuator with the L-Shape Coil for Smartphone Cameras. C. Hsieh¹, Y. Chang¹, Y. Chen¹ and C. Liu¹ ¹. Department of Mechanical Engineering and Advanced Institute of Manufacturing with High-Tech Innovations, National Chung Cheng University, Chiayi County, Taiwan

Torque Ripple Minimization of Variable Flux Reluctance Machines by Rotor Skewing. J. Bao¹, J. Paulides¹, K. Boynov¹ and E. Lomonova¹. 1. Eindhoven University of Technology, Eindhoven, Netherlands

Analysis of Vibration and Noise for Different Skewed Slot Type Squirrel-Cage Induction Motor. C. Wang¹, X. Bao¹, Y. Zhou¹ and W. Xu¹. 1. School of Electrical Engineering and Automation, Hefei University of Technology, Hefei, China

Optimal Design of Interior PMSM with Dampers Incorporating Permeance Network Model for Integrated Charging and Traction in Electric Vehicles. S. Mukundan¹, H. Dhulipati¹, K. Iyer¹, K. Mukherjee² and N.C. Kar³. 1. Electrical and Computer Engineering, University of Windsor, Windsor, ON, Canada; 2. Indian Institute of Engineering Science and Technology, Shibpur, India

Design principle of WFSM based magnetic-thermal equivalent circuit. J. Lee¹. 1. Hyundai Heavy Industries, Gyeonggi-do, The Republic of Korea

Comparative Study of PM-Assisted SynRM and IPMSM on Constant Power Speed Range for EV Applications. H.T. Anh¹ and M. Hsieh¹. 1. National Cheng Kung University, Tainan, Taiwan

Design Method for Vernier Motor with Modular Winding Considering Pole Slot Combination. D. Kim¹, J. Song¹, Y. Kim² and S. Jung¹. 1. Sungkyunkwan University, Suwon, The Republic of Korea; 2. Chosun University, Gwangju, The Republic of Korea

Power-Sizing Equations for Novel Rotor-Permanent-Magnet Flux-Switching Machines. P. Su¹, W. Hua¹ and M. Hu¹. 1. Electric Engineering, Southeast University, Nanjing, China


Design and Sizing Optimization of the Synchronous Generator for Disused Diesel Engines. H. Kim¹ and J. Moon¹. 1. Rotating Machinery Center, Korea Testing Certification, Gunpo-si, The Republic of Korea
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Gan, W. (WD-05) 
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Gan, W. (FM-17) 
Gan, W. (GC-07) 
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Gao, F. (GR-07) 
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Gao, J. (GD-03) 
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Gao, X. (FP-11) 
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Gao, Y. (BU-13) 
Gao, Y. (BU-19) 
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Gao, Y. (CU-06) 
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Gao, Y. (GT-02) 
Gao, Y. (GT-06) 
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García-Arribas, A. (AE-02) 
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Gloter, A. (HE-01) 
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Gloss, J. (CO-02) 
Gliga, S. (HG-02) 
Giordano, S. (HD-06) 
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Gilbert, A.D. (FF-02) 
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Gieniusz, R. (AC-01) 
Giel, L. (GP-11) 
Girard, A. (DG-06) 
Girard, C. (BM-12) 
Girard, C. (BF-07) 
Girard, C. (AS-02) 
George, S. (AQ-08) 
George, J. (BF-10) 
George, J. (AM-01) 
George, J. (BF-07) 
George, J. (EC-09) 
George, L. (BD-06) 
George, S. (AQ-08) 
Gerber, T. (AS-02) 
Gerber, T. (BF-07) 
Gharbi, T. (FM-11) 
Ghasemi, A. (FB-11) 
Ghasemi, A. (HF-08) 
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