Conference Booklet
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SCOPE OF THE CONFERENCE

The organizing committee welcome you to the IEEE International Magnetics Conference, INTERMAG 2024, which will be held in Rio de Janeiro, Brazil, on May 5-10, 2024. The conference will be in-person, with on-demand access to uploaded content provided afterwards.

The INTERMAG Conference is the premier annual conference on fundamental and applied magnetism sponsored by the IEEE Magnetics Society. Members of the international scientific and engineering communities interested in recent developments in magnetism and associated technologies are invited to attend and contribute to the conference.

The conference will cover a wide range of topics that include spintronics, magnetization dynamics, biomagnetics, electrical machines and power transformers, memory and logics, data storage, sensors, hard and soft magnetic materials, and interdisciplinary and emerging topics.

In 2024, the conference will take place for the first time in South America.

The conference program will include oral and poster presentations, invited talks, symposia, tutorials, and several special sessions.

CITY INFORMATION

RIO DE JANEIRO

Founded in 1565 by the Portuguese, Rio de Janeiro has grown to become a globally renowned city. It is celebrated for its breathtaking natural beauty, dynamic Carnival, eclectic music genres like samba and bossa nova, and pictures balneary beaches such as Barra da Tijuca, Copacabana, Ipanema, and Leblon. Its historic journey from being a port city for the trade of gold and precious stones to its evolution as a vibrant, multicultural metropolis makes it an irresistible destination in the Southern Hemisphere.

During its tenure as the capital of Brazil from 1763 to 1960, Rio de Janeiro functioned as the nation's political and economic epicenter. The city reflected the grandeur of Portuguese cities while nurturing a distinct Brazilian identity. This rich legacy manifest
itself in its architectural diversity. From the neoclassical beauty of the National Museum of Fine Arts and the colonial charm of the São Bento Monastery to the modernist lines of the Rio de Janeiro Cathedral and the futuristic design of the Museum of Tomorrow, Rio's cityscape stands as a testament to its enduring historical phases of monarchic rule, republic, and rapid urbanization.

Rio's contributions to literature, cinema, and music are substantial. The cultural resistance displayed through its thriving street art scene and cultural festivals like the Carnival underscores the city's resilience and multifaceted identity. Renowned authors like Machado de Assis and Clarice Lispector shaped Brazilian literature. In cinema, directors like Fernando Meirelles and Walter Salles have earned international acclaim, with movies like "City of God" and "Central Station" receiving Oscar nominations. Rio hosts prestigious events such as the Rio International Film Festival and the Rio Music Carnival, attracting talent and audiences from across the globe. The city is also the birthplace of legendary musicians and composers like Tom Jobim and Vinicius de Moraes, who penned the internationally acclaimed song “The Girl from Ipanema,” emblematic of the iconic Bossa Nova genre. The city's scientific pursuits are equally commendable. Rio hosts over 20 renowned scientific and academic institutions, including federal research labs such as the Brazilian Center for Research in Physics (CBPF) and the Oswaldo Cruz Foundation. Adding to the city's scientific prowess is the Petrobras Research Center (CENPES), one of the world's largest oil and gas research centers. This combination, along with many federal and state universities, including the largest federal university in Brazil, the Federal University of Rio de Janeiro (UFRJ), emphasizes Rio's dedication to scientific research and technological advancement.

In sports, Rio's history and enthusiasm are unparalleled. The city is home to legendary football clubs like Flamengo, Fluminense, Botafogo, and Vasco da Gama, which have nurtured many players who have graced the Brazil national football team and have played a significant role in Brazil's world football reputation. Rio's passion for sports is evident from hosting the 2016 Summer Olympics and Paralympics, marking it as the first South American and Portuguese-speaking city to host these events, to showcasing legendary football matches at the Maracanã Stadium. With the city preparing to host the G20 summit in 2024, it continues to cement its global position. Rio de Janeiro is a dynamic city of scientific progress, vibrant culture, and impressive historical heritage.
TIME ZONE

BRT (Brasília Standard Time)
UTC/GMT -3 hours
No daylight-saving time in 2024
https://www.timeanddate.com/worldclock/brazil/rio-de-janeiro

CONFERENCE LOCATION

Windsor Conference, Exhibition Center and Hotels
(Complex for Conferences located at the Barra da Tijuca neighborhood of the Rio de Janeiro city)

WINDSOR OCEÂNICO ROOM MAPS

GROUND FLOOR – WINDSOR OCEÂNICO

2nd LOWER LEVEL - WINDSOR OCEÂNICO
REGISTRATION

The Conference Registration Desk will be located on the 2nd lower level of the Windsor Conference, Exhibition Center. Name badges must be always worn during Conference sessions and events.

REGISTRATION HOURS:

<table>
<thead>
<tr>
<th>Day</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Sunday, May 5</td>
<td>1:00 PM – 6:00 PM</td>
</tr>
<tr>
<td>Monday, May 6</td>
<td>8:00AM - 6:00PM</td>
</tr>
<tr>
<td>Tuesday, May 7</td>
<td>8:00AM - 6:00PM</td>
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<tr>
<td>Wednesday, May 8</td>
<td>8:00AM - 6:00PM</td>
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<tr>
<td>Thursday, May 9</td>
<td>8:00AM - 6:00PM</td>
</tr>
<tr>
<td>Friday, May 10</td>
<td>8:00AM - 12:30PM</td>
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</tbody>
</table>
### SCHEDULE-AT-A-GLANCE

**Morning coffee service from 10:00-10:30 AM / Afternoon coffee service from 3:30-4:00 PM on Monday only**

<table>
<thead>
<tr>
<th>Start Time</th>
<th>End Time</th>
<th>ID</th>
<th>Title</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 AM</td>
<td>11:45 AM</td>
<td></td>
<td>Industrial Day (Pre-registration required) - STT-MRAM</td>
<td>Europa I</td>
</tr>
<tr>
<td>1:30 PM</td>
<td>4:00 PM</td>
<td></td>
<td>Industrial Day (Pre-registration required) - SOT-MRAM</td>
<td>Oceania I &amp; V</td>
</tr>
<tr>
<td>4:00 PM</td>
<td>6:30 PM</td>
<td>TU</td>
<td>Tutorial: Spins in the Quantum World</td>
<td>Oceania IX &amp; X</td>
</tr>
<tr>
<td>7:30 PM</td>
<td>9:00 PM</td>
<td></td>
<td>Welcome Reception</td>
<td>Europa IV</td>
</tr>
</tbody>
</table>

**Monday May 6, 2024**

- **9:00 AM** - **11:45 AM**: Industrial Day (Pre-registration required) - STT-MRAM
  - **Location**: Europa I

**Tuesday May 7, 2024**

- **8:30 AM** - **11:30 AM**
  - **AA**: New Directions and Challenges in Neuromorphic Spintronics
  - **AB**: Interdisciplinary Topics: Chirality, Micromagnetic and Nanomagnetic Structures
  - **AC**: Spin Torque and Voltage-Controlled Magnetic Anisotropy
  - **AD**: MRAM Applications and Magnetic Recording
  - **AE**: Fundamental Properties, Cooperative Phenomena and Computational Magnetism
  - **AF**: Magneto-Optic and Magneto-Elastic Materials and Devices
  - **AG**: Skyrmions and Magnetic Heterostructures
  - **AP**: Magnetization Dynamics and Micromagnetics I
  - **AQ**: Thin Films, Multi-layered Films and Superlattices
  - **AR**: Transformers and Wireless Power Transfer, Magnetic Bearings and Levitation
  - **AS**: Interdisciplinary Topics in Magnetics I

- **9:00 AM** - **12:00 PM**: Magnetic Sensor Challenge
  - **Location**: Aruba I, II & III

- **11:30 AM** - **12:00 PM**: Welcome Reception
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>12:00 PM</td>
<td>Communications Workshop <em>(Pre-registration required)</em></td>
<td>Europa III</td>
</tr>
<tr>
<td>2:00 PM</td>
<td>BA</td>
<td>Magnetics for Tomorrow’s Medical Technologies</td>
</tr>
<tr>
<td>5:00 PM</td>
<td>BB</td>
<td>Magnonics I: Fundamental Properties</td>
</tr>
<tr>
<td>2:00 PM</td>
<td>BC</td>
<td>Patterned Films, Nanocomposites, Self-assembly</td>
</tr>
<tr>
<td>5:00 PM</td>
<td>BD</td>
<td>Ultrafast Dynamics and All-Optical Switching</td>
</tr>
<tr>
<td>2:30 PM</td>
<td>BE</td>
<td>Numerical, Semi-analytical and Analytical Analysis Methods I</td>
</tr>
<tr>
<td>5:30 PM</td>
<td>BF</td>
<td>Magnetoelectric Materials and Phenomena</td>
</tr>
<tr>
<td>5:00 PM</td>
<td>BG</td>
<td>Skyrmions and Spin-Orbit Torque Devices</td>
</tr>
<tr>
<td>7:00 PM</td>
<td>BP</td>
<td>Magnetic Recording, MRAM and Related Devices</td>
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<tr>
<td>9:00 PM</td>
<td>BQ</td>
<td>Spintronics with Antiferromagnets</td>
</tr>
<tr>
<td>2:30 PM</td>
<td>BR</td>
<td>Nanoparticles and Nanowires</td>
</tr>
<tr>
<td>5:00 PM</td>
<td>BS</td>
<td>Permanent Magnet Machines I</td>
</tr>
<tr>
<td>7:00 PM</td>
<td>CA</td>
<td>Gradient Dzyaloshinskii-Moriya Interaction</td>
</tr>
<tr>
<td>8:30 AM</td>
<td>CB</td>
<td>Magnonics II: Electrical and Other Coupling Effects</td>
</tr>
<tr>
<td>11:30 AM</td>
<td>CC</td>
<td>Neuromorphic and Unconventional Computing</td>
</tr>
<tr>
<td>9:00 AM</td>
<td>CD</td>
<td>Novel Spintronics</td>
</tr>
<tr>
<td>2:30 PM</td>
<td>CE</td>
<td>Electrical Machines and Power System Components</td>
</tr>
<tr>
<td>5:00 PM</td>
<td>CF</td>
<td>Magnetic Textures, Statics, and Dynamics</td>
</tr>
<tr>
<td>7:00 PM</td>
<td>CG</td>
<td>Magnetoresistance and Spin Current Generation</td>
</tr>
<tr>
<td>9:00 PM</td>
<td>CP</td>
<td>2D Spintronics and Topological Materials</td>
</tr>
<tr>
<td>12:00 PM</td>
<td>CQ</td>
<td>Magnetoresistance and Related Phenomena I</td>
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**Wednesday May 8, 2024**

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<thead>
<tr>
<th>Time</th>
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<th>Location</th>
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<tbody>
<tr>
<td>8:30 AM</td>
<td>CA</td>
<td>Gradient Dzyaloshinskii-Moriya Interaction</td>
</tr>
<tr>
<td>11:30 AM</td>
<td>CB</td>
<td>Magnonics II: Electrical and Other Coupling Effects</td>
</tr>
<tr>
<td>2:30 PM</td>
<td>CC</td>
<td>Neuromorphic and Unconventional Computing</td>
</tr>
<tr>
<td>5:00 PM</td>
<td>CD</td>
<td>Novel Spintronics</td>
</tr>
<tr>
<td>8:30 AM</td>
<td>CE</td>
<td>Electrical Machines and Power System Components</td>
</tr>
<tr>
<td>11:30 AM</td>
<td>CF</td>
<td>Magnetic Textures, Statics, and Dynamics</td>
</tr>
<tr>
<td>2:30 PM</td>
<td>CG</td>
<td>Magnetoresistance and Spin Current Generation</td>
</tr>
<tr>
<td>5:00 PM</td>
<td>CP</td>
<td>2D Spintronics and Topological Materials</td>
</tr>
<tr>
<td>8:30 AM</td>
<td>CQ</td>
<td>Magnetoresistance and Related Phenomena I</td>
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<tr>
<td>Time</td>
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<td>Location</td>
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</tr>
<tr>
<td>12:00 PM</td>
<td>Meet the Experts <em>(Pre-registration required)</em></td>
<td>Europa III</td>
</tr>
<tr>
<td>2:00 PM</td>
<td>Panel: Magnetics for Tomorrow’s Medical Technologies</td>
<td>Oceania IV &amp; V</td>
</tr>
<tr>
<td>4:00 PM</td>
<td>Hackathon: Machine Learning AI for Magnetism - Tutorial and Hands-on Experience</td>
<td>Oceania VI &amp; VII</td>
</tr>
<tr>
<td>2:00 PM</td>
<td>Panel on Large Open Facilities in Latin America: opportunities for Magnetism</td>
<td>Oceania I &amp; II</td>
</tr>
<tr>
<td>4:00 PM</td>
<td>Awards Ceremony</td>
<td>Asia</td>
</tr>
<tr>
<td>6:00 PM</td>
<td>Conference Reception</td>
<td>El Pardo I, II &amp; Segovia</td>
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**Thursday May 9, 2024**

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<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>8:30 AM</td>
<td>Magnetic Tunnel Junction and Quantum Devices for Unconventional Computing</td>
<td>Oceania IV &amp; V</td>
</tr>
<tr>
<td>11:30 AM</td>
<td>Magnonics III: Band Properties and Devices</td>
<td>Oceania VI &amp; VII</td>
</tr>
<tr>
<td>8:30 AM</td>
<td>Path Towards More Sustainable Tomorrow – Magnetic Solutions</td>
<td>Oceania IX &amp; X</td>
</tr>
<tr>
<td>9:00 AM</td>
<td>Biomagnetics I</td>
<td>Oceania I &amp; II</td>
</tr>
<tr>
<td>12:00 AM</td>
<td>Hard Magnetic Materials I</td>
<td>Europa I</td>
</tr>
<tr>
<td>12:00 AM</td>
<td>Soft Magnetic Alloys: Materials and Methods</td>
<td>Europa II</td>
</tr>
<tr>
<td>9:00 AM</td>
<td>2D Spintronics and Magnetism</td>
<td>Europa IV</td>
</tr>
<tr>
<td>9:00 AM</td>
<td>High-speed, Wound-field, Induction and Reluctance Machines I</td>
<td>Exhibit Hall</td>
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<tr>
<td>9:00 AM</td>
<td>Skyrmions and Related Phenomena</td>
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<td>9:00 AM</td>
<td>Multi-Functional</td>
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<tr>
<td>9:00 AM</td>
<td>Magnetic Materials and Applications I</td>
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<tr>
<td>12:00 PM</td>
<td>Lunch with Speakers <em>(Pre-registration required)</em></td>
<td>Europa III</td>
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<tr>
<td>12:00 PM</td>
<td>Magnetic Energy Conversion Meeting</td>
<td>Oceania I &amp; II</td>
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<tr>
<td>2:00 PM</td>
<td>Panel: Magnetic Technologies for Smooth Transition Towards More Sustainable Tomorrow</td>
<td>Galápagos I, II &amp; III</td>
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<tr>
<td>2:00 PM</td>
<td>EA Orbitronics: From Theory to Experiments</td>
<td>Oceania IV &amp; V</td>
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<tr>
<td></td>
<td>EB Magnetic Field Sensors</td>
<td>Oceania VI &amp; VII</td>
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<td></td>
<td>EC Interdisciplinary Topics: Sensors, Antennas, and Nanofabrication</td>
<td>Oceania IX &amp; X</td>
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<tr>
<td>2:00 PM</td>
<td>ED Biomagnetics II</td>
<td>Oceania I &amp; II</td>
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<td></td>
<td>EE Hard Magnetic Materials II</td>
<td>Europa I</td>
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<td></td>
<td>EF Soft Magnetic Alloys: Synthesis, Characterization and Modeling</td>
<td>Europa II</td>
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<td></td>
<td>EG Magnetization Dynamics, Damping, and Micromagnetic Modeling</td>
<td>Europa IV</td>
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<tr>
<td></td>
<td>EP Biomagnetics III</td>
<td>Exhibit Hall</td>
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<tr>
<td></td>
<td>EQ Numerical, Semi-analytical and Analytical Analysis Methods II</td>
<td>Exhibit Hall</td>
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<td></td>
<td>ER Spin-Orbit Torques and Related Phenomena</td>
<td>Exhibit Hall</td>
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<td></td>
<td>ES Hard Magnetic Materials III</td>
<td>Exhibit Hall</td>
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<tr>
<td>2:30 PM</td>
<td>FA Magnonic Materials and Devices</td>
<td>Oceania IV &amp; V</td>
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<td></td>
<td>FB Novel Characterization Approaches</td>
<td>Oceania VI &amp; VII</td>
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<tr>
<td>3:00 PM</td>
<td>FC Magnetsim for Niche Applications: Sensors, Robots, Drones and Other Devices</td>
<td>Oceania IX &amp; X</td>
</tr>
<tr>
<td>8:30 AM</td>
<td>FD Antiferromagnetic/Ferrimagnetic Spintronics and Domain Wall Devices</td>
<td>Oceania I &amp; II</td>
</tr>
<tr>
<td>11:30 AM</td>
<td>FE Linear Machines and Field Modulating Machines</td>
<td>Europa I</td>
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Friday May 9, 2024

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</tr>
<tr>
<td>2:00 PM</td>
<td>Panel: Magnetic Technologies for Smooth Transition Towards More Sustainable Tomorrow</td>
<td>Galápagos I, II &amp; III</td>
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<td>Location</td>
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<tr>
<td>12:00 PM</td>
<td>Topological Insulators, Weyl and Dirac Semimetals</td>
<td>Europa II</td>
</tr>
<tr>
<td>2:00 PM</td>
<td>Magneto-Caloric Materials and Devices</td>
<td>Europa IV</td>
</tr>
<tr>
<td>12:00 PM</td>
<td>Young Professionals Lightning Talks</td>
<td>Galápagos I, II &amp; III</td>
</tr>
<tr>
<td>2:00 PM</td>
<td>Meet the Editors (Pre-registration required)</td>
<td>Europa III</td>
</tr>
<tr>
<td>2:00 PM</td>
<td>Magnetic Sensor Standardization</td>
<td>Oceania IV &amp; V</td>
</tr>
<tr>
<td>5:00 PM</td>
<td>Multilayers, Surface and Interface Phenomena</td>
<td>Oceania VI &amp; VII</td>
</tr>
<tr>
<td>2:00 PM</td>
<td>High Frequency, Microwave and Millimeter Wave Materials and Devices</td>
<td>Oceania IX &amp; X</td>
</tr>
<tr>
<td>5:00 PM</td>
<td>Antiferromagnetic Spintronics with Skyrmions and Textures</td>
<td>Oceania I &amp; II</td>
</tr>
<tr>
<td>2:00 PM</td>
<td>Permanent Magnet, High-speed, Wound-field, Induction and Reluctance Machines</td>
<td>Europa I</td>
</tr>
<tr>
<td>5:00 PM</td>
<td>Amorphous and Nanocrystalline Soft Magnetic Materials</td>
<td>Europa II</td>
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<tr>
<td>2:00 PM</td>
<td>Thin Films and Surface Effects</td>
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**Poster Virtual Only Sessions Available on Virtual Platform**

May 17, 2024

| VP1   | Field Modulated Machines | Digital Conference Resource Center |
| VP2   | Hard Magnetic Materials IV | |
| VP3   | High-speed, Wound-field, Induction and Reluctance Machines II | |
| VP4   | Interdisciplinary Topics in Magnetics II | |
| VP5   | Linear Machines and Magnetic Gearing | |
| VP6   | Magnetization Dynamics and Micromagnetics II | |
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| VP1 | Permanent Magnet Machines III |
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**SESSION CHAIRS**

| Symposium | AA | New Directions and Challenges in Neuromorphic Spintronics  
Chair: Pedro Landeros - Universidad Técnica Federico Santa María |
| Oral | AB | Interdisciplinary Topics: Chirality, Micromagnetic and Nanomagnetic Structures  
Chair: Silvia Tacchi - Consiglio Nazionale delle Ricerche |
| Oral | AC | Spin Torque and Voltage-Controlled Magnetic Anisotropy  
Chair: Hari Srikanth - University of South Florida |
| Oral | AD | MRAM Applications and Magnetic Recording  
Chair: Jonathan Sun - IBM Research |
| Oral | AE | Fundamental Properties, Cooperative Phenomena and Computational Magnetism  
Chair: Artur Carbonari - Instituto de Pesquisas Energeticas e Nucleares |
| Oral | AF | Magneto-Optic and Magneto-Elastic Materials and Devices  
Co-Chair: Ekkes Brück - TU Delft  
Co-Chair: Fanny Béron - Universidad Estadual de Campinas |
| Oral | AG | Skyrmions and Magnetic Heterostructures  
Chair: Johanna Fischer - CEA-SPINTEC |
| Poster | AP | Magnetization Dynamics and Micromagnetics I  
Co-Chair: Luis Aviles Felix - Centro Atomico Bariloche  
Co-Chair: Emily Darwin - EMPA |
<p>| Poster | AQ | Thin Films, Multi-layered Films and Superlattices |</p>
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<td>Transformers and Wireless Power Transfer, Magnetic Bearings and Levitation</td>
<td>Hamed Hamzehbahmani - Durham University</td>
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<td>Magnetics for Tomorrow’s Medical Technologies</td>
<td>Ravi Hadimani - Virginia Commonwealth University</td>
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<td>Magnonics I: Fundamental Properties</td>
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<td>Michal Slezak - AGH University of Science and Technology</td>
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<td>Co-Chair: Elena Lomonova - Technische Universiteit Eindhoven</td>
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<td>Magnetic Textures, Statics, and Dynamics</td>
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|           |    | Co-Chair: Paola Tiberto - INRIM  
|           |    | Co-Chair: Arkady Zhukov - Basque Foundation for Science |
|           |    | Co-Chair: Nathan Satchell - Texas State University |
|           |    | Co-Chair: Guohan Hu - IBM |

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<td>Chair: Paulo Wendhausen - Universidade Federal de Santa Catarina</td>
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<td>Chair: Jose Angel Fernandez-Roldan - HZDR</td>
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<td>Chair: Ana García-Prieto - University of the Basque Country UPV/EHU</td>
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<td>Magnetism for Niche Applications: Sensors, Robots, Drones and Other Devices</td>
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<td>Chair: Susana Cardoso de Freitas - INESC Microsistemas e Nanotecnologias</td>
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<td>Linear Machines and Field Modulating Machines</td>
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<td>Co-Chair: Jonathan Bird - Portland State University</td>
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<td>Topological Insulators, Weyl and Dirac Semimetals</td>
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Co-Chair: Po-Wei Huang - National Cheng Kung University |
| Oral  | GF   | Amorphous and Nanocrystalline Soft Magnetic Materials  
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| Oral  | GG   | Thin Films and Surface Effects  
Chair: Juliano Denardin - Universidad de Santiago |
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Co-Chair: Abdelmoumouim Tounzi - Univ. Lille, Arts et Metiers Institute of Technology  
Co-Chair: Smail Mezani - Université de Lorraine |
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Chair: Konstantin Boynov - Eindhoven University of Technology |
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Co-Chair: Yukihiro Yoshida - Akita University  
Co-Chair: Sho Sakurai - Akita University |
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| Poster Virtual Only | VP2  | Hard Magnetic Materials IV  
Chair: Imants Dirba - TU Darmstadt |
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<td>Co-Chair: Jia-Yan Law - University of Seville</td>
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PUBLICATIONS

FULL PAPERS IN IEEE TRANSACTIONS ON MAGNETICS
Full papers will be published in IEEE Transactions on Magnetics. To be eligible for publication, all papers must be presented at the Conference by a registered author (or representative) who is knowledgeable about the work. If not, they will be recorded as a “No Show”, and therefore the corresponding paper will not be suitable for publication. All papers will be submitted to MAGCONF IEEE Author Portal at https://ieee.atyponrex.com/journal/magconf-ieee. Note that this site is different from the digest submission site.

CONFERENCE SHORT PAPER
Authors may also choose to publish their accepted digest ("conference short paper") in the Magnetics Society's Digital Library on IEEE Xplore
(optional). To be eligible for publication, all papers must be presented at the Conference by a registered author (or representative) who is knowledgeable about the work. Each published digest will receive a unique digital object identifier (DOI). Publication of digests will still allow you to publish your accepted full paper in IEEE Transactions on Magnetics (or other journals) or, in some cases, the Magnetics Society's Digital Library as a "long paper". To submit your digest ("conference short paper") for publication, follow the instructions at https://ieeeexpressconferencepublishing.ieee.org/confid/author-instructions-for-intermag-2024-shortpapers/.

DAILY EVENTS

LUNCH
Lunch time scheduled from 12:00 PM - 2:00PM

COFFEE SERVICE
Morning coffee service from 10:00AM -10:30AM
Afternoon coffee service from 3:00PM - 3:30PM on Monday only

BIERSTUBE
Tuesday, May 7  5:00PM - 6:30PM
Thursday, May 9  5:00PM - 6:30PM
Exhibition Hall – Americas I-IV

ORAL SESSIONS
There will be seven simultaneous oral session rooms daily.
Tuesday .................8:30 AM – 11:30 PM and 2:00 PM – 5:00 PM
Wednesday ............8:30 AM – 12:00 PM and 1:30 PM – 5:00 PM
Thursday ...........8:30 AM – 12:00 PM and 1:30 PM – 5:00 PM
Friday 8:30 AM – 12:00 PM and 1:30 PM – 5:00 PM

POSTER SESSIONS
In-person poster sessions will be held in the Exhibit Hall (Americas I-IV) daily.
Tuesday .................9:00 AM – 12:00 PM and 2:30 PM – 5:30 PM
Wednesday ............9:00 AM – 12:00 PM and 2:30 PM – 5:30 PM
Thursday .........9:00 AM – 12:00 PM and 2:30 PM – 5:30 PM
Note: There will be virtual poster sessions available in the digital conference library starting May 17, 2024.

SESSION CHAIRS
On the day of their session, Oral and Poster Session Chairs should attend the Session Chair Breakfast at 7:45 AM, in Oceania VIII, 2nd Floor, Windsor Oceânico.

SPEAKER’S PRACTICE ROOM
Speakers have the possibility to test their computer connections and screen settings before the start of the session in the Speaker's Practice Room, located in room OCEANIA III, 2nd Floor – Windsor Oceânico. Note: This room is available from Monday at 8:00 AM until Friday at 11:00 AM.

SPECIAL SESSIONS
Updated: March 20, 2024
Special Sessions and Events
Several Special Sessions and Events will be organized during INTERMAG 2024. Check below the ones that fit your interests and pay attention to those that demand pre-registration due the maximum number of attendees.

Plenary Talk 1
Wednesday (May 8) from 5 to 6 PM.
Room: ASIA
Title: Advances in orbitronics: giant torques from orbital textures at interfaces, light-induced orbital currents for TeraHz emission.
Albert Fert – CNRS, Université Paris-Saclay, France Nobel Prize in Physics 2007 for Giant Magnetoresistance. Note: This Plenary Talk will be presented remotely by Prof. Albert Fert, following medical recommendations.

Plenary Talk 2
Wednesday (May 8) from 6 to 7 PM.
Room: ASIA
Title: Spintronics: Fundamentals and some recent advances.
Sergio M. Rezende – Universidade Federal de Pernambuco, Brazil Brazilian Minister of Science Technology and Innovation from 2005 to 2010
Special Session: 100 Years of the Concept of Spin (Spin100)
This will be a special session to celebrate the 100th Anniversary of “Spin” that will feature three distinguished plenary talks by:
Tuesday (May 7) from 7 to 9 PM
Room: ASIA
No pre-registration required
Alberto P. Guimarães – from Centro Brasileiro de Pesquisas Físicas (Brazil) will delve into the history of Spin.
Stuart Parkin – from the Max Planck Institute of Microstructure Physics (Germany) will provide insights into the latest advances in spintronics.
Gregory Fuchs – from Cornell University (USA) will explore the perspective of spin qubits. This unique session promises to offer valuable perspectives on the evolution of spin-related research and technology.

TUTORIAL: SPINS IN THE QUANTUM WORLD
Monday (May 6) from 4 to 6:30 PM
Room: ASIA
Spins in quantum information systems
Qiang Li – Stony Brook University
Quantum sensing using NV spins in diamond
Toeno van der Sar – Delft University of Technology
Spintronics for quantum technologies
Michael Flatte – University of Iowa

PANELS
PANEL: MAGNETICS FOR TOMORROW’S MEDICAL TECHNOLOGIES
Wednesday (May 8) from 2 to 4 PM
Room: OCEANIA IV & V
This Panel is Organized by The IEEE Magnetics Society Technical Committee

PANEL SPEAKERS
Cindi Dennis – NIST – Magnetic Nanoparticles for theranostic applications
Dominic Labanowski – Sonera  Brain sensing
Masaki Sekino – Tokyo University Transcranial Magnetic Stimulation
Shelly Fried – Harvard University/Massachusetts General Hospital -Micromagnetic brain stimulation.
Usha Varshney – NSF – Funding in biomagnetics and international collaborations
PANEL: LARGE OPEN FACILITIES IN LATIN AMERICA – OPPORTUNITIES FOR MAGNETISM
Wednesday (May 8) from 2 to 4 PM
Room: OCEANIA I & II

PANEL TALKS
1. Neutron Science and Magnetism: Opportunities and Challenges posed by the Argentine Neutron Beam Laboratory.
   Marina Tortarolo – Argentine Neutron Beam Laboratory LAHN/CNEA
2. Status of SIRIUS, the new Brazilian synchrotron source, and its potential in the investigation of magnetic materials
   Julio Criginski Cezar – Brazilian Synchrotron Light Laboratory LNLS/ CNPEM

PANEL: MAGNETIC TECHNOLOGIES FOR SMOOTH TRANSITION TOWARDS MORE SUSTAINABLE TOMORROW
Thursday (May 9) from 2 to 4 PM
Room: OCEANIA I & II

Note: This Panel is Organized by The IEEE Magnetics Society Technical Committee

PANEL SPEAKERS
Parag Upadhyay, PhD, SM-IEEE
Noureddine Takorabet – Director of the research center GREEN: Group of Research in Electrical Engineering of Nancy
Kenji Nakamura – Graduate School of Engineering, Tohoku University
Johan Paulides – Senior Member, IEEE

SPECIAL EVENTS
Note: to register for activities and special sessions requiring pre-registration, go to your attendee area. Just click on the registration button in the registration page and login. Once logged in, click on the attendee tab and then in the ADD/EDIT Activities. Just choose the activities you wish to pre-register, according to your category.

SPECIAL SESSIONS AND EVENTS
Several Special Events were organized for INTERMAG 2024, pre-registration is mandatory due the maximum number of attendees.

COMMUNICATIONS WORKSHOP
Tuesday (May 7) from noon to 2 PM
Room: EUROPA III
Max. number of attendees: 100 students
Lunch box will be provided
Pre-registration required

The Communications Workshop, organized by the IEEE Magnetics Society Technical Committee, will consist of three tutorials geared toward helping graduate students and postdoctoral fellows improve their skills and techniques.

1 – How to Write Exciting Papers
Ron Goldfarb – National Institute of Standards and Technology (NIST), USA

2 – Preparation of Professional Resumes
Guohan Hu – IBM T. J. Watson Research Center, USA

3 – Preparation of Oral Scientific Presentations
Montserrat Rivas – The University of Oviedo, Spain

WOMEN IN MAGNETISM
Montserrat Rivas
Tuesday (May 7) 5:30 – 7:00 PM
Room: EUROPA III
No pre-registration required

WOMEN IN MAGNETISM, WHAT’S NEXT?
Step into the future of magnetism at the Women Networking Event during Intermag 2024!
All women at the conference are warmly invited to join our dynamic gathering. With the motto guiding us, seize the chance to exchange job positions, resumes, volunteering, mentorship offers, and project announcements within the community of “magnetic women.” Engage in meaningful discussions at topical tables covering leadership, academia, post-PhD opportunities, publications, work-life balance, and more. Let’s collaboratively shape the future of women in magnetism—what shall we do next?
Organized by the Women in Magnetism committee of the IEEE Magnetics Society:
https://ieeemagnetics.org/membership/community/women-magnetism

SENSOR CHALLENGE
Luiz Augusto Sousa de Oliveira – Federal University of Rio de Janeiro, Brazil
Instruction meeting: Tuesday (May 7) at 11:30 a.m.
Final competition on Thursday (May 9) at 7:00 PM
Max. number of attendees: 30 students
Room: ARRUBA I-III
Pre-registration required

The challenge will be proposed to pre-register students. It will begin on Tuesday morning with a meeting, where instructions for the challenge will be given. Teams will be drawn and receive an Arduino design kit to complete the proposed challenge.

MEET THE EXPERTS
Mingzhong Wu - Northeastern University - US
Wednesday (May 8) from noon to 2 PM
Room: EUROPA III
Max. number of attendees: 90 students
Lunch will be provided
Pre-registration required

This event will foster a meeting between students and an outstanding group of magnetism experts. A small group of students will have the opportunity to participate in an informal conversation over lunch and obtain expert advice on the stages of their research career planning.

Montserrat Rivas - The University of Oviedo, Spain
Yoichiro Tanaka - Tohoku University, Japan
Laura Steren, INN CNEA-CONICET, Argentina
Angela Burlamaqui Klautau - Federal University of Pará, Brazil
Adekunle Adeyeye - Durham University, United Kingdom
Masahiro Yamaguchi - Tohoku University, Japan
Guohan Hu - IBM T J Watson Research Center, USA
Kerem Camsari - UC Santa Barbara, USA
Jian-Ping - University of Minnesota, USA
Piramanayagam - Nanyang Technological University, Singapore.

HACKATHON: MACHINE LEARNING AI FOR MAGNETISM - TUTORIAL AND HANDS-ON EXPERIENCE
Wednesday (May 8) from 2 to 4 PM
Room: OCEANIA VI-VII
Max. number of attendees: 300 participants
Pre-registration required

Thomas Winkler, Kilian Leutner and Mathias Kläui
- Institute of Physics, Johannes Gutenberg University Mainz, 55099 Mainz, Germany
Yuriy Mokrousov - Peter Grünberg Institut and Institute for Advanced Simulation (IAS-1),
Machine-learning-based techniques are becoming more relevant in modern research, as they enable fast and robust data evaluation or can predict the physical properties of investigated systems. We will cover these two aspects of artificial intelligence (AI) in the research field of spintronics.

This session organized by M. Kläui will consist of three parts: a talk on magnetic pattern recognition given by T. Winkler, a talk on AI-supported electronic structure predictions given by Y. Mokrousov, and hands-on activities led by K. Leutner and T. Winkler. The first introductory talk will deal with the data evaluation of magnetic imaging techniques, such as Kerr microscopy, with convolutional neural networks [1,2]. In the second part, AI-supported methods are presented to predict intricate changes in the electronic structure of non-collinear magnetic materials [3]. Participants can follow instructions to run AI models on their own laptop devices in the subsequent hands-on session. We will provide exemplary magnetic microscopy measurement data and suitable pre-trained AI models for their evaluation. Further instructions and files can be downloaded prior to the session under https://download.klaeui-lab.de/intermag24/.


LUNCH WITH SPEAKERS

Luiz Augusto Sousa de Oliveira – Federal University of Rio de Janeiro, Brazil
Thursday (May 9) from noon to 2 PM
Room: EUROPA III
Max. number of attendees: 90 students
Lunch will be provided
Pre-registration required
The event will consist of a meeting between small groups of students and distinguished speakers from the Conference.

CONFIRMED SPEAKERS:

Manuel Vazquez - National Spanish Council for Research, Spain;
Connie Li - Naval Research Lab., United States;
Johanna Fischer - SPINTEC, France;
Pedro Landeros - Universidad Técnica Federico Santa María, Chile;  
Daniela P. Valdes - CNEA-CONICET, Universidad Nacional de Cuyo, Argentina;  
Xin Zhang - Hefei Institutes of Physical Science, China;  
Masaki Sekino - The University of Tokyo, Japan;  
Anthony Tan - Imperial College London;  
Kleber Roberto Pirota - UNICAMP, Brazil.  
Alexandra Mougin - Université Paris-Saclay, France.

MAGNETIC ENERGY CONVERSION MEETING  
Thursday (May 9) from noon to 1:00 PM  
Room: OCEANIA I-II  
No pre-registration required

STUDENTS IN MAGNETISM  
May Inn Sim  
Thursday (May 9) 5:30 - 7:00 PM  
Room: EUROPA III  
No pre-registration required.

Calling all graduate students!  
Join us for a graduate student networking session with food, drinks, and freebies!  
All graduate students are invited to mix and mingle at this networking session while enjoying some fun and games!  
To ensure that you can secure your goodies, please reserve them as early as possible through the provided link.  
* Giveaway items are subjected to availability, i.e. the earlier you inform us, the higher the chance we can make sure that yours is reserved!

LATIN AMERICAN MAGNETICS COMMUNITY MEETING  
Thursday (May 9) 6:30 - 8:00 PM  
Room: EUROPA IV  
No pre-registration required.

YOUNG PROFESSIONALS MEETING (STUDENTS & JUNIOR RESEARCHERS)  
Dmytro Bozhko
Friday (May 10) from noon to 2 PM
Room: EUROPA III
Max. number of attendees: 100
Lunch will be provided
Pre-registration required

The Lightning Talks, organized by the IEEE Magnetics Society Young Professionals, is setting a challenge – to present your research understandably to an audience outside of your field. The event will consist of a set of short 3-minute talks presented by young professionals in magnetism (from Postdocs to Asst. Professors and industry) followed by audience feedback and a panel discussion. Stay tuned for registration information! Everyone is welcome to attend the event. There is no additional cost to attend.

MEET THE EDITORS OF IEEE TRANSACTIONS ON MAGNETICS & IEEE MAGNETICS LETTERS
Tom Thompson
Friday (May 10) noon - 2 PM
Max. number of attendees: 100
Room: OCEANIA III
Lunch Box will be available
Pre-registration required

INDUSTRIAL DAY
Morning and Afternoon of Monday (May 6)
Pre-registration required.
These special sessions will focus on several current topics involving Magnetism in Industry.

A TECHNOLOGY PERSPECTIVE ON MRAM: STATUS, CHALLENGES, AND FUTURE DIRECTIONS
Join us for a special event on Magneto-resistive Random-Access Memory (MRAM) to delve into the status, challenges, and future directions of MRAM through insights shared by industry experts. This full-day event will cover both STT-MRAM (Spin-Transfer Torque MRAM) and SOT-MRAM (Spin-Orbit Torque MRAM) with a tutorial and the latest technological advancements in each domain. Designed to be educational and accessible, this event caters to a general audience, offering a valuable experience for both those with and without prior MRAM knowledge. Don't miss this opportunity to broaden your understanding of MRAM technology and stay informed about its exciting developments!

Monday, May 6th, 2024
Time: 9:00 AM - 11:45 AM & 1:30 PM - 4:00 PM
EVENT CO-ORGANIZERS
Guohan Hu - IBM T J Watson Research Center, USA
Jeong-Heon Park - Semiconductor R&D Center, Samsung Electronics, South Korea

INVITED SPEAKERS ON STT-MRAM
Daniel Worledge - IBM Almaden Research Center, USA
Sanjeev Aggarwal - Everspin Technologies, Inc., USA
Aleksandra Titova - GlobalFoundries, Germany
Hyunsung Jung - Semiconductor R&D Center, Samsung Electronics, South Korea

INVITED SPEAKERS ON SOT-MRAM
Luqiao Liu, Massachusetts Institute of Technology, USA
Kevin Garello, Spintec, France
Siddharth Rao, Compute and Memory Technologies, IMEC, Belgium
Hiroaki Yoda, YODA-S, Inc., Japan

AWARDS

IEEE NEIL SMITH AWARD FOR CONTRIBUTIONS TO THE UNDERSTANDING OF MAGNETIC PHENOMENA IN MATERIALS AND DEVICES
IEEE Neil Smith Award for Contributions to the Understanding of Magnetic Phenomena in Materials and Devices
The Neil Smith Award will be presented at Intermag this year for the best student contribution to the understanding of magnetic phenomena in Materials and Devices. The IEEE award is in memory of Neil Smith, whose productive industrial research career exemplified a mastery of experimental measurement techniques and theoretical analysis. An award committee will select winners in two subject categories: magnetic data storage & emerging memory/compute. The two winners will each receive a $1,000 cash prize. The winning submissions need to be original contributions that contain an advance in the understanding of a technologically relevant physical system or phenomena. The selection criteria will be based on originality and impact of the material, as well as quality of the oral or poster presentation.

INTERMAG 2024 Finalists
AB-02: Spin-reorientation driven emergent phases, unconventional magnetotransport and magnetic anisotropy in a quasi-2D ferromagnet Fe₄GeTe₂

Riju Pal - S. N. Bose National Centre for Basic Sciences, Leibniz Institute for Solid State and Materials Research, Institute for Solid State and Materials Physics, TU Dresden, Germany

AD-04: Electrically controlled all-antiferromagnetic tunnel junctions on silicon

Sevdenur Arpaci - Northwestern University, EUA

AC-08: Symmetry engineering induced out-of-plane spin-orbit fields in WSe₂ and NbIrTe₄

Wei Yang - Beihang University

BD-02: Optical control of the magnetization emerging from the magnetic part of the optical field in the Landau-Lifshitz-Gilbert equation

Benjamin Assouline - The Hebrew University of Jerusalem, Israel

CC-07: Brownian reservoir computing approach for Gesture recognition by using geometrically confined skyrmion dynamics

Grischa Beneke - Johannes Gutenberg-Universität Mainz

INTERMAG 2024 BEST POSTER AWARD
One poster will be awarded for each poster session of Intermag 2024.

Only in-person poster presentations will be eligible for this award, provided they meet the following requirements:
Posters must consist of well-prepared visual materials about the work.
The presenting author must be registered for the Conference and present their poster in person.
The presenting author must be present at their poster during their designated Poster Session to answer questions.
Selections, made by the Poster Session Chairs, will be based on the level of the research, quality of the poster, and clarity of the presentation.
Award winners will be announced during the Conference and prominently displayed onsite and on the Conference website.

INTERMAG 2024 BEST STUDENT ORAL PRESENTATION AWARD
The Best Student Oral Presentation Award is presented by the IEEE Magnetics Society to recognize
and encourage excellence in graduate studies of magnetism.
The winners will be selected by the Best Student Oral Presentation Award Committee and announced during the Conference. The award consists of a prize of $1000 USD and a certificate for the winners, and a $250 USD prize and certificate for each of the remaining finalists.

INTERMAG 2024 Finalists:
AB-02: Spin-reorientation driven emergent phases, unconventional magnetotransport and magnetic anisotropy in a quasi-2D ferromagnet $\text{Fe}_4\text{GeTe}_2$
Riju Pal - S. N. Bose National Centre for Basic Sciences; Leibniz Institute for Solid State and Materials Research; Institute for Solid State and Materials Physics, TU Dresden, Germany

AC-06: Influence of metal-insulator transition of NdNiO$_3$ on the magnetization dynamics of metallic ferromagnet
Biswajit Sahoo - Center for Memory and Recording Research, University of California San Diego, EUA

AF-10: Magnetoelastic Resonators Functionalized with Metal Organic Frameworks for Wireless Humidity Detection
Beatriz Sisniega Soriano - Universidad del Pais Vasco, Spain

BF-03: Study of the Magnetoelectric Effect in PVDF/Ni Composites
Federica Luciano - Imec, KU Leuven, Belgium

CG-07: Self-induced inverse spin Hall effect in disordered FePt thin films
Jose Luis Ampuero Torres - Instituto Balseiro, Argentina

SOCIAL AND CULTURAL EVENTS
Special Sessions and Events Chair: Luiz Augusto Sousa de Oliveira

WELCOME RECEPTION
Monday (May 6) 7:00 - 9:00PM
No pre-registration needed

CONFERENCE RECEPTION
Wednesday (May 8) 7:00 - 10:00PM
An experience with typical Brazilian foods and beverages followed by an experience on Samba Culture by a Traditional Samba School.
No pre-registration needed

LAB TOUR ON MAGNETISM
Saturday (May 11) 10:00 AM - 2:00 PM
A visit to the Magnetism Laboratories at the Brazilian Center for Physics Research (CBPF) located at the Urca neighborhood.
Maximum number of participants: 80
Bus transfer will be organized by the conference
Pre-registration needed

Special City Tours and Soccer Game experience (at the Maracanã Stadium)
These on demand activities have to be booked with the partner travel agent Follow Up Tours (see link below)
https://www.net-expert.com/followuptour/Evento/intermag2024Im

MAGNETISM AS ART SHOWCASE
Intermag 2024 will host a Magnetism as Art Showcase to highlight the beauty of magnetism and magnetic materials. Submissions will be displayed on the Conference website, Social Media pages, and virtual platform. Additionally, submitted images may appear in the IEEE Magnetics Society Newsletter, and other communication platforms, where the author’s name will be indicated. Four finalists will be selected by a panel of judges, and the winner will be selected by popular vote. The four finalists will be displayed onsite in Rio de Janeiro.

FUTURE INTERMAG CONFERENCES
1. ICM 2024 - International Conference on Magnetism
Link: https://www.icm2024.org/
Jun 2024 – 5 Jul 2024
Bologna, Italy

2. MMM-Intermag 2025 - 16th Joint MMM-Intermag Conference
Link: https://2025-joint.magnetism.org/
13 Jan 2025 – 17 Jan 2025
New Orleans, LA, USA

3. MMM 2025 - 70th Annual Conference on Magnetism and Magnetic Materials
27 Oct 2025 – 31 Oct 2025
Palm Beach, FL, USA

4. INTERMAG 2026 - 2026 IEEE International Magnetics Conference
April 2026
Manchester, UK
The INTERMAG 2024 Conference provides travel support to a limited number of students working in magnetism and magnetic materials who wish to attend the Conference. Student travel support is intended to partially offset travel costs. Additional support will be available specifically for students and researchers from underrepresented countries.
The IEEE Magnetics Society Recife Chapter is providing partial support for undergraduate and graduate students attending INTERMAG 2024. The funds may be used to cover expenses with transportation, food and accommodation during the event.

**IEEE BRAIN TRAVEL AWARD**

Provided by

The IEEE BRAIN provides 2 travel support awards for up to $750 per student working in the area of brain and magnetism who wish to attend the conference. Student travel support is intended to partially offset travel costs.

**SPECIAL SUPPORT FOR BRAZILIANS**

Due to the support of CAPES and CNPq Brazilian researchers (non-students) are eligible to receive discounts on the registration rate. The INTERMAG 2024 Conference will provide the discount to a limited number of researchers (with permanent positions or pos-docs) working in magnetism and magnetic materials who wish to attend the Conference. Priority will be given to researchers without research grants to cover the registration expenses. The effective discount depends on the amount effectively received from the Brazilian agencies.

**CHILDCARE SUPPORT**

Provided by

INTERMAG 2024 will offer a limited number of childcare supports to parents with childcare responsibilities who wish to attend the conference. Participants who are bringing small children to the conference, or who incur extra expenses in leaving their children at home (i.e., extra day care or babysitting services), are invited to apply for reimbursement of allowable expenses upon receipt of digest acceptance notification.
# EDITORS IN CHIEF (EiCs)

<table>
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<th>Name</th>
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<td>Felipe Bohn</td>
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# ASSOCIATE EDITOR (AEs)

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<td><strong>2. MEMORY, LOGIC, AND DATA STORAGE</strong></td>
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<td>Mathias Kläui</td>
<td>Universität Mainz, Germany</td>
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<td><strong>3. MAGNETIZATION DYNAMICS AND MICROMAGNETICS</strong></td>
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<td>Mi-Young Im</td>
<td>Lawrence Berkeley National Laboratory, United States</td>
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<td>Joo-Von Kim</td>
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<td>Mehrdad Elyasi</td>
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<td>Giovanni Finocchio</td>
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<td>Daniela Petti</td>
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<td>Philip Pong</td>
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<td>University of Ghent, Belgium</td>
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<td>Narayan Kar</td>
<td>University of Windsor, Canada</td>
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<td>Elena Lomonova</td>
<td>Technische Universiteit Eindhoven, Netherlands</td>
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<td>Smail Mezani</td>
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<td>Carlo Stefano Ragusa</td>
<td>Politecnico di Torino, Italy</td>
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<td>Noureddine Takorabet</td>
<td>Université de Lorraine, France</td>
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<td>Abdelmounaim Tounzi</td>
<td>Univ. Lille, Arts et Metiers Institute of Technology, France</td>
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<td>Stellenbosch University, South Africa</td>
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<td>Yukihiro Yoshida</td>
<td>Akita University, Japan</td>
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5. SENSORS AND HIGH-FREQUENCY DEVICES

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<tr>
<td>Alexey Ustinov</td>
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<td>Stefano Bonetti</td>
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<td>Yajie Chen</td>
<td>Rogers Corp., United States Technical University</td>
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<tr>
<td>Umut Parlak</td>
<td>Dortmund, Germany</td>
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6. MULTI-FUNCTIONAL MAGNETIC MATERIALS AND APPLICATIONS

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<th>Name</th>
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<tr>
<td>Ekkes Brück</td>
<td>TU Delft, Netherlands</td>
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<td>Fanny Béron</td>
<td>Universidad Estadual de Campinas, Brazil</td>
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<tr>
<td>Lei Bi</td>
<td>University of Electronic Science and Technology of China, China</td>
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<tr>
<td>Jia-Yan Law</td>
<td>University of Seville, Spain</td>
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7. SOFT MAGNETIC MATERIALS

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<tr>
<td>Paola Tiberto</td>
<td>INRIM, Italy</td>
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<tr>
<td>Naoki Ito</td>
<td>Proterial, Ltd., Japan</td>
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<tr>
<td>Tibor Ovari</td>
<td>National Institute of Research and Development for Technical Physics, Romania</td>
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8. HARD MAGNETIC MATERIALS

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<tr>
<td>Nora Dempsey</td>
<td>Institut Néel CNRS, France</td>
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<tr>
<td>Cajetan Nlebedim</td>
<td>Ames Laboratory, US Department of Energy, United States</td>
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<tr>
<td>Pelin Tozman</td>
<td>Technical University of Darmstadt, Germany</td>
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9. MAGNETOELECTRONIC MATERIALS AND PHENOMENA

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<tr>
<td>John Heron</td>
<td>University of Michigan, United States</td>
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<td>Fengxia Hu</td>
<td>Institute of Physics, Chinese Academy of Sciences, China</td>
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<td>Jiamian Hu</td>
<td>University of Wisconsin-Madison, United States</td>
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<tr>
<td>Julia Lyubina</td>
<td>Evonik Operations GmbH, Germany</td>
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10. FUNDAMENTAL PROPERTIES AND COOPERATIVE PHENOMENA

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<td>Jinke Tang</td>
<td>University of Wyoming, United States</td>
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<tr>
<td>Claudia Rodriguez Torres</td>
<td>IFLP (UNLP-CONICET), Argentina</td>
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<td>Di Wu</td>
<td>Fudan University, China</td>
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<td><strong>11. NANO-STRUCTURED MATERIALS</strong></td>
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<td>David Lederman</td>
<td>UC Santa Cruz, United States</td>
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<td>Cristina Bran</td>
<td>Spanish National Research Council (CSIC), Spain</td>
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<td>Tohoku University, Japan</td>
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<td>Juliano Denardin</td>
<td>Universidad de Santiago, Chile</td>
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<td>Jyoti Ranjan Mohanty</td>
<td>IIT Hyderabad, India, India</td>
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<td><strong>12. Biomagnetics</strong></td>
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<td>Ravi Hadimani</td>
<td>Virginia Commonwealth University, United States</td>
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<td>Tohoku University, Japan</td>
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<td>Robert Morel</td>
<td>IRIG/SPINTEC, France</td>
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<td><strong>13. MICROSCOPY, IMAGING, AND CHARACTERIZATION</strong></td>
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<td>Peter Fischer</td>
<td>Lawrence Berkeley National Laboratory, United States</td>
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<td>University of Glasgow, United Kingdom</td>
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<td>Charudatta Phatak</td>
<td>Argonne National Laboratory, United States</td>
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<td><strong>14. INTERDISCIPLINARY AND EMERGING TOPICS</strong></td>
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<td>Arti Kashyap</td>
<td>Indian Institute of Technology Mandi, India</td>
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<td>Gustavo Dalpian</td>
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<td>Yokohama National University, Japan</td>
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<td>Fanny Beròn</td>
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<td>Paula Bercoff</td>
<td>Universidad Nacional de Córdoba - Argentina</td>
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Session AA
NEW DIRECTIONS AND CHALLENGES IN NEUROMORPHIC SPINTRONICS
Pedro Landeros, Chair
Universidad Técnica Federico Santa María, Valparaíso, Chile

8:30

AA-01. Machine Learning in Networks of Mathematically Agnostic Dynamical Devices. (Invited) L. Manneschi1, I.T. Vidamour1, K.D. Stemning2, J. Gartside2, C. Swindells1, G. Venkat1, D. Griffin1, S. Stepney1, W.R. Branford2, T. Hayward1, M.O. Ellis1 and E. Vasilaki1. 1. University of Sheffield, Sheffield, United Kingdom; 2. Imperial College, London, United Kingdom; 3. University of York, York, United Kingdom
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9:00

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9:30

AA-03. Harnessing stochastic properties of spintronic nanodevices for cognitive computing. (Invited) N. Phan1, L. Soumah1, L. Desplat1, N. Prasad2, A. Hakam1, A. Sidi El Valli1, L. Anghel1, L. Benetti4, A. Jenkins2, R. Ferreira1, F. Disdier1, L.D. Buda-Prejbeanu1, R. Sousa1, A. Madhavan2, M.D. Stiles2, U. Ebels1 and P. Talatchian1. 1. SPINTEC, Univ. Grenoble Alpes, CEA, CNRS, Grenoble INP, Grenoble, France; 2. Physical Measurement Laboratory, National Institute of Standards and Technology, Gaithersburg, MD, United States; 3. Department of Chemistry and Biochemistry, University of Maryland, College Park, MD, United States; 4. International Iberian Nanotechnology Laboratory, Braga, Portugal; 5. Institute for Research in Electronics and Applied Physics, University of Maryland, College Park, MD, United States
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10:00

AA-04. Advancing Edge Computing: Leveraging MRAM Devices for Enhanced Efficiency and Security. (Invited) S. Li1. 1. Beihang University, Beijing, China
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In-Person Presentations
Applications of Magnetic Straintronics to Unconventional Computing. (Invited) S. Bandyopadhyay1 1. Virginia Commonwealth University, Richmond, VA, United States

Exploiting the potential of magnetic tunnel junctions for spiking and dynamical neurons. (Invited) D. Rodrigues1, M. Carpentieri1 and G. Finocchio2 1. Department of Electrical and Information Engineering, Politecnico di Bari, Bari, Italy; 2. Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina, Messina, Italy

OCEANIA VI & VII

Session AB
INTERDISCIPLINARY TOPICS: CHIRALITY, MICROMAGNETIC AND NANOMAGNETIC STRUCTURES
Silvia Tacchi, Chair
Consiglio Nazionale delle Ricerche, Perugia, Italy

Chiral Magnetic Phases in Moire Bilayers of magnetic Dipoles. (Invited) I. Tapia1, X. Cazor1 and P. Mellado1 1. Department of Engineering and Sciences, Universidad Adolfo Ibañez, Santiago, Chile

AB-04. Engineered magnetic domain patterns in exchange-biased thin films: A technological platform for multipurpose close-to-substrate transport of magnetic particles in liquids. R. Huhnstock and A. Ehresmann. Institute of Physics and Center for Interdisciplinary Nanostructure Science and Technology (CINaT), University of Kassel, Kassel, Germany


AB-06. Connecting magnetization dynamics measurements of suspended magnetic nanoparticles through the fluctuation-dissipation theorem. K. Everaert, D. Eberbeck, R. Köhrer, P. Radon, B. Van Waeyenberge, J. Lelait and F. Wieckhorst. Physikalisch-Technische Bundesanstalt, Berlin, Germany; Ghent University, Ghent, Belgium; University of Maryland, College Park, MD, United States

AB-07. Enhanced Magnetism through Controlled Nanostructuring and Advanced Correlative Microscopy Probes. A. Fraile Rodríguez, C. Moya, M. Escoda-Torroella, J. Rodriguez Alvarez, I. Figueroa, I. García, I. Batala Ferrer-Vidal, A. Gallo-Cordova, L. Aballe, M.d. Morales, A. Labarta and X. Batlle. Física de la Matèria Condensada, Universitat de Barcelona, Barcelona, Spain; Institut de Nanociència i Nanotecnologia (IN2UB), Universitat de Barcelona, Barcelona, Spain; Instituto de Ciencia de Materiales de Madrid (ICMM-CSIC), Madrid, Spain; Experiments Division, ALBA Synchrotron Light Facility, CELLS, Barcelona, Spain

AB-08. Sound as an Additional Tool for Spin-Wave Dynamics Analysis. S. Pile, O. Lesota, S.D. Peter, C. Humer and M. Gasser. Johannes Kepler University Linz, Linz, Austria; University of Applied Arts Vienna, Vienna, Austria
AB-09. Magnetic Properties Stability from 5 K to 800 K in Metastable $\gamma$-Fe$_{85}$Pd$_{15}$ Nanowires. P.G. Bercoff$^{1,2}$, S. Aprea$^{1,2}$, E. Céspedes$^1$, J. Martínez$^3$, S. Urreta$^1$ and M. Vázquez$^3$ 1. Facultad de Matemática, Astronomía, Física y Computación, Universidad Nacional de Córdoba, Córdoba, Argentina; 2. Instituto de Física Enrique Gaviola (IFEG), CONICET, Córdoba, Argentina; 3. Institute of Materials Science of Madrid (ICMM-CSIC), Madrid, Spain

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11:00

AB-11. Simulations of magnetic nanoparticles with internal magnetization dynamics for magnetic hyperthermia. S. Helbig$^1$, A. Kuznetsov$^1$, D. Mostarac$^1$, D. Zehner$^1$, C. Abert$^1$, P. Sánchez$^{1,2}$, S. Kantorovich$^1$ and D. Suess$^1$ 1. Faculty of Physics, University of Vienna, Vienna, Austria; 2. Physics Department, University of the Balearic Islands, Palma de Mallorca, Spain

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OCEANIA IX & X

Session AC

SPIN TORQUE AND VOLTAGE-CONTROLLED MAGNETIC ANISOTROPY

Hari Srikanth, Chair
University of South Florida, Tampa, FL, United States

8:30

AC-04. Non-Relativistic Spin Currents and Torques in Antiferromagnets. (Invited) J. Zelezny$^1$, S. Ghosh$^1$, R. González-Hernández$^2$ and A. Manchon$^1$ 1. FZU - Institute of Physics, Czech Academy of Sciences, Prague, Czechia; 2. Universidad del Norte, Barranquilla, Colombia; 3. Aix-Marseille Univ, Marseille, France

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9:00

AC-02. Reconfigurable classifier based on spin torque driven magnetization switching in electrically connected magnetic tunnel junctions. A. López$^{1,2}$, D. Costaa$^1$, T. Böhmert$^2$, P.P. Freitas$^3$, R. Ferreira$^3$, I. Barbero$^1$, J. Camarero$^{2,3}$, C. Leó$^{1,5}$, J. Santamaría$^{1,5}$, J. Grollier$^6$ and M. Romero$^{1,5}$ 1. Universidad Complutense de Madrid, Madrid, Spain; 2. IMDEA Nanociencia, Madrid, Spain; 3. International Iberian Nanotechnology Laboratory (INL), Braga, Portugal; 4. Universidad Autónoma de Madrid, Madrid, Spain; 5. Lab. de Heteroestructuras con Aplicación en Espintrónica, Unidad Asociada UCM/CSIC, Madrid, Spain; 6. Unité Mixte de Physique CNRS, Thales, Université Paris-Sud, Université Paris-Saclay, Palaiseau, France

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4 In-Person Presentations
AC-03. The Effect of Thermal Fields on Spin Hall Switching in Devices Stabilized by In-Plane Magnetocrystalline Anisotropy. S. Nallan¹ and J. Zhu¹ 1. Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA, United States
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AC-05. Orbital currents and torques on transition metals using interfacial orbital Rashba effect. B. Bony¹, S. Krishna¹, E. Rongione², L. Vicente Arche³, T. Denneulin¹, Y. Lu¹, R.E. Dunin-Borkowski¹, S. Collin⁴, A. Fert¹, J. George¹, N. Reyren¹, J. Moussy⁴, M. Viret⁴ and H. Jaffrès¹ 1. Laboratoire Albert Fert, CNRS-Thales - Université Paris-Saclay, Bourg-La-Reine, France; 2. Catalan Institute of Nanoscience and Nanotechnology, Barcelona, Spain; 3. Ernst Ruska-Centre for microscopy and spectroscopy with Electrons and Peter Grünberg Institute, Jülich, Germany; 4. Service de Physique de l’Etat Condensé, CEA, CNRS, Gif-sur-Yvette, France
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AC-06. Influence of metal-insulator transition of NdNiO₃ on the magnetization dynamics of metallic ferromagnet. B. Sahoo¹,²,³*, K. Akilan², S. Das¹, S. Petit-Watelot¹, A. Frano¹ and E. Fullerton¹,²,³ 1. Department of Physics, University of California San Diego, La Jolla, CA, United States; 2. Institut Jean Lamour, Nancy, France; 3. Center for Memory and Recording Research, University of California, La Jolla, CA, United States
View Digest Text

AC-08. Symmetry engineering induced out-of-plane spin-orbit fields in WSe₂ and NbIrTe₄. W. Yang¹,²,³, D. Zhou¹,², X. Wang¹, J. Rojas-Sanchez¹, X.L. Lin¹,² and W. Zhao¹,² 1. National Key Lab of Spintronics, Institute of International Innovation, Beihang University, Hangzhou, China; 2. Fert Beijing Institute, Beihang University, Beijing, China; 3. Université de Lorraine, Institut Jean Lamour, Nancy, France
View Digest Text
AC-09. Experimental Analysis of the Impact of Voltage Pulse Parameters on the Writing Performance in VCMA-MRAM. D. Favaro1,2, W. Kim1, S. Ranjbar1, M. Gama Monteiro1, R. Carpenter1, K. Sankaran1, S. Rao1, J. Van Houdt1,2, K. Temst1,2 and S. Couet1 1. Imec, Leuven, Belgium; 2. Quantum Solid State Physics, Department of Physics and Astronomy, KU Leuven, Leuven, Belgium; 3. Semiconductor Physics, Department of Physics and Astronomy, KU Leuven, Leuven, Belgium

AC-10. Enhancement of voltage-controlled magnetic anisotropy (VCMA) via electron depletion utilizing a W/Pt/W high work function underlayer. Y. Chen1, J. Qi1, D. Lyu1, T. Peterson2 and J. Wang1 1. Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States; 2. School of Physics and Astronomy, University of Minnesota, Minneapolis, MN, United States

AC-11. Controllable Synthesis and Property Manipulation of 2D (nonlayered) Magnetic Nanomaterials. Y. Hou1 1. Sun Yat-Sen University, Shenzhen, China

OCEANIA I & II

Session AD
MRAM APPLICATIONS AND MAGNETIC RECORDING
Jonathan Sun, Chair
IBM Research, Yorktown Heights, NY, United States

8:30


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In-Person Presentations
AD-02. Origin of the Switching Current Reduction in PtCu-SOT-MRAM. W. Janssens1,2, G. Talmelli1, R. Carpenter1, V. Nguyen1, K. Cai1, K. Wostyn1, S. Couet1 and J. De Boeck1,2. 1. imec, Leuven, Belgium; 2. Department of Electrical Engineering, KU Leuven, Leuven, Belgium. View Digest Text

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AD-03. Decision-Feedback Single-Layer Read Reconstruction and Separation for Three-dimensional Magnetic Recording. Y. Liao1,3, K. Zhang1,3, Y. Jian2, J. Cheng1,2,3, P. Lu1,2,3 and K. Luo2,3. 1. School of Computer Science & Technology, Huazhong University of Science & Technology, Wuhan, China; 2. Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, China; 3. Key Laboratory of Information Storage System, Engineering Research Center of Data Storage Systems and Technology, Huazhong University of Science and Technology, Wuhan, China; 4. School of Public Health, Hubei University of Medicine, Shiyan, China. View Digest Text

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AD-04. Electrically controlled all-antiferromagnetic tunnel junctions on silicon. S. Arpaci1,2, J. Shi1, V. Lopez-Dominguez1,3, V. K. Sangwan4, F. Mahfouzi5, J. Kim5, J.G. Athas1, M. Hamdi1, C. Aygen1, C. Phatak6, M. Carpentieri7, J.S. Jiang8, M.A. Grayson1,2, N. Kioussis5, G. Finocchio8, M.C. Hersam1,2,4 and P. Khalili Amiri1,2. 1. Department of Electrical and Computer Engineering, Northwestern University, Evanston, IL, United States; 2. Applied Physics Program, Northwestern University, Evanston, IL, United States; 3. Institute of Advanced Materials (INAM), Universitat Jaume I, Castellón, Spain; 4. Department of Materials Science and Engineering, Northwestern University, Evanston, IL, United States; 5. Department of Physics and Astronomy, California State University Northridge, Northridge, CA, United States; 6. Materials Science Division, Argonne National Laboratory, Lemont, IL, United States; 7. Department of Electrical and Information Engineering, Politecnico di Bari, Bari, Italy; 8. Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina, Messina, Italy. View Digest Text

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AD-05. Electrical manipulation of exchange bias for memory and logic applications. A. Du1, D. Zhu1, K. Cao1, Z. Zhang1, Z. Guo3, K. Shi1, C. Zhao1, Y. Zhang1, S. Luo2, A. Fert6 and W. Zhao1. 1. Beijing University, Beijing, China; 2. Huawei Technologies, Shenzhen, China; 3. University of Paris-Saclay, Paris, France. View Digest Text

In-Person Presentations 7
AD-06. Synthetic Antiferromagnetic/Ferromagnetic Spin-Orbit Torque Devices with an Oxide Spacing. Y. Huang1, C. Cheng1, J. Hsu2, Y. Wu1, Y. Lin1, W. Chang2 and Y. Tseng1  
1. Department of Materials Science & Engineering, National Yang Ming Chiao Tung University, Hsinchu, Taiwan;  
2. Industry Academia Innovation School, National Yang Ming Chiao Tung University, Hsinchu, Taiwan;  
3. Powerchip Semiconductor Manufacturing Corporation, Hsinchu, Taiwan

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AD-08. How Magnetic Inhomogeneities Relate to Device Performance for Magnetic Storage Devices. V.J. Borras1, R. Carpenter2, U. Celano3, L. Zaper3, A. Stark1, M. Munsch1, H. Zhong1, C. Adelmann1, P. van der Heide1, P. Malekinsky1 and P. Rickhaus1  
1. Qnami, Muttenz, Switzerland;  
2. MRAM, Imec, Leuven, Belgium;  
3. Arizona State University, Phoenix, AZ, United States;  
4. Imec, Leuven, Belgium;  
5. University of Basel, Basel, Switzerland

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AD-09. Reduction of writing temperature by the exchange-coupled FePt-C/Ru-C/FePt-C tri-layer films with different Tc, D. Ogawa1, A. Bolyachkin1, D. Angayarkanni Ramamurthy1,2, N. Kulesh1, H. Sepehr-Amin1,2 and Y. Takahashi1  
1. Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science (NIMS), Tsukuba City, Japan;  
2. University of Tsukuba, Tsukuba City, Japan

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10:45

1. Tohoku University, Sendai, Japan;  
2. National Institute for Materials Science (NIMS), Tsukuba, Japan;  
3. Ehime University, Matsuyama, Japan;  
4. Niigata Institute of Technology, Kashiwazaki, Japan

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1. Wuhan National Laboratory for Optoelectronics, Huazhong University of Science & Technology, Wuhan, China;  
2. School of Computer Science & Technology, Huazhong University of Science and Technology, Wuhan, China;  
3. School of Public Health, Hubei University of Medicine, Shiyan, China

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**AE-01.** Cluster magnetic toroidal quadrupole and anomalous Hall effect in NiCo$_2$O$_4$ thin film. *(Invited)* H. Koizumi

1. Tohoku University (CSIS), Sendai, Japan

*View Digest Text*

9:00


1. Department of Physics, Indian Institute of Technology, Kanpur, Kanpur, India; 2. School of Physical Sciences, Indian Association for the Cultivation of Science, Jadavpur, Kolkata, India; 3. UGC-DAE Consortium for Scientific Research, Kolkata Centre, Bidhannagar, Kolkata, India; 4. Harish-Chandra Research Institute, HBNI, Allahabad, India; 5. Department of Sustainable Energy Engineering, Indian Institute of Technology Kanpur, Kanpur, India

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**AE-03.** MnGaGe nanomagnets epitaxially grown on GaAs.


1. PPG Engenharia e Ciência dos Materiais - PIPE, Universidade Federal do Paraná, Curitiba, Brazil; 2. Laboratório Nacional de Luz Síncrona - LNS, Centro Nacional de Pesquisa em Energia e Materiais - CNPEM, Campinas, Brazil; 3. Laboratório Nacional de Nanotecnologia - LNNano, Centro Nacional de Pesquisa em Energia e Materiais - CNPEM, Campinas, Brazil; 4. PPG Física, Universidade Federal do Paraná, Curitiba, Brazil

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**AE-04.** Automated analysis of magnetic domain structure using feature extended Landau free energy theory.

M. Kotsugi

1. Tokyo University of Science, Katsushika, Japan

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AE-07. Simulation Acceleration Through a Data-Driven Technique for Non-Linear Dynamics in Vortex-Based Spin-Torque Nano-Oscillators. F. Abreu Araujo1, C. Chopin1,2, A. Moreaux1 and S. de Wergifosse1. 1. IMCN / BSMA, Université Catholique de Louvain, Louvain-la-Neuve, Belgium; 2. SPINTEC, CEA, Grenoble, France
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AE-08. Polarity Influence of Poles on Positional Accuracy in Absolute Encoders. K. Peng1 and J. Chang1,2. 1. Department of Power Mechanical Engineering, National Tsing Hua University, Hsinchu, Taiwan; 2. Department of Mechanical and Computer-Aided Engineering, National Formosa University, Huwei Township, Taiwan
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AE-10. Quantum thermal expectation values from an effective atomistic spin dynamics model using path integrals. T. Nussle1, S. Nicolis2 and J. Barker1. 1. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 2. Institut Denis Poisson, Université de Tours, Tours, France
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In-Person Presentations
**AE-11.** Discretization Anisotropy In Micromagnetics. S.J. Holt¹,², M. Lang¹,², S.A. Pathak¹,² and H. Fangohr¹,²,³ 1. Max Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany; 2. Center for Free-Electron Laser Science, Hamburg, Germany; 3. The University of Southampton, Southampton, United Kingdom

**EUROPA II**

**Session AF**

**MAGNETO-OPTIC AND MAGNETO-ELASTIC MATERIALS AND DEVICES**

Ekkes Brück, Co-Chair
TU Delft, Delft, Netherlands

Fanny Béron, Co-Chair
Universidad Estadual de Campinas, Campinas, Brazil

8:30

**AF-01.** Terahertz and far infrared magneto-optics in emergent magnets. (Invited) Y. Takahashi¹,² 1. The University of Tokyo, Tokyo, Japan; 2. Center for Emergent Matter Science, RIKEN, Wako, Japan

**9:00**

**AF-02.** Efficient Synthesis and Magneto-Optical Enhancement of Au–Fe₃O₄ Hetero-dimer Nanoparticles with Triiron Dodecacarbonyl. L. Tonthat¹, T. Ogawa² and S. Yabukami² 1. Department of Electrical Engineering, Tohoku University, Sendai, Japan; 2. Tohoku University, Sendai, Japan

**9:15**

**AF-03.** Magneto-optical Ce:YIG Film with Maze-Shaped Magnetic Domains on GGG Substrate. T. Goto¹, Y. Yoshihara¹, T. Koguchi¹, T. Watanabe², K. Mori¹, H. Miyashita¹, M. Inoue¹, C. Ross³ and K. Ishiyama¹ 1. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 2. Shin-Etsu Chemical Co., Ltd., Annaka, Japan; 3. Massachusetts Institute of Technology, Cambridge, MA, United States
AF-04. Magnetoelastic Coupling of Surface Spin & Surface Acoustic Waves. N. Homrocky1, C. Trevillian1 and V. Tyberkevych1 1. Department of Physics, Oakland University, Rochester, MI, United States

AF-05. Self-consistent time integration of the dynamics of surface acoustic waves and spin waves in magnetic films. P. Flauger1,2, M. Küß3, M.K. Steinbauer1,2, M. Albrecht1 and C. Abert1,2 1. Faculty of Physics, University of Vienna, Vienna, Austria; 2. University of Vienna Research Platform MMM Mathematics - Magnetism - Materials, University of Vienna, Vienna, Austria; 3. Institute of Physics, University of Augsburg, Augsburg, Germany

AF-06. Magnetorheological printable elastomers: from optimizing performance to self-sensing devices. (Invited) S. Lanceros-Mendez1 1. Basque Center for Materials, Applications and Nanostructures, BC Materials, Leioa, Spain

AF-07. Comparison of Torque Generated by In-Plane and Out-of-Plane Anisotropic Magnetorheological Elastomers. H. Htet1, L. Cestarollo2 and A. El-Ghazaly1 1. Department of Electrical and Computer Engineering, Cornell University, Ithaca, NY, United States; 2. Department of Materials Science and Engineering, Cornell University, Ithaca, NY, United States

AF-08. U-shape Magnetostrictive Harvester: Design and Experimental Validation. D. Gandía1, E. Garaia1, J. Beato-Lopez1, I. Royo-Silvestre1 and C. Gomez-Polo1 1. Department of Science, UPNA, Pamplona, Spain

AF-09. Piezomagnetism in Cr-dopped Fe65Co35 alloy. I. Braga Silva1, F. Froes1, H. Natan Alves Ferreira1, O. Hubert2 and C. Bormio-Nunes1 1. Departamento de Engenharia de Materiais, Universidade de São Paulo - Escola de Engenharia de Lorena, Lorena, Brazil; 2. ENS Paris-Saclay, Université Paris-Saclay, Gif-sur-Yvette, France
AF-10. Magnetoelastic Resonators Functionalized with Metal Organic Frameworks for Wireless Humidity Detection. B. Sisniega Soriano1*, R. Fernández de Luis2, J. Gutiérrez1,2 and A. García-Arribas1,2 1. Departamento de Electricidad y Electrónica, Universidad del País Vasco, Leioa, Spain; 2. BC Materials, Applications and Nanostructures, Leioa, Spain

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EUROPA IV

Session AG
SKYRMIONS AND MAGNETIC HETEROSTRUCTURES
Johanna Fischer, Chair
CEA-SPINTEC, Grenoble, France

8:30

AG-01. Skyrmion-based applications: recent developments and future directions. (Invited) R. Tomassello1, M. Carpentieri1 and G. Finocchio1 1. Department of Electrical and Information Engineering, Politecnico di Bari, Bari, Italy; 2. Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina, Messina, Italy

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AG-02. The role of interfacial atomic intermixing in the formation of skyrmions. P. Costal Carvalho1, I. de Paula Miranda2, J. Brandao3, A. Bergman4, J.C. Cezar5, A.B. Klaoutau6 and H.M. Petriti6 1. University of Sao Paulo, São Paulo, Brazil; 2. Uppsala University, Uppsala, Sweden; 3. Centro Nacional de Pesquisa em Energia e Materiais, São Paulo, Brazil; 4. Federal University of Para, Belém, Brazil

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AG-03. Skyrmion stabilisation in 3D magnetic nanostructures. M.K. Zelent4, M. Moalic1, B. Rana5, K. Gusliyenko2,3 and M. Krawczyk1 1. Faculty of Physics, Uniwersytet im Adama Mickiewicza w Poznaniu, Poznan, Poland; 2. Departamento de Polímeros y Materiales Avanzados: Física, Química y Tecnología, Universidad del País Vasco, San Sebastián, Spain; 3. The Basque Foundation for Science, IKERBASQUE, Bilbao, Spain

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AG-04. Magnetic skyrmions in synthetic ferri- and antiferromagnets. (Invited) A. Hoffmann1. University of Illinois at Urbana-Champaign, Urbana, IL, United States

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AG-05. Higher-order skyrmions and antiskyrmions at room temperature. (Invited) S. Koraltan1, M. Hassan2,3, A. Ullrich2, F. Bruckner1, R. Serha1, K. Levchenko1, G. Vavaro3, N. Kiselev4, M. Heigl2, C. Abert1, D. Suess1 and M. Albrecht1. 1. Faculty of Physics, University of Vienna, Wien, Austria; 2. Institute of Physics, University of Augsburg, Augsburg, Germany; 3. nM2-Lab, ISM-CNR, Roma, Italy; 4. Peter Grünberg Institute and Institute for Advanced Simulation, Forschungszentrum Jülich, Jülich, Germany

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AG-07. Ultrafast Skyrmion Motions and Detections. (Invited) J. Zang1. Department of Physics, University of New Hampshire, Durham, NH, United States

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AG-08. Unveiling Orbital Pumping in Magnetic Heterostructures. E. Santos1, J.E. Abrão1, J.B. Mendes2 and A. Azevedo1. 1. Universidade Federal de Pernambuco (Physics), Recife, Brazil; 2. Física, Universidade Federal de Viçosa, Viçosa, Brazil

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EXHIBIT HALL

Session AP
MAGNETIZATION DYNAMICS AND MICROMAGNETICS I
(Poster Session)
Luis Aviles Felix, Co-Chair
Centro Atomico Bariloche, Bariloche, Argentina
Emily Darwin, Co-Chair
EMPA, Zurich, Switzerland

AP-01. A Data-driven Extended Landau Theory Method For The Coercivity Analysis Of Magnetic Materials. C. Mitsumata1, A.L. Foggiatto1 and M. Kotsugi1. 1. Department of Materials Science, Tokyo University of Science, Tokyo, Japan

View Digest Text
AP-02. Modifying the trajectory of a skyrmionium using defects.

View Digest Text

AP-03. Control of 3D Topological Spin Texture in a Ferrromagnetic Rectangular disk.

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AP-04. Magnetization dynamics in La0.7Sr0.3MnO3/LaTiO3(δ)/SrTiO3(001) thin films.
K. Lal1, P. Ghising1, B. Samantaray1 and Z. Hossain1 1. Department of Physics, Indian Institute of Technology, Kanpur, India

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AP-06. Magnetic and elasto optic dynamic on Co/Pt multilayers.
T. Fernandes1, L.H. de Andrade1, M.D. Martins2, J. Zarpellon3, D.H. Mosca3 and F.M. Matinaga2 1. SENAN, Centro de Desenvolvimento de Tecnologia Nuclear, Belo Horizonte, Brazil; 2. SEMAV, Centro de Desenvolvimento de Tecnologia Nuclear, Belo Horizonte, Brazil; 3. Departamento de Fisica, Universidade Federal do Paraná, Curitiba, Brazil

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AP-09. Interpretation in physics on magnetic domain structure dynamics in soft magnetic materials using feature extended energy landscape.
R. Nagaoka1, K. Masuzawa1, A.L. Foggiatto1, T. Yamazaki1, I. Obayashi3, Y. Hiraoka2, C. Mitsumata1 and M. Kotsugi1 1. Department of Material Science, Tokyo University of Science, Katsushika-ku, Japan; 2. Kyoto University, Kyoto, Japan; 3. Okayama University, Okayama, Japan

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AP-10. Structural and magnetic properties of Fe/Ti superlattices.
M.S. Yactayo Yarunga1, H.S. Tarazona1, J. Ghanbaja2, O. Copie2, J. Rojas-Sanchez2, C. Landauero Saenz3 and J. Quispe-Marcotoma1,2 1. Facultad de Ciencias Fisicas, Universidad Nacional Mayor de San Marcos, P.O.-Box 14–0149, Lima, Peru; 2. Institut Jean Lamour-U. Lorraine UMR7198 CNRS, Nancy, France; 3. Centro de Investigaciones Tecnológicas, Biomédicas y Medioambientales, Calle José Santos Chocano 199, Callao, Peru

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AP-11. Analysis of the high-frequency magnetization process through machine learning and topological data techniques. A.L. Foggiatto1, R. Nagaoka1, M. Taniwaki1, T. Yamazaki1, T. Ogasawara2, I. Obayashi1, Y. Hiraoka3, C. Mitsumata1 and M. Kotsugi1 1. Tokyo University of Science, Katsushika, Japan; 2. National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan; 3. Okayama University, Okayama, Japan; 4. Kyoto University, Kyoto, Japan
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AP-12. Tailoring the exchange bias by AFM interface patterned control. G. de Oliveira Gurgel Rebouças1, A.L. Dantas2 and A.S. Carriço3 1. Departamento de Ciências Exatas e Tecnologia da Informação, UFERSA, Mossoró, Brazil; 2. Departamento de Ciência e Tecnologia, UERN, Natal, Brazil; 3. Departamento de Física, UFRN, Natal, Brazil
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AP-14. Utilizing exchange bias in ferro/anti-ferromagnetic structure for obtaining a field-free Spin Hall Nano Oscillator (SHNO). M.S. Ban1 and S. Bhuktare1 1. Department of Electrical Engineering, Indian Institute of Technology Tirupati, Tirupati, India
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EXHIBIT HALL

Session AQ
THIN FILMS, MULTI-LAYERED FILMS AND SUPERLATTICES
(Poster Session)
Xiufeng Han, Chair
Institute of Physics, Chinese Academy of Sciences, Beijing, China

AQ-01. Electrodeposition of Fe-based thin films for applications in nanodevices. B.G. Silva1, D. Gonzalez-Chavez1, J. Gomes Filho1 and R.L. Sommer1 1. Centro Brasileiro de Pesquisas Fisicas, Rio de Janeiro, Brazil
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AQ-02. Consecutive field-assisted Ne ion irradiation of Co and Ni films with collapsed hard-magnetization axes. H.S. Acosta1, L. F. S. Azeredo1, A. M. H. de Andrade1 and J. Geshev1 1. Instituto de Fisica, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil
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AQ-03. Strain-induced oxygen vacancies and ferromagnetic order near the interface in CaMnO3 thin films. J. Gaisst1,2, J.P. Coronel1, J. Santiso3, F.J. Williams3 and L. Steren1,2 1. Instituto de Nanociencia y Nanotecnologia CAC—CNEA/CONICET, San Martin, Argentina; 2. Consejo Nacional de Investigaciones Científicas y Técnicas, Buenos Aires, Argentina; 3. INQUIMAE, Facultad de Ciencias Exactas y Naturales, Buenos Aires, Argentina; 4. Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and BIST, UAB, Bellaterra, Spain
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AQ-04. Effect of Cobalt doping on Resistive Switching Process in ZnO and TiO₂ Nanostructures for Flexible Non-Volatile Memories. A. Dussan Cuencal1, H.P. Quiroz1, C.L. Terán1 and J.A. Calderón1,2 1. Department of Physics, Universidad Nacional de Colombia, Bogotá, Colombia; 2. Engineering and Basic Science Faculty, Universidad Central, Bogotá, Colombia View Digest Text

AQ-05. Withdrawn

AQ-06. H⁺ and He⁺ irradiation induce selective oxygen diffusion for oxide/metal/oxide interfaces heterostructures fabrication. M. Mery1, I. Stankovic2, C. Gonzalez1, J. Nunez3, J. Valdes1, M. Aguirre4 and C. Garcia1,5 1. Department of Physics, UTFSM - Universidad Tecnica Federico Santa Maria, Valparaiso, Chile; 2. Center for Solid State Physics and New Materials, Institute of Physics Belgrade, University of Belgrade, Belgrade, Serbia; 3. Fisica de la Materia Condensada, Universidad de Zaragoza, Zaragoza, Spain; 4. INMA-Instituto de Nanociencia y Materiales de Aragon-CSIC, Zaragoza, Spain; 5. CICTval - Centro Cientifico y Tecnologico de Valparaiso, Valparaiso, Chile View Digest Text

AQ-07. The Interplay of Orbital Magnetic Moments in Tuning Perpendicular Magnetic Anisotropy in TmIG Thin Films. C.C. Soares1,2,3, D. Chaves2, T.J. Mori1, T. Rocha2, J. Branda3, F. Béron3, J.C. Cezar2, J.S. Moodera1 and G. Vilela1 1. Física de Materiais, Universidade de Pernambuco, Campinas, Brazil; 2. Laboratório Nacional de Luz Síncronon, Centro Nacional de Pesquisa en Energia e Materiais, Campinas, Brazil; 3. Instituto de Física Gleb Wataghin, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil; 4. Plasma Science and Fusion Center and FBML, Massachusetts Institute of Technology, Cambridge, MA, United States View Digest Text

AQ-08. Structural characterization and local surface electronic response of sputtered growth Bi₂Se₃ on MgO (100) substrate. G.R. Junior1, A. Vieira1, R. Magalhães-Paniago2, L. Moura1, R.O. da Cunha1 and J.B. Mendes1 1. Department of Physics, Universidade Federal de Viçosa, Viçosa, Brazil; 2. Department of Physics, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil View Digest Text


AQ-10. Structure and magnetic properties of Co₉FeGa Heusler alloy films grown by sputtering deposition. B.D. dos Santos1, A.C. Krohling1 and W.A. Macedo1 1. Centro de Desenvolvimento da Tecnologia Nuclear, Belo Horizonte, Brazil View Digest Text
AQ-11.  Thin Films of Heusler alloy – Ni2(MnCu)(GaAl): structural and magnetic properties, a spin glass behavior-like appears. R. Duarte de Melo¹, V.M. T.S. Barthem¹ and A. Gomes¹ ¹ Instituto de Física, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil View Digest Text

AQ-13.  Surface Spin Wave Resonance in NiFe/Zr Multilayers. M. Pessoa¹, F. Pelegrini², A. Biondo³, V. Nascimento³ and E.M. Saitovitch⁴ ¹ Departamento de Ciências Naturais, Universidade Federal do Espírito Santo, São Mateus, Brazil; 2. Instituto de Física, Universidade Federal de Goiás, Goiânia, Brazil; 3. Departamento de Física, Universidade Federal do Espírito Santo, Vitória, Brazil; 4. Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil View Digest Text

AQ-14.  Simulations of Experimentally Detected Ambient Skyrmions in Symmetric Synthetic Antiferromagnetic Multilayers. L.S. Palhares¹,², T.M. Batistel¹,², J. Brandao² and F. Béron¹ ¹ Instituto de Física Gleb Wataghin, Universidade Estadual de Campinas, Campinas, Brazil; 2. Laboratório Nacional de Luz Sincrotron, Centro Nacional de Pesquisa em Energia e Materiais, Campinas, Brazil View Digest Text

AQ-15.  High frequency response of magnetically coupled Co/Cu/CoFeB trilayers. Z. Wei¹, D. Navas¹, S.A. Bunyaev², M. Abellan³, C. García³, G.N. Kakazei² and M. Vázquez² ¹ Instituto de Ciencia de Materiales de Madrid (ICMM-CSIC), Madrid, Spain; 2. IFIMUP/Department of Physics and Astronomy, University of Porto, Porto, Portugal; 3. Centro Científico Tecnológico de Valparaíso - CCTVal, Universidad Técnica Federico Santa María, Valparaíso, Chile; 4. Departamento de Física, Universidad Técnica Federico Santa María, Valparaíso, Chile View Digest Text

AQ-16.  Correlation between strains, oxygen vacancies and magnetotransport properties of CaMnO₃ thin films. A. Lopez Pedrosó¹,², J. Gajs³,², S. Carreira¹, J. Santiso¹, M. Aguirre³, J. Briatico³, F.J. Williams²,³ and L. Steren¹,² ¹ Instituto de Nanociencia y Nanotecnología CNEA/CONICET- Constituyentes, San Martin, Argentina; 2. Consejo Nacional de Investigaciones Científicas y Técnicas, San Martin, Argentina; 3. Laboratoire Albert Fert, Palaiseau, France; 4. Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and the Barcelona Institute of Science and Technology (BIST), Campus de la UAB, Bellaterra, Spain; 5. Condensed Matter Physics, INMA-Instituto de Nanociencia y Materiales de Aragón, Zaragoza, Spain; 6. Chemistry, Inquimae, Buenos Aires, Argentina View Digest Text
AR-01. Magnetic Ageing of Electrical Steel: Precipitates Impact on Magnetic Losses. M. Mota1,2, W. França1, L.F. Costa1, J. Dias1,2, L. Favarato1, T. Barros1, J.R. Oliveira Junior1, L.M. Meireles1 and D.L. Rocco1 1. Departamento de Formação Geral, Centro Federal de Educação Tecnológica de Minas Gerais, Timóteo, Brazil; 2. SENAI/MG, Ipatinga, Brazil; 3. Aperam South America, Timóteo, Brazil
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AR-02. An alternative heat treatment recovery of the magnetic properties of a non-grain oriented Fe-Si steel after cutting. A.C. Junior1, J.C. Ferreira1, D.L. Rocco1 and L.M. Meireles1 1. POSMAT, Centro Federal de Educação Tecnológica de Minas Gerais, Timóteo, Brazil
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AR-03. Influence of leakage inductance of a transformer operating in a DC resistance welding machine on welding conditions. Z. Mikno2 and M. Stepień1 1. Department of Power Electronics, Electrical Drives and Robotics, Silesian University of Technology, Gliwice, Poland; 2. Lukasiewicz Research Network – Upper Silesian Institute of Technology, Gliwice, Poland
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AR-04. An Ultra-thin Self-Resonant Coupler with Nanocrystalline Flake Ribbons for Wireless Power Transfer System. J. Xiang1, C. Jiang1, T. Ma1, Y. Wang1 and Y. Fan1 1. Department of Electrical Engineering, City University of Hong Kong, Kowloon, Hong Kong
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AR-05. Configurable Nanocrystalline Flake Ribbon Transformer with Variable Leakage Inductance. R. Sheng1, C. Jiang1, L. Mo1, C. Chen1 and Y. Wang1 1. Department of Electrical Engineering, City University of Hong Kong, Kowloon, Hong Kong
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AR-06. Design Method of Transformer in LLC Resonant Converters considering Electro-magnetic and Thermal Characteristics. J. Ryu1, S. Cho1, D. Lee1, Y. Shin1, G. Koo1, J. Park1, B. Kim2 and H. Seol1 1. Korea Automotive Technology Institute, Cheonan-Si, The Republic of Korea
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AR-10. Multi-source vibration suppression of magnetic bearing supporting rotor system based on phase-shift Least Mean Square adaptive filter. P. Xiao1, K. Liu1 and J. Wei1 1. Sun Yat-Sen University, ShenZhen, China View Digest Text

AR-12. K-best-Sphere-Decoding-Based Model Predictive Control for Dual Three-Phase SPMSMs. Z. Zhang1, J. Chen1, R. Han2, Y. Wu1, Y. Gong1 and S. Chang1 1. Tianjin University, Tianjin, China; 2. Tianjin Navigation Instruments Research Institute, Tianjin, China View Digest Text

AR-13. Torque-Ripple-Mitigated Model-Free Predictive Current Control with Extended Control Set for PMSMs. Z. Zhu1, X. Wei1, Z. Zhang1, R. Han2, Y. Wu1, Y. Gong1 and S. Chang1 1. Tianjin University, Tianjin, China; 2. Tianjin Navigation Instruments Research Institute, Tianjin, China View Digest Text

AR-14. Dc-link Utilization Enhanced Implicit Model Predictive Control for Dual Three-Phase PMSMs. Y. Wu1, Z. Zhang1, R. Han2, Y. Gong1 and S. Chang1 1. Tianjin University, Tianjin, China; 2. Tianjin Navigation Instruments Research Institute, Tianjin, China View Digest Text

AR-15. Modulation-Incorporated Model Predictive Control Using Symmetric Single Pulse for Dual Three-Phase PMSMs. B. Deng1, R. Gu1, Y. Gong1 and Y. Wu1 1. Tianjin University, Tianjin, China View Digest Text


EXHIBIT HALL

Session AS
INTERDISCIPLINARY TOPICS IN MAGNETICS I
(Poster Session)
Alisson Krohling, Chair
Nuclear Technology Development Center, Belo Horizonte, Brazil

AS-01. High-frequency electric Dipole-Dipole interaction contribution for the magnetoelectric effect in the multiferroic composite PZT/NFO. A.J. Gualdi1 and F.L. Zabotto1 1. Department of Physics, Federal University of São Carlos, São Carlos, Brazil View Digest Text
AS-02. Synthesis and Characterization of BiFeO₃ Nanoparticles Obtained by the Coprecipitation Method. J. Duque¹, B. Santos¹, G. Cunha¹, L. Fernandes¹ and P. Oliveira¹
1. Federal University of Sergipe, Itabaiana, Brazil
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AS-03. Temperature dependence of the magnetic hyperfine field and electric field gradient in HfNiO₃ ferroic perovskite. L.F. Pereira¹, T. da Silva Nascimento Sales¹, L. Scalise¹, A. Burimova¹, K.S. Souza¹, B.S. Corrêa¹, A. A. Miranda¹, I.S. Ribeiro-Junior¹, M. Ozório¹, W.L. Ferreira¹, F.A. Genezini¹, R.N. Saxena¹ and A.W. Carbonari¹ 1. Centro do Reator de Pesquisas, Instituto de Pesquisas Energéticas e Nucleares, São Paulo, Brazil
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AS-05. Transition metal spin and color center in β-Ga₂O₃. M. Jansson¹, J. Stehr¹, S. Pearton², J. McCloy³, J. Jesenovec³, B. Dutton³, M. McCluskey³, W.M. Chen¹ and J.A. Buyanova¹ 1. Linköping University, Linköping, Sweden; 2. University of Florida, Gainesville, FL, United States; 3. Washington State University, Seattle, WA, United States
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AS-06. Magnetic Resonance Imaging Contrast Enhancement Induced by Hydrophobic Iron Oxide Nanoparticles in Oil-in-Water Emulsion. A.d. da Cruz¹, C.L. Rodrigues¹, M.G. Martins², A.M. Souza¹, M. Nascimento³, I.S. Oliveira¹ and F. Garcia¹ 1. Centro Brasileiro de Pesquisas Físicas, São Gonçalo, Brazil; 2. Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil; 3. Centro de Pesquisas e Desenvolvimento Leopoldo Américo Miguez de Mello, Rio de Janeiro, Brazil
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AS-07. Evaluation of Hydrogen-Induced Degradation of Steel Through Multispectral Analysis of Magnetic Barkhausen Noise. G. Psuj¹, C. Camerini², M. Maciusowicz² and G. Pereira² 1. Faculty of Electrical Engineering, West Pomeranian University of Technology, Szczecin, Poland; 2. Laboratory of Non-Destructive Testing, Corrosion and Welding, Department of Metallurgical and Materials Engineering, University of Rio de Janeiro, Rio de Janeiro, Brazil
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AS-08. Itinerant SDW phases, contributions from the CrNb dilute alloys. P.E. de Souza¹, L.M. Oliveira², F. Yokaichiya³, P.C. de Camargo³ and A.J. de Oliveira³ 1. Institute of Physics, Universidade de Brasilia, Brasilia, Brazil; 2. Coleg. Ciências da Natureza, Universidade Federal do Vale do Rio São Francisco, Petrolina, Brazil; 3. Dept. of Physics, Universidade Federal de São Carlos, Sao Carlos, Brazil; 4. Dept. of Physics, Universidade Federal do Paraná, Curitiba, Brazil
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AS-11. Impact of annealing on the band structure of (Ga,Mn) (P,As) nanofilms. N. Tataryn1, S. Mamykin1, L. Riney2, X. Liu2, B.A. Assaf2, V. Romanyuk1, O. Kindratenko1, O. Kolomyt1, O. Yastrubchak1 and J. Furdyna1. I. V. E. Lashkaryov Institute of Semiconductor Physics, National Academy of Sciences of Ukraine, Kiev, Ukraine; 2. Department of Physics and Astronomy, University of Notre Dame, Notre Dame, IN, United States

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AS-12. Modeling of the micro-focused Brillouin light scattering signal. O. Wojewoda1, M. Hrton1 and M. Urbánek1. 1. CEITEC, Brno University of Technology, Brno, Czechia

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OCEANIA IV & V

Session BA
MAGNETICS FOR TOMORROW’S MEDICAL TECHNOLOGIES
Ravi Hadimani, Chair
Virginia Commonwealth University, Richmond, VA, United States

2:00

BA-01. Biomimetic magnetic nanocarriers for cancer therapy. (Invited) J.V. Rocha1, R. Krause1, C.E. Cardoso1, N.C. Oliveira1, L.R. Sousa1, E.M. Lima1, M.C. Valadares1, M.C. Xavier1, S. Mendanha1 and A.F. Bakuzis1. 1. Federal University of Goiás, Goiânia, Brazil

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2:30

BA-02. Toward Non-Invasive Deep Brain Stimulation Using Externally Applied Electromagnetic Fields. (Invited) M. Sekino1, A. Iino1, M. Fushimi1, Z. Xin1, K. Nakagawa1 and K. Inoue1. 1. The University of Tokyo, Tokyo, Japan

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BA-03. Enhanced Rapid Diagnostic Tests: Improved Sensitivity and Quantification with Magnetic Nanoparticles and Sensors. (Invited) M. Rivas¹, M. Salvador¹, J.L. Marques¹, L.B. Fraile¹, V. Pilati¹ and J.C. Martinez-Garcia¹
1. Department of Physics, Universidad de Oviedo, Gijón, Spain
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3:30

BA-04. Micromagnetic Neural Stimulation and Spintronic Neural Sensing. (Invited) R. Saha¹, D. Tonini¹, M. Hopper¹, A. Goyal², J. Yuen², Y. Oh², Z. Sanger³, S. Faramarzi³, M. Shiao³, D. Helden³, R. Bloom⁴, O. Benalfy⁴, K. Wu⁴, S. Keirstead⁴, T. Netoff⁵, W. Low⁶, J. Osborn⁶, K. Bennet⁶, K. Lee⁶, H. Shin⁶ and J. Wang⁶
1. Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States; 2. Department of Neurologic Surgery, Mayo Clinic, Rochester, MN, United States; 3. Department of Biomedical Engineering, University of Minnesota, Minneapolis, MN, United States; 4. Stem Cell Institute, University of Minnesota, Minneapolis, MN, United States; 5. Department of Surgery, University of Minnesota, Minneapolis, MN, United States; 6. Department of Neurosurgery, University of Minnesota, Minneapolis, MN, United States
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4:00

BA-05. Focal activation of the cochlea with magnetic stimulation from microcoils. (Invited) S. Fried¹,² and J. Lee¹
1. Neurosurgery, Massachusetts General Hospital, Boston, MA, United States; 2. Boston VA Healthcare System, Boston, MA, United States
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4:30

BA-06. Magnetic Hyperthermia Optimization. (Invited) H. Chen¹, D. Billington¹, E. Riordan², J. Blomgren², S.R. Giblin², C. Johansson¹ and S. Majetich¹
1. Department of Physics, Carnegie Mellon University, Pittsburgh, PA, United States; 2. Department of Physics, Cardiff University, Cardiff, United Kingdom; 3. RISE Research Institutes of Sweden, Göteborg, Sweden
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Session BB
MAGNONICS I: FUNDAMENTAL PROPERTIES
David Cortés-Ortuño, Chair
Universidad Técnica Federico Santa María, Valparaíso, Chile

2:00

BB-01. Electric analog of magnon excitations and electric polarization transport in ferroelectric materials. (Invited) P. Tang1. Tohoku University, Sendai, Japan

2:30


2:45

BB-03. Increase of Spin-Wave Damping with Wavenumber in YIG/GGG at Millikelvin Temperatures. D. Schmoll1,2, R. Serha1,2, R.V. Verba3, K. Levechenko1, S. Knauer1 and A. Chumak1. 1. Faculty of Physics, University of Vienna, Vienna, Austria; 2. Vienna Doctoral School in Physics, University of Vienna, Vienna, Austria; 3. Institute of Magnetism, Kyiv, Ukraine

3:00

BB-04. Local Temperature Control of Magnon Frequency and Direction of Supercurrents in a Magnon Bose–Einstein Condensate. A.A. Serga1, M.R. Schweizer1, F. Kühn1, V.S. L’vov1,2,3, A. Pomyalov4, G. von Freymann1,4 and B. Hillebrands1. 1. Department of Physics, RPTU Kaiserslautern-Landau, Kaiserslautern, Germany; 2. Department of Complex Systems, Weizmann Institute of Science, Rehovot, Israel; 3. Department of Chemical and Biological Physics, Weizmann Institute of Science, Rehovot, Israel; 4. Fraunhofer Institute for Industrial Mathematics ITWM, Kaiserslautern, Germany

24 In-Person Presentations
BB-05. Excitation Of High-Frequency Short-Wavelength Spin Waves Via High Harmonics Of Magnonic Cavity Mode. P. Gruszecki¹, N. Kumar², M. Golebiewski¹, J.W. Klos¹ and M. Krawczyk¹ 1. Faculty of Physics, Uniwersytet im Adama Mickiewicza w Poznaniu, Poznan, Poland; 2. Electronics and Communication Engineering Department, National Institute of Technology Calicut, Calicut, India
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BB-07. Nonlinear Effects in Inelastic Scattering of Spin-Wave Beams on Localized Modes for Controlling Propagation of Scattered Beams. K. Sobucki¹, J. Kharlan¹,², R.V. Verba², I. Lyubchanski¹, M. Krawczyk¹ and P. Gruszecki¹ 1. ISIK, Faculty of Physics, Adam Mickiewicz University, Poznan, Poland; 2. Institute of Magnetism of NAS of Ukraine and MES of Ukraine, Kyiv, Ukraine
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BB-08. Application of Mie-enhanced BLS to study parametric pumping of spin-waves. O. Wojewoda¹, D. Pavelka¹, M. Hrton¹, J. Klima², J. Krcma², J. Holobradek¹, T. Sikola²,¹ and M. Urbánek¹ 1. CEITEC, Brno University of Technology, Brno, Czechia; 2. Institute of Physical Engineering, Brno University of Technology, Brno, Czechia
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BB-10. Brillouin light scattering study of nonreciprocal spin dynamics in magnetic chiral tubes. M. Xu¹, A.J. Deenen¹, H. Guo¹ and D. Grundler¹,² 1. Institute of Materials (IMX), Ecole Polytechnique Fédérale de Lausanne (EPFL), Saint-Sulpice, Switzerland; 2. Institute of Electrical and Micro Engineering (IEM), EPFL, Lausanne, Switzerland
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Session BC
PATTERNED FILMS, NANOCOMPOSITES, SELF-ASSEMBLY
Julian Geshev, Chair
Institute of Physics, UFRGS, Porto Alegre, Brazil

2:00

BC-01. Role of Magnetic Anisotropy in Applications of Magnetic Nanoparticles. (Invited) C. Dennis1. NIST, Gaithersburg, MD, United States
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2:45

BC-04. Magnetophoretic-Based Bacterial Cell Localization. B. Gungordu1, N. Gunduz Akdogan2,3 and O. Akdogan1,2 1. Faculty of Engineering and Natural Sciences, Bahcesehir University, Istanbul, Turkey; 2. NANOterial Technology Corporation, Istanbul, Turkey; 3. Faculty of Engineering, Piri Reis University, Istanbul, Turkey
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3:00

BC-05. Synthesis and Characterization of CeO2/g-C3N4 Nanocomposites: Structural, Morphological, Optical, and Magnetic Properties Investigation. R. Cardoso de Oliveira1, E. Chaves Pereira2 and A.J. de Oliveira1 1. Department of Physics, Federal University of São Carlos, São Carlos, Brazil; 2. Department of Chemistry, Federal University of São Carlos, São Carlos, Brazil
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BC-06. Simple Tuning of the Magnetic Properties of CoNi Nanoparticles During Generation. P. Ternero1,2, M. Sedpooshan1,2, D. Wahlgvist1,2, B.O. Mueller1,2, M. Ek1,2, J.M. Hübnner1, R. Westerström1,2 and M.E. Messing1,2
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BC-08. Magneto-Structural Properties of Co2FeIn Heusler Nanowires for Spintronics Applications. A.I. Jimenez1, J. Garcia1, V. Vega1, Y. Alvarez1, A.S. Gonzalez1, E.D. Barriga-Castro2, C. Luna1 and V.M. Prida1
1. Department of Physics, University of Oviedo, Oviedo, Spain; 2. Centro de Investigacion de Quimica aplicada, Saltillo, Mexico; 3. Department of Physics, Universidad Autónoma de Nuevo León, San Nicolás de los Garza, Mexico
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4:15

BC-09. Cobalt-iron nitride nano-flake powders: synthesis, analysis morphological, structural, magnetic and catalytic activity. G. Gubert1, R. Gonçalves1, R. Cardoso de Oliveira2, G. Zepon3, A.J. de Oliveira2 and E. Chaves Pereira1
1. Department of Chemistry, Universidade Federal de São Carlos, São Carlos, Brazil; 2. Department of Physics, Federal University of São Carlos, São Carlos, Brazil; 3. Department of Materials Science and Engineering, Federal University of São Carlos, São Carlos, Brazil
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BC-10. Magnon-drag thermopower and active Peltier cooling in 3D ferromagnetic nanowire networks. T. da Câmara Santa Clara Gomes1, N. Machal1, F. Abreu Arauso1 and L. Piraux1
1. Institute of Condensed Matter and Nanosciences, Université Catholique de Louvain, Louvain-la-Neuve, Belgium
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BD-01. Towards on-chip spintronic-photonic integration. (Invited) B. Koopmans¹, P. Li¹, H. Pezeshki¹, E. Demirer¹, G. Simons¹, Y. Jiao², J. van der Tol² and R. Lavrijsen¹ 1. Department of Applied Physics, Eindhoven University of Technology, Eindhoven, Netherlands; 2. Department of Electrical Engineering and Eindhoven Hendrik Casimir Institute, Eindhoven University of Technology, Eindhoven, Netherlands

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BD-02. Optical control of the magnetization emerging from the magnetic part of the optical field in the Landau-Lifshitz-Gilbert equation. B.J. Assouline¹ and A. Capua¹ 1. Department of Electrical Engineering and Applied Physics, The Hebrew University of Jerusalem, Jerusalem, Israel

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2:45

BD-03. Picosecond Spin-Orbit Torque Switching Dynamics in a Ferromagnet. A. Pattabi¹,², D. Polley³,⁴, A. Rastogi², K. Jhuria⁵,⁶, E. Díaz⁶, H. Singh⁶, A. Lemaitre⁷, M. Hehn⁸, J. Gorchon⁸ and J. Bokor²,³ 1. Department of Engineering, University of San Francisco, San Francisco, CA, United States; 2. Department of Electrical Engineering and Computer Sciences, University of California, Berkeley, Berkeley, CA, United States; 3. Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 4. SRM Institute of Science and Technology, Chennai, India; 5. CNRS, IJL, Université de Lorraine, Nancy, France; 6. Centre de Nanosciences et de Nanotechnologies, Université Paris-Saclay, Palaiseau, France

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3:00

BD-04. All-optical control and ultrafast spin dynamics in van der Waals magnets. (Invited) M. Dabrowski¹ 1. Department of Physics and Astronomy, University of Exeter, Exeter, United Kingdom

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BD-05. High frequency dynamics in half-metallic compensated ferrimagnetic Mn$_2$Ru$_x$Ga thin films. K.E. Siewierska$^1$, G. Atcheson$^{2,3}$, J. O’Brien$^3$, M. Kusch$^1$, K. Ruotsalainen$^1$, C. Liu$^{1,4}$, R. Decker$^1$, P.S. Stamenov$^3$, K. Rode$^3$ and A. Föhlisch$^{1,4}$ 1. PS-ISRR, Helmholtz Zentrum Berlin für Materialien und Energie, Berlin, Germany; 2. CEA-SPINTEC, Grenoble, France; 3. Department of Physics, Trinity College Dublin, Dublin, Ireland; 4. Institute of Physics and Astronomy, Universität Potsdam, Potsdam, Germany

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BD-07. Emission of Coherent THz Magnons in an Antiferromagnetic Insulator Triggered by Ultrafast Spin-Phonon Interactions. (Invited) E. Rongione$^{1,2,3}$ and M. Mičica$^2$ 1. Laboratoire Albert Fert, CNRS, Thales, Université Paris-Saclay, Palaiseau, France; 2. Laboratoire de Physique de l’Ecole Normale Supérieure, ENS, Université PSL, CNRS, Sorbonne Université, Université Paris Cité, Paris, France; 3. Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC, BIST, Barcelona, Spain

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BD-08. Manipulation of Correlated Weyl Fermions in the Chiral Antiferromagnet Mn$_3$Sn. (Invited) S. Nakastsuji$^{1,2,3}$ 1. Department of Physics, University of Tokyo, Tokyo, Japan; 2. Department of Physics and Astronomy, Johns Hopkins University, Baltimore, MD, United States; 3. Canadian Institute for Advanced Research, Toronto, ON, Canada

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EUROPA I

Session BE

NUMERICAL, SEMI-ANALYTICAL AND ANALYTICAL ANALYSIS METHODS I

Yacine Amara, Chair
Université Le Havre Normandie, Le Havre, France

2:00

BE-01. Frequency Spectrum Analysis of Magnetic Field Strength for Effective Condition Monitoring of Magnetic Cores. H. Hamzehbahmani$^1$ 1. Department of Engineering, Durham University, Durham, United Kingdom

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BE-04. Computational Speed Improvement of Reluctance Network Analysis Combined with Play Model. Y. Hane¹ and K. Sugahara² ¹. Department of Electrical Engineering, Tohoku University, Sendai, Japan; 2. Kindai University, Higashiosaka, Japan
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BE-06. Reluctance Network Model of V-Type IPMSM for Accurate and Practical Design. Y. Hane¹ and K. Nakamura¹ ¹. Department of Electrical Engineering, Tohoku University, Sendai, Japan
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BE-05. Load Operations Analysis of a Hybrid Excited Flux Switching Vernier Alternator for Renewable Energy Conversion. H.N. Nasser¹, V. Dyck¹, E. Lemains¹, Y. Amara¹, F. Chabour¹ and J.J. Paulides² ¹. Université Le Havre Normandie, Le Havre, France; 2. AE Group (Advanced Electromagnetics), Eindhoven, Netherlands
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BE-07. Graphical Root Cause Analysis of Magnetically Induced Vibrations in Synchronous Machines. A. de Barrós¹, A. Ebrahimi², B. Schwarz¹ and B. Ponick¹ ¹. Institute for Drive Systems and Power Electronics, Leibniz University Hannover, Hannover, Germany; 2. Institute of Electrical Drives, Power Electronics and Devices, University Bremen, Bremen, Germany; 3. Voith Hydro Holding GmbH & Co. KG, Heidenheim, Germany
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BE-08. A Quasi-3-D Finite Element Modeling of An Axial Flux Magnetic Resonant Motor. J. Besong¹ ¹. Institute for Multidisciplinary Sciences, Yokohama National University, Yokohama, Japan
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BE-10. Fast Calculation of High Frequency Air Gap Flux Density Harmonics by Frozen Permeability Method in Electrical Machines. S. Ni¹, J. Le Besnerais², G. Bauw¹, R. Romary¹ and B. Cassoret¹ 1. LSEE, Artois University, Lille, France; 2. Eomys Engineering, Villeneuve-d’Ascq, France
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4:00

BE-11. Interlaminar faults in a GOFeSi laminated magnetic core: measurements and simulations. B. Ducharne¹,²,³, H. Hamzehbahmani⁴ and Y. Gao⁵ 1. Institut National des Sciences Appliquees de Lyon, Villeurbanne, France; 2. Tohoku University, Sendai, Japan; 3. ElyTMAx, CNRS, Sendai, Japan; 4. Durham University, Durham, United Kingdom; 5. Oita University, Oita, Japan
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BE-12. A Noval Winding Design for EV Traction Electric Motors: Hybrid Hairpin Winding Layout Containing Both Copper and Aluminum Windings. B. Guruwatta Vidalanage¹, Z. Li¹, A. Lombardi² and N. Kar¹ 1. Department of Electrical and Computer Engineering, University of Windsor, Windsor, ON, Canada; 2. Nemak, Windsor, ON, Canada
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EUROPA II
Session BF
MAGNETOELECTRIC MATERIALS AND PHENOMENA
Thiago Mori, Chair
Brazilian Center for Research in Energy and Materials, Campinas, Brazil

2:00

BF-01. Low Noise Inverse Magnetolectric Magnetic Field Sensor. (Invited) L. Thormählen¹, P. Hayes¹, E. Elzenheimer¹, E. Spetzler¹, J. McCord¹, G. Schmidt¹, M. Höß¹, D. Meyners¹ and E. Quandt¹ 1. Christian-Albrechts-Universität, Kiel, Germany
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BF-02. Exploring the magnetoelectric functionality in PMN-PT/FSMA multiferroic heterostructure for flexible MEMS applications. D. Arora1 and D. Kaur1. 1. Department of Physics, Indian Institute of Technology Roorkee, Roorkee, India

BF-03. Study of the Magnetoelectric Effect in PVDF/Ni Composites. F. Luciano1,2*, A. De Coster1, E. Giorgione1, D. Wysocki2, S. De Gendt1,2, F. Ciubotaru2 and C. Adelmann2. 1. KU Leuven, Leuven, Belgium; 2. Imec, Leuven, Belgium; 3. Politecnico di Torino, Turin, Italy

BF-04. Electric Field Control of Magnetization in FeGa microstructures on PMN-PT. G. Pradhan1,2, F. Celegato1, A. Magni1, M. Coisson1, G. Barrera1, P. Rizzi1 and P. Tiberto1. 1. INRIM, Torino, Italy; 2. Department of Chemistry, Università di Torino, Torino, Italy

BF-05. Magnetic properties induced by epitaxial strain in BaTi1/2Mn1/2O3 thin films. R.P. Amaral1,2, F.R. Estrada1, J.C. Araújo2, T.J. Mori1, J.C. Cezar1, R. Lora-Serrano2 and P. Schio3. 1. Brazilian Synchrotron Light National Laboratory (LNLs), Brazilian Center for Research in Energy and Materials (CNPEM), Campinas, Brazil; 2. Instituto de Física, Universidade Federal de Uberlândia, Uberlândia, Brazil; 3. Brazilian Nanotechnology National Laboratory (LNNano), Brazilian Center for Research in Energy and Materials (CNPEM), Campinas, Brazil

BF-07. Ptychographic nanoscale imaging of multiferroic domains in freestanding bismuth ferrite films. T.A. Butcher¹, N.W. Phillips¹, S. Finizio¹, C. Wei², C.A. Vaz³, A. Kleibert¹, J. Yang², S. Huang¹ and J. Raabe¹ 1. Paul Scherrer Institut, Villigen, Switzerland; 2. Department of Physics, National Cheng Kung University, Tainan, Taiwan; 3. Center for Quantum Frontiers of Research & Technology (QFort), National Cheng Kung University, Tainan, Taiwan

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BF-08. Room Temperature Magnetocapacitance in Epitaxial (La,Sr)MnO₃/(K,Na)NbO₃-Based Heterostructures. S. Pradhan¹, W. Prellier² and M.R. Rao¹ 1. Department of Physics, Indian Institute of Technology, Madras, Chennai, India; 2. Laboratoire de Cristallographie et Sciences des Matériaux, Caen, France

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4:15

BF-09. Evidence of strain and charge mediated coupling in Fe-Ga/PMN-PT composite multiferroic. M. Tortarolo¹, D. Goijman³, S. DiNápoli¹, M.A. Barral¹, A.A. Perez Martinez³, A. Sarmiento¹, G. Ramirez¹, J. Gomez³, C.A. Vaz¹, J. Milano³ and C. Piamonteze⁴ 1. INN, CONICET-CNEA, Buenos Aires, Argentina; 2. LAHN, CNEA, Buenos Aires, Argentina; 3. INN, CONICET-CNEA, Bariloche, Argentina; 4. SLS, PSI, Zurich, Switzerland

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4:30

BF-10. Learning fundamental physics of artificial spin systems through machine learning. (Invited) N. Cruz¹, B.M. Cecchi¹, M. Knobel¹ and K.R. Pirota¹ 1. Universidade Estadual de Campinas, Campinas, Brazil

View Digest Text
BG-01. Gate-controlled skyrmion and domain wall chirality. (Invited) J. Fischer\textsuperscript{1}, C. Fillion\textsuperscript{1}, C. Gueneau\textsuperscript{1}, F. Ibrahim\textsuperscript{1}, R. Kumar\textsuperscript{1}, C. Balan\textsuperscript{2}, A. Fassatouri\textsuperscript{2}, S. Pizzini\textsuperscript{2}, L. Ramo\textsuperscript{2}, L. Cagnon\textsuperscript{2}, D. Ourdami\textsuperscript{2}, M. Belmeguenai\textsuperscript{3}, Y. Roussigne\textsuperscript{3}, S. Chérief\textsuperscript{3}, S. Auffret\textsuperscript{1}, I. Joumard\textsuperscript{1}, O. Boulle\textsuperscript{1}, G. Gaudin\textsuperscript{1}, M. Chshiev\textsuperscript{1}, L.D. Buda-Prejbeanu\textsuperscript{1}, C. Baraduc\textsuperscript{1} and H. Béa\textsuperscript{1}
1. CEA-SPINTEC, Grenoble, France; 2. Institut Néel CNRS, Grenoble, France; 3. Université Sorbonne, Paris, France

BG-04. Composite skyrmion-vortex matter in ferromagnet-superconductor heterostructures. (Invited) C.C. de Souza Silva\textsuperscript{1} and J.F. Neto\textsuperscript{1,2}
1. Federal University of Pernambuco, Recife, Brazil; 2. Universidade Federal do Piauí, Teresina, Brazil

BG-05. Spin-orbit torque in α-W-based magnetic tunnel junction. M. Cierpial\textsuperscript{3}, K. Grochot\textsuperscript{1}, J. Mojsiejuk\textsuperscript{1}, M. Vafaee\textsuperscript{1}, J. Wrona\textsuperscript{1}, T. Nam\textsuperscript{2} and W. Skowronski\textsuperscript{1}
1. Singulus Technologies AG, Kahl am Main, Germany; 2. Tsinghua University, Beijing, China; 3. Institute of Electronics, AGH University of Krakow, Krakow, Poland

BG-06. Spin-Orbit Torque Driven True Random Number Generation by Varying the Field-Like to Damping-Like Torque Ratio. M. Lee\textsuperscript{1}, S. Kim\textsuperscript{2}, S. Yoon\textsuperscript{1}, J. Lee\textsuperscript{1}, H. Ko\textsuperscript{1}, G. Kim\textsuperscript{1}, S. Hong\textsuperscript{1}, K. Lee\textsuperscript{2} and Y. Kim\textsuperscript{1}
1. Department of Materials Science and Engineering, Korea University, Seoul, The Republic of Korea; 2. Department of Physics, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, The Republic of Korea; 3. School of Cybersecurity, Korea University, Seoul, The Republic of Korea
BG-10. Spin-orbit torques in CrXY monolayers (X, Y ∈ {S, Se, Te}): an ab initio study. L. Vojáček¹, J.E. Medina Dueñas², J. Li¹, F. Ibrahim¹, S. Roche², M. Chshiev¹,² and J.H. Garcia²
1. CEA-SPINTEC, Grenoble, France; 2. ICN2, Barcelona, Spain

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EXHIBIT HALL

Session BP
MAGNETIC RECORDING, MRAM AND RELATED DEVICES
(Poster Session)

SN Piramanayagam, Co-Chair
Nanyang Technological University, Singapore

Simon Greaves, Co-Chair
Tohoku University, Sendai, Japan

BP-01. Spin-dependent transport in Spin-orbit Ferroelectric devices, modelled and studied via Finite Element Method simulations. P. Sgarro¹, T. Frottier¹, A. Kandazoglou¹, S. Teresi¹, M. Culot¹, M. Cosset-Cheneau¹, F. Osana¹, L. Anghel¹, A. Marty¹, L. Vila¹, G. Prenat¹ and J. Attane¹
1. CEA-SPINTEC, Grenoble, France

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BP-02. Enhanced SOT Efficiency in Pt/Co Systems with a NiO Interlayer for SOT-MRAM. M. Wijshoff¹,², R. Carpenter¹, G. Talmelli¹, S. Couet¹, C. Fleischmann¹,² and K. Temst²,¹
1. imec, Leuven, Belgium; 2. QSP, KU Leuven, Leuven, Belgium

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BP-03. Magnetic-Resistive Random Access Memories based on Diluted Co-TiO₂ Nanotubes. K.S. Jaimes¹, H.P. Quiroz¹, J.A. Calderón¹,² and A. Hussan Cuenca¹ 1. Department of Physics, Universidad Nacional de Colombia, Bogotá, Colombia; 2. Engineering and Basic Science Faculty, Universidad Central, Bogotá, Colombia

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BP-05. Racetrack memory devices based on freestanding multilayers. K. Gu¹,², Y. Guan¹, P. Wang¹, B. Hazra¹, H. Deniz¹, A. Migliorini¹, W. Zhang¹ and S. Parkin¹²
1. NISE, Max Planck Institute of Microstructure Physics, Halle, Germany; 2. Martin-Luther-University Halle-Wittenberg, Halle, Germany

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BP-07. Towards integrated skyrmionic artificial synapses. W. Griggs¹, M. Lewandowski¹, I. Charalampidis¹, V. Pavlidis¹,² and C. Moutafis¹
1. The University of Manchester, Manchester, United Kingdom; 2. Aristotle University of Thessaloniki, Thessaloniki, Greece

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Leveraging the phase dynamics of spin-torque nano-oscillators for unconventional computing. A. Hakam1, N. Phan1, L. Martins1, L. Hutin2, F. Badets2, L. Benetti2, A. Jenkins3, R. Ferreira3, P. Talatchian1 and U. Ebels1
1. Univ. Grenoble Alpes, CEA, CNRS, Grenoble INP, SPINTEC, 38000 Grenoble, France; 2. CEA-Leti Minatec, Grenoble, France; 3. International Iberian Nanotechnology Laboratory (INL), 4715-31 Braga, Portugal

Towards 3.8 nm diameter grains and 53.6 T/in² areal grain density FePt granular films with co-addition of nitride and carbon as grain boundary materials for HAMR media. K. Tham1, R. Kushibiki1 and S. Saito2
1. Tanaka Kikinzoku Kogyo, Sendai, Japan; 2. Tohoku University, Sendai, Japan

Using Long Short-Term Memory to Estimate the Two-Dimensional Interference of Bit-Patterned Media Recording Systems. T.A. Nguyen1 and J. Lee1
1. Soongsil University, Seoul, The Republic of Korea

Optimization of Layer Thicknesses for Dual-Layer Bit-Patterned Media Recording (BPMR) Systems. N. Rueangnetr1, C. Warisarn1 and S. Greaves2
1. College of Advanced Manufacturing Innovation, King Mongkut’s Institute of Technology Ladkrabang, Bangkok, Thailand; 2. Research Institute of Electrical Communication (RIEC), Tohoku University, Sendai, Japan

Electrical Manipulation and Detection of Antiferromagnetism in Magnetic Tunnel Junctions. A. Du1, D. Zhu1, K. Cao1, Z. Zhang1, Z. Guo1, K. Shi1, D. Xiong1, R. Xiao1, W. Cai1, J. Yin1, S. Lu1, C. Zhang1, Y. Zhang1, S. Luo2, A. Fert1 and W. Zhao1
1. Beihang University, Beijing, China; 2. HUAWEI, Shenzhen, China; 3. Univ. Paris-Sud, Paris, France

Optimization of Layer Thicknesses for Dual-Layer Bit-Patterned Media Recording (BPMR) Systems.

Withdrawn

In-Person Presentations
BQ-03. Exploring Anomalous Hall Effects in Ta(Al)-TbCo-Ta(Al) Structures with Vertical Composition Gradients. R.C. Bhatt1,2, L. Ye1,2, M. Tsai1,2 and T. Wu1,2. Graduate School of Materials Science, National Yunlin University of Science and Technology, Douliu, Taiwan; 2. Taiwan Spin Research Center, National Yunlin University of Science and Technology, Douliu, Taiwan

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BQ-05. Spin Seebeck effect in the spin-flop and paramagnetic phases of the antiferromagnet RbMnF3. J. Marques de Lima1, P. Trajano Ribeiro1, E. Souza1, F. de Araujo Machado1 and S.M. Rezende1. 1. Departamento de Física, Universidade Federal de Pernambuco, Recife, Brazil

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BQ-06. Quantum Sensing of Spin Fluctuations in Anisotropic Antiferromagnetic Insulators Using Nitrogen-Vacancy Centers. R. Rodriguez1, R. Cabezón1, F. Pinto1, E. Rodriguez1 and J. Maze1. 1. Department of Physics, Pontificial Catholic University of Chile, Santiago, Chile

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BQ-07. Evidence of Spin-Polarized Current in Fe-Rich NbFe2 Compound. M. Bigolin Lorenzon1, O. Isnard2, A. M. H. de Andrade1, M. Tumelero1, P. Pureur1 and F. Mesquita1. 1. Instituto de Física, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil; 2. Université du Grenoble Alpes, Grenoble, France

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BQ-08. Unveiling a Bulk Antiferromagnetic Order via the Polarity of Spin-orbit Torque Ratchet at Ferromagnet/Antiferromagnet Interface. H. Chang1 and C. Yang1. 1. Department of Materials Science and Engineering, National Yang Ming Chiao Tung University, Hsinchu, Taiwan

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BQ-09. Raman Spectroscopy of Optimally-Doped Manganites with Praseodymium Substitution La5/8-xPrxCa3/8MnO3 (x = 0.35; 0.40; 0.45). G.K. Soares1, D. Carranza-Céliis2, J.A. Bohorquez2, J.G. Ramirez2 and D. Muraca1. 1. DEQ, Universidade Estadual de Campinas, Campinas, Brazil; 2. Department of Physics, Universidad de los Andes, Bogota, Colombia

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BQ-10. Probing Magnetic Phase Transitions in HoMnO₃: A Landau Theory Analysis of Perturbed Angular Correlation Spectroscopy Data. L. Scalise¹, N. Pereira de Lima¹, L.F. Pereira¹, J. Schell²,³, A. Burimova¹, B.S. Corrêa¹, A. A. Miranda¹ and A.W. Carbonari¹  1. CERPq, IPEN, Sao Paulo, Brazil; 2. CENIDE, Essen, Germany; 3. ISOLDE, CERN, Geneva, Switzerland

BR-01. Effect of synthesis method and calcination temperature on the physical properties of Ni-NiO nanocomposites. R.A. Pinto¹, J. Soares¹, R.B. da Silva¹, M. Correa¹ and F. Bohn²  1. Departamento de Física, Universidade do Estado do Rio Grande do Norte, Natal, Brazil; 2. Departamento de Física, Universidade Federal do Rio Grande do Norte, Natal, Brazil

BR-02. Withdrawn

BR-03. Control of Magnetic Nanoparticle Properties by Different Syntheses Methodologies. B.S. Corrêa¹, C. Sena², M.S. Costa², G.A. Cabrera-Pasca², R.S. Freitas¹ and A.W. Carbonari¹  1. CERPQ, Instituto de Pesquisas Energéticas e Nucleares, São Paulo, Brazil; 2. Faculdade de Ciências Exatas e Tecnologia, Universidade Federal de Pará, Abaetetuba, Brazil; 3. Instituto de Física, University of São Paulo, São Paulo, Brazil

BR-04. Extremophilic microorganisms: An alternative as synthesizers of ferromagnetic nanoparticles. V. Antúnez - Ossio³ and J.M. Blamey¹,²  1. Laboratorio de Bioquímica de Extremófilos, Universidad de Santiago, Santiago, Chile; 2. Fundación Biociencia, Santiago, Chile

BR-05. Unsaturated Modes of Ferromagnetic Resonance in Maghemite Nanoparticles. M. Pessoa¹, M.A. Sousa², I.C. Merino³, P.C. Morais⁴,⁵, F. Pelegrini⁵, M.S. Parise⁴, L.C. Figueiredo⁴ and E.M. Saitovitch¹  1. Departamento de Ciências Naturais, Universidade Federal do Espírito Santo, São Mateus, Brazil; 2. Instituto de Ciências Exatas e Tecnológicas, Universidade Federal de Jataí, Jataí, Brazil; 3. Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil; 4. Universidade de Brasília, Brasília, Brazil; 5. Universidade Católica de Brasília, Brasília, Brazil; 6. Universidade Federal de Goiás, Goiânia, Brazil
BR-06. Alternative One-Pot Microwave Assisted Synthesis of Superparamagnetic CoFe₂O₄ Nanoparticles. K. O. Abreu¹,²,³
1. Departamento de Química Orgânica e Inorgânica, Universidade Federal do Ceará, Fortaleza, Brazil;
2. Departamento de Química Analítica e Físico-Química, Universidade Federal do Ceará, Fortaleza, Brazil;
3. Instituto de Química, Universidade de São Paulo, São Paulo, Brazil
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BR-07. Impact of temperature on structural and magnetic properties of CoFe₂O₄ nanoparticles. T. da Silva Nascimento Sales¹, K.S. Souza¹, J.A. Guerra¹, D.P. Vieira¹, R.N. Saxena¹ and A.W. Carbonari¹ 1. Instituto de Pesquisas Energéticas e Nucleares, São Paulo, Brazil
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BR-08. Exchange Bias Effects in Bismuth Ferrite Nanostructures produced by Pulsed Laser Deposition. D. M. A. García¹, R. D. Santos¹, A. M. S. Gomes² and W. Castro Nunes¹ 1. Department of Physics, Universidade Federal Fluminense, Niterói, Brazil; 2. Department of Physics, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil
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BR-09. Investigating Unusual Dynamics: Time and Frequency-Dependent Variations in Specific Power Absorption of Magnetite Nanoparticles in Magnetic Hyperthermia. G.S. Silva¹, A.A. de Almeida¹, F. Fabris¹ and D. Muraca¹ 1. Instituto de Física “Gleb Wataghin”, Universidade Estadual de Campinas, Sumaré, Brazil
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BR-10. Interface Phenomena and Magnetic Hyperthermia of Fe₃O₄ Nanoparticles. M.B. Alves¹, A.A. de Almeida¹, P. Tancredi¹ and D. Muraca¹ 1. IFGW, Universidade Estadual de Campinas, Campinas, Brazil; 2. Centro de Micro y Nanotecnología, Instituto Nacional de Tecnología Industrial, Buenos Aires, Argentina
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BR-11. Optimizing Magnetic Hyperthermia: Controlling Magnetic Properties of CoₓFe₃₋ₓO₄ Nanoparticles for Enhanced Magnetoliposome-Mediated Drug Release. A.A. de Almeida¹, G.S. Silva¹, F. Fabris¹, M. Knobel¹, K.R. Pirota¹ and D. Muraca¹ 1. Universidade Estadual de Campinas, Barão Geraldo - Campinas, Brazil
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BR-12. Producing High-Ratio Nanowires by Pressure-Induced Infiltration into Anodized Aluminum Oxide Nanoporous Template. L. Tomiatti¹, A. Mendonça¹ and F. Béron¹ 1. Instituto de Física Gleb Wataghin, Universidade Estadual de Campinas, Campinas, Brazil
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BR-13. Withdrawn

BR-14. In-Person Presentations
1. Universidad Tecnológica Nacional Facultad Regional Santa Cruz, Rio Gallegos, Argentina; 2. CIT Santa Cruz, CONICET, Rio Gallegos, Argentina; 3. Laboratorio de Cristalografía Aplicada, Instituto de Tecnologías Emergentes y Ciencias Aplicadas, UNSAM-CONICET, San Martín, Argentina; 4. Micro y nanotecnotología, Instituto Nacional de Tecnología Industrial, San Martín, Argentina; 5. Facultad de Ingeniería, Universidad Autónoma de Manizales, Manizales, Colombia; 6. Instituto de Ingeniería Mecánica, Universidad Austral de Chile, Valdivia, Chile
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BR-16. Cobalt ferrite-polyurethane composites as magnetic valves for microfluidic systems. A. Veloso-Fernández1, J. Laza1, S. Muñana-González1, L. Ruiz-Rubio1,3, L. Pérez-Álvarez1,3, A. Aguilera-Grande3, D. Salazar Jamillo3, A. López3,5 and J. Vilas-Vilela1,3
1. Department of Physical-Chemistry, University of Basque Country, Leioa, Spain; 2. Ikerbasque- Basque Foundation for Science, Bilbao, Spain; 3. BC Materials, Basque Center for Materials, Applications and Nanostructures, Leioa, Spain
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EXHIBIT HALL

Session BS
PERMANENT MAGNET MACHINES I
(Poster Session)
Narayan Kar, Co-Chair
University of Windsor, Windsor, ON, Canada
Elena Lomonova, Co-Chair
Technische Universiteit Eindhoven, Eindhoven, Netherlands

BS-01. Computation-Efficient Current Harmonic Mitigation for Dual Three-Phase Permanent Magnet Synchronous Motors. Z. Zhang1, J. Zhang1, R. Han2, Y. Wu1, Y. Gong1 and S. Chang1
1. Tianjin University, Tianjin, China; 2. Tianjin Navigation Instruments Research Institute, Tianjin, China
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BS-02. A Study on reducing electromagnetic vibrations noise by changing the rotor shape for traction motors. S. Lee1, S. Song2, I. Yang3, D. Jung3 and W. Kim1
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Withdrawn

Asymmetric Design of Consequent-Pole to Reduce Torque Ripple. C. Jo1, I. Yun1, H. Hong1, C. Jin2, S. Yoon2 and J. Lee1 1. Department of Electrical Engineering, Hanyang University, Seoul, The Republic of Korea; 2. Department of Electrical Engineering, Wonkwang University, Iksan, The Republic of Korea
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Impact of Characteristic Current on Efficiency Area within Flux-Weakening Region of Interior Permanent Magnet Motor. L.J. Vera1 and M. Hsieh1 1. National Cheng Kung University, Tainan, Taiwan
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Evaluation of Slot-Modulation Generated Surface Core Loss in Consequent Pole Permanent Magnet Synchronous Motor. R. Kumar3, P. Song3 and N. Kar1 1. Department of Electrical and Computer Engineering, University of Windsor, Windsor, ON, Canada
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Improvement of Magnetic Properties of Ring-shaped Laminated Cores by Laser Welding. Y. Tsuchida1 and K. Otsuka1 1. Oita University, Oita, Japan
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Comparative Study of Cogging Torque, Torque Ripple and Vibration on Stator Tooth Chamfer Types in Permanent Magnet Synchronous Motors. Y. Won1, J. Kim1, S. An1 and M. Lim1 1. Hanyang University, Seoul, The Republic of Korea
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BS-12. Design process of high power density hybrid type motor using 3D printing. H. Kim1, Y. Lee1, H. Pyo1, S. Ko1 and W. Kim2 1. Department of Next Generation Energy System Convergence, Gachon University, Seongnam, The Republic of Korea; 2. Department of Electrical Engineering, Gachon University, Gwangmyeong-si, The Republic of Korea


OCEANIA IV & V

Session CA

GRADIENT DZYALOSHINSKII-MORIYA INTERACTION

Witold Skowronski, Chair
AGH University of Krakow, Krakow, Poland

8:30

CA-01. Conical-helix magnetic textures stabilized in planar and curved films with different kinds of Dzyaloshinskii-Moriya interaction. (Invited) M. Cepeda-Arancibia1,2, B. Mimica-Figari1, F. Brevi5, D.I. Cortés-Ortuño1, R. Gallardo1,2 and P. Landeros1,2 1. Departamento de Física, Universidad Técnica Federico Santa María, Valparaiso, Chile; 2. Center for the Development of Nanoscience and Nanotechnology (CEDENNA), Santiago, Chile

CA-02. Fast moving spin textures in ferrimagnets: from domain walls to skyrmions. (Invited) L. Berges1, E. Haltz1, S. Panigraphy1, S. Mallick1, R. Weil1, S. Rohart1, J. Sampaio1 and A. Mougin1 1. UMR CNRS 8502, Laboratoire de Physique des Solides Université Paris-Saclay, Orsay, France

CA-03. First-principles calculations for Dzyaloshinskii-Moriya interaction. (Invited) H. Yang1 1. Zhejiang University, Hangzhou, China
10:00

CA-04. **Skyrmions and Hopfions: Magnetic vs. Polar Structures.** *(Invited)* S. Kondovych¹, A. Razumnyaya², Y. Tikhonov³, V. Vinokur⁴ and I. Luk’yanchuk³

¹ Institute for Theoretical Solid State Physics, IFW Dresden, Dresden, Germany; ² Jozef Stefan Institute, Ljubljana, Slovenia; ³ University of Picardie Jules Verne, Amiens, France; ⁴ Terra Quantum AG, St. Gallen, Switzerland

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10:30

CA-05. **Withdrawn**

OCEANIA VI & VII

**Session CB**

**MAGNONICS II: ELECTRICAL AND OTHER COUPLING EFFECTS**

Santa Pile, Chair
Johannes Kepler University Linz, Linz, Austria

8:30

CB-01. Room temperature switching of perpendicular magnetization by magnon torques. *(Invited)* F. Wang²,¹, G. Shi¹ and H. Yang¹

¹ ECE, National University of Singapore, Singapore; ² Shanxi Normal University, Taiyuan, China

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9:00

CB-02. Optical and electrical investigation of Permalloy nanomagnet reversal induced by propagating magnons in a magnonic memory. S. Joglekar¹, M. Xu¹ and D. Grundler¹²

¹ Laboratory of Nanoscale Magnetic Materials and Magnonics, Institute of Materials, Swiss Federal Institute of Technology (EPFL), Lausanne, Switzerland; ² Institute of Electrical and Micro Engineering (IEM), Swiss Federal Institute of Technology, (EPFL), Lausanne, Switzerland

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CB-03. Controlling Spin-Waves by Spin-Polarized Current for Logic and Neur...morphic Computing. R.M. de Menezes, J. Mulkers, C.C. de Souza Silva, B. Van Waeyenberge and M. Milosevic. 1. Department of Physics, Federal University of Pernambuco, Recife, Brazil; 2. Department of Physics, University of Antwerp, Antwerp, Belgium; 3. Department of Physics, Ghent University, Ghent, Belgium

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9:30

CB-04. Magnonic Hall Effect and Magnonic Focusing Induced by Hopfions. (Invited) C. Saji, R. Troncoso, V. Carvalho, D. Altbir and A. Nuñez. 1. Departamento de Física, Universidad de Chile, Santiago, Chile; 2. Universidad Adolfo Ibáñez, Santiago, Chile; 3. Universidade Federal de Viçosa, Viçosa, Brazil; 4. Universidad Diego Portales, Santiago, Chile; 5. Universidad de Santiago de Chile, Santiago, Chile

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10:00


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10:15

CB-06. Going vertical: sub-micrometer spin-wave directional couplers. K. Szulc and M. Krawczyk. 1. Faculty of Physics, Adam Mickiewicz University, Poznan, Poland

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CB-08. Exploring Spin Wave Dynamics in Square Artificial Spin Ice Vertices via Ferromagnetic Resonance.
G.A. Gomez-Iriarte1, D. Gonzalez-Chavez1, R.L. Sommer1 and J.P. Sinnecker1 1. Centro Brasileiro de Pesquisas Fisicas, Rio de Janeiro, Brazil

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11:00

CB-09. Phase velocity reversal and propagation of zero-momentum spin waves in synthetic antiferromagnets with uniaxial anisotropy.
O. Wojewoda1, J. Holobradek1, D. Pavelka1, E. Pribytova1, J. Krcma1, J. Klima1, J. Michalicek1, T. Lednicky1, A. Chumak2 and M. Urbánek3 1. Brno University of Technology, Brno, Czechia; 2. University of Vienna, Vienna, Austria

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OCEANIA IX & X

Session CC

NEUROMORPHIC AND UNCONVENTIONAL COMPUTING

Sonal Shreya, Co-Chair
Aarhus University, Aarhus, Denmark
Sai Li, Co-Chair
Beihang University, Beijing, China

8:30

CC-01. Spintronics domain wall neuron devices with leak-integrate-fire functions. (Invited)
B. Sekh1, W. Mah1, H. Rahaman1, D. Kumar1, S. Dhull1, A. Nisar1, M. Ramu1, J. Chan1,2, K.R. Ganesh1, V.B. Naik2, B.K. Kaushik1 and S. Piramanayagam1 1. School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore; 2. GlobalFoundries, Singapore; 3. Department of Electronics and Communication Engineering, Indian Institute of Technology, Roorkee, India

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CC-02. Neuromorphic Computing with the Ferromagnetic/Antiferromagnetic SOT Systems: the Role of Emerging Antiferromagnetic Phase. D.K. Ojha1,2,5, Y. Huang1, Y. Lin1, R. Chatterjee1,2, W. Chang4 and Y. Tseng1,5 1. Department of Materials Science & Engineering, National Yang Ming Chiao Tung University, Hsinchu, Taiwan; 2. Department of Physics, Indian Institute of Technology Delhi, Delhi, India; 3. National University of Science and Technology MISiS, Moscow, Russian Federation; 4. Powerchips Semiconductor Manufacturing Corporation, Hsinchu, Taiwan; 5. International College of Semiconductor Technology, National Yang Ming Chiao Tung University, Hsinchu, Taiwan

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CC-03. Gradient Descent Learning in Multilayer Antiferromagnetic Neural Networks. H. Bradley1, V. Tyberkevych1 and A.N. Slavin1 1. Department of Physics, Oakland University, Auburn Hills, MI, United States

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9:30

CC-04. Unleashing the Potential of Magnetic Vortex in Spintronic Devices for Various Applications. (Invited) S. Shrey1, K.K. Das1, Y. Rezaeiyan1, T. Böhnert1, S. Soni2, R. Li1, A. Jenkins1, B.K. Kaushik2, R. Ferreira1, H. Farkhani1 and F. Moradi1 1. Electrical and Computer Engineering Department, Aarhus University, Aarhus, Denmark; 2. Electronics and Communication Engineering Department, Indian Institute of Technology Roorkee, Roorkee, India; 3. Spintronics, International Iberian Nanotechnology Laboratory (INL), Braga, Portugal

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10:00

CC-05. Probability distributions generated using stochastic actuated perpendicular magnetic tunnel junctions. A. Sidi El Valli1, L. Rehm1, M. Tsao1, S. Misra2, D. Smith2 and A.D. Kent1 1. Department of Physics, New York University, New York, NY, United States; 2. Sandia National Laboratories, Albuquerque, NM, United States

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CC-06. Spintronic Oscillator-based Ising Machine simulated to solve large Max-Cut problems. V. Puliafito1, L. Mazza1, A. Grimaldi2, D. Rodrigues1, E. Raimondo2, M. Carpentieri2 and G. Finocchio2 1. Department of Electrical and Information Engineering, Politecnico di Bari, Bari, Italy; 2. University of Messina, Messina, Italy

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CC-07. Brownian reservoir computing approach for Gesture recognition by using geometrically confined skyrmion dynamics. G. Beneke¹, T. Winkler¹, K. Raab¹, M.A. Brems¹, F. Kammerbauer¹, P. Gerhards², K. Knobloch², S. Krishnia¹, J. Mentink³ and M. Kläui¹.¹ Institute of Physics, Johannes Gutenberg-Universität Mainz, Ober-Olm, Germany; 2. Infineon Technologies Dresden, Dresden, Germany; 3. Institute for Molecules and Materials, Radboud University, Nijmegen, Netherlands; 4. Center for Quantum Spintronics, Norwegian University of Science and Technology, Trondheim, Norway

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CC-08. Skyrmionic Synapse Implementation for Pattern Recognition using Convolutional Neural Network. S. Gupta¹, V. Vadde¹, B. Muralidharan¹ and A. Sharma² 1. Department of Electrical Engineering, Indian Institute of Technology Bombay, Mumbai, India; 2. Department of Electrical Engineering, Indian Institute of Technology Ropar, Rupnagar, India

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CC-09. Leveraging Spintronic Nonlinear Random Projections for Handwritten Digit Recognition. A. Mouréaux¹, S. de Wergifosse¹, C. Chopin¹ and F. Abreu Araujo¹ 1. UCLouvain, Louvain-la-Neuve, Belgium

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CC-10. Magnetization Dynamics in Square Lattice Artificial Spin Ice. C. Sullivan¹, H. Chen², B. Fang³, X. Zhang³ and S. Majetich² 1. Department of Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, PA, United States; 2. Department of Physics, Carnegie Mellon University, Pittsburgh, PA, United States; 3. Department of Materials Science and Engineering, King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia

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CD-01. Visualizing symmetry-breaking electronic orders in epitaxial Kagome magnet FeSn films. *Invited* L. Li¹
1. West Virginia University, Morgantown, WV, United States
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CD-03. Withdrawn

9:15

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9:45

CD-05. Enhanced Spin-Orbit Torque Flexible Spintronic Device. A. Chouhan¹, H.A. Mendonca¹, S. Dutta¹, A. Shukla¹, R.R. Pandey¹ and A.A. Tulapurkar¹ 1. Electrical Engineering Department, Indian Institute of Technology Bombay, Mumbai, India
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10:00

CD-06. Large Interfacial Rashba Torques in Atomically Thin Co|Al Systems. N. Sebe¹, S. Krishnia², S. Mallick³, Y. Sassi¹, S. Collin¹, T. Denneulin³, A. Kovács³, R.E. Dunin-Borkowski³, A. Fert¹, J. George¹, V. Cros¹ and H. Jaffrès¹ 1. Laboratoire Albert Fert, CNRS, Thales, Université Paris-Saclay, Palaiseau, France; 2. Institute of Physics, Johannes Gutenberg-University Mainz, Mainz, Germany; 3. Forschungszentrum Jülich, Jülich, Germany
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10:15

CD-07. Transporting the Shape of Spin: From Spintronics to Multipoletronics. *Invited* H. Chen¹ 1. Department of Physics, Colorado State University, Fort Collins, CO, United States
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CD-08. Room temperature spin-charge interconversion in nanodevices made of sputtered GeTe. S. Teresi1, P. Sgarro1, M. Cosset-Cheneau1, T. Frottier1, W. Savero-Torres1, M. Wissman1, M. Culot1, F. Osana1, A. Kandazoglou1, J. Paterson2, A. Oysel Mestre2, F. Hippert1, F. Leroy4, B. Croes4, M. Bibes5, A. Manchon5, A. Marty1, J. Attané1, F. Cheynis1, G. Prenat1, L. Hutin2, P. Noé2 and L. Vila1
1. CEA-SPINTEC, Grenoble, France; 2. CEA-LETI, Grenoble, France; 3. LMGP, Grenoble INP, Grenoble, France; 4. CINAM, Marseille, France; 5. Laboratoire Albert Fert, Paris, France
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11:00

CD-09. Orbital and spin Hall angles in mesoscopic device. A.L. Barbosa1 1. Physics Department, Universidade Federal Rural de Pernambuco, Recife, Brazil
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EUROPA I

Session CE
ELECTRICAL MACHINES AND POWER SYSTEM COMPONENTS
Yacine Amara, Chair
Université Le Havre Normandie, Le Havre, France

8:30

CE-01. Test bench for characterization of HTS tapes at low magnetic fields based on additive manufacturing. K. Habelok1, K. Gruszczyk2, P. Lasek1, D. Koterla1 and M. Stepień1 1. Department of Power Electronics, Electrical Drives and Robotics, Silesian University of Technology, Gliwice, Poland; 2. Faculty of Electrical Engineering, Silesian University of Technology, Gliwice, Poland; 3. ILC Dover Poland Sp. z o.o., Gliwice, Poland
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8:45

CE-03. Overload Capabilities of Synchronous Motors. H.N. Nasser1, S. Asfirane1, Y. Amara1 and F. Chabour1 1. Université Le Havre Normandie, Le Havre, France
View Digest Text
1. Electrical and Computer Engineering, Concordia University, Montréal, QC, Canada; 2. Magna International Inc, Troy, MI, United States
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9:15

CE-05. Maximum-Torque-per-Watt Control Framework for Variable Flux Reluctance Machines with Magnetic Saturation and Cross-Coupling, G. Bayazi³, J. Escarate³, D. Ceylan¹, E. Ilhan Cearil¹, J. Schellekens¹, K.O. Boynov¹ and E. Lomonova¹ 1. Eindhoven University of Technology, Eindhoven, Netherlands
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9:30

CE-06. Improvement of the propulsion force by optimizing the range of magnetic field influence in a permanent magnet-HTS Hybrid Maglev Transporter System, A.H. Takanami¹ and S. Ohashi¹ 1. Department of Electrical Engineering, Kansai University, Suita, Japan
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CE-07. Influence of friction on high speed permanent magnet bearing rings, T. Tan¹,², D.F. Förster¹, U. Pabst¹, U. Giesen¹, M. Butzek¹ and G. Natour¹,² 1. Central Institute of Engineering, Electronics and Analytics – Engineering and Technology (ZEA-1), Forschungszentrum Jülich GmbH, Jülich, Germany; 2. Faculty of Mechanical Engineering, RWTH Aachen University, Aachen, Germany
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10:00

CE-08. A Novel Electromagnetic Force Calculation Method for Homopolar Hybrid Magnetic Bearing, G. Cao¹, H. Li¹, H. Hu¹, S. Huang¹, H. Wang¹, K. Liu² and J. Wei² 1. Shenzhen University, Shenzhen, China; 2. Sun Yat-Sen University, Shenzhen, China
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CE-09. Noval Electrodynamic Damper for Homopolar and Heteropolar Electrodynamic Bearings, A. Alzhrani¹ and K. Atallah¹ 1. Department of Electrical Engineering, Jubail Industrial College, Jubail, Saudi Arabia; 2. University of Sheffield, Sheffield, United Kingdom
View Digest Text
CE-10. Systematic Optimization of Electromagnet Hardware for Electromagnetic Suspension: A Fusion of Simulation and Multi-Objective Optimization Techniques. J. Demicoli¹, O. Kleikemper² and S. Steinhorst¹ 1. Technical University of Munich, Munich, Germany; 2. TUM Hyperloop Program, Technical University of Munich, Munich, Germany


CE-12. Experimental Verification of Orthogonal-Core-Type Variable Inductor with Permanent Magnets. H. Hatakeyama¹, S. Aizu¹, K. Nakamura¹, T. Ohinata² and K. Arimatsu² 1. Graduate School of Engineering, Tohoku University, Sendai, Japan; 2. Tohoku Electric Power Co., Inc., Sendai, Japan

EUROPA II

Session CF

MAGNETIC TEXTURES, STATICS, AND DYNAMICS

Christian Tzschaschel, Co-Chair
Max Born Institute, Berlin, Germany
Adekunle Adeyeye, Co-Chair
Durham University, Durham, United Kingdom

CF-01. Spin wave localization in ferromagnetic layer induced by superconducting nanostructure. J. Kharlan¹², K. Sobucki¹, K. Szulc¹, S. Memarzadeh¹ and J.W. Klos³ 1. Adam Mickiewicz University, Poznan, Poland; 2. Institute of Magnetism, Kyiv, Ukraine

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CF-02. Critical slowing of the spin and charge density wave order in thin film Cr following photoexcitation. S.K. Patel1,2, O. Gorobtsov1, D. Cela2, S.B. Hrkac2, N. Hua2, R. Medapalli1, A. Shabalin2, J. Wingert2, J.M. Glownia3, D. Zhu4, M. Chollet4, O. Shpyrko2, A. Singer1 and E. Fullerton1. 1. Center for Memory and Recording Research, University of California, San Diego, La Jolla, CA, United States; 2. Physics Department, University of California, San Diego, La Jolla, CA, United States; 3. Department of Materials Science and Engineering, Cornell University, Ithaca, NY, United States; 4. Linac Coherent Light Source, SLAC National Accelerator Laboratory, Menlo Park, CA, United States

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9:00

CF-03. Magnetization dynamics induced by spin-vortex locking in topological insulators proximate to a superconductor. F. Nogueira1. 1. Leibniz Institute for Solid State and Materials Research (IFW) Dresden, Dresden, Germany

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CF-04. Vortex chaotic dynamics in a cross-tie domain wall. M. Al-Mahdawi1 and M. Oogane2. 1. Mechatronics Engineering Department, Libya International Medical University, Benghazi, Libya; 2. Tohoku University, Sendai, Japan

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CF-06. Non-Volatile Frequency Reconfiguration of Vortex Oscillators. M. Steblii1, A. Jenkins1, L. Benetti1, A. Schulman1, E. Paz1, T. Böhnet1 and R. Ferreira1
1. International Iberian Nanotechnology Laboratory, Braga, Portugal
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CF-07. Geometry-induced effects in domain wall dynamics in stripes with spatially varying cross-section. K. Yershov1,2
1. Leibniz Institute for Solid State and Materials Research in Dresden, Dresden, Germany; 2. Bogolyubov Institute for Theoretical Physics of the National Academy of Sciences of Ukraine, Kyiv, Ukraine
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CF-08. Quantitative Description of the Impact of the Ampère-Oersted Field on the Stiffness of Magnetic Vortices.
S. de Wergifosse1, C. Chopin1,2, A. Moureaux1 and F. Abreu Araujo1
1. UCLouvain, Louvain-la-Neuve, Belgium; 2. CEA-SPINTEC, Grenoble, France
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CF-11. Graph Neural Networks to Predict Coercivity of Hard Magnetic Microstructures. H.A. Moustafa1, A. Kovacs1, J. Fischbacher1, M. Gusenbauer1, Q. Ali1,2, L. Breth1, Y. Hong1, W. Rigaut2, T. Devillers3, N. Dempsey2, T. Schrefl1,2 and H. Oezelt1
1. Department for Integrated Sensor Systems, University for Continuing Education Krems, Wiener Neustadt, Austria; 2. Christian Doppler Laboratory for Magnet Design Through Physics Informed Machine Learning, Wiener Neustadt, Austria; 3. CNRS, Grenoble INP, Institute Néel, Université Grenoble Alpes, Grenoble, France
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1. Departamento de Física, Universidad Técnica Federico Santa María, Valparaíso, Chile; 2. RIKEN Center for Emergent Matter Science, Wako, Japan
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In-Person Presentations 53

Department of Physics, University of South Florida, Tampa, FL, United States

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9:00


L.M. Solis, A. Anadón, J. Santos, J. Rojas-Sanchez, S. Petit-Watelot, M. Aguirre and L. Steren

Instituto de Nanociencia y Nanotecnología CNEA/CONICET - Constituyentes, San Martín, Argentina; 2. Instituto de Nanociencia y Materiales de Aragón, UNIZAR-CSIC, Zaragoza, Spain; 3. Institut Jean Lamour, Université de Lorraine CNRS UMR 7198, Nancy, France; 4. Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and BIST, Universitat Autònoma de Barcelona, Bellaterra, Spain; 5. Departamento de Física de la Materia Condensada, UNIZAR, Zaragoza, Spain; 6. Laboratorio de Microscopias Avanzadas, UNIZAR-CSIC, Zaragoza, Spain; 7. Consejo Nacional de Investigaciones Científicas y Técnicas, Ciudad Autónoma de Buenos Aires, Argentina

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CG-03. Anisotropic Magnetoresistance of Epitaxial Grown CoFe thin films on Flexible Mica and Rigid MgO Substrates.


Department of Engineering and System Science, National Tsing Hua University, Hsinchu, Taiwan; 2. Institute of Nuclear Engineering and Science, National Tsing Hua University, Hsinchu, Taiwan; 3. Department of Materials Science and Engineering, National Yang Ming Chiao Tung University, Hsinchu, Taiwan

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1. Laboratoire Albert Fert, CNRS, Thales, Université Paris-Saclay, Palaiseau, France; 2. Institute of Condensed Matter and Nanosciences (IMCN), Université Catholique de Louvain, Louvain-la-Neuve, Belgium; 3. Thales Research and Technology, Palaiseau, France; 4. Laboratoire d’Étude des Microstructures (LEM), CNRS, ONERA, Université Paris-Saclay, Châtillon, France

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1. Physics Department, Federal University of Rio Grande do Norte, Natal, Brazil

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CG-06. Spintronic applications from polymer-based magnetoelectric materials. R. Carvalho, L. Amorim, S. Lanceros-Mendez and P. Martin.
1. Department of Physics, Universidade do Minho, Braga, Portugal; 2. LaPMET - Laboratory of Physics for Materials and Emergent Technologies, Universidade do Minho, Braga, Portugal; 3. BC Materials, Basque Center for Materials, Applications and Nanostructures, Bilbao, Spain; 4. IKERBASQUE, Basque Foundation for Science, Bilbao, Spain

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1. Department of Physics, Balseiro Institut, San Carlos de Bariloche, Argentina; 2. Institut Jean Lamour, Nancy, France

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1. Physics Department, Universidad de Chile, Santiago, Chile; 2. Physics Department, Universidad de Santiago de Chile, Santiago, Chile; 3. CEA-SPINTEC, Grenoble, France; 4. Pontificia Universidad Católica de Chile, Santiago, Chile

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CG-09. Maximizing Competing Spin Current of the W/Pt/ferromagnet Devices with Spin-torque Ferromagnetic Resonance Analysis. J. Hsu1, C. Cheng2, Y. Huang2, Y. Wu2, Y. Lin2, W. Chang1 and Y. Tseng2 1. Industry Academia Innovation School, Hsinchu, Taiwan; 2. Department of Materials Science & Engineering, National Yang Ming Chiao Tung University, Hsinchu, Taiwan; 3. Powerchip Semiconductor Manufacturing Corporation, Hsinchu, Taiwan View Digest Text

11:00

CG-10. Unveiling the mechanism of spin to charge conversion in the ferroelectric Rashba semiconductor SnTe. M. Gamino1, E. Souza2, J. Abrão2 and S.M. Rezende2 1. Departament of Physics, Federal University of Rio Grande do Norte, Natal, Brazil; 2. Departament of Physics, Federal University of Pernambuco, Recife, Brazil View Digest Text

11:15

CG-11. Low damping and large charge-to-spin conversion efficiency in Co25Fe75/Pt thin films and microwire devices. P. Radhakrishnan1, T. Chen1, Z. Zhang2, R. Klause2, B. Sahoo3, E. Fullerton3, A. Hoffmann2 and A.D. Kent1 1. Center for Quantum Phenomena, Department of Physics, New York University, New York, NY, United States; 2. Materials Research Laboratory and Department of Materials Science and Engineering, University of Illinois Urbana-Champaign, Urbana, IL, United States; 3. Center for Memory and Recording Research, University of California San Diego, La Jolla, CA, United States View Digest Text
Harnessing van der Waals CrPS₄ and surface oxides for unique pre-set field induced Exchange Bias in Fe₃GeTe₂.

A. Puthirath Balan¹, A. Kumar¹, T. Scholz², Z. Lin³, A. Shahee¹, S. Fu⁴, T. Denneulin⁵, J. Vas⁶, A. Kovács⁵, R.E. Dunin-Borkowski⁵, H. Wang⁵, J. Yang⁵, B. Lotsch⁶, U. Nowak⁶ and M. Kläui¹,⁷

¹. Institute of Physics, Johannes Gutenberg University, Mainz, Germany; 2. Max Planck Institute for Solid State Research, Stuttgart, Germany; 3. School of Physics, State Key Laboratory for Artificial Microstructure and Mesoscopic Physics, Beijing, China; 4. Max Planck Institute for Polymer Research Mainz, Mainz, Germany; 5. Forschungszentrum Jülich, Jülich, Germany; 6. Department of Physics, University of Konstanz, Konstanz, Germany; 7. Department of Physics, Norwegian University of Science and Technology, Trondheim, Norway

Ultra-high Curie temperature and specific magnetic configuration in 2D Fe₂O₃.

T. Wang¹, W. Xue¹, H. Yang³, C. Song² and X. Xu¹

¹. Shanxi Normal University, Taiyuan, China; 2. Tsinghua University, Beijing, China; 3. Ningbo Institute of Material Technology and Engineering, Chinese Academy of Sciences, Ningbo, China

Hubbard U correction and long-range exchange interactions in CrXY monolayers (X, Y ∈ {S, Se, Te}).

L. Vojáček¹, F. Ibrahim¹, J. Li² and M. Chshiev¹,³

¹. CEA-SPINTEC, Grenoble, France; 2. LETI, Grenoble, France; 3. IUF, Paris, France

Spin-to-charge current conversion and charge transfer dynamics in graphene/WS₂ heterostructures.

R.O. da Cunha¹, Y. Garcia-Basabe², D.G. Larrude³, M. Gamino⁴, E.N. Lima⁵,⁶, F.C. de Lima³, A. Fazzio¹, A. Azevedo⁵, S.M. Rezende⁷ and J.B. Mendes¹

¹. Departamento de Física, Universidade Federal de Viçosa, Viçosa, Brazil; 2. Centro Interdisciplinar de Ciências da Natureza, Universidade Federal da Integração Latino-Americana, Foz do Iguaçu, Brazil; 3. Escola de Engenharia, Universidade Presbíteriana Mackenzie, São Paulo, Brazil; 4. Departamento de Física, Universidade Federal do Rio Grande do Norte, Natal, Brazil; 5. Ilum School of Science, Brazilian Center for Research in Energy and Materials (CNPEM), Campinas, Brazil; 6. Instituto de Física, Universidade Federal de Mato Grosso, Cuiabá, Brazil; 7. Departamento de Física, Universidade Federal de Pernambuco, Recife, Brazil

Enhancement of thermal stability in heterostructures base on Weyl semimetal WTe₂.

Y. Wang¹, W. Li¹, L. Zhang² and Y. Feng³

¹. School of Physics, Dalian University of Technology, Dalian, China; 2. School of Chemical Engineering, Dalian University of Technology, Dalian, China
CP-09. Arpes studies on weyl semimetal candidate PrAl(Ge, Si).
K.R. Pakuszewski1, A.P. Machado1, J.C. Souza3,
M. Piva1, V. Brousse-Couture3, M. Côté4, P. Pagliuso1,
W. Simões e Silva5 and C. Adriano6 1. Instituto de Física
Gleb Wataghin, University of Campinas, Campinas, Brazil;
2. Department of Condensed Matter Physics, Weizmann
Institute Of Science, Rehovot, Israel; 3. Max Planck
Institute for Chemical Physics of Solids, Dresden, Germany;
4. Université de Montréal, Montréal, QC, Canada;
5. Centro Nacional de Pesquisa em Energias e Materiais,
Campinas, Brazil; 6. Université de Sherbrooke, Sherbrooke,
QC, Canada
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CP-10. Proximity Induced Artificial Magnetic Graphene As An
Electrode for Magnetic Tunnel Junctions. J. Peiro1,
V. Zatko1, F. Brunnett1, R. Galceran1, M. Galbiati1, F. Godei1,
L. Kern1, D. Perconte1, F. Ibrahim2, A. Hallai2, M. Chshiev2,
B. Martinez2, C. Frontera2, L. Balcells2, P. Kidambi1,
J. Robertson1, S. Hoffman1, S. Collin1, F. Petroff1,
M. Martin1, B. Dlubak1 and P. Seneor1 1. Laboratoire Albert
Fert, CNRS, Thales, Université Paris-Saclay, Palaiseau,
France; 2. CEA-SPINTEC, Grenoble, France; 3. ICMAB-
CSIC, Bellaterra, Spain; 4. Department of Chemical and
Biomolecular Engineering, Vanderbilt University, Nashville,
TN, United States; 5. Department of Engineering, University
of Cambridge, Cambridge, United Kingdom
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CP-11. Spin transfer torque (STT) in graphene interface
structures: the emergence of STT-van der Waals tunneling
junctions (2DMTJs). J. Hong1, J. Lu2 and P. Zhang2
1. UC Berkeley, Berkeley, CA, United States;
2. Hubei University of Technology, Wuhan, China
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CP-12. TMD Engineering of 2D-Magnetic Tunnel Junctions – From
Barriers to Electrodes. F. Brunnett1, H. Wei1, J. Peiro1,
V. Zatko1, S.M. Dubois2, M. Galbiati1, F. Godei1, E. Carré1,
M. Och1, C. Mattevi1, F. Fossard4, J. Mérot4, A. Loiseau4,
J. Charlier2, M. Martin1, B. Dlubak1 and P. Seneor1
1. Laboratoire Albert Fert – CNRS, Thales, Université
Paris-Saclay, Palaiseau, France; 2. Institute of Condensed
Matter and Nanosciences (IMCN), Université Catholique de
Louvain, 1348 Louvain-la-Neuve, Belgium; 3. Department
of Materials, Imperial College, London, United Kingdom;
4. Laboratoire d’Etude des Microstructures - ONERA,
Châtillon, France
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CQ-01. Spin injection, spin filtering and spin-photon interfacing in III-V semiconductor nanostructures. Y. Huang¹, V. Polońjärvi², S. Hiura³, P. Höjer¹, A. Aho², R. Isoaho², T. Hakkarainen², M. Guina², S. Sato³, J. Takayama¹, A. Murayama¹, I.A. Buyanova¹ and W.M. Chen¹ 1. Linköping University, Linköping, Sweden; 2. Tampere University, Tampere, Finland; 3. Hokkaido University, Sapporo, Japan

CQ-02. Withdrawn

CQ-03. Thermomagnetic Conversion in Ni₈⁹Fe₁¹/Pt Multilayer Grown onto PVDF Flexible Polymer Substrates. A. de Morais¹,², C.M. Valença², J.M. de Oliveira², F. Bohn², A. Ferreira³, C.A. Costa¹, F. Vaz¹ and M.A. Correa² 1. Department of Materials Engineering, Federal University of Rio Grande do Norte, Natal, Brazil; 2. Department of Physics, Federal University of Rio Grande do Norte, Natal, Brazil; 3. Physics Department, University of Minho, Braga, Portugal

CQ-04. Anomalous Nernst effect on NiFe film grown onto ceramic ribbons substrate. J.M. de Oliveira¹, A. de Morais¹, N.L. de Siqueira¹, J.O. Rodriguez¹, M.R. Delmonte¹, F. Bohn¹ and M.A. Correa² 1. Departamento de Física Teórica e Experimental, Universidade Federal do Rio Grande do Norte, Natal, Brazil

CQ-05. Mn/Co Substitution Effect on Magnetoelectric and Structural Properties of ZnO Nanostructures Prepared by DC-Magnetron co-Sputtering For Spintronic Applications. Á.P. Lanchero D.¹, L.F. Prieto R.¹, H.P. Quiroz¹, J.A. Calderón¹,², A. Dussan Cuénc¹ and F. Mesa¹ 1. Department of Physics, Universidad Nacional de Colombia, Bogotá, Colombia; 2. Engineering and Basic Science Faculty, Universidad Central, Bogotá, Colombia; 3. Engineering and Basic Science Faculty, Universidad Los Libertadores, Bogotá, Colombia

CQ-06. Influence of ferromagnetic coupling in FeₓCo₁₋ₓ/Py bilayers on the ISHE voltage generated by spin pumping. Á.A. Pérez Martínez¹,², D. Velázquez¹,², D. Goijman³, T.E. Torres¹, A. Butera¹,² and J. Milano¹,² 1. Magnetic Resonance Laboratory, Instituto de Nanociencias y Nanotecnología (CNEA - CONICET), San Carlos de Bariloche, Argentina; 2. Instituto Balseiro, Universidad Nacional de Cuyo (UNCuyo), Rio Negro, Argentina
CQ-07. Development of Interdented Devices for Surface Acoustic Waves (SAW) applied to Magnonics. M.S. de Lacerda1, L. Sampaio1 and J.P. Sinnecker1. 1. Centro Brasileiro de Pesquisas Fisicas, Rio de Janeiro, Brazil

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CQ-08. Colossal superconducting superconductor-non-magnetic metal heterostructures. A. Paschov1, J.L. Gonzalez2, V. Nascimento3 and E.C. Passamani1. 1. Departamento de Fisica, Universidade Federal do Espirito Santo (UFES), Vitória, Brazil

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CQ-09. Inverse spin hall and spin rectification voltage in NiFe/IrMn exchange-biased multilayer. A.R. Syed1, D. Gonzalez-Chavez1, R. Dutra1, D.S. da Rosa1, R.L. Sommer1, A.H. de Oliveira2, J.N. Rigue2 and R.B. da Silva1. 1. Centro Brasileiro de Pesquisas Fisicas, Rio de Janeiro, Brazil; 2. Physics Department, Federal University of Santa Maria, Santa Maria, Brazil

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CQ-10. Giant spin-to-charge conversion in GnmSn alloying. R. Rodriguez1, S. Oyarzún2, C. Gonzalez-Fuentes1, F. Pezzoli3 and M. Jamet4. 1. Facultad de Fisica, Pontificia Universidad Católica de Chile, Santiago, Chile; 2. Facultad de Física, Universidad de Santiago, Santiago, Chile; 3. LNESS, Milano, Italy; 4. Univ. Grenoble Alpes, Grenoble, France

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CQ-11. Local and non-local magnetoresistance in ferromagnetic spin valves. I.R. Greca1, J.B. Mendes1 and R.O. da Cunha1. 1. Departamento de Física, Universidade Federal de Viçosa, Viçosa, Brazil

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CQ-12. Theory of Pressure-Induced Negative-Positive Magnetoresistance Crossover Near Metal-Insulator Transition in La0.8Ag0.1MnO3. Z. Alisultanov1,2. 1. Moscow Institute of Physics and Technology (State University), Moscow, Russian Federation; 2. Amirkhanov Institute of Physics of DFRC of RAS, Makhachkala, Russian Federation

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CQ-13. Nanodomes substrates as a tool for tuning the magnetoelectro properties of a Co-based pseudo spinvalve. E.O. Burgos Parra1,2, J. Hermosilla1, J.L. Palma3, J.C. Denardin1 and S. Oyarzún1. 1. Physics Department, Universidad de Santiago de Chile, Santiago, Chile; 2. Physics Department, Universidad de Chile, Santiago, Chile; 3. Universidad Central de Chile, Santiago, Chile

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CQ-14. Efficiency of Spin-Transfer Torque Assist Spin-Orbit Torque Magnetization Switching Under In-plane External Field Application. D. Pan1, D. Oshima1 and T. Kato1. 1. Nagoya University, Nagoya, Japan

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CR-01. Reconfigurable Magnonics in Santa Fe Ice. A. Mondal1 and A. Barman1,2, 1. Technical Research Centre, S. N. Bose National Centre for Basic Sciences, Salt Lake City, India; 2. Condensed Matter and Materials Physics, S. N. Bose National Centre for Basic Sciences, Salt Lake City, India
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CR-02. In-Plane Magnon Valve Effect in Magnetic Insulator/Heavy Metal/Magnetic Insulator Device. T. Zhang1, C. Wan1,2 and X. Han1,2,3, 1. Institute of Physics, Chinese Academy of Science, Beijing, China; 2. University of Chinese Academy of Sciences, Beijing, China; 3. Songshan Lake Materials Laboratory, Dongguan, China
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CR-03. Spin Pumping into Superconductors: Influence of Spin-Orbit Coupling and Alloy Composition. M. Raboni Ferrreira1,2, R. Torrado Victor3, D. do Carmo2, R. Donizeth dos Reis2, F. Garcia3,4 and N. Marques de Souza Neto3, 1. “Gleb Wataghin” Institute of Physics, University of Campinas, Campinas, Brazil; 2. Brazilian Synchrotron Light Laboratory, Brazilian Center for Research in Energy and Materials, Campinas, Brazil; 3. Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil
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CR-04. Magnon energy renormalization in yttrium iron garnet. E. Souza1, D.S. Maior1 and S.M. Rezende1, 1. Departamento de Física, Universidade Federal de Pernambuco, Recife, Brazil
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CR-05. Self-Generation of Spatiotemporal Parametric Patterns in Active Ring Resonators Based on Single- and Bicomponent Magnonic Quasicrystals. A. Bir3, S.V. Grishin1, D. Romanenko1 and S. Nikitov2,3, 1. Saratov State University, Saratov, Russian Federation; 2. Kotelnikov Institute of Radioengineering and Electronics of Russian Academy of Science, Moscow, Russian Federation
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CR-07. Spin waves in magnetic films: Micromagnetic simulations results in frequency and reciprocal space. A.Y. Requejo1, G.P. Zamudio2, B.R. Pujada Bermudez1, R.L. Sommer2 and D. Gonzalez-Chavez2, 1. Faculty of Science, Universidad Nacional de Ingeniería, Chorrillos, Peru; 2. Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil
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CR-08. Analytical Calculations of Electron’s Phase Shift Due to Interactions with Magnetized Materials. G.K. Soares1 and D. Muraca2, 1. DEQ, Universidade Estadual de Campinas, Campinas, Brazil
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CS-02. Exploring the Structural and Functional Frontiers of Nanocrystalline NANOMET-Based Metallic Glasses. H. Yim1. 1. Department of Applied Physics, Sookmyung University, Seoul, The Republic of Korea

CS-03. Amorphous magnetic Zn-Co alloys. J.P. Pereira1, A.O. Guimarães2 and M.J. Pires1. 1. Instituto de Ciência e Tecnologia, Universidade Federal dos Vales do Jequitinhonha e Mucuri, Diamantina, Brazil; 2. Universidade Estaual do Norte Fluminense, Campos dos Goytacazes, Brazil

CS-04. Non-uniform Gd distribution and magnetization profile within ‘nominally uniform’ GdCoFe alloy thin film. O. Inyang1, C. Swindells2, D. Rianto1, L. Bouchenoire3,4, R. Morris5, A. Merkulov5, A. Caruana6, C. Kinane6, T. Hase7,4 and D. Atkinson1. 1. Department of Physics, Durham University, Durham, United Kingdom; 2. Department of Materials Science and Engineering, University of Sheffield, Sheffield, United Kingdom; 3. Department of Physics, University of Liverpool, Liverpool, United Kingdom; 4. XMaS Beamline, Grenoble, France; 5. IMEC, Leuven, Belgium; 6. ISIS Neutron and Muon Source, Didcot, United Kingdom; 7. Department of Physics, University of Warwick, Coventry, United Kingdom

CS-05. Magnetic properties of novel TmFe1-xCoxO3 perovskites. M.E. Vivas Arellano1, F. Lurgo2, J. De Paoli1, R. Carbonio1 and R. Sanchez2. 1. Departamento de Fisicoquimica, Universidad Nacional de Cordoba, Cordoba, Argentina; 2. INN-CNEA-CONICET, Bariloche, Argentina

CS-06. Synthesis of NiFe2O4/NiFe Nanocomposites: Structural and Magnetic Study. M.S. Nunes1, l. Bezerra1, J. Lima1, R. Checca2, A. Paesano Jr.1, J. de Araújo1 and M. Morales Torres1. 1. Department of Physics, Federal University of Rio Grande do Norte, Natal, Brazil; 2. Brazilian Center for Research in Physics, Rio de Janeiro, Brazil
CS-07. Effective magnetic anisotropy of Ni$_x$Co$_{1-x}$Fe$_2$O$_4$ nanoparticles. L.J. Dalla Costa¹, M.R. Freitas², G.L. Gouveia³, R.H. Kiminami², A.J. de Oliveira¹ and A.J. Gualdi¹
1. Department of Physics, Universidade Federal de São Carlos, São Carlos, Brazil; 2. Department of Materials Engineering, Federal University of São Carlos, São Carlos, Brazil
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CS-09. Influence of Electromagnetic Stirring During the Solidification on the Structure and Magnetic Properties of 2% Si Electrical Steel. F.G. Toledo Junior², S. da Costa Paolinelli³, J.R. Oliveira Junior¹ and D.L. Rocco²
1. Research Center, Aperam South America, Timoteo, Brazil; 2. Department of Materials Engineering, Federal Center Technological Education of Minas Gerais, Timoteo, Brazil; 3. Paolinelli Electrical Steels Consultancy Ltda, Carmopolis, Brazil
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CS-11. Mapping the Magnetic Properties of Polycrystalline CeCrGe₃ Using Macroscopic and Microscopic Techniques. B.S. Corrêa¹, B.B. Santos², E.L. Corrêa², G.A. Cabrera-Pasca³, W.L. Ferreira¹, A. A. Miranda¹, T. da Silva Nascimento Sales¹, L. Scalise¹, R.N. Saxena¹ and A.W. Carbonari¹
1. CERPQ, Instituto de Pesquisas Energéticas e Nucleares, São Paulo, Brazil; 2. NIST Center for Neutron Research, Gaithersburg, MD, United States; 3. Faculdade de Ciências Exatas e Tecnologia, Universidade Federal do Pará, Abaetetuba, Brazil
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1. Departamento de Engenharia Metalúrgica e de Materiais, Universidade de São Paulo, São Paulo, Brazil
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CS-14. Analysis of Cutting Effect on Non-Grain Oriented Steels for High-Frequency Applications. R.F. de Medeiros¹, O.T. Alves¹, E.M. Alves², G.A. Mendoça², N. Sadowski³ and N.J. Batistela¹
1. Departamento de Engenharia Elétrica e Eletrônica, Universidade Federal de Santa Catarina, Florianópolis, Brazil; 2. Research Center, Aperam South America, Timóteo, Brazil
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CS-15. Effect of dew point on the microstructure and magnetic properties of non-grain oriented electrical steel during stress relief annealing. E.M. Alves¹,², C.C. Silveira¹, F. Landgraf¹ and M.M. Cesar³
1. Research Center, Aperam South America, Timoteo, Brazil; 2. Polytechnic School, University of São Paulo, São Paulo, Brazil; 3. MGRMELO Consultoria Ltda, Timoteo, Brazil
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**CS-16.** Influence of energy density on the microstructure, growth orientation, and anisotropy of magnetic properties in additively manufactured Fe-3.8wt%Si transformer steels.

S.M. Varahabhatla\(^1,2\), M. Nartu\(^1,2,3\), S.A. Mantri\(^1,2\), V. Chaudhary\(^4\), M. Karri\(^1,2\), S. Joshi\(^1,2\), R. Ramanujan\(^5\), N.B. Dahotre\(^1,2\) and R. Banetjee\(^1,2\) 1. Center for Agile and Adaptive Additive Manufacturing (CAAAAM), University of North Texas, Denton, TX, United States; 2. Department of Materials Science and Engineering, University of North Texas, Denton, TX, United States; 3. Nuclear Sciences Division, Pacific Northwest National Laboratory, Richland, WA, United States; 4. Industrial and Materials Science, Chalmers University of Technology, Gothenburg, Sweden; 5. School of Materials Science and Engineering, Nanyang Technological University, Nanyang, Singapore

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Session DA
MAGNETIC TUNNEL JUNCTION AND QUANTUM DEVICES FOR UNCONVENTIONAL COMPUTING

Nathan Satchell, Co-Chair
Texas State University, San Marcos, TX, United States
Guohan Hu, Co-Chair
IBM, Yorktown Heights, NY, United States

8:30

DA-01. Probabilistic Computing with p-bits: Optimization, Machine Learning and Quantum Simulation. (Invited) K. Camsari1 1. University of California, Santa Barbara, Santa Barbara, CA, United States
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9:00

DA-02. An easy-plane anisotropy dominant stochastic magnetic tunnel junction as a circuit entropy source. (Invited) J.Z. Sun1 1. IBM Research, Yorktown Heights, NY, United States
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9:30

DA-03. Stochastic Actuated Perpendicular Magnetic Tunnel Junctions for True Random Number Generation and Monte-Carlo Modeling. (Invited) A.D. Kent1 1. Department of Physics, New York University, New York, NY, United States
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10:00

DA-04. Physics and engineering of stochastic magnetic tunnel junction devices for probabilistic computing. (Invited) S. Kanai1 1. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan
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10:30

DA-05. Ising Computer Based on Superparamagnetic Tunnel Junctions. (Invited) J. Si1, S. Yang2 and H. Yang2 1. Peking University, Beijing, China; 2. National University of Singapore, Singapore
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DA-06. Emergent magnetism for quantum information. (Invited)
C. Panagopoulos 1. Division of Physics and Applied Physics, Nanyang Technological University, Singapore
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OCEANIA VI & VII

Session DB
MAGNONICS III: BAND PROPERTIES AND DEVICES
Pawel Gruszecki, Chair
Uniwersytet im Adama Mickiewicza w Poznaniu, Poznan, Poland

8:30

DB-01. Brillouin Light Scattering investigation of spin-wave
dynamics in reconfigurable magmonic systems. (Invited)
S. Tacchi 1. Istituto Officina dei Materiali, Consiglio Nazionale delle Ricerche, Perugia, Italy
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9:00

DB-02. Flat bands and compact localized states in magmonic
crystals. J.W. Klos 1 and G. Centala 1. ISQI, Faculty of
Physics, Adam Mickiewicz University, Poznan, Poland
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9:15

DB-03. 3D Ferromagnetic Nanoarchitectures with Lattice-Size
dependent Magnon Modes. H. Guo 1, M. Xu 1, A.J. Deenen 1
and D. Grundler 1,2 1. IMX, EPFL, Lausanne, Switzerland; 2. IEM, EPFL, Lausanne, Switzerland
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Opening complete band gaps in two-dimensional magnonic crystals using yttrium iron garnets and non-magnetic metals. K. Mori\textsuperscript{1,2}, T. Koguchi\textsuperscript{1,2}, T. Watanabe\textsuperscript{1}, Y. Yoshihara\textsuperscript{1,2}, H. Miyashita\textsuperscript{1,2}, M. Inoue\textsuperscript{1}, D. Grundler\textsuperscript{4}, K. Ishiyama\textsuperscript{1} and T. Goto\textsuperscript{1}. RIEC, Tohoku University, Sendai, Japan; 2. Graduate School of Engineering, Tohoku University, Sendai, Japan; 3. Shin-etsu Chemical Co., Ltd, Annaka, Japan; 4. Institute of Electrical and Micro Engineering, Ecole Polytechnique Federale de Lausanne (EPFL), Lausanne, Switzerland

Magnon-magnon coupling in an antidot lattice with perpendicular magnetic anisotropy. M. Moalic\textsuperscript{1}, M. Krawczyk\textsuperscript{1}, M.K. Zelent\textsuperscript{1} and K. Szulc\textsuperscript{1}. Uniwersytet im Adama Mickiewicza w Poznaniu, Poznan, Poland

Universal magnonic machine-learning module. N. Zenbaa\textsuperscript{1,2}, C. Abert\textsuperscript{1}, F. Majcen\textsuperscript{1}, M. Kerber\textsuperscript{1}, R. Serha\textsuperscript{1,2}, S. Knauer\textsuperscript{1}, Q. Wang\textsuperscript{1}, T. Schreiff\textsuperscript{4}, D. Suess\textsuperscript{1} and A. Chumak\textsuperscript{1}. 1. Faculty of Physics, University of Vienna, Vienna, Austria; 2. Vienna Doctoral School of Physics, University of Vienna, Vienna, Austria; 3. School of Physics, Huazhong University of Science and Technology, Wuhan, China; 4. Center for Modelling and Simulation, Donau-Universität Krems, Wiener Neustadt, Austria

Reconfigurable Magnon-based Radio Frequency filters. A. Del Giacco\textsuperscript{1}, F. Kohl\textsuperscript{2}, A. Toniato\textsuperscript{1}, M. Wagner\textsuperscript{2}, F. Maspero\textsuperscript{1}, A. Cattoni\textsuperscript{1}, P. Pirro\textsuperscript{2} and R. Bertacco\textsuperscript{1}. 1. Department of Physics, Politecnico di Milano, Milano, Italy; 2. Nanoscaled Magnonic Hybrids, Rheinland-Pfälzische Technische Universität Kaiserslautern-Landau, Kaiserslautern, Germany

All-magnonic repeater based on bistability. Q. Wang\textsuperscript{1,2}, R.V. Verba\textsuperscript{1}, K. Davidková\textsuperscript{2,4}, B. Heinz\textsuperscript{2}, S. Tian\textsuperscript{8}, Y. Rao\textsuperscript{8}, X. Ge\textsuperscript{1}, O. Wojewoda\textsuperscript{1}, C. Dubs\textsuperscript{5}, M. Urbánek\textsuperscript{4}, P. Pirro\textsuperscript{4} and A. Chumak\textsuperscript{2}. 1. Huazhong University of Science & Technology, Wuhan, China; 2. Universität Wien, Vienna, Austria; 3. Institute of Magnetism, Kyiv, Ukraine; 4. Brno University of Technology, Brno, Czechia; 5. Rheinland-Pfälzische Technische Universität Kaiserslautern-Landau, Kaiserslautern, Germany; 6. Hubei University, Wuhan, China; 7. INNOVENT e.V., Technologieentwicklung, Jena, Germany
DB-09. Arbitrary Two-Qubit Magnon-Mediated Quantum Gates. C. Trevillian and V. Tyberkevych. 1. Department of Physics, Oakland University, Rochester Hills, MI, United States

OCEANIA IX & X

Session DC

PATH TOWARDS MORE SUSTAINABLE TOMORROW – MAGNETIC SOLUTIONS

Yacine Amara, Chair
Université Le Havre Normandie, Le Havre, France

8:30


9:00


9:30

DC-03. A Comparative Study between Permanent-magnet-free Reluctance Machines for Heavy-duty Electric Vehicles. (Invited) D. Ceylan and K.O. Boynov. 1. Department of Electrical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands

10:00

DC-04. PM-Free Axial-Flux Motors for Transport Electrification. (Invited) A. Mahmoudi, Z. Cao, S. Kahourzade and W. Soong. 1. Flinders University, Adelaide, SA, Australia; 2. University of South Australia, Adelaide, SA, Australia; 3. The University of Adelaide, Adelaide, SA, Australia

In-Person Presentations

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11:00

DC-06. AI-based Fault Diagnosis for Electric Machines. (Invited) S. Huang1, Y. Lu1 and M. Hsieh1 1. National Cheng Kung University, Tainan, Taiwan

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OCEANIA I & II

BIOMAGNETICS I

Ahmed El-Gendy, Co-Chair
The University of Texas at El Paso, El Paso, TX, United States
Bethanie Stadler, Co-Chair
University of Minnesota, Minneapolis, MN, United States

8:30

DD-01. Unveiling the Influence of Interactions in the Behavior of Magnetic Nanoparticle Agglomerates: Experiments and Simulations. (Invited) D. Valdes1,2, T.E. Torres3, A.C. Moreno Maldonado1, G. Urretavizcaya2,4, M.S. Nadal1, M. Vasquez Mansilla1,2, I. Rodrigo3, I. Orue5, R.D. Zysler1,2, J. Garcia2, F. Plazaola7, G.F. Goya3, E. De Biasi1,2 and E. Lima Jr.1 1. Instituto de Nanociencia y Nanotecnología (INN), CNEA-CONICET, Bariloche, Argentina; 2. Instituto Balseiro, Universidad Nacional de Cuyo, Bariloche, Argentina; 3. Instituto de Nanociencia y Materiales de Aragón (INMA), CSIC-Universidad de Zaragoza, Zaragoza, Spain; 4. Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), CNEA, Bariloche, Argentina; 5. Departamento de Física Aplicada, Escuela de Ingeniería de Gipuzkoa - Eibar, Universidad del País Vasco/Euskal Herriko Unibertsitatea (UPV/EHU), Eibar, Spain; 6. SGiker, Servicios Generales de Investigación, Universidad del País Vasco/Euskal Herriko Unibertsitatea (UPV/EHU), Leioa, Spain; 7. Universidad del País Vasco/Euskal Herriko Unibertsitatea (UPV/EHU), Leioa, Spain

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**DD-02.** Multifunctional materials for the applications from electronics to biosensors. J. Hong\(^1\) and X. Song\(^2\)
1. UC Berkeley, Berkeley, CA, United States; 2. Hubei University of Technology, Wuhan, China
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**DD-03.** Cellular Interaction with Low-Frequency-Vibrating Magnetic Nanoparticles in Bio-Mimetic Mechanical Environment. A. Visoni\(^{1,2}\), B. Dieny\(^2\), R. Morel\(^2\), H. Joisten\(^2\), S. Soulan\(^1\) and A. Nicolas\(^1\)
1. LTM CNRS, Grenoble, France; 2. CEA-SPINTEC, Grenoble, France
[View Digest Text]

**DD-04.** Restoring cryopreserved bio-specimens using magnetic nanobars. (Invited) B. Stadler\(^{1,2}\), R. Kolinsky\(^1\), A. Harpel\(^1\), Y. Chen\(^2\) and R. Franklin\(^1\)
1. Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States; 2. Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN, United States
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**DD-05.** Multiplanar Imaging with a Single-Sided MPI Scanner.
C. McDonough\(^1\), J. Chrisekos\(^1\) and A. Tonyushkin\(^1\)
1. Physics Dept, Oakland University, Rochester, MI, United States
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**DD-06.** MRI Pulse Sequence for Quantifying Magnetic Nanoparticles from Highly Distorted Static Field: View Line.
S. Liu\(^1\), W. Qiu\(^1\), G. Della Maggiora\(^2\), A. Kuwahata\(^1\), P. Irarrazaval\(^2\) and M. Sekino\(^1\)
1. The University of Tokyo, Tokyo, Japan; 2. Pontificia Universidad Católica de Chile, Santiago, Chile; 3. Tohoku University, Sendai, Japan
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DD-07. Magnetic Particle Spectroscopy (MPS)-based Bioassays. (Invited) K. Wu¹,², V.K. Chugh², V.D. Krishna³, A. di Girolamo², Y.A. Wang⁴, M.C. Cheeran¹ and J. Wang¹. Department of Electrical and Computer Engineering, Texas Tech University, Lubbock, TX, United States; 2. Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States; 3. Department of Veterinary Population Medicine, University of Minnesota, St. Paul, MN, United States; 4. Ocean Nano Tech LLC, San Diego, CA, United States

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DD-08. Development of Transcranial Magnetic Stimulator Coils Achieving Physically the Deepest Stimulation Based on the Inverse Problem Approach. A. Iino¹, M. Fushimi¹, J. Tabata², T. Kikuchi², Y. Soejima², M. Wada³, S.L. Nakajima³, Y. Noda³ and M. Sekino³. 1. Department of Bioengineering, The University of Tokyo, Hongo, Japan; 2. Department of Electrical Engineering and Information Systems, The University of Tokyo, Hongo, Japan; 3. Department of Neuropsychiatry, Keio University, Shinanomachi, Japan

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DD-09. Measurement of Somatosensory Evoked Response of Rats towards Noninvasive and High-Resolution Functional Brain Mapping of Small Animals. M. Fushimi¹, S. Chikaki¹, S. Funatani¹ and M. Sekino¹. 1. The University of Tokyo, Tokyo, Japan

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EUROPA I

Session DE

HARD MAGNETIC MATERIALS I

Pelin Tozman, Chair
Technical University of Darmstadt, Darmstadt, Germany

8:30

DE-01. Anosotropic magnetic nanoparticles. (Invited) P. Liu¹
1. Department of Physics, University of Texas at Arlington, Colleyville, TX, United States

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DE-02. Study of magnetization reversal and magnetic hardening in SmCo5 single crystal magnets. A. Aubert1, H. Zhang1,2, F. Maccari1, C. Dietz1, M. Yue2, O. Gutfleisch1 and K. Skokov3
1. Technische Universitat Darmstadt, Darmstadt, Germany; 2. Faculty of Materials and Manufacturing, Beijing University of Technology, Beijing, China; 3. Physics of Surfaces, TU Darmstadt, Darmstadt, Germany
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DE-03. Data-Mining Search for Crystal Structure Predicted Rare-Earth-Free Permanent Magnets. A. Vishina1, O. Eriksson1 and H.C. Herper1
1. Uppsala Universitet, Uppsala, Sweden
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DE-04. High-temperature phase transition during hydrogen disproportionation of various Nd-Fe-B alloys. F. Orlandini Keller1, G. Bacchetta1, C. Flamant1, L. Magnier1, C. Delafosse1, C. Rado1, S. Luca1 and J. Garandet1
1. Univ. Grenoble Alpes, CEA LITEN, Grenoble 38000, France
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DE-05. Synthesis, processing and magnetic properties of Fe16N2. I. Dirba1 and O. Gutfleisch1
1. Institute of Materials Science, TU Darmstadt, Darmstadt, Germany
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DE-06. Tailoring pressless processing parameters to achieve highly textured Nd-Fe-B recycled magnets. (Invited) M.A. Rosa1, E.F. Neves1, L.T. Quispe1, L.U. Lopes1, J.B. Neto1 and P.A. Wendhausen1
1. Federal University of Santa Catarina, Florianopolis, Brazil
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Critical Transitions in Rare-Earths Magnets of (R,R')$_2$Fe$_{14}$B Type. N. Kostyuchenko$^{1,2}$, D. Plokhov$^{3,2}$, Y. Kudasov$^{4,5}$, I. Tereshina$^6$, O. Surdin$^{4,5}$ and A. Zvezdin$^{1,2}$

1. Moscow Institute of Physics and Technology (State University), Moscow, Russian Federation; 2. Lebedev Physical Institute of the Russian Academy of Sciences, Moscow, Russian Federation; 3. Prokhorov General Physics Institute of Russian Academy of Sciences, Moscow, Russian Federation; 4. Russian Federal Nuclear Center – VNIEF, Sarov, Russian Federation; 5. Sarov Institute of Physics and Technology, National Research Nuclear University MEPhI, Sarov, Russian Federation; 6. Faculty of Physics, Lomonosov Moscow State University, Moscow, Russian Federation

Crystallographic quantification of magnetic alignment degree for permanent magnet fine powders with high anisotropy field. Y. Hirayama$^1$, K. Park$^1$, W. Yamaguchi$^1$ and S. Okada$^1$

1. Innovative Functional Materials Research Institute, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan


1. SENAI SP College, Osasco, Brazil; 2. University of São Paulo, São Paulo, Brazil; 3. Federal University of Santa Catarina, Florianópolis, Brazil; 4. Institute for Energy and Nuclear Research, São Paulo, Brazil; 5. Institute of Technological Research, São Paulo, Brazil
EUROPA II
Session DF
SOFTWARE MAGNETIC ALLOYS: MATERIALS AND METHODS
Del Atkinson, Chair
Durham University, Durham, United Kingdom

8:30

DF-01. Magnetoelastic resonance mass sensors: the importance of their geometry and nanocrystallization annealing induction. (Invited) P. G. Saiz1,2, A. Lasheras3, J. Vilas-Vilela1,2 and A. Lopes1,4 1. Department of Physical-Chemistry, University of Basque Country, Leioa, Spain; 2. BC Materials-Basque Center for Materials Applications and Nanostructures, Leioa, Spain; 3. Department of Physics, University of the Basque Country, Leioa, Spain; 4. Ikerbasque, Basque Foundation for Science, Leioa, Spain
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DF-02. Measurement of Anisotropy and Magnetoelastic Constants of Thin Crystalline Films by Angle- and Strain-Dependent Ferromagnetic Resonance Spectroscopy. K. Masood1, A. Jander1 and P. Dhagat1 1. Department of Electrical Engineering and Computer Science, Oregon State University, Corvallis, OR, United States
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DF-03. Magnetic behavior of nanoporous FeCo, fully and partially dealloyed by liquid metal. B. Ducharne1,2,3, S. Joo4, P. Geslin1, E. Wasniewski5 and H. Kato5 1. Institut National des Sciences Appliquees de Lyon, Villeurbanne, France; 2. Tohoku University, Sendai, Japan; 3. ELYTMAX CNRS, Sendai, Japan; 4. Dankook University, Seoul, The Republic of Korea; 5. CETIM, Senlis, France
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DF-07. Role of interface roughness in perpendicular magnetic anisotropy of CoFeB/MgO based stacks. S. Ahn1 1. POSTECH, Pohang, The Republic of Korea
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DF-08. Magnetic Properties and Applications of Glass-coated Ferromagnetic Microwires. V. Zhukova,1,2,3 P. Corte-Leon1,3,2, M. Ipatov1,3, A. García-Gómez1,2,3, J. Blanco3,2 and A. Zhukov4,1,2 1. Dept. Polymers and Advanced Materials, Univ. Basque Country, UPV/EHU, San Sebastian, Spain; 2. EHU Quantum Center, University of the Basque Country, UPV/EHU, San Sebastian, Spain; 3. EIG, Dept. Applied Physics, University of Basque Country, UPV/EHU, San Sebastian, Spain; 4. Ikerbasque, Basque Foundation for Science, San Sebastian, Spain

DF-09. How accurate are magnetic loss measurements? M. Pasquale1, E. Ferrara1, N. Banu1, F. Fiorillo1, L. Rocchino1, M. Ulvr2, F. Weickert2, K. Pfhuer3, J. Luedke1, K. Hoffmann1, S. Harmon4, D. Brun4 and A. Wilson4 1. INRIM, Torino, Italy; 2. CMI, Prague, Czechia; 3. PTB, Braunschweig, Germany; 4. NPL, Teddington, United Kingdom

DF-11. Ferromagnetic behavior induced by structural distortion in pristine g-C3N4 pellets prepared via isostatic pressure. J.R. dos Santos1, T. de Melo Lima2, M.W. Paixão3, A.A. Correa1, E. Chaves Pereira4 and A.J. de Oliveira1,4 1. Departamento de Física, Universidade Federal de São Carlos, São Carlos, Brazil; 2. Departamento de Química Inorgânica, Universidade Federal Fluminense, Niterói, Brazil; 3. Departamento de Química, Universidade Federal de São Carlos, Brazil, Brazil; 4. Instituto de Estudos Avançados e Estratégicos, Universidade Federal de São Carlos, São Carlos, Brazil

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DG-01. Observation of octupole-driven magnetoresistance in a chiral antiferromagnetic tunnel junction. (Invited)

T. Higo1, X. Chen2, K. Tanaka1, T. Nomoto1, H. Tsai1, H. Izduchi1, M. Shiga1, S. Sakamoto1, H. Kosaki1, T. Matsuo1, D. Nishio-Hamane1, R. Arita1, S. Miwa1 and S. Nakatsuij1

1. The University of Tokyo, Bunkyo-ku, Japan; 2. University of California, Berkeley, Berkeley, CA, United States; 3. Kyushu University, Fukuoka, Japan; 4. Johns Hopkins University, Baltimore, MD, United States; 5. RIKEN, Wako, Japan

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DG-02. Thermal cycling induced metamorphosis of exchange bias in MnPS3/Fe3GeTe2 van der Waals heterostructures.


1. Institute of Physics, Johannes Gutenberg University, Mainz, Germany; 2. Department of Physics, University of Basel, Basel, Switzerland; 3. Ernst Ruska-Centre for Microscopy and Spectroscopy with Electrons and Peter Grünberg Institute, Forschungszentrum Julich, Julich, Germany; 4. Max Planck Institute for Solid State Research, Stuttgart, Germany; 5. Max Planck Institute for Polymer Research Mainz, Mainz, Germany; 6. Institute of Semiconductor & Solid State Physics, Johannes Kepler University - Linz, Linz, Austria; 7. Department of Physics, Norwegian University of Science and Technology, Trondheim, Norway

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DG-03. Automated mechanical exfoliation technique and spin pumping in YIG/TMD heterostructures.

L. Sampao1, R. Torrao Victor1, J. Marroquin1, S. Safeer1, D. Dugato1, B. Archianjo4, F. Garcia1 and J. Felix3

1. Centro Brasileiro de Pesquisas Fisicas, Rio de Janeiro, Brazil; 2. Department of Physics, Quaid-i-Azam University, Islamabad, Pakistan; 3. Instituto de Fisica, Universidade de Brasilia, Brasilia, Brazil; 4. INMETRO, Rio de Janeiro, Brazil

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DG-06. Above room temperature ferromagnetism in all-epitaxial Fe5-xGeTe2/graphene and Fe5-xGeTe2/WSe2 van der Waals heterostructures. J. J. Lopes1, H. Lv1, J. Herfort1, M. Hanke1, C. Chen2, J.M. Redwing2, A. Trampert1, R. Engel-Herbert1 and M. Ramsteiner1 1. Paul-Drude-Institute for Solid State Electronics, Berlin, Germany; 2. 2D Crystal Consortium Materials Innovation Platform, Materials Research Institute, The Pennsylvania State University, University Park, PA, United States

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DG-07. Magnetism and Spin-Orbital Coupling in Iron Chalcogenide Superconductors. (Invited) Q. Li1,2 1. Department of Physics and Astronomy, Stony Brook University, Stony Brook, NY, United States; 2. Condensed Matter Physics and Materials Sciences Division, Brookhaven National Laboratory, Upton, NY, United States

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DG-08. Magnetism and Excitations in Quasi-2D magnets VBr3 and VI3. K. Carva1, K. Pokhrel1, D. Hovaněčík1 and J. Pospíšil1 1. Dept. Condensed Matter Physics, Charles University, Prague, Czechia

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DG-09. Magnetic Properties of Two Dimensional Fe3GeTe2 Nanoflakes. R. Cardias Alves de Almeida1, T. Cysne1, A. Bergman2, R. Bechara Muniz3 and M. Costa1 1. Instituto de Fisica, Universidade Federal Fluminense, Niterói, Brazil; 2. Uppsala University, Uppsala, Sweden

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DP-01. Computation-Efficient Model Predictive Control Using Sphere Decoding Algorithm for Dual Three-Phase SPMSMs. Z. Zhang1, J. Chen1, R. Han2, Y. Wu1, Y. Gong1 and S. Chang1 1. Tianjin University, Tianjin, China; 2. Tianjin Navigation Instruments Research Institute, Tianjin, China

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DP-03. Innovative SynRM Rotor Design for Simplified Construction and Enhanced Mechanical Reliability in High-Speed Applications. G. Behling da Silveira1, R. Petry Homrich1, I.P. Wiltuschnig1, A. Ferreira Flores Filho1, A. Tergolina Salton1 and P. Eckert1 1. Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, Brazil

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DP-05. Use of a Ferrofluid in a Magnetic Brake for a Wind Energy Generator. I.G. Cely Orjuela1,2, O. Moscoso Londoño3 and L.M. Socolovsky1,2 1. Universidad Tecnológica Nacional Facultad Regional Santa Cruz, Rio Gallegos, Argentina; 2. CIT Santa Cruz, CONICET, Rio Gallegos, Argentina; 3. Facultad de Ingenieria, Universidad Autonoma de Manizales, Manizales, Colombia

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DP-06. Optimal Design and Experimental Analysis of Rotor Casting Defect Detector. K. Lee\textsuperscript{1,2}, J. Seo\textsuperscript{1,2} and S. Lee\textsuperscript{1} 1. Korea Institute of Industrial Technology, Gwangju, The Republic of Korea; 2. Department of Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea

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DP-08. Enhancing Noise and Vibration Performance for a Traction Squirrel Cage Induction Machine through Rotor Design Optimization. P. Song\textsuperscript{1}, O. Taqavi\textsuperscript{1}, Z. Li\textsuperscript{2}, G. Byczynski\textsuperscript{3} and N. Kar\textsuperscript{1} 1. Department of Electrical & Computer Engineering, University of Windsor, Windsor, ON, Canada

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DP-09. Magnetizing Inductance Estimation Method of Induction Motor for EV Traction Considering Magnetic Saturation Changes According to Current and Slip Frequency. D. Park\textsuperscript{1}, C. Song\textsuperscript{1}, Y. Won\textsuperscript{1}, J. Park\textsuperscript{1}, H. Kim\textsuperscript{1} and M. Lim\textsuperscript{1} 1. Hanyang University, Seoul, The Republic of Korea

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DP-10. Design of LS-SynRM Rotor for Efficiency Improvement and Torque Ripple Reduction. C. Kim\textsuperscript{1}, H. Lee\textsuperscript{1}, J. Lee\textsuperscript{2}, S. Kim\textsuperscript{1} and C. Park\textsuperscript{1} 1. Department of Railroad Vehicle & Operation System Engineering, Korea National University of Transportation, Uiwang-si, The Republic of Korea; 2. Department of Railroad Electric Engineering, Korea National University of Transportation, Uiwang-si, The Republic of Korea; 3. Department of Electrical Engineering, Hanyang University, Seoul, The Republic of Korea

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EXHIBIT HALL

Session DQ
SKYRMIONS AND RELATED PHENOMENA
(Poster Session)
Svitlana Kondovych, Chair
Leibniz Institute for Solid State and Materials Research (IFW) Dresden, Dresden, Germany

DQ-01. Ab initio study of Pd/Fe/Ir(111) bilayers decorated with Co nanostructures. J.G. Corcelio Palma\textsuperscript{1}, P. Costa Carvalho\textsuperscript{1}, A.B. Klautau\textsuperscript{1,2} and H.M. Petrilli\textsuperscript{1} 1. Department of Physics of Materials and Mechanics - Institute of Physics, University of Sao Paulo, Sao Paulo, Brazil; 2. Department of Physics, Federal University of Pará, Belém, Brazil

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DQ-02. Skyrmionic States and Dynamics in Synthetic Antiferro and Ferrimagnets. M.V. Correia\textsuperscript{1}, J.C. Velásquez\textsuperscript{2} and C.C. de Souza Silva\textsuperscript{1} 1. Physics Department, Universidade Federal de Pernambuco, Recife, Brazil; 2. Núcleo de Tecnologia - Centro Acadêmico do Agreste, Universidade Federal de Pernambuco, Caruaru, Brazil

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DQ-03. Tunable skyrmion nucleation in nanodot arrays. Y. Zang¹, W. Griggs¹, T. Thomson¹ and C. Moutafis¹ 1. The University of Manchester, Manchester, United Kingdom

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DQ-04. Application of Artificial Neural Networks for Identification of Skyrmionic Phases on Bidimensional Archimedean Ferromagnetic Lattices. J.R. Gomez Quispe¹, P. Autreto¹, T.W. Mills Robles², C. Rojas-Ayala² and J. Rojas-Tapia² 1. Center of Natural and Human Sciences, Federal University of ABC, Sao Paulo, Brazil; 2. Faculty of Physical Sciences, National University of San Marcos, Lima, Peru

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DQ-05. Isolated zero-field skyrmions at ambient conditions in ferrimagnetic Pt/Coₓ/Gd heterostructures. J. Brandao¹,², T.J. Mori¹,², F. Béron³ and J.C. Cezar¹,² 1. Laboratório Nacional de Luz Síncrontron, Campinas, Brazil; 2. Centro Nacional de Pesquisa em Energia e Materiais, Campinas, Brazil; 3. Universidade Estadual de Campinas, Campinas, Brazil

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DQ-07. Towards Skyrmion Nucleation on Multilayered Thin Films Over Self-Formed Nanodomes. F.L. Vital²,¹, D. de Souza Chaves¹, J. Brandao¹, P. Schio³, F. Béron² and J.C. Cezar¹,² 1. LNLS, CNPEM, Campinas, Brazil; 2. IFGW, Unicamp, Campinas, Brazil; 3. LNNANO, CNPEM, Campinas, Brazil

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DQ-08. In search of Magnetic Skyrmion Phase in 4d Under-Doped MnSi. P. Khandelwal¹, S. Samatham², A. Patel³ and K.G. Suresh¹ 1. Department of Physics, Indian Institute of Technology Bombay, Mumbai, India; 2. Department of Physics, Chaitanya Bharathi Institute of Technology, Gandipet, Hyderabad, Hyderabad, India; 3. Research Centre for Magnetic and Spintronic Materials, National Institute for Materials Science, Tsukuba, Ibaraki, Ibaraki, Japan

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DQ-09. Effects of an Exchange-reducing Defect on a Skyrmion Interaction in Antiferromagnetic Frustrated Films. I.F. Sharafullin¹, D. Abdrahmanov¹, A. Nugumanov¹ and H.T. Diep² 1. Institute of Physics and Technologies, Ufa State University of Science and Technology, Ufa, Russian Federation; 2. Laboratoire de Physique Théorique et Modélisation, Cergy-Paris University, Cergy, France

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DQ-10. Local Electric-field Control of Skyrmions in Nanostructured Multiferroic Heterostructure. Y. Wang¹, Q. Liu¹, X. Zhang², S. Zhang³, B. He⁴, G. Yu⁴, H. Piao² and Y. Zhao¹ 1. Tsinghua University, Beijing, China; 2. Yanbian University, Yanji, China; 3. National University of Defense Technology, Changsha, China; 4. Chinese Academy of Sciences, Beijing, China

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In-Person Presentations 79
DQ-11. Proximity-induced moment and saturation magnetization reduction in Pt/Co/Hf/Pt multilayers. D.A. Dugato1,2, J. Brandao1, F. Béron3 and T.J. Mori1 1. Brazilian Synchrotron Light Laboratory, Brazilian Center for Research in Energy and Materials, Campinas, Brazil; 2. Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil; 3. Universidade Estadual de Campinas, Campinas, Brazil

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EXHIBIT HALL

Session DR
MULTI-FUNCTIONAL MAGNETIC MATERIALS AND APPLICATIONS I
(Poster Session)
Joao Belo, Co-Chair
IFIMUP, Porto, Portugal
Lei Bi, Co-Chair
University of Electronic Science and Technology of China, Chengdu, China

DR-01. Machine Learning-Guided Discovery of Laves Phases for Magnetocaloric Hydrogen Liquefaction. V.G. Lunde1, B.G. Eggert1, A. Møller1, R. Bjork2, J. Grivel2, B.C. Hauback1 and C. Frommen1 1. Department for Hydrogen Technology, Institute for Energy Technology, Oslo, Norway; 2. Department of Energy Conversion and Storage, Technical University of Denmark, Copenhagen, Denmark

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DR-02. Fingerprint of magneto–optical Faraday rotation in Raman spectra of MoS2. M. Bacani1, T. Dieing2, D. Strom2, J. Englert2 and P. Altmann1 1. Attocube Systems AG, Haar, Germany; 2. WITec GmbH, Ulm, Germany

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DR-03. Formation of ferromagnetic clusters affecting the first-order phase transition in off-stoichiometric Fe-Rh. A. Aubert1, K. Skokov1, A. Rogalev2, A. Chirkova1, B. Beckmann1, E. Dilmieva2, F. Wilhelm2, V. Nassif3, L.V. Diop4, E. Bruder5, J. Löfstrand6, D. Primetzhofer6, M. Sahlberg7, E. Adabifiroozjaei1, L. Molina-Luna1, G. Gomez8, B. Eggert8, K. Oullef8, H. Wende8 and O. Gutfeisch1 1. Technische Universität Darmstadt, Darmstadt, Germany; 2. ESRF, Grenoble, France; 3. University Grenoble Alpes, CNRS, Institut Néel, Grenoble, France; 4. Université de Lorraine, CNRS, IJL, Nancy, France; 5. Department of Physical Metallurgy, TU Darmstadt, Darmstadt, Germany; 6. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden; 7. Uppsala University, Uppsala, Sweden; 8. University of Duisburg-Essen, Duisburg, Germany

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Effect of Ge Doping on the Martensitic Transformation and Magnetoelectric Behavior of Ni$_2$Co$_8$Mn$_{39}$Sn$_{11-x}$Ge$_x$ Melt-Spun Ribbons. A. Rosales-Rivera$^1$, D.C. Jaimes-Gómez$^2$, N.A. Salazar-Henao$^3$, H. Gómez-Cordoba$^2$ and D. Salazar Jamillo$^4$. 1. Laboratorio de Magnetismo y Materiales Avanzados, Universidad Nacional de Colombia, Sede Manizales, Manizales, Colombia; 2. BC Materials, Basque Center for Materials, Applications, and Nanostructures, Leioa, Spain

Structure-property relationships in GdCuX and the corresponding hydrides (X= Si, Al). B.G. Eggert$^1$, A.M. Döring$^2$, K. Skokov$^2$, O. Gutfleisch$^2$, B.C. Hauback$^1$ and C. Frommen$^1$. 1. Hydrogen Technology, Institute for Energy Technology, Kjeller, Norway; 2. Department of Materials Science, TU Darmstadt, Darmstadt, Germany

Stability of the Magnetocaloric Effect in Heusler Alloys in Cyclic Magnetic Fields. A. Gamzatov$^1$ and A. Aliev$^1$. 1. Amirkhanov Institute of Physics DFRC of RAS, Makhachkala, Russian Federation

Magnetic anisotropy control through mechanical deformations: Study of magnetoelastic coupling. D. Pérez$^1$, J. Espina$^1$, J. Fuenteleba$^1$ and R.M. Freire$^1$. 1. Facultad de Ingeniería y Arquitectura, Universidad Central de Chile, Santiago, Chile

Residual Stress Monitoring in Magnetostrictive Cylinders. E. Mangiorou$^1$, T. Damatopoulou$^1$, S. Angelopoulos$^2$, A. Ktena$^2$ and E.V. Hristoforou$^1$. 1. Laboratory of Electronic Sensors, National TU of Athens, Athens, Greece; 2. National Kapodistrian University of Athens, Athens, Greece

Optimizing Relative Cooling Power through Magnetic Field-Induced Magnetocaloric Effects in La$_{2.1}$Sr$_{1.2}$Mn$_2$O$_7$ ($x=0.33$). A.K. Saw$^1$, J.P. Nunez$^2$, R.L. Hadimani$^2$, S. Gupta$^2$, V. Franco$^2$ and V. Dayal$^1$. 1. Department of Physics, Maharaja Institute of Technology Mysore (Affl: VTU, Belagavi), Mandya, India; 2. Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States; 3. Division of Material Science and Engineering, Ames Laboratory, US Dept. of Energy, Ames, IA, United States; 4. Departamento de Física de la Materia Condensada, Universidad de Sevilla, Sevilla, Spain

On the behavior of the magnetocaloric quantities $\Delta S_{iso}$ and $\Delta T_{ad}$. J. Caro Patiño$^1$ and N.A. de Oliveira$^1$. 1. Instituto de Física, Universidade do Estado do Rio de Janeiro, Rio de Janeiro, Brazil
DR-11. New design of La(Fe, Co, Si)$_{13}$ magnetocaloric composites using Gd as a binder. H. Zhang$^1$, Z. Wu$^1$, W. Pan$^1$, Y. Zhang$^2$, J. Huang$^1$, M. Yue$^1$, K. Skokov$^2$ and O. Gutfleisch$^2$
1. Beijing University of Technology, Beijing, China; 2. Technical University of Darmstadt, Darmstadt, Germany; 3. Baotou Research Institute of Rare Earths, Baotou, China
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DR-12. Magnetotransport Properties and Spin Textures in Gd$_5$Ge$_4$. F. Mesquita$^1$, N. Marciano$^1$, M. Tumelero$^1$, D. Möckli$^1$ and P. Pureur$^1$
1. Departamento de Física, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil; 2. University of Zaragoza, Zaragoza, Spain; 3. University of Cantabria, Santander, Spain
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DR-13. Temperature Anomalies of Magnetic Hyperfine Fields at $^{119}$Sn and $^{111}$Cd probes in Gd$_5$Ge$_4$. Studied by Mössbauer and PAC Spectroscopy. V. Krylov$^1$, B.B. Santos$^1$, G.A. Cabrera-Pasca$^2$, A.W. Carbonari$^1$, R.N. Saxena$^1$ and O.F. Leite Neto$^1$
1. CERPQ, Instituto de Pesquisas Energeticas e Nucleares, São Paulo, Brazil; 2. Faculty of Exacts Sciences and Technology, UFPA, Abaetetuba, Brazil
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EXHIBIT HALL

Session DS

SENSORS AND HIGH-FREQUENCY DEVICES I
(Poster Session)
Shin Yabukami, Chair
Tohoku University, Sendai, Japan

DS-01. Study of disorientation in polycrystalline hexaferrites and application to the design of a Ka-band planar self-biased isolator. V. Laur$^1$, A. Hoez$^1$, J. Mattei$^1$ and R. Lebourgeois$^2$
1. Lab-STICC / University of Brest, Brest, France; 2. Thales Research & Technology, Palaiseau, France
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1. Department of Electrical Engineering, Federal Center for Technological Education of Minas Gerais - CEFET-MG, Belo Horizonte, Brazil
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1. Department of Engineering, Niigata Institute of Technology, Kashihazaki, Japan; 2. School of Electrical and Computer Engineering, Aristotle University of Thessaloniki, Thessaloniki, Greece; 3. Independent Researcher, Asahikawa, Japan; 4. Directorate for Transport and Communications, Thessaloniki, Greece
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DS-06. Magnetoelastic Constraint on Sensor-Intrinsic Noise. E. Spetzler1, B. Spetzler2, J. Arbustini3, D. Seidler4, A. Bahr1,4,5 and J. McCord1,6 1. Institute for Material Science, Kiel University, Kiel, Germany; 2. Department of Electrical Engineering and Information Technology, Technical University Ilmenau, Ilmenau, Germany; 3. Institute of Electrical Engineering and Information Technology, Kiel University, Kiel, Germany; 4. Electronics for Medical Applications, Jade University of Applied Sciences, Wilhelmshaven, Germany; 5. Institute for Integrated Circuits, Hamburg University of Technology, Hamburg, Germany; 6. Kiel Nano, Surface and Interface Science (KiNSIS), Kiel University, Kiel, Germany

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DS-07. Generation of Multiple Dark Solitons in a Magnonic Active Ring Below Self-Oscillation Threshold. A.B. Ustinov1, L.S. Vedernikov4 and A.A. Stashkevich2 1. Dept. of Physical Electronics and Technology, St. Petersburg Electrotechnical University, St.Petersburg, Russian Federation; 2. LSPM (CNRS-UPR 3407), Université Paris 13, Villetaneuse, France

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DS-08. Implementing Sensors Based on Tunneling Magnetoresistance (TMR) Effect on 3D Self-Assembled Substrate. Z. Zhou1, V. Neu2, Q. Leng1, D. Zhu1, W. Zhao1, O.G. Schmidt3 and D. Karnaushenko3 1. Beihang University, Beijing, China; 2. Leibniz Institute for Solid State and Materials Research (IFW) Dresden, Dresden, Germany; 3. TU Chemnitz, Chemnitz, Germany

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DS-09. Development of Co-based Heusler alloy Co2FeAlxSi1-x with small magneto-crystalline anisotropy K1 for highly sensitive TMR sensor. T. Hojo1, H. Hamasaki1, M. Tsunoda1,2 and M. Oogane1,4 1. Department of Applied Physics, Graduate School of Engineering, Tohoku University, Sendai, Japan; 2. Research Center for Green X-Tech, Green Goals Initiative, Tohoku University, Sendai, Japan; 3. Department of Electronic Engineering, Graduate School of Engineering, Tohoku University, Sendai, Japan; 4. Center for Science and Innovation in Spintronics (Core Research Cluster) Organization for Advanced Studies, Tohoku University, Sendai, Japan

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DS-10. RTD Fluxgate Sensors based on Twisted Glass-Coated Microwires. S. Corodeanu1, C. Hlenschi1, H. Chiriac1, T.A. Ovari1 and N. Lupu1 1. National Institute of R&D for Technical Physics, Iasi, Romania

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Session EA
ORBITRONICS: FROM THEORY TO EXPERIMENTS
Antonio Azevedo, Chair
Universidade Federal de Pernambuco (Physics), Recife, Brazil

2:00

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EA-02. Orbital Hall effect, orbital-to-spin conversion and magnetoresistance in metallic heterostructures. (Invited) P. Gambardella1 1. ETH Zurich, Zurich, Switzerland
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EA-04. Orbital currents and orbital torques in metallic systems. (Invited) K. Ando1 1. Keio University, Yokohama, Japan
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EA-05. From Discovery to Application: Orbital Hall Materials for Cutting-Edge SOT-MRAM Devices. (Invited) R. Gupta1, C. Bouard2, D. Go1,3, A. Bose1, F. Kammerbauer1, O. Ledesma1, S. Martin2, G. Jakob1, Y. Mokrousov1,3, M. Drouard2 and M. Klüüt1,4 1. Johannes Gutenberg University, Mainz, Germany; 2. ANTAIOS, Meylan, France; 3. Peter Grünberg Institut and Institute for Advanced Simulation, Jülich, Germany; 4. Department of Physics, Center for Quantum Spintronic, Trondheim, Norway
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EA-06. Orbitronics in Two-dimensional Materials. (Invited) T.G. Rappoport1,2 1. Department of Physics, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil; 2. Physics, Minho University, Braga, Portugal
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OCEANIA VI & VII

Session EB
MAGNETIC FIELD SENSORS
Paul Stevenson, Chair
Northeastern University, Boston, MA, United States

2:00

EB-01. Acoustically Driven Ferromagnetic Resonance for Miniaturized High-Performance Magnetometry. (Invited) D. Labanowski1, A. Hsin1, J. Blodgett1, V. Guzman1, K. Srinivasan1, K. Gotlieb1, J. Katz1, J. Hubert1, J. Laprade1, V. Brajuskovic1, G. Jaramillo1, S. Karki1, T. Fawal1, H. Wahhab1 and N. Deka1 1. Sonera, Berkeley, CA, United States
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2:30

EB-02. Skyrmionic device for three dimensional magnetic field sensing enabled by spin-orbit torques. S. Koraltan1, R. Gupta2, R. Peremadathil Pradeep4, F. Kammerbauer2, K. Prügl5, M. Kirsch5, B. Aichner1, K. Davidkova1, F. Bruckner1, S. Zeilinger1, S. Helbig1, C. Abert1, A. Mandru4, A. Satz1, G. Jakob2, H.J. Hug4, M. Kläui2 and D. Suess4 1. Faculty of Physics, University Vienna, Vienna, Austria; 2. Faculty of Physics, University Mainz, Mainz, Germany; 3. Infineon Technologies, Villach, Austria; 4. EMPA, Zürich, Switzerland; 5. Infineon Technologies, Regensburg, Germany
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2:45

EB-03. Sensitivity and Linearity of Domain Wall Displacement Modulation GMR Sensors with Closed-loop Current-field Feedback. K. Komuro1, D. Oshima1 and T. Kato2 1. Department of Electronics, Nagoya University, Nagoya, Japan; 2. Institute of Materials and Systems for Sustainability, Nagoya University, Nagoya, Japan
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In-Person Presentations 85
EB-04. An ultrathin, rapidly fabricated, flexible giant magnetoresistive electronic skin. J. Zhang1,2, Z. Jin1,2, G. Chen1 and J. Chen1,3,2. 1. Chinese Academy of Sciences, State Key Laboratory of Transducer Technology, Aerospace Information Research Institute, Beijing, China; 2. School of Electronic, Electrical and Communication Engineering, University of Chinese Academy of Sciences, Beijing, China; 3. College of Materials Sciences and Opto-Electronic Technology, University of Chinese Academy of Sciences, Beijing, China

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EB-05. Development of Open-structure Rotary Magnetic Encoder for Underwater Applications. H. Lin1, K. Peng1 and J. Chang1,2. 1. Power Mechanical Engineering, National Tsing Hua University, Hsinchu, Taiwan; 2. National Formosa University, Huwei Township, Taiwan

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EB-06. Remote sensing of nanoscale displacements through detection of magnetic field gradients with magnetic tunnel junction sensors. A. Talansëv1, T. Böhnert1, A. Araújo1, E. Paz1, L. Benetti1 and R. Ferreira1. 1. Spintronics, International Iberian Nanotechnology Laboratory, Braga, Portugal

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EB-08. Numerical Modeling of the Magnetoimpedance effect from Micromagnetism. G. Gestoso1, D. de Cos Elices1, E. Fernandez1 and A. García-Arribas1,3. 1. Departamento de Electricidad y Electrónica, Universidad del País Vasco UPV/EHU, Leioa, Spain; 2. Departamento de Física, Universidad del País Vasco UPV/EHU, Vitoria, Spain; 3. BC Materials, Leioa, Spain

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EB-09. Multifunctional MgO-Based Magnetic Tunnel Junctions with Coexisting Magnetoresistance and Memristive Properties. A. Schulman1,2, E. Paz1, T. Boehnert1, A. Jenkins1 and R. Ferreira1. 1. Spintronics, International Iberian Nanotechnology Laboratory (INL), Braga, Portugal; 2. University of Salamanca, Salamanca, Spain
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EB-10. 2-Axis planar Hall magnetic field sensors with sub nanoTesla resolution. P.T. Das1,2, H. Nhalif, V. Mor2, M. Schultz2, N. Hasidim3, A. Grosz3 and L. Klein2. 1. Intelligent Materials and Systems (FWID), Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. Department of Physics, Bar-Ilan University, Ramat Gan, Israel; 3. Department of Electrical and Computer Engineering, Ben-Gurion University of the Negev, Beer-Sheva, Israel
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OCEANIA IX & X

Session EC
INTERDISCIPLINARY TOPICS: SENSORS, ANTENNAS, AND NANOFABRICATION
Luiz Sampaio, Chair
Brazilian Center for Research in Physics, Rio de Janeiro, Brazil

2:00

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EC-02. Frequency-Domain Propagation in Multiconductor Submarine Power Cables. R.A. Coelho1, G.C. Biage1, M.L. P. Filho1 and J.R. Cardoso1. 1. InnovaPower - RCGI, Universidade de Sao Paulo, Sao Paulo, Brazil; 2. Institute for Technological Research, Sao Paulo, Brazil
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In-Person Presentations 87
EC-03. Research on High Performance TMR-Superconducting Composite Magnetic Sensor and Performance Optimization. S. Han1,2, Y. Wu3, Z. Jin4 and J. Chen1,2,4
1. State Key Laboratory of Transducer Technology, Aerospace Information Research Institute, Beijing, China; 2. School of Electronic, Electrical and Communication Engineering, University of Chinese Academy of Sciences, Beijing, China; 3. Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China; 4. College of Materials Sciences and Opto-Electronic Technology, University of Chinese Academy of Sciences, Beijing, China
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3:00

EC-04. Analytical Calculation of Series Impedance for Deeply Buried Coaxial Cables. G.C. Biage1, R.A. Coelho1 and J.R. Cardoso1 1. RCGI, Universidade de São Paulo, São Paulo, Brazil
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EC-05. Progress in nanofabrication of superconducting devices and diverse applications. A.C. Rebello1, N.Y. Klein1, L.M. Ruela2, E. Martins3, I.S. Oliveira1, J.P. Sinnecker1 and F. Rouxino2 1. Department of Condensed Matter, Centro Brasileiro de Pesquisas Físicas, Niterói, Brazil; 2. University of Campinas, Campinas, Brazil; 3. Centro de Pesquisas, Desenvolvimento e Inovação Leopoldo Américo Miguez de Mello, Rio de Janeiro, Brazil
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EC-06. Magnetoelectric Materials and Ultra-compact Mechanical Antennas. (Invited) B. Luo1, Y. Liu1, R. Huang1 and N.X. Sun1 1. Northeastern University, Boston, MA, United States
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EC-07. Withdrawn

4:15

EC-08. In Plane Single Domain 3D SOT Sensor with Active Offset Compensation. S. Zeilinger1, A. Satz2, J. Guettinger2, J.M. Salazar4 and D. Suss1 1. University of Vienna, Vienna, Austria; 2. Infineon Austria, Villach, Austria
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EC-09. Skyrmion-based rotation counter-sensor device.
K. Leutner1, R. Frömler1, T. Winkler1, R. Gruber1, J. Guettinger2, H. Fangohr3,4 and M. Kläui1
1. Institute of Physics, Johannes Gutenberg University Mainz, Mainz, Germany; 2. Infineon Technologies Austria AG, Villach, Austria; 3. Max-Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany; 4. Faculty of Engineering and Physical Sciences, University of Southampton, Southampton, United Kingdom
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EC-10. A carborane-based Gd metal-organic framework towards scalable Quantum Computing.
E. Bartolomé1, A. Arauzo2, I. García-Rubio2, J. Luzón3, X. Li1 and J. Giner-Planas1
1. Instituto de Ciencia de Materiales de Barcelona (ICMAB), Barcelona, Spain; 2. Department of Condensed Matter Physics, Instituto de Nanociencia y Materiales de Aragón (INMA), CSIC-Universidad de Zaragoza, Zaragoza, Spain; 3. Centro Universitario de Defensa (CUD), Zaragoza, Spain
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session ED
BIOMAGNETICS II
Andris Bakuzis, Co-Chair
Federal University of Goiás, Goiânia, Brazil
Kai Wu, Co-Chair
Texas Tech University, Lubbock, TX, United States

ED-01. Magnetism for mechanobiology and related biomedical applications, (Invited)
B. Dieny1, A. Visonà1,2, R. Morel1, H. Joisten1, P. Obeid3, A. Nicolas3, S. Belin2 and F. Berger4
1. SPINTEC, Univ.Grenoble Alpes, CEA, CNRS, Grenoble, France; 2. LTM, Univ.Grenoble Alpes, CEA, CNRS, Grenoble, France; 3. Grenoble Institut Neurosciences, Univ. Grenoble Alpes, U1216, Grenoble, France; 4. Brain Tech Lab, Univ. Grenoble Alpes, INSERM, Grenoble, France; 5. Biomics, Univ.Grenoble Alpes, CEA, INSERM, Grenoble, France
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ED-02. Melanoma Cell Internalization of Spin-Vortex Nanodisks for Cancer Treatment. R. Zurbano1, C. Redondo1, I. Solozabal Azcarate1, M. Boyano2,3 and R. Morales4,5  
1. Department of Physical Chemistry, University of the Basque Country, Leioa, Spain; 2. Department of Cell Biology and Histology, University of the Basque Country, Leioa, Spain; 3. Biocruces Health Research Institute, Bilbao, Spain; 4. University of the Basque Country UPV/EHU & BC Materials, Leioa, Spain; 5. IKERBASQUE, Bilbao, Spain  
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ED-03. Level Change of Biochemical Markers in Serum after Acute Administration of Magnetite (Fe3O4) Nanoparticles. S. Lee1, J. Choi1, Y. Hong2 and M. Hasan2  
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ED-04. Effects, Mechanisms, and Potential Biomedical Applications of Static Magnetic Fields. (Invited) X. Zhang1  
1. High Magnetic Field Laboratory, Hefei Institutes of Physical Science, Hefei, China  
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ED-05. Fe3N nanoparticles: properties, stability and applications. Y. Ablets1, L. Kubíčková2, A. Chanda3, I. Orue4, D. Koch1, S. Najma1, S. Forg5, E. Adabifiroozjaei1, L. Molina-Luna1, T. Kmjeć6, J. Ángel García7, F. Plazaola8, R. von Klitzing5, W. Donner1, H. Srikanth3, O. Gut-faced1 and I. Dirba1  
1. Institute of Materials Science, TU Darmstadt, Darmstadt, Germany; 2. FZU - Institute of Physics of the Czech Academy of Sciences, Praha, Czechia; 3. Department of Physics, University of South Florida, Tampa, FL, United States; 4. SGKer Medidas Magnética, Universidad del País Vasco (UPV/EHU), Leioa, Spain; 5. Institute for Condensed Matter Physics, TU Darmstadt, Darmstadt, Germany; 6. Faculty of Mathematics and Physics, Charles University in Prague, Prague, Czechia; 7. Departamento de Fisica, Universidad del País Vasco (UPV/EHU), Leioa, Spain; 8. Elektrizitatea eta Elektronika Saila, Facultad de Ciencia y Tecnologia, (UPV/EHU), Leioa, Spain  
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ED-06. Measurement of Transcranial Magnetic Stimulation-Induced Electric Fields in conductively accurate Rat Head Phantoms. W. Lohr1, R.L. Hadimani1,2, P. Sundaram3 and M. Tashli2 1. Department of Biomedical Engineering, Virginia Commonwealth University, Richmond, VA, United States; 2. Department of Mechanical and Nuclear, Virginia Commonwealth University, Richmond, VA, United States; 3. Martino’s Center, Harvard Medical School, Boston, MA, United States.

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ED-08. Giant Magnetoresistive Biosensors for Measuring Enzyme Kinetics. J. Im1, S. Kim1, S. Park1, S.X. Wang2 and J. Lee1 1. Ewha Womans University, Seoul, The Republic of Korea; 2. Stanford University, Stanford, CA, United States.

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ED-09. Magnetically-Enabled Detection of Circulating Tumor DNA in Non-Small Cell Lung Cancer Patients for Therapy Selection Purposes. K. Antilla1, C. Choi2 and S.X. Wang2,3 1. Department of Chemical Engineering, Stanford University, Stanford, CA, United States; 2. Department of Materials Science and Engineering, Stanford University, Stanford, CA, United States; 3. Department of Electrical Engineering, Stanford University, Stanford, CA, United States.

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EE-01. Development of Permanent Magnets – A Critical Materials Consideration. (Invited) M.J. Kramer1,2, A. Palasyuk1, I.Z. Hlova1, J. Cui1,2 and D. Parker3 1. Ames National Laboratory, Ames, IA, United States; 2. Department of Materials Science and Engineering, Iowa State University, Ames, IA, United States; 3. Materials Science and Technology Division, ORNL, Oak Ridge, TN, United States View Digest Text

EE-02. Smart Predictions: Machine Learning in Constructing Sm-Fe-V Phase Diagram. P. Tozman1, A.D. Zamalloa1, A. Aubert1, K. Skokov1 and O. Gutfleisch1 1. Functional Materials, Technical University of Darmstadt, Darmstadt, Germany View Digest Text

EE-04. Novel hardening mechanism and element specific magnetic anisotropy in SmCoCu thin films. G. Gkouzia1, D. Günzing2,3, R. Xie1, T. Weßels2,3, A. Kovács1, A.T. N’Diaye4, M. Major1, J. Palalakkal5, R.E. Dunin-Borkowski5, H. Wende2, H. Zhang1, K. Ollefs2 and L. Alff1 1. Department of Materials Science, TU Darmstadt, Darmstadt, Germany; 2. Department of Physics, University Duisburg-Essen, Duisburg, Germany; 3. Ernst Ruska-Centre for Microscopy and Spectroscopy with Electrons and Peter Grünberg Institute, Forschungszentrum Jülich, Jülich, Germany; 4. Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 5. Department of Physics, Georg August University of Göttingen, Göttingen, Germany View Digest Text

EE-05. Exploring the Formation of Ordered Tetrataenite Phase in Cryomilled FeNi Alloys with Small Carbon Additions. V.R. da Silva1, B.C. Hauback1 and S. Deledda1 1. Institute for Energy Technology, Kjeller, Norway View Digest Text

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EE-08. Disproportionation and recombination reactions - a promising technique of producing sintered nanostructured anisotropic SmCo5 magnets. I. Bulyk, B. Yang and I. Boruch. 1. Institute of Rare Earth Magnetic Materials and Devices, Jiangxi University of Science and Technology, Ganzhou, China; 2. National Rare Earth Functional Materials Innovation Center, Ganzhou, China; 3. Karpenko Physico-Mechanical Institute of National Academy of Sciences of Ukraine, Lviv, Ukraine

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3:45

EE-09. Magnetic hardness of Fe3C-based alloys: A first-principles study. J. Snarski-Adamski, J.N. Rychly-Gruszecka and M. Werwinski. 1. Institute of Molecular Physics Polish Academy of Sciences, Poznan, Poland

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EE-11. Deflection patterns on strontium ferrite/iron oxide/Ecoflex 00-30 flexible composites. V.V. Xavier, M. Elabbasi, A. El-Gendy and A. de Oliveira Barros. 1. Department of Mechanical Engineering, Federal Institute of Pernambuco, Caruaru, Brazil; 2. Department of Physics, University of Texas at El Paso, El Paso, TX, United States; 3. Department of Industrial, Manufacturing and Systems Engineering, University of Texas at El Paso, El Paso, TX, United States

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EUROPA II

Session EF
SOFT MAGNETIC ALLOYS: SYNTHESIS, CHARACTERISATION AND MODELING
Ivan Skorvanek, Chair
Institute of Experimental Physics, Slovak Academy of Sciences, Kosice, Slovakia

2:00

EF-01. The Influence of SiO₂ Layer on the Temperature Stability of SMC Based on Iron and Mn-Zn Ferrite. J. Fuzer¹, S. Vovk¹, S. Dobák¹, P. Kollár¹, R. Bureš², M. Fáberová², V. Tsakaloudi³ and V. Zaspalis³,⁴ 1. Institute of Physics, P.J. Safarik University, Kosice, Slovakia; 2. Institute of Materials Research, Slovak Academy of Sciences, Kosice, Slovakia; 3. CERTH, Thessaloniki, Greece; 4. Department of Chemical Engineering, Aristotle University of Thessaloniki, Thessaloniki, Greece
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2:15

EF-02. Effects of warm-rolling condition on microstructure, texture and magnetic properties of Fe-18Co-xSi-0.5Al mass% alloys. T. Sato¹ 1. Corporate Research & Development Center, Daido Steel Co., Ltd., Nagoya, Japan
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2:30

EF-03. Excess loss modeling in ferromagnetic materials, including thermal effects. S. Jacobs¹ and J. Rens² 1. ArcelorMittal Global R&D, Zwijnaarde, Belgium; 2. ArcelorMittal Global R&D Gent, Zwijnaarde, Belgium
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2:45

EF-04. Predicting Magnetic Losses in HGO Steel Sheets under Distorted Induction waveform. N. Banu¹, M. Pasquale¹ and F. Fiorillo¹ 1. INRIM, Torino, Italy
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3:00

EF-05. Tensile stress effect on magnetic Barkhausen noise of silicon steel single crystal (measurements and simulations). B. Ducharme¹,²,³, E. Wasniewski¹, L. Daniel⁴, M. Domenjoud³ and P. Fagan² 1. Institut National des Sciences Appliquées de Lyon, Villeurbanne, France; 2. Tohoku University, Sendai, Japan; 3. ElyTMaX, CNRS, Sendai, Japan; 4. CETIM, Sentis, France; 5. Université Paris-Saclay, CentraleSupélec, Gif-sur-yvette, France
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In-Person Presentations
EF-06. Stress-Induced Magnetization Process in Shifted Grain-Oriented Steel Ring Cores. S. Dobák1, J. Fuzer1, I. Petryşhynets2, F. Onderko1, P. Kollár1 and F. Kováč2 1. Institute of Physics, Faculty of Science, P. J. Šafářik University, Košice, Slovakia; 2. Institute of Materials Research, Slovak Academy of Sciences, Košice, Slovakia

EF-08. Effect of tension and compression stress on the magnetic losses in a low-Carbon steel. A. Ouazib1,2, M. Domenjoud1,2 and L. Daniel1,2 1. Université Paris-Saclay, CentraleSupélec, CNRS, Laboratoire de Genie Electrique et Electronique de Paris, Gif sur Yvette, France; 2. Sorbonne Université, Paris, France


EF-10. First-Principles Study of Saturation Magnetization Flux Density in Nitrogen Defective α′-Fe8Nx. Y. Asari1, T. Tabata1, M. Noujima1 and S. Terada1 1. Hitachi, Ltd., Hitachi, Japan


EF-12. High-Rate Deposition and Characterization Study of CoZrO Films for On-Chip Power Applications. E. Ng1, J. Lin2, E. Young-Dohe3, C. Sullivan4, A. Hanson1 and J. Incorvia1 1. Chandra Family Department of Electrical and Computer Engineering, University of Texas at Austin, Austin, TX, United States; 2. Materials Engineering Department, Southwest Research Institute, San Antonio, TX, United States; 3. NASA Glenn Research Center, Cleveland, OH, United States; 4. Dartmouth College, Hanover, NH, United States
EF-07. Boron added Fe-6.5%Si melt spun ribbon with improved processability and magnetic properties. G. Ouyang¹, B. Hillard¹, M.J. Kramer¹,², I.E. Anderson¹,² and J. Cui¹,²
¹. Department of Material Science and Engineering, Ames Laboratory, Ames, IA, United States; 2. Iowa State University, Ames, IA, United States
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EUROPA IV

Session EG

MAGNETIZATION DYNAMICS, DAMPING, AND MICROMAGNETIC MODELING

Jose Angel Fernandez-Roldan, Co-Chair
HZDR, Oviedo, Spain

Vito Puliafito, Co-Chair
Politecnico di Bari, Bari, Italy

EG-01. Optical control of antiferromagnetism. (Invited)
C. Tzschaschel¹. Max Born Institute, Berlin, Germany
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EG-02. Complex Dynamics In Mutually Coupled Spin Torque Vortex Oscillators. K. Hu¹,²,³, S. Wittrock⁴, S. Pern⁴, R. Dutra⁴, R. Ferreira⁴, C. Serpico⁵, P. Bortolotti¹,²,³, R. Lebrun¹,²,³ and V. Cros¹,²,³. Laboratoire Albert Fert, Palaiseau, France; 2. CNRS, University of Paris-Sud, Palaiseau, France; 3. Thales Communications & Security, Palaiseau, France; 4. Helmholtz-Zentrum Berlin fur Materialien und Energie GmbH, Berlin, Germany; 5. University of Naples, Naples, Italy; 6. Centro Brasileiro de Pesquisas Fisicas, Rio de Janeiro, Brazil; 7. International Iberian Nanotechnology Laboratory, Braga, Portugal
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EG-04. Microcoils for magnetisation reset in stroboscopic optical pump-probe experiments. C.R. Sait¹, T.H. Loughran¹, M. Dabrowski¹, P.S. Keatley¹ and R. Hicken¹. Department of Physics, University of Exeter, Exeter, United Kingdom
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EG-06. Scaling exponents for Barkhausen avalanches in magnetic multilayers. F. Bohn¹, N.R. Machado¹, E.F. da Silva¹, M. Gamino¹, M.A. Correa¹ and R.L. Sommer² ¹ Department of Physics, Universidade Federal do Rio Grande do Norte, Natal, Brazil; 2. Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil

EG-07. Tunable 2-D Magnonic Crystals: Effect of Packing Density. C. Tian² and A.O. Adeyeye¹ ¹ Department of Physics, Durham University, Durham, United Kingdom; 2. Department of Electrical & Computer Engineering, National University of Singapore, Singapore

EG-08. Evolution of the magnetic switching processes from in-plane to out-of-plane in Ni₈₀Fe₁₀/Fe₇₀Ga₃₀ magnetostrictive bilayers. A. Begué¹, N. Cotón¹, C. Martín-Rubio², M. Jaafar³, R. Sanz González² and R. Ranchal¹ ¹ Department of Material Physics, Complutense University, Madrid, Spain; 2. Payloads and Space Sciences Department, Instituto Nacional de Técnica Aeroespacial, Torrejón de Ardoz, Spain; 3. Material Science Institute of Madrid, Madrid, Spain

EG-09. Enhancement of damping in YIG films at millikelvin temperatures due to GGG substrate. R. Serha¹, A. Voronov¹, D. Schmoll¹, R.V. Verba², S. Koraltan³, M. Urbánek³, M. Lindner¹, T. Reimann³, C. Dubbs³, C. Abert¹, D. Suess¹, S. Knauer¹ and A. Chumak¹ ¹ Department of Physics, University of Vienna, Vienna, Austria; 2. Institute of Magnetism, Kyiv, Ukraine; 3. CEITEC BUT, Brno University of Technology, Brno, Czechia; 4. INNOVENT e.V. Technologieentwicklung, Jena, Germany
EG-10. Magnetization reversal and direct observation of magnetic domains on FePt thin films. A. Román1,2, J. Gomez3,4,5, A. Butera3,4,5, P. Vavassori6,7 and L. Steren1,5 I. Instituto de Nanociencia y Nanotecnología, CNEA/CONICET, Nodo Constituyentes, San Martín, Argentina; 2. Instituto de Nanociencia y Nanotecnología, CNEA/CONICET, Buenos Aires, Argentina; 3. Consejo Nacional de Investigaciones Científicas y Técnicas, Argentina, Argentina; 4. Instituto de Nanociencia y Nanotecnología, CNEA/CONICET, Nodo Bariloche, San Carlos de Bariloche, Argentina; 5. Laboratorio de Resonancias Magnéticas, Centro Atómico Bariloche, San Carlos de Bariloche, Argentina; 6. Nanomagnetism, CIC nanoGUNE, Donostia-San Sebastián, Spain; 7. IKERBASQUE, Basque Foundation for Science, Bilbao, Spain

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EG-11. Theoretical analysis of the spin-torque diode effect driven by magnetization phase-transitions. M. Lianeris1, A. Meo1, M. Carpentieri1, R. Tomasello1 and G. Finocchio2 1. Department of Electrical and Information Engineering, Politecnico di Bari, Bari, Italy; 2. University of Messina, Messina, Italy

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EXHIBIT HALL

Session EP

BIOMAGNETICS III
(Poster Session)

Javier Alonso, Co-Chair
University of Cantabria, Santander, Spain
Ravi Hadimani, Co-Chair
Virginia Commonwealth University, Richmond, VA, United States
Ana García-Prieto, Co-Chair
University of the Basque Country UPV/EHU, Bilbao, Spain

EP-01. Novel polymer memristor as an integrate and fire synaptic device. W. Lohr1, R.L. Hadimani2, S. Khannah3, S. Bothra1, N. Kumar4 and S. Singh1 1. Department of Biomedical Engineering, Virginia Commonwealth University, Richmond, VA, United States; 2. Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States; 3. Academy of Scientific and Innovative Research, Ghaziabad, India; 4. CSIR-National Physical Laboratory, New Delhi, India

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EP-02. An Output-Fusion Fuzzy Logic Controller for Tumor Thermal Ablation Therapy System with Wireless Power Transfer. Y. Huang1, C. Hung1 and C. Tai1 1. Department of Electrical Engineering, National Cheng Kung University, Tainan, Taiwan

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EP-05. An Ultra-Broadband Magnetic Susceptibility Evaluation of Magnetic Nanoparticle and Protein. S. Yabukami1,2, J. Honda1, T. Murayama1, L. Tonthat1 and K. Okita1 1. Tohoku University, Sendai, Japan; 2. Tohoku-TMIT, Sendai, Japan

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EP-08. Intermittent F-actin Perturbations by Magnetic Fields Inhibit Breast Cancer Metastasis. X. Ji1 and X. Zhang1 1. High Magnetic Field Laboratory of CAS (CHMFL), Hefei, Anhui, China

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EXHIBIT HALL

Session EQ
NUMERICAL, SEMI-ANALYTICAL AND ANALYTICAL ANALYSIS METHODS II (Poster Session)
Johannes Paulides, Chair
Advanced Electromagnetics Group, Waalwijk, Netherlands

EQ-02. Anisotropic Models of Nonlinear Magnetic Behavior Laws for Finite Element Modeling of Iron Losses in a Toroidal Core. J. Drappier1, F. Guyomarch1, R. Cherif1, Y. Le Menach1, O. Messal1, L. Chevallier1 and A. Benabou1 1. L2EP, University of Lille, Lille, France; 2. ESME, Lille, France

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EQ-03. Skewing Effect on the Performance Characteristics of Synchronous Reluctance Machine with 3D Printed Axially Laminated Anisotropic Rotor. M. Sitnikov¹, F. Martin¹ and A. Belahcen¹ 1. Department of Electrical Engineering and Automation, Aalto University, Espoo, Finland
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EQ-04. Highly Efficient Experimental System for Thermomagnetic Coefficient Calculations. C.M. Valença¹, J.M. de Oliveira¹, A. de Morais¹, A. Ferreira², F. Vaz², F. Bohn¹ and M.A. Correa¹ 1. Physics Department, Universidade Federal do Rio Grande do Norte, Natal, Brazil; 2. Physics Department, University of Minho, Braga, Portugal
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EQ-05. Implementation of an Edge-Based h-Formulation in the Nonlinear Magnetostatic Case. L.D. Domenig¹, K. Roppert¹ and M. Kaltenbacher¹ 1. Institute of Fundamentals and Theory in Electrical Engineering, Graz University of Technology, Graz, Austria
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EQ-06. Development of a Combined Maxwell’s Equations and Magnetic Equivalent Circuit Solution for Induction Machines in Electric Vehicle Applications. O. Taqavi¹, P. Song², Z. Li² and N. Kar¹ 1. Department of Electrical and Computer Engineering, University of Windsor, Windsor, ON, Canada
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EQ-07. Shape Optimization of Electric Motors Using 2.5-D Continuum Sensitivity Analysis. E. Jung¹, K. Seo¹ and I. Park¹ 1. Sungkyunkwan University, Suwon-si, The Republic of Korea
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EQ-08. Frequency Sensitivity Analysis of Magnetoquasistatic System with Voltage or Current Excitation. S. Rho¹ and I. Park¹ 1. Department of Electrical and Computer Engineering, Sungkyunkwan University, Suwon, The Republic of Korea
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EQ-12. Optimal Shape Design of Permanent Magnet Synchronous Motor to Reduce Cogging Torque and Torque Ripple. H. Koo¹, I. Yun¹, H. Hong¹, C. Jo¹ and J. Lee¹ 1. Department of Electrical Engineering, Hanyang University, Seoul, The Republic of Korea
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EQ-14. Performances of direct drive and magnetically geared PMSMs with different cooling technologies. S. Mezani¹, T.A. Marcand¹, C. Bonnard¹ and N. Takorabet¹ 1. Laboratoire GREEN - FST, Université de Lorraine, Vandoeuvre-lès-Nancy CEDEX, France
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Session ER
SPIN-ORBIT TORQUES AND RELATED PHENOMENA
(Poster Session)
Mathias Kläui, Chair
Universität Mainz, Mainz, Germany


ER-03. Spin-orbit torque driven Skyrmion Hall effect-like motion of stripe domains in the perpendicularly magnetized system. "S. Maji', I. Bhat' and P. Anil Kumar'. 1. Department of Physics, Indian Institute of Science, Bangalore, Bengaluru, India

ER-04. Ferromagnetic material as dominant spin source achieving field-free SOT switching. "S. Liu', C. Wan', G. Yu' and X. Han'. 1. Institute of Physics, Chinese Academy of Sciences, Beijing, China


ER-08. Zr thickness dependence of perpendicular magnetic anisotropy and spin-orbit torques in the W/CoFeB/Zr/MgO multilayers. T. Zhu1 1. Institute of Physics, Chinese Academy of Sciences, Beijing, China
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ER-09. Field-free spin-orbit torque switching in conically magnetized free layer nanomagnet. P.K. Mishra1 and S. Bhukta1 1. Department of Electrical Engineering, Indian Institute of Technology, Tirupati, India
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EXHIBIT HALL

Session ES
HARD MAGNETIC MATERIALS III
(Poster Session)
Matthew Kramer, Co-Chair
Ames National Laboratory, Ames, IA, United States
Alex Aubert, Co-Chair
Technische Universitat Darmstadt, Darmstadt, Germany

ES-01. The potential of SmCo$_4$B-based compounds as a permanent magnet. P. Tozman1, A. Aubert1, K. Skokov1, H. Sepehri-Amin2, Y. Skourski1, Y. Ishii4, Y. Matsuda4 and O. Gutfleisch1 1. Functional Materials, Technical University of Darmstadt, Darmstadt, Germany; 2. National Institute for Materials Science (NIMS), Tsukuba, Japan; 3. Helmholtz-Zentrum Dresden–Rossendorf, Dresden, Germany; 4. The University of Tokyo, Kashiwa, Japan
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ES-02. Transforming Highly Corroded Scrap Magnets into Coercive Powders. S.X. Lima2, M.A. Rosa2, J.C. Ronchi2, S.M. Souza1, Q.H. Rebelo1, P.O. Junior1, R.D. Souza1 and P.A. Wendhausen2 1. UFAM, Manaus, Brazil; 2. Magnetic Materials Laboratory, Federal University of Santa Catarina, Florianopolis, Brazil; 3. Laboratory-Factory of Magnets and Rare-earth Alloys (LabFabITR), Lagoa Santa, Brazil
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ES-03. The Role of Coercivity on Texture Assessment of Nd-Fe-B Magnets via Magnetometry Technique. L. Quispe1, L.F. Antunes1, A. Baldárraga-Alcántara1, L. Luza-Mamani1, L. Ulian Lopes1, S.M. Souza2 and P.A. Wendhausen1 1. Magnetic Materials Laboratory, Federal University of Santa Catarina, Florianopolis, Brazil; 2. Department of Materials Physics, Federal University of Manaus, Manaus, Brazil
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102 In-Person Presentations
The detrimental effect on the magnetic properties of Nd-Fe-B magnets subjected to high-temperature treatment (1000 °C) during grain boundary diffusion.

M.B. Dias1,2, G. Shimizu2, L. Azvedo2, D. Rodrigues3, W.C. Macedo1, L.F. Antunes1, L. Ulian Lopes3, P.A. Wendhausen1 and F. Landgraf1 1. SENAI SP College, Osasco, Brazil; 2. University of São Paulo, São Paulo, Brazil; 3. Federal University of Santa Catarina, Florianópolis, Brazil


W.C. Macedo1, L.F. Antunes1, B. Fertig1, C.F. Sampietro1, D.A. Silva1, N.V. Junior1, S.M. Souza2 and P.A. Wendhausen1 1. Magnetic Materials Laboratory, Federal University of Santa Catarina, Florianópolis, Brazil; 2. Department of Materials Physics, Federal University of Amazonas, Manaus, Brazil

Using Nanocrystalline HDDR Powders in the Additive Manufacturing of Bonded Nd-Fe-B Magnets.

B. Fertig1, M.A. Rosa1, G. Vieira2, M. Martins2, C. Ahrens1, M.V. da Luz1, A. Mascheroni1, J.M. Mascheroni1 and P.A. Wendhausen1 1. Magnetic Materials Laboratory, Federal University of Santa Catarina, Florianópolis, Brazil; 2. Center for the Development of Nuclear Technology, Belo Horizonte, Brazil; 3. Alkimat, São José, Brazil

Towards Recycling of Nd–Fe–B Permanent Magnets in a Circular Economy.

A. Paksoy1, A. Khan1, A. Durgun1, M. Hasan2, M. Schönfeldt1,2, I. Rudulov2, J. Gassmann2, I. Dirba1 and O. Guttleisch1 1. Institute of Materials Science, TU Darmstadt, Darmstadt, Germany; 2. Magnetic Materials, Fraunhofer IWKS, Hanau, Germany

Effect of particle size on magnetic properties of SmCo5 powder prepared by ball-milling process.

K. Park1 and Y. Hirayama1 1. National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan

Synthesis of size-controlled and dispersible Sm2Fe17N3 particles by reduction diffusion.

Z. Yang1, J. Xi1 and M. Yue1 1. Beijing University of Technology, Beijing, China

Development of bonded α″-Fe16N2 permanent magnet.

M. Grigoras1, M. Lostun1, G. Ababei1, G. Stoian1 and N. Lupu1 1. National Institute of Research and Development for Technical Physics, Iasi, Romania

Evaluating the magnetic hardening of Nd-Fe-B magnets after grain boundary diffusion: a layer by layer approach.

L.F. Antunes1, L. Quispe1, W.C. Macedo1, M.B. Dias1, L. Ulian Lopes1, S.M. Souza1 and P.A. Wendhausen1 1. Universidade Federal de Santa Catarina, Florianópolis, Brazil; 2. Universidade Federal do Amazonas, Manaus, AM, Brazil; 3. Universidade de São Paulo, São Paulo, Brazil
ES-13. Magnetic coupling on multilayer of NdFeB/Dy films grown by magnetron sputtering. A.C. Krohling¹, L. Fernandez  Outon² and J. Ardisson¹ 1. Department of Physics, Nuclear Technology Development Center, Belo Horizonte, Brazil; 2. Department of Physics, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil

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ES-11. Enhancement of the magnetic performance of Nd-Fe-B sintered magnets through novel powder modification. M. Zhu¹, Y. Wang¹, Q. Sun¹, Y. Fang¹ and W. Li¹
1. Central Iron & Steel Research Institute, Beijing, China

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ES-14. Strategies for ultra-limited utilization of heavy rare-earth Tb in Ce magnets with high Ce-content: synergistic diffusion mechanism of Pr. M. Zhu¹, X. Song¹, Q. Sun¹, Y. Fang¹ and W. Li¹
1. Central Iron & Steel Research Institute, Beijing, China

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OCEANIA IV & V

Session FA

MAGNONIC MATERIALS AND DEVICES

Santa Pile, Co-Chair
Johannes Kepler University Linz, Linz, Austria
Jaroslaw Klos, Co-Chair
Adam Mickiewicz University, Poznan, Poland

8:30

FA-01. All-on-chip approach towards quantum magnonic devices. (Invited) O. Santos¹² and C. Ciccarelli¹
1. Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom; 2. Zernike Institute for Advanced Materials, University of Groningen, Groningen, Netherlands

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9:00

FA-02. Magnon transport in YIG/GGG at millikelvin temperatures for quantum magnonics. (Invited) A. Chumak¹
1. Faculty of Physics, University of Vienna, Vienna, Austria

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FA-03. Magnon Quantum Effects in Magnon Junction and Heterojunction. *Invited* X. Han¹,²,³ ¹ Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences, Beijing, China; ² Center of Materials Science and Optoelectronics Engineering, University of Chinese Academy of Sciences, Beijing, China; ³ Songshan Lake Materials Laboratory, Dongguan, China

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10:00

FA-04. Active control of spin waves in nanoscale magnonic devices. *Invited* H. Qin¹,² ¹ NanoSpin, Department of Applied Physics, Aalto University, Helsinki, Finland; ² School of Physics and Technology, Wuhan University, Wuhan, China

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10:30

FA-05. Thin-Film Magnomechanics. *Invited* J. Xu¹, Y. Jiang², Z. Yan² and X. Zhang² ¹ University of Central Florida, Orlando, FL, United States; ² ECE, Northeastern University, Boston, MA, United States

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OCEANIA VI & VII

Session FB

NOVEL CHARACTERIZATION APPROACHES

Pedram Khalili, Chair
Northwestern University, Evanston, IL, United States

8:30

FB-01. Antiferromagnetic and ferromagnetic domain and domain wall manipulation revealed using polarised x-ray imaging. *Invited* S.S. Dhesi¹ ¹ Diamond Light Source Ltd, Didcot, United Kingdom

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9:00

FB-02. The photoemission microscopy end station at SIRIUS: an advanced instrument to investigate magnetism at surfaces. *Invited* D. de Souza Chaves¹, J. Brandao¹, M.O. Gardingo¹ and J.C. Cezar¹ ¹ LNLS, CNPEM, Campinas, Brazil

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FB-04. Optical heterodyne microscopy for addressing operating spin Hall nano-oscillator networks. A. Aleman1,2,3, A.A. Awad1,4,5, A. Kumar1,4,5, A. Houshang1, S. Muralidhar1, D. Hanstorp3 and J. Akerman1,4,5. 1. Applied Spintronics Group, University of Gothenburg, Gothenburg, Sweden; 2. NanOsc AB, Gothenburg, Sweden; 3. Atomic and Optical Physics, University of Gothenburg, Gothenburg, Sweden; 4. Center for Science and Innovation in Spintronics, Tohoku University, Sendai, Japan; 5. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan

FB-05. Ferris-wheel magneto-optic Kerr effect and optical Hall effect technique. A. Rothschild1, N. Am-Shalom1, N. Bernstein1 and A. Capua1. 1. The Hebrew University of Jerusalem, Modiin, Israel

FB-06. Magnetic field imaging of thin exfoliated iron halides flakes. F. Meneses1,2, R. Qi3,4, A. Healey1,2,3, Y. You3,4, I. Robertson1, S. Scholten1,2, A. Keerthi1,6, G. Harrison7, A. Bera1, H. Jyothilal1, L. Hollenberg1,2, B. Radha3,4 and J. Tetienne1. 1. School of Physics, University of Melbourne, Melbourne, VIC, Australia; 2. University of Melbourne, Centre for Quantum Computation and Communication Technology, Melbourne, VIC, Australia; 3. The University of Manchester, National Graphene Institute, Manchester, United Kingdom; 4. The University of Manchester, Department of Physics and Astronomy, Manchester, United Kingdom; 5. RMIT University, School of Science, Melbourne, VIC, Australia; 6. The University of Manchester, Department of Chemistry, Manchester, United Kingdom; 7. The University of Manchester, Department of Materials, Manchester, United Kingdom

FB-07. Probing Low-Dimensional Magnetism with a Quantum Sensor. (Invited) A. Tan1. 1. Imperial College, London, United Kingdom
**FB-08.** Advancing Kerr-Microscopy imaging of three-dimensional magnetic structures. C. Janzen$^{1,2}$, B.B. Rakholiya$^{1}$, F. Ott$^{1}$, R. Huhnstock$^{1,2}$ and A. Ehresmann$^{1,2}$. 1. Institute of Physics and Center for Interdisciplinary Nanostructure Science and Technology (CINSaT), University of Kassel, Kassel, Germany; 2. Artificial Intelligence Methods for Experiment Design (AIM-ED), Joint Lab Helmholtzzentrum für Materialien und Energie, Berlin (HZB) and University of Kassel, Berlin, Germany

**FB-09.** Imaging of Spin Textures and Spin Waves in 2D Magnets. *(Invited)* F. Schulz$^{1}$, K. Litzius$^{1,2}$, L. Powalla$^{1}$, M. Birch$^{1,4}$, R. Gallardo$^{3}$, S. Satheesh$^{3}$, M. Weigand$^{6}$, T. Scholz$^{3}$, B. Lotsch$^{1}$, G. Schütz$^{1}$, M. Burghard$^{1}$ and S. Wintz$^{6}$. 1. Max Planck Institute for Intelligent Systems, Stuttgart, Germany; 2. University Augsburg, Augsburg, Germany; 3. Max Planck Institute for Solid State Research, Stuttgart, Germany; 4. RIKEN Center for Emergent Matter Science, Wako, Japan; 5. Universidad Tecnica Federico Santa Maria, Valparaiso, Chile; 6. Helmholtz-Zentrum Berlin für Materialien und Energie, Berlin, Germany

**Session FC**

**MAGNETISM FOR NICHE APPLICATIONS: SENSORS, ROBOTS, DRONES AND OTHER DEVICES**

Susana Cardoso de Freitas, Chair
INESC Microsistemas e Nanotecnologias, Lisboa, Portugal

**FC-03.** Generalized Reservoir Computing with Spin-torque Oscillator. Y. Imai$^{1}$, T. Kubota$^{1}$, S. Tsunegi$^{2}$ and K. Nakajima$^{1}$. 1. The University of Tokyo, Bunkyo, Japan; 2. National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan

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A Blinking Detection System Based on Magnetic Sensor and Magnetic Hair Array. J. Man, Z. Jin and J. Chen

1. Aerospace Information Research Institute, Chinese Academy of Sciences, Beijing, China; 2. School of Electronic, Electrical and Communication Engineering, University of Chinese Academy of Sciences, Beijing, China; 3. College of Materials Sciences and Opto-Electronic Technology, University of Chinese Academy of Sciences, Beijing, China

IMU-based Robotic Finger Force Sensing with Modular Soft Actuators. S. Lin, H. Chang and J. Chang

1. Department of Power Mechanical Engineering, National Tsing Hua University, Hsinchu, Taiwan; 2. National Formosa University, Huwei Township, Taiwan

Modeling of Magnetic Separation of Metal Ions in Aqueous Solutions. P. Andrei and N. Carlstet

1. Florida State University, Tallahassee, FL, United States

Magnetic Small-Scale Robots: A Path Towards Minimally Invasive Medicine. (Invited) S. Pane

1. ETH Zurich, Zürich, Switzerland

Biotemplated Magnetic Composites for Microrobotic Applications. A. Veciana, G. Llauradó-Capdevila, C. Franco, S. Pane and J. Puigmarti-Luis

1. Institute of Robotics and Intelligent Systems, ETH Zurich, Zurich, Switzerland; 2. Institut de Química Teòrica i Computacional, Universitat de Barcelona, 2Departament de Ciència de Materials i Química Física, Barcelona, Spain

Two-dimensional fractionally magnetized quantum ferromagnet. S. Miyahara and I. Maruyama

1. Fukuoka University, Fukuoka, Japan; 2. Fukuoka Institute of Technology, Fukuoka, Japan
FC-10. Towards realization of diamondtronics in doped diamond.
R. Raj¹, S. Chatterjee¹, D. Das¹, D. Kumar¹ and M.R. Rao¹
¹. Department of Physics, Quantum Centre of Excellence for Diamond and Emergent Materials (QuCenDiEM), India Centre for Lab-Grown Diamond (InCent-LGD), Nano Functional Materials Technology Center and Materials Science Research Center, Indian Institute of Technology, Madras, Chennai, India
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OCEANIA I & II

Session FD
ANTIFERROMAGNETIC/FERRIMAGNETIC SPINTRONICS AND DOMAIN WALL DEVICES
Kim Kong Tham, Chair
Tanaka Kikinzoku Kogyo, Sendai, Japan

8:30

FD-01. Piezomagnetic switching of the anomalous Hall conductivity in an antiferromagnet at room temperature. (Invited) O. Tchernyshyov¹ and S. Nakatsuji²
¹. Department of Physics and Astronomy, Johns Hopkins University, Baltimore, MD, United States; ². Institute for Solid State Physics, The University of Tokyo, Tokyo, Japan
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9:00

FD-02. Spin Flop Near the Compensation Temperature of a Sperimagnet.
J. Coey¹, K. Rode¹ and P. Stamenov¹
¹. Department of Physics, Trinity College Dublin, Dublin, Ireland
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9:15

FD-03. Measurement of the Orbital Hall Effect in Pure Cu and Al by Spin-Torque- and Microwave- Optical Ferromagnetic-Resonance Techniques. Y. Ben Tal¹, N. Am-Shalom¹, A. Rothschild¹, N. Bernstein¹ and A. Capua¹
¹. The Hebrew University in Jerusalem, Jerusalem, Israel
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FD-04. Magneto-optical detection of spin-orbit torque vector with first-order Kerr effects. C. Gonzalez-Fuentes1 and M. Abellan2 1. Department of Physics, Pontificia Universidad Católica de Chile, Santiago, Chile; 2. Department of Physics, Universidad Técnica Federico Santa María, Valparaíso, Chile
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9:45

FD-05. Exploiting the non-linear dynamics of defect-induced pinning in vortex-based magnetic tunnel junctions for physical unclonable functions. A. Jenkins1, L. Martins1, L. Benetti1, A. Schulman1, P. Anacleto1, M. Claro1, E. Paz1, I. Caha1, F.L. Deepak1 and R. Ferreira1 1. Spintronics, International Iberian Nanotechnology Laboratory, Braga, Portugal
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FD-08. Control of the Moving Direction of Magnetic Domain Walls by Surface Acoustic Waves. A. Rivelles1, R. Guedas2, R. Yanes3, L. Torres2, R. Izquierdo1, M.C. Maicas1, M. Sanz2, J. Pedrós1, F. Calle1, J. Prieto1 and L. Lopez-Diaz3 1. ISOM-Universidad Politécnica de Madrid, Madrid, Spain; 2. CEA-SPINTEC, Grenoble, France; 3. Universidad de Salamanca, Salamanca, Spain
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FD-09. Multifunctional In-Sensor Computing Based on Phase-Change Controlled Magnetic Tunnel Junction. C. Lv1,2, X.L. Lin1,2 and W. Zhao1,2 1. National Key Lab of Spintronics, Institute of International Innovation, Beihang University, Hangzhou, China; 2. Fert Beijing Institute, MIIT Key Laboratory of Spintronics, Beihang University, Beijing, China
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Session FE
LINEAR MACHINES AND FIELD MODULATING MACHINES
Jonathan Bird, Co-Chair
Portland State University, Portland, OR, United States
Kenji Nakamura, Co-Chair
Tohoku University, Sendai, Japan
Chinweze Ubadigha, Co-Chair
National Cheng Kung University, Tainan, Taiwan

8:30

FE-01. Air-cored Linear Motor: Design and Operating Behavior. T. Hofmann¹, D. Radeck¹ and A. Jocher¹ 1. Department of Aerospace and Geodesy, Technical University of Munich, Garching bei München, Germany
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8:45

FE-02. Torque-to-Weight Ratio Improvement and Permanent Magnet Usage Reduction in Large-Scale Magnetic Gears for Wind Power Generation. T. Sumi¹, A. Okazaki¹, K. Nakamura¹, T. Shinji² and K. Takeda² 1. Graduate School of Engineering, Tohoku University, Sendai, Japan; 2. TDK Corporation, Tokyo, Japan
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9:00

FE-03. Design of a linear motor: An optimization approach considering motor and inverter losses with different voltage waveforms. A.A. Espindola¹², M. Lungareze Neto², N.J. Batistela¹ and N. Sadowski¹ 1. Department of Electrical Engineering, UFSC, Florianópolis, Brazil; 2. Research and Development, Nidec GA, Joinville, Brazil
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FE-05. Real-time identification of the impact frequency in a DTH electric drilling rig through time-frequency analysis of the motor current. D. Brito¹, Y. Millalonco¹, S. Vergara¹ and G. Ramirez¹ ¹ Departamento de Ingeniería Electrónica, Universidad Católica de la Santísima Concepción, Concepción, Chile
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9:45

FE-07. A planar ironless permanent magnet generator for inertial sea wave energy conversion. M. Trapanese¹ ¹ Dipartimento di Ingegneria, Universita di Palermo, Palermo, Italy
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10:00

FE-08. Magnetic and Thermal Modelling of Hollow Conductors for Improved Cooling and Force Density of Coreless Linear Motors. S. Geelen¹, M. Curti¹ and E. Lomonova¹ ¹ Department of Electrical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands
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10:15

FE-09. Prototype Verification Cross-pole shape Flux Reversal Motor. Y. Yu¹ ¹ Graduate School of Engineering, Tohoku University, Sendai, Japan
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EUROPA II

Session FF
TOPOLOGICAL INSULATORS, WEYL AND DIRAC SEMIMETALS
Jiadong Zang, Co-Chair
University of New Hampshire, Durham, NH, United States

Hao Zeng, Co-Chair
University of Buffalo, Buffalo, NY, United States

8:30

FF-01. Weyl semimetal based spin-orbit torque and energy harvesting devices. (Invited) G. Shi¹, Y. Liu¹, F. Wang¹, D. Kumar¹ and H. Yang¹ ¹ National University of Singapore, Singapore
View Digest Text
FF-02. Room temperature field-free switching of CoFeB/MgO heterostructure based on large-scale few-layer WTe₂. X. Wang1, H. Wu2, R. Qiu3, X. Huang1, J. Zhang1, J. Long4, Y. Yao1, Y. Zhao1, Z. Zhu1, J. Wang1, S. Shi5, H. Chang2 and W. Zhao1 1. Beihang University, Beijing, China; 2. Huazhong University of Science and Technology, Wuhan, China; 3. Suzhou Institute of Nano-Tech and Nano-Bionics (SINANO), Chinese Academy of Sciences, Suzhou, China; 4. ShanghaiTech University, Shanghai, China
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FF-03. Spin and Orbital Moments of Magnetic Topological Insulator MnBi₂Te₄ Epitaxial Thin Films. J. Sun1,2, S. Liu3,4, F. Xiu3,4 and W. Liu1,5 1. Department of Electronic Engineering, Royal Holloway University of London, Egham, United Kingdom; 2. Beijing Superstring Academy of Memory Technology, Beijing, China; 3. State Key Laboratory of Surface Physics and Department of Physics, Fudan University, Shanghai, China; 4. Institute for Nanoelectronic Devices and Quantum Computing, Fudan University, Shanghai, China; 5. Department of Electrical Engineering and Electronics, University of Liverpool, Liverpool, United Kingdom
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9:30

FF-05. Spin-Orbit Torque Switching of Mn₃Sn in Configuration II. Z. Xu1, X. Zhang1, Y. Qiao1, G. Liang1,2,3, S. Shi1 and Z. Zhu1 1. School of Information Science and Technology, ShanghaiTech University, Shanghai, China; 2. Department of Electrical and Computer Engineering, National University of Singapore, Singapore; 3. Industry Academia Innovation School, National Yang-Ming Chiao Tung University, Hsinchu City, Taiwan; 4. Fort Beijing Institute, MIIT Key Laboratory of Spintronics, School of Integrated Circuit Science and Engineering, Beihang University, Beijing, China
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FF-06. Graphene intercalation in topological insulator/ferromagnet heterostructures for efficient spin orbit torques. T. Guillen1, V. Zatko1, R. Galceran2, J. Sierra1 and S.O. Valenzuela1,3 1. Catalan Institute of Nanoscience and Nanotechnology, Barcelona, Spain; 2. Universitat de Barcelona, Barcelona, Spain; 3. Institució Catalana de Recerca i Estudis Avançats (ICREA), Barcelona, Spain
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10:00

FF-07. Highly Efficient Spin-Orbit Torque Switching in Bi₂Se₃/Fe₂GeTe₂ van der Waals Heterostructures. (Invited) C. Li1 1. Naval Research Lab, Washington, DC, United States
View Digest Text
FF-08. Efficient spin to charge current conversion using the Topological Insulator BiSb. S. Massabeau1, L. Vicente Arche1, N. Figueiredo-Prestes1, D. She1,2, G. Patriarche1, A. Lemaitre2, M. Morassi2, F. Bertran3, P. Le Fevre3, S. Dhillon1, N. Reygen1, M. Bibles1, R. Lebrun1, H. Jaffrè3 and J. George1. 1. Laboratoire Albert Fert, Centre National de la Recherche Scientifique, Palaiseau, France; 2. Université Paris-Saclay, CNRS, Centre de Nanosciences et de Nanotechnologies, CNRS, Palaiseau, France; 3. Synchrotron SOLEIL, L’Orme des Merisiers, Saint Aubin, France; 4. Institut de Physique de Rennes, CNRS, Rennes, France; 5. Laboratoire de Physique de l’Ecole Normale Supérieure, ENS, CNRS, Paris, France View Digest Text

FF-09. Interaction Effects in a 1D Flat Band at a Topological Crystalline Step Edge. S. Das1, F. Kuester1, P. Sessi1 and S. Parkin1. 1. NISE, Max Planck Institute of Microstructure Physics, Halle, Germany View Digest Text

EUROPA IV

Session FG

MAGNETO-CALORIC MATERIALS AND DEVICES

Ekkes Brück, Co-Chair
TU Delft, Delft, Netherlands
Fanny Béron, Co-Chair
Universidad Estadual de Campinas, Campinas, Brazil

8:30


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9:15

FG-03. Hysteresis and Kinetics of the First-Order Phase Transition: Losses in Magnetocaloric Effect Illustrated on the Ni-Mn-Ga-Cu. E. Dilmieva, Y. Koshkid’ko, A.P. Kamantshev, D. Zhao, J. Liu and S. Krämer. 1. High Field Magnet Laboratory, Radboud University, Nijmegen, Netherlands; 2. Institute of Low Temperature and Structure Research of Polish Academy of Sciences, Wroclaw, Poland; 3. Kotelnikov Institute of Radioengineering and Electronics of Russian Academy of Sciences, Moscow, Russian Federation; 4. Hebei Key Laboratory of Photophysics Research and Application, College of Physics, Hebei Normal University, Shijiazhuang, China; 5. CAS Key Laboratory of Magnetic Materials and Devices, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, Ningbo, China; 6. Laboratoire National des Champs Magnétiques Intenses, CNRS, Univ Grenoble Alpes, Univ Toulouse, Grenoble, France

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FG-04. Reducing Energy Waste by Tuning Martensite in Heusler Alloys. A.A. Mendonça, L. Ghivelder, P. Bernando, L.F. Cohen and A. Gomes. 1. Instituto de Física Gleb Wataghin, Universidade Estadual de Campinas, Campinas, Brazil; 2. Instituto de Física, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil; 3. Instituto de Física, Universidade Estadual Norte Fluminense Darcy Ribeiro, Campos dos Goytacazes, Brazil; 4. Department of Physics, Imperial College London, London, United Kingdom

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FG-05. Simultaneous Multi-Property Analysis of Magneto-Structural Transitions at ESRF ID12. A. Aubert, K. Skokov, G. Gomez, F. Wilhelm, H. Wende, A. Rogalev, K. Ollefs and O. Gutfleisch. 1. Technische Universität Darmstadt, Darmstadt, Germany; 2. ESRF, Grenoble, France; 3. Faculty of Physics, University of Duisburg-Essen, Duisburg, Germany

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FG-06. Long-time aging of La(Fe,Si,Mn)$_{13}$H$_2$ microparticles using different fluids for magnetic refrigeration systems.
A.M. Döring$^{1,2}$, D.D. Reif$^3$, M.A. Rosa$^3$, G. Fidelis Peixer$^1$, F. Maccari$^1$, K. Skokov$^1$, O. Gutfleisch$^1$, P.A. Wendhausen$^3$, J.A. Lozano$^1$, J. Riso Barbosa Jr.$^1$ and C.D. Teixeira$^2$
1. TU Darmstadt, Darmstadt, Germany; 2. Universidade Federal de Santa Catarina, Blumenau, Brazil; 3. Universidade Federal de Santa Catarina, Florianópolis, Brazil
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FG-07. Design of Magnetic Circuits for Magnetocaloric Refrigeration via Topology Optimization. L.P. Cattelan$^{1}$, G. Fidelis Peixer$^1$, M. da Luz$^2$, J. Riso Barbosa Jr.$^1$ and J.A. Lozano$^1$
1. Department of Mechanical Engineering, Federal University of Santa Catarina, Polo, Florianópolis, Brazil; 2. Department of Electrical Engineering, Federal University of Santa Catarina, Florianópolis, Brazil
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FG-08. Performance Evaluation of TRL-6 Magnetic Refrigeration Prototypes. G. Fidelis Peixer$^1$, A.T. Dias Nakashima$^1$, N. Maleski de Sá$^1$, Y. Azeredo$^1$, A. Lorenzoni$^1$, G. Melo da Luz$^1$, R. Sawaya Sucaria$^1$, A. Marciel Döring$^2$, P. Vitor de Faria$^1$, B. Peressoni Vieira$^1$, C. Silva Teixeira$^2$, J.A. Lozano$^1$ and J. Riso Barbosa Jr.$^1$
1. Department of Mechanical Engineering, Federal University of Santa Catarina, Polo, Florianópolis, Brazil; 2. Department of Materials Engineering, Federal University of Santa Catarina, Lab3M, Blumenau, Brazil
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FG-09. Magnetic and Calorimetric Properties in EuSe and EuSe$_{0.93}$Si$_{0.07}$ Compounds. J. Caro Patiño$^1$, D. Neto$^2$ and A. Gomes$^2$
1. Instituto de Física, Universidade do Estado do Rio de Janeiro, Rio de Janeiro, Brazil; 2. Instituto de Física, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil
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FG-10. On the magnetic and magnetocaloric features of La$_{2/3}$Sr$_{1/3}$MnO$_3$-based materials: from bulk to nano.
M. Balli$^{1,2}$, O. Chdil$^1$, M. Abbasi$^2$ and P. Fournier$^2$
1. International University of Rabat, Rabat, Morocco; 2. Institut Quantique, Université de Sherbrooke, Sherbrooke, QC, Canada
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OCEANIA IV & V

Session GA

MAGNETIC SENSOR STANDARDIZATION

Philip Keller, Chair
Metrolab Technology S.A., Plan-les-Ouates, Switzerland

2:00

GA-01. Withdrawn

2:00


GA-03. Magnetic measurement system and environmental magnetic field compensation at CEM. (Invited) S. Moltó González, Y.A. Sanmamed and J. Diaz de Aguilar. 1. Department of Electricity and Energy, Centro Español de Metrología, Tres Cantos, Spain.

GA-05. Flexible, printed and eco-sustainable magnetic field sensors. (Invited) Y. Zabila¹, L. Guo¹, E. Oliveros-Mata¹, R. Xu¹ and D. Makarov³ 1. HZDR, Dresden, Germany

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4:00

GA-06. Characterisation of Magnetic Sensors for Space Applications – an NMI Perspective. (Invited) S. Harmon¹, G. Finch¹ and A. Wilson¹ 1. National Physical Laboratory, Teddington, United Kingdom

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OCEANIA VI & VII

Session GB

MULTILAYERS, SURFACE AND INTERFACE PHENOMENA

Kleber Pirotta, Chair
University of Campinas, Campinas, Brazil

2:00

GB-01. Doped surfaces: a synthetic route to low damping in ferromagnetic transition metal thin films. (Invited) S. Azzawi¹,², A. Umerski³, L. Sampaio⁴, S. Bunyaev⁵, G.N. Kakazei⁵ and D. Atkinson¹ 1. Durham University, Durham, United Kingdom; 2. Meters and Custody Transfer Department, Technical Directorate, Ministry of Oil, Baghdad, Iraq; 3. School of Mathematics and Statistics, Open University, Milton Keynes, United Kingdom; 4. Centro Brasileiro de Pesquisas Físicas (CBPF), Rio de Janeiro, Brazil; 5. IFIMUP/Department of Physics and Astronomy, Universidade do Porto, Porto, Portugal

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2:30

GB-03. The impact of Fe²⁺ and Fe³⁺ segregation on the structural and magnetic properties of ZnO/Fe multilayers deposited via sputtering: a study using EELS and EDS. R. Checca¹, D. Franceschini², E.M. Saitovitch¹ and Y. Xing² 1. Brazilian Center for Research in Physics, Rio de Janeiro, Brazil; 2. Instituto de Física, Universidade Federal Fluminense, Niteroi, Brazil

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118 In-Person Presentations

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3:00


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3:15

GB-06. Magnetic Properties Dependence on Geometrical Parameters of Electroless-plated Ni-based Rhombohedral Nanotubes. F. Muench1, S. Schaefer1, M. Mendez2, J. Fernández-Roldán3, A.S. Gonzalez4, V. Vega5, U. Kunz6, W. Ensinger1, J. Garcia1 and V.M. Pridda2. 1. Technical University of Darmstadt, Darmstadt, Germany; 2. Departamento Fisica, Universidad de Oviedo, Oviedo, Spain

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GB-08. Bridging Simulation and Experiment: Tuning
Dimensional Order in FeCo Magnetic Nanostructures.
Y. Chen1, H. Zhang2 and A. El-Ghazaly1 1. Department of
Materials Science and Engineering, Cornell University, Ithaca, NY, United States; 2. School of Applied and
Engineering Physics, Cornell University, Ithaca, NY, United States
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GB-09. Electronic and magnetic properties of atomically-thin
epitaxially-grown van der Waals ferromagnet Cr2Te3.
(Invited) S. Mo1 1. Advanced Light Source, Lawrence
Berkeley National Laboratory, Berkeley, CA, United States
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OCEANIA IX & X

Session GC

HIGH FREQUENCY, MICROWAVE AND MILLIMETER
WAVE MATERIALS AND DEVICES

Andrei Slavin, Co-Chair
Oakland University, Rochester Hills, MI, United States
Alexey Ustinov, Co-Chair
St. Petersburg Electrotechnical University, St.Petersburg, Russian Federation

2:00

GC-01. Low-moment Ferrimagnets for Spintronic Devices for
Operation in the High-GHz and THz Frequency Ranges.
(Invited) P.S. Stamenov1, J. Coey1 and K. Rode1 1. School of
Physics and CRANN, Trinity College Dublin, Dublin, Ireland
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2:30

GC-02. IoT-Oriented Single-Transmitter Multiple-Receiver
Wireless Charging Systems Using Hybrid Multi-
Frequency Pulse Modulation. Y. Gong1, Z. Zhang1,2, Y. Wu1
and Y. Gu1 1. School of Electrical and Information
Engineering, Tianjin University, Tianjin, China; 2. International Institute for Innovative Design and Intelligent
Manufacturing of Tianjin University, Shaoxing, China
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GC-03. Self-induced magnetic anisotropy in 3D printed ferromagnetic composites. A. Le Saos-Kauten1,2, A. Chevalier1, A. Maalouf2, A. Hoez1, J. Ville2, J. Mattei1 and V. Laur1 1. Lab-STICc / University of Brest, Brest, France; 2. IRDL / University of Brest, Brest, France

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3:00

GC-04. Magnonic Physical Reservoir Computing. (Invited) M. Kostylev1 and S. Watt1 1. University of Western Australia, Crawley, WA, Australia

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3:30

GC-10. Complex permeability of noise suppression sheets up to 40 GHz evaluated with the improved shielded loop coil type permeameter. T. Nakamura1, Y. Sato1, A. Itagaki1, Y. Miyazawa2, S. Yabukami3 and M. Yamaguchi2 1. R&D Department, Ryowa Electronics Inc., Sendai, Japan; 2. New Industry Creation Hatchery Center, Tohoku University, Sendai, Japan; 3. Department of Biomedical Engineering, Tohoku University, Sendai, Japan

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3:45

GC-07. Realization of a Current-Controlled Magnonic Physical Reservoir. A.B. Ustinov1, R.V. Haponchyk1 and M. Kostylev2 1. Dept. of Physical Electronics and Technology, St. Petersburg Electrotechnical University, St.Petersburg, Russian Federation; 2. Department of Physics, University of Western Australia, Perth, WA, Australia

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4:00

GC-08. Tri-layered Nanohollowspheres: An Interesting Approach to Superior Electromagnetic Wave Absorption. A. Gorai1 and K. Mandal1 1. Department of Condensed Matter and Materials Physics, Satyendra Nath Bose National Centre for Basic Sciences, Kolkata, India

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4:15

GC-09. Ka to V Microwave band tunable Barium Hexaferrite based Band-Stop Notch Filter. V. Sharma1 and B.K. Kuan1 1. Department of Physics, Northeastern University, Boston, MA, United States; 2. Special Centre for Nanoscience, Jawaharlal Nehru University, New Delhi, India

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GD-01. Progress and Perspectives on Silicon-compatible Antiferromagnetic Memory Devices. (Invited) P. Khalili
1. Northwestern University, Evanston, IL, United States

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GD-02. From Magnetostatics to Topology: Antiferromagnetic Vortex States in NiO-Fe Nanostructures. M. Slezak
1. AGH University of Science and Technology, Krakow, Poland; 2. Institute of Physics, Johannes Gutenberg-University, Mainz, Germany; 3. Elettra - Sincrotrone Trieste S.C.p.A., Basovizza, Trieste, Italy; 4. National Synchrotron Radiation Centre SOLARIS, Jagiellonian University, Krakow, Poland, 5. Jerzy Haber Institute of Catalysis and Surface Chemistry PAS, Krakow, Poland; 6. Institute of Physics, Maria Curie-Sklodowska University, Lublin, Poland

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GD-03. Antiferromagnetic exchange coupling across transition metal films alloyed with ferromagnetic elements. D. Legut1,2, S. Arapan1, K. Winther3, Z.R. Nunn1, J. Lisik1, F. Schulz1, E. Goering4, T. Mckinnon2, S. Myrtil1 and E. Girt1
1. IT4Innovations, VSB - Technical University of Ostrava, Ostrava, Czechia; 2. Charles University in Prague, Prague, Czechia; 3. Simon Fraser University, Burnaby, BC, Canada; 4. Max Planck Institute for Intelligent Systems, Stuttgart, Germany

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GD-04. Electrical full switching of non-collinear antiferromagnetic order. (Invited) K. Kondou1, T. Higo2, T. Nomoto2, M. Shiga1, S. Sakamoto1, X. Chen3, D. Nishio-Hamane1, R. Arita2, Y. Otani3, S. Miwa3 and S. Nakastuji2 1. RIKEN, Wako, Japan; 2. The University of Tokyo, Bunkyo-ku, Japan; 3. Institute for Solid State Physics, University of Tokyo, Kashiwa, Japan
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GD-05. Antiferromagnetic Spin Structures beyond Skyrmions: antiferromagnetic merons and antimerons in synthetic antiferromagnets. M. Bhukta1, T. Dohi1,2, V. Bharadwaj1, R. Zarzuela1, M. Syskaki1, M. Foerster1, M. Angel1, J. Sinova2, R. Frömter1 and M. Kläui1 1. Universität Mainz, Mainz, Germany; 2. RIEC, Tohoku University, Sendai, Japan; 3. ALBA, Barcelona, Spain
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GD-07. Narrowband THz Emission from a Single Antiferromagnetic Cycloid BiFeO3 Thin Film. S. Massabeau1, A. Abdelwahab1,2, D. Dufour1, A. Finco2, M. Viret1, K. Bouzehouane1, V. Jacques1, J. Chauleau1, J. George1, H. Jaffrès1, S. Fusil2, R. Lebrun3 and V. Garcia1 1. Laboratoire Albert Fert, CNRS, University of Paris-Sud, Paris, France; 2. Laboratoire Charles Coulomb, Université de Montpellier, CNRS, Montpellier, France; 3. SPEC, CEA, CNRS, Université Paris-Saclay, Gif-sur-Yvette, France
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GD-08. **Anomalous Nernst effect of altermagnetic Mn₅Si₃.**

*A. Badura¹, W. Campos², V. Bharadwaj², J. Rial³, I. Kounta⁴, L. Míček³, J. Zemen³, F. Krizek¹, S. Sailler⁶, M. Leiviskä¹, V. Baltz¹, D. Kriegner¹, T. Jungwirth¹, L. Smolčič⁶, S. Goennenwein⁶ and H. Reichlova¹*

1. Institute of Physics ASCR, v. v. i., Prague, Czechia; 2. Institut für Physik, Johannes Gutenberg Universität, Mainz, Germany; 3. Univ. Grenoble Alpes, CNRS, CEA, Grenoble INP, Spintec, Grenoble, France; 4. Aix-Marseille University, CNRS, CINaM, Marseille, France; 5. Faculty of Electrical Engineering, Czech Technical University, Prague, Czechia; 6. Universität Konstanz, Fachbereich Physik, Konstanz, Germany

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GD-09. **Antiferromagnetic Skyrmions: from enhancing deterministic motion control to boosting thermal skyrmion diffusion.**

*M. Kläui¹, T. Dohi¹,², M. Bhukta¹, F. Kammerbauer¹, M. Syskaki¹, K. Raab¹, M. Weissenhofer¹, S. Wintz⁴, R. Frömter¹, G. Jakob¹ and U. Nowak³*

1. Universität Mainz, Mainz, Germany; 2. RIEC, Tohoku University, Sendai, Japan; 3. University of Konstanz, Konstanz, Germany; 4. HZB, Berlin, Germany

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GD-10. **First-Order Reversal Curve (FORC) Features of Ferrimagnetic and Antiferromagnetic Coupled Skyrmions.**

*L.S. Palhares¹,², J. Brandao² and F. Béron¹*

1. Instituto de Física Gleb Wataghin, Universidade Estadual de Campinas, Campinas, Brazil; 2. Laboratório Nacional de Luz Síncrono, Centro Nacional de Pesquisa em Energia e Materiais, Campinas, Brazil

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GE-02. Relationship between Temperature Control and Iron Loss Reduction by Secondary Current Heating Method. Y. Tsuchida¹ and T. Yano¹ 1. Oita University, Oita, Japan
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GE-05. Transverse Flux Topology for High Efficiency Solutions. C. Schmitz¹ and D. Schmitz¹ 1. Research and Product Development – R&D, WEG, Jaraguá do Sul, Brazil
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GE-08. Design and Analysis of a High-Speed Slotless Permanent Magnet Synchronous Motor Considering Air-Gap Airflow. M. Guo¹, G. Cao¹, H. Hu¹, S. Huang¹, H. Wang¹ and J. He² 1. Guangdong Key Laboratory of Electromagnetic Control and Intelligent Robots, College of Mechatronics and Control Engineering, Shenzhen University, Shenzhen, China; 2. Department of Electrical and Computer Engineering, University of Kentucky, Lexington, KY, United States
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GE-09. Development of Magneto-Thermo-Mechanical Analytical Models for High-Speed Induction Machine. L. Dahnoun¹,², J. Fontchastagner¹, C. Viguier² and N. Takorabet¹ 1. GREEN, Université de Lorraine, Nancy, France; 2. Safran Tech, Magny-lès-Hameaux, France
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S. Rafin1, Q. Ali2, F. Zhao3 and O.A. Mohammed1
1. Department of Electrical and Computer Engineering, Florida International University, Miami, FL, United States; 2. Department of Electrical Engineering, Sukkur IBA University, Sukkur, Pakistan; 3. School of Mechanical Engineering and Automation, Harbin Institute of Technology, Shenzhen, China

EUROPA II

Session GF
AMORPHOUS AND NANOCRYSTALLINE SOFT MAGNETIC MATERIALS
Massimo Pasquale, Chair
INRIM, Torino, Italy

2:00

GF-01. Impact of conventional and ultra-rapid annealing on microstructure and coercivity of Ni-rich nanocrystalline Fe-Ni-Nb-B alloys. (Invited) I. Skorvanek1, J. Marcin1, B. Kunca1 and P. Svec2 1. Institute of Experimental Physics, Slovak Academy of Sciences, Kosice, Slovakia; 2. Institute of Physics, Slovak Academy of Sciences, Bratislava, Slovakia

2:30

GF-02. The Effects of B/Si Ratio on the Surface Crystals and Magnetic Properties of Fe80(BaSib)15C1Cu1Nb3 Nanocrystal Soft Magnetic Alloys. S. An1,2, H. Im1,2, K. Kim1, S. Yang1, J. Lee2 and J. Jeong1 1. Metal Powder Department, Korea Institute of Materials Science, Changwon, The Republic of Korea; 2. Department of Materials Science and Engineering, Pusan National University, Pusan, The Republic of Korea

2:45

GF-03. Effect of Nb/ Zr co-additing on the microstructures and soft magnetic properties of Fe77.5Si11.5B7-Nb3Zr5-Cu1 nanocrystalline Alloys. H. Im1,2, S. An1,2, J. Lee1, K. Kim1, S. Yang1 and J. Jeong1 1. Korea Institute of Materials Science, Changwon-si, The Republic of Korea; 2. Pusan National University, Pusan, The Republic of Korea
GF-04. Magnetic and structural properties of nanocrystalline FeCuNbSiB thin films. J.M. Alves¹, N. Checca¹, D. Gonzalez-Chavez¹, B.G. Silva¹ and R.L. Sommer¹
1. Centro Brasileiro de Pesquisas Fisicas, Rio de Janeiro, Brazil
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GF-05. Local Magnetization Processes at Constricted Regions in Amorphous Fe₈₀B₂₀ Stripes with Nanometric Thicknesses. J.M. González¹, U. Urdiroz¹, M. Alonso¹, F. Palomares¹, R. Fernandez-Jimenez¹, J. Soler-Moraleda¹, F. Cebollada¹, M. Sánchez-Agudo¹, A. Gómez¹, M. Magaz¹, I. Soldatof² and R. Schäffer²
1. Nanoscience and Nanotechnology, ICMM-CSIC, Madrid, Spain; 2. POEMMA-CEMDATIC, ETSIT-UPM, Madrid, Spain; 3. Centro de Astrobiología, CSIC-INTA, Torrejón de Ardoz, Spain; 4. Leibniz Institute for Solid State and Materials Research (IFW), Dresden, Germany
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GF-06. Effect of Magnetostatic Interaction on the Single Domain Wall Propagation in Magnetic Microwires. P. Corte-León¹,²,³, A. Gonzalez Villegas¹,²,³, J. Blanco²,³, V. Zhukova¹,²,³, M. Ipatov¹,² and A. Zhukov²
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GF-07. Measurement of Magnetic Barkhausen Noise on Alloy Foils Used for Inductor Core in Power Electronics Applications. S. Tamari¹ and T. Yamazaki²
1. RCECT, Sangyo Gijutsu Sogo Kenkyuo Tsukuba Chuo, Tsukuba, Japan; 2. Department of Materials Science and Technology, Tokyo University of Science, Katsushika, Japan
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GF-08. The Study the Characteristics the Magnetic Response of Microspirals Made of an Amorphous Magnetic Alloy. L. Shendrikova¹, Y. Alekhina¹, A. Shalygin¹ and N.S. Perov¹
1. Lomonosov Moscow State University, Moscow, Russian Federation
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GF-10. Magnetic Properties of Amorphous Fe-Si-Cr-B-C Alloy by Melt-spinning and Selective Laser Melting for Electrical Machines. P. Tiberto¹, P. Sharangi¹, G. Barrera¹, E. Ferrara¹, A. Ghavimi², R. Busch², I. Gallino³, M. Rodriguez⁴, M. Perez Prado⁵, L. Thorsson⁶ and H. Wachtter⁷ 1. INRIM, Torino, Italy; 2. Saarland University, Saarbrücken, Germany; 3. TU Berlin, Berlin, Germany; 4. IMDEA, Madrid, Spain; 5. AMLOY GmbH, Karlstein, Germany

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GF-11. Effect of heavy metal (HM) stacking on magnetic anisotropy of HM/CoFeB/MgO structures. S. Ahn¹ 1. POSTECH, Pohang, The Republic of Korea

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EUROPA IV

Session GG

THIN FILMS AND SURFACE EFFECTS

Juliano Denardin, Chair
Universidad de Santiago, Santiago, Chile

2:00

GG-01. Voltage-controlled Spintronics Heterostructures for Magnetolectric Memory and Stochastic Computing Applications. (Invited) K. Wang¹ 1. Department of Electrical and Computer Engineering, University of California, Los Angeles, Los Angeles, CA, United States; 2. Department of Physics and Astronomy, University of California, Los Angeles, Los Angeles, CA, United States

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GG-02. Engineering nanocolumnar magnetic films with temperature. M. Garrido-Segovia¹,², E. Navarro²,³, A. Espinosa⁴ and J. García-Martín⁵ 1. Instituto de Micro y Nanotecnología, CSIC, Tres Cantos, Spain; 2. Fisica de Materiales, Universidad Complutense de Madrid, Madrid, Spain; 3. Instituto de Magnetismo Aplicado, Las Rozas, Spain; 4. Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain

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GG-03. Room Temperature Covalent 2D Magnet FeSe₂, C. Hualı, M. Bian, R. Sabirianov and H. Zeng. 1. Department of Physics, University at Buffalo, Buffalo, NY, United States; 2. Department of Physics, University of Nebraska-Omaha, Omaha, Omaha, NE, United States

GG-04. Direct Observation of Domain Configurations in Elongated Antidots Lattices at Different Applied Fields. J.L. Palma, A. Pereira, R. Alvaro, S. Michael, J. García-Martin and J. Escrig. 1. Engineering School, Universidad Central de Chile, Santiago, Chile; 2. Universidad Adolfo Ibáñez, Santiago, Chile; 3. IMN-CNM, Instituto de Micro y Nanotecnología, Madrid, Spain; 4. Institute of Applied Sciences, Universidad Autónoma de Chile, Santiago, Chile; 5. Departamento de Física, Universidad de Santiago, Santiago, Chile; 6. CEDENNA, Center for the Development of Nanoscience and Nanotechnology, Santiago, Chile


GG-06. Hard-axis collapse and recoil-curve overshoot in thin magnetic films. A. M. H. de Andrade, L. F. S. Azeredo, H. Acosta and J. Geshev. 1. Institute of Physics, UFRGS, Porto Alegre, Brazil; 2. Instituto Federal Sul-rio-grandense, Bento Gonçalves, Brazil

GG-07. Monitoring Iron Oxide Thin Film Growth by Plasma Emission Spectrometry in Reactive Sputtering Process. R. Minami, E. Kita, S. Sharmin and H. Yanagihara. 1. University of Tsukuba, Tsukuba, Japan; 2. Tsukuba Research Center for Energy Materials Science (TREMS), University of Tsukuba, Tsukuba, Japan
GG-08. Structural and magnetic properties of ultrathin films calculated from first-principles. J.N. Rychly-Gruszecka¹, J. Marciniak¹, J. Snarski-Adamski¹, J. Meixner¹, W. Marciniak¹, J. Rusz² and M. Werwinski¹. 1. Department of Theory of Nanostructures and Quantum Materials, Institute of Molecular Physics, Polish Academy of Sciences, Poznan, Poland; 2. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden
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GG-09. Thin film epitaxial [111] Co₅₀Pt₅₀: structure, magnetization, and spin polarization. N. Satchell¹,², S. Gupta³, M. Maheshwari², P. Shepley², M. Rogers⁵, O. Cespedes² and G. Burnell². 1. Department of Physics, Texas State University, San Marcos, TX, United States; 2. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom
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GG-11. Spin-triplet supercurrent optimization in ferromagnetic Josephson junctions. R.M. Klaes¹ and N.O. Birge¹. 1. Department of Physics and Astronomy, Michigan State University, East Lansing, MI, United States
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DIGITAL CONFERENCE RESOURCE CENTER

Session VP1
FIELD MODULATED MACHINES
(Poster Virtual Session)
Mohamed Ibrahim, Co-Chair
University of Ghent, Gent, Belgium
Metin Aydin, Co-Chair
Kocaeli University, Umuttepe, Izmit, Turkey

VP1-01. Research on Stator Loss Suppression of a Dual-Rotor Flux-Modulated PM Motor based on Harmonic Directional Reduction. Z. Xiang⁴ and H. Qian¹. 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China
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VP1-02. A New Dual Stator Field Modulation Machine with Tangential Excitation Permanent Magnet. F. Bian¹, M. Li¹ and Z. Li¹. 1. Zhongyuan University of Technology, Zhengzhou, China
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On-Demand Presentations
VP1-03. A New Radial Hybrid Consequent-Pole Permanent Magnet Vernier Machine. R. Yao1, H. Wang1, Y. Sha1, Y. Xu1 and C. Feng1 1. Nanjing Normal University, Nanjing, China
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VP1-04. Improvement of Torque and Loss Characteristics for an In-Wheel Permanent Magnet Motor Based on Featured-Airgap-Harmonic. J. Ren1, L. Quan1 and Z. Xiang1 1. Department of Electrical Engineering, School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China
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VP1-05. Design and Analysis of a High Torque Performance Dual-Side PM Vernier Motor with Synergetic Modulation Enhancement. Z. Xiang1 and S. Gui1 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China
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VP1-06. Torque Quality Improvement Design and Analysis of Bi-Directional Magnetic Field Modulation PM Motor By Multi-Harmonic Flux-Barrier Modulator. H. Tian1, D. Fan1, X. Zhu1, W. Shan1 and Z. Xiang1 1. Jiangsu University, Zhenjiang, China
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VP1-07. Comparative analysis Between Split Stator Permanent Magnet Machine and Flux Reverse Machine. C. Zhang1, H. Wang1 and C. He1 1. Nanjing Normal University, Nanjing, China
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VP1-08. A Multi-Modular Magnetic Millirobot with a Variable Equilibrium Posture Capability. Y. Lee1, J. Lee1 and S. Jeon1,2 1. MESL, Department of Mechanical and Automotive Engineering, Kongju National University, Cheonan, The Republic of Korea; 2. GITECH, Cheonan, The Republic of Korea
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VP1-09. Parametric Sensitivity Analysis and Efficiency improvement of Electromagnetic Repulsion Mechanism based on Orthogonal Experiment Design. W. Yang1, F. Meng1 and D. Wu1 1. Harbin Institute of Technology, Harbin, China
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VP1-10. Research on the Performance of Bidirectional Field Modulation Machine with Separated Type PM Excitation with Different slot-pole Combinations. Y. Zhang1, H. Wang1, C. He1 and H. Zhu2 1. Nanjing Normal University, Nanjing, China; 2. State Grid Anqing Power Supply Company, Anqing, China
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VP1-11. A Flux Reversal Permanent Magnet Motor with Uneven Magnetometric Force Shift. H. Chen1, F. Xiao1, Y. Du1 and X. Zhu1 1. Jiangsu University, Zhenjiang, China
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VP1-14. Power factor Improvement Design and Investigation of V-Shaped PM Vernier Motor by Multiple Flux Modulation. D. Pang, X. Zhu and D. Fan. 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China

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Session VP2

HARD MAGNETIC MATERIALS IV
(Poster Virtual Session)

Imants Dirba, Chair
TU Darmstadt, Darmstadt, Germany


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VP2-04. Short-time annealing enhancing the magnetic properties and microstructure uniformity of melt-spun (Nd,Pr)-Fe-B ribbons. L. Liu1, Y. Li1, J. Wang1, L. Liu1, M. Bian1, H. Zhang1 and M. Yue1 1. Beijing University of Technology, Beijing, China

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VP3-01. Analysis of Air-gap Field Modulation Effect on Torque for 6-Slot 4-Pole High-Speed Permanent Magnet Machine. K. Li1, C. Wang1, Y. Li2 and Z. Zhang1 1. School of Electrical Engineering, Anhui Polytechnic University, WuHu, China; 2. Aote Langbo Elevator Co., Ltd, Huzhou, China; 3. School of Electrical Engineering and Automation, Anhui University, Hefei, China; 4. College of Automation Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing, China

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VP3-02. Electromagnetic Vibration Improvement for a High-Speed Flat Wire PM Motor based on Optimal Magnetic-Pole-Boundary. J. Bai1, X. Zhu1 and Z. Xiang1 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China

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VP3-03. Design Considerations of High-speed PMSM with Nonuniform Two-Segment Halbach Magnet Array. X. Xie1, C. Liao1 and Z. Zhang1 1. Department of Automation Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing, China

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VP3-04. Novel Self-Excited Brushless Topology for Wound Field Vernier Machine. S. Bukhari1 1. Department of Electrical Engineering, Tampere University, Tampere, Finland

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VP3-05. Design and Analysis of New Beveling Consequent Pole Hybrid Magnet Dual Stator Machines. Y. Sha1, H. Wang1, R. Yao1, Y. Xu1 and J. Yang1 1. Nanjing Normal University, Nanjing, China

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VP3-06. Analysis and Comparison between Pole-Changing and Hybrid-Excited Flux Switching Motors. Z. He1, F. Xiao1, Y. Du1 and X. Zhu1 1. Jiangsu University, Zhenjiang, China

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VP3-07. **Performance Improvement of the Brushless Wound-Rotor Vernier Machine by One-Fourth Sub-Harmonic Components of the Frequency.** S. Bukhari¹, U. Bin Farooq², J. Ikram², L. Khan² and T. Bashir² 1. Department of Electrical Engineering, Tampere University, Finland, Tampere, Finland; 2. COMSATS Institute of Information Technology, Islamabad, Pakistan

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VP3-08. **Performance Analysis of Axial Flux Brushless Wound Rotor Synchronous Machine Utilizing Third Harmonic.** S. Bukhari¹, S. Abbas², J. Ikram², Z. Ayub² and A. Khan²

1. Department of Electrical Engineering, Tampere University, Finland, Tampere, Finland; 2. COMSATS Institute of Information Technology, Islamabad, Pakistan

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VP3-09. **Rotor Inter-Turn Short Detection Based on the Stator Current Vector Modulus of the Excitation Machine.** L. Shi¹, Z. Zhang¹, J. Ma¹, W. Li¹, R. Li¹, X. Wu¹ and X. He¹

1. School of Electrical and Mechanical Engineering, Xuchang University, Xuchang, China

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VP3-10. **Rotor Barrier Shape Design Optimization of a Novel Synchronous Reluctance Machine with Grain-Oriented Electrical Steel.** S. Zhang¹, C. Liu¹, Y. Wang¹ and J. Zhu²

1. Hebei University of Technology, Tianjin, China; 2. University of Sydney, Sydney, NSW, Australia

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VP3-11. **Research on the Relationship between the Distribution of High-Permeability Materials in Rotor and Characteristics of Magnetic Field in Machines.** X. Liang¹, M. Wang¹, Y. Liu¹, P. Zheng¹ and W. Li¹

1. Harbin Institute of Technology, Harbin, China

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VP3-12. **Suppression of External Alternating Field of HTS Excitation Coil in Homopolar Inductor Machine.** Y. Pan¹, J. Yang¹, Q. Li¹, S. Huang¹ and J. Ma¹

1. Human University, Changsha City, China; 2. University of Bristol, Bristol, United Kingdom

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VP3-13. **Analysis Method of Squirrel Cage Induction Motor for Traction Applications considering Slot Harmonics.** C. Song¹, D. Park¹ and M. Lim¹

1. Hanyang University, Seoul, The Republic of Korea

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VP3-14. **A Two-State Autonomous Resonant Coordinated Electromagnetic Speed Limiting System for Wind Power.** J. Ma¹, Z. Zhang¹, L. Shi¹, W. Li¹, X. Wu¹ and Y. Liang¹

1. School of Electrical and Mechanical Engineering, Xuchang University, Xuchang, China

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VP3-15. Advanced Lumped Parameter Thermal Network for Modeling of Cooling Solutions in Electric Vehicle Motor Applications. A.J. Bourgault1, O. Taqavi1, Z. Li1, G. Byczynski2 and N. Kar1. 1. Department of Electrical Engineering, University of Windsor, Windsor, ON, Canada; 2. Nemak, Windsor, ON, Canada
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VP3-16. Performance Improvement of Brushless Exciter for Aircraft Wound Rotor Synchronous Machine Based on Magnetic Slot Wedge. W. Bian1, Z. Zhang1, L. Li1, J. Li3 and Y. Li1. 1. College of Automation Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing, China
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Session VP4
INTERDISCIPLINARY TOPICS IN MAGNETICS II
(Poster Virtual Session)
Bruno Silva, Chair
Centro Brasileiro de Pesquisas Fisicas, Rio de Janeiro, Brazil

VP4-01. Local adjustment of the mechanical properties of a magnetically controlled airway stent by laser powder bed fusion. K. Schäfer1,2, M. Lutzi1,2, M. Khan1,2, L. Schäfer1,2, I. Dirba1,2, S. Bruns3,2, I. Valizadeh4,2, O. Weeger4,2, C. Hartmann5, M. Kupnik6, E. Adabifiroozjaei6, L. Molina-Luna6, K. Skokov1,2 and O. Gutfleisch1,2
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VP4-02. Magnetic Nanoparticles (MNPs) Based 2-Phase Memory Devices. R.A. Mendonsa1, S. Liang2 and J. Wang1,2
1. Department of Electrical Engineering, University of Minnesota, Edina, MN, United States; 2. Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN, United States
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VP4-03. Magnetization mechanisms for the non-destructive evaluation of early-stage low temperature thermal oxidation in low-carbon steels. A. Mongshi¹, Y. Tene Deffo¹, N. Mary², P. Tsafack¹, J. Mogniotte³,⁴ and B. Ducharme³,⁵ 1. Laboratory of Electrical Engineering and Computing (LEEC), University of Buea, P.O. Box 63, Buea, Cameroon, Buea, Cameroon; 2. Univ Lyon, INSA Lyon, UCBL1, CNRS, MATEIS UMR5510, F-69621 Villeurbanne, France, Villeurbanne, France; 3. Univ Lyon, INSA Lyon, LGEF EA682, 69621 Villeurbanne, France, Villeurbanne, France; 4. Hybría Institute of Business and Technologies, Écully CAMPUS, 69130 Écully, France, Écully, France; 5. Univ Lyon, INSA Lyon, Centrale Lyon, UCBL1, Tohoku University, ElyTMAx IRL3757, Sendai 980-8577, Japan, Sendai, Japan View Digest Text

VP4-04. Dynamics of the Shape of Magnetic Fluid Droplets under the Influence of a Magnetic Field: Experiment and Lattice Boltzmann Simulation. D. Kalyuzhnaya¹, E. Sokolov¹, A. Pribylov¹, G. Zhukov¹, R. Politov¹ and P. Ryapolov¹ 1. Southwest State University, Kursk, Russian Federation View Digest Text

VP4-05. Calculation of Mutual Inductance between Trapezoidal and Rectangular Coils with Angular Misalignment. D. Kim¹, S. Lee¹ and D. Kim¹ 1. Department of Automotive Engineering, Yeungnam University, Gyeongsan, The Republic of Korea View Digest Text

VP4-06. Wave-Driven Magnetic Levitation-Based Energy Harvesting. J. Park¹, Y. Choi¹, N. Wereley¹ and A. Flatau¹ 1. Department of Aerospace Engineering, University of Maryland at College Park, College Park, MD, United States View Digest Text


VP4-08. A Comprehensive Study of Structural, Magnetic and Dielectric Properties in Fe³⁺ and Y³⁺ Substituted NiCr₂O₄. J. Barman¹, S. Verma¹ and S. Ravi¹ 1. Department of Physics, Indian Institute of Technology Guwahati, Guwahati, India View Digest Text

VP4-09. Comparative study of structural and magnetic properties of Nd₆CoMnO₆ compound. N. Nayak¹ and S. Ravi¹ 1. Department of Physics, Indian Institute of Technology Guwahati, Guwahati, India View Digest Text

VP4-10. Lateral modulation of magnetic anisotropy in multilayer by grayscale lithography followed by ion irradiation. D. Oshima² and T. Kato²,¹ 1. Institute of Materials and Systems for Sustainability, Nagoya University, Nagoya, Japan; 2. Department of Electronics, Nagoya University, Nagoya, Japan View Digest Text
VP4-11. Energy of a Fully Spin-Polarized Two-Dimensional Electron Gas Separated from its Jellium Neutralizing Background. O. Ciftja 1. Department of Physics, Prairie View A&M University, Prairie View, TX, United States

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VP4-13. Field-induced self-assembly and subsequent disaggregation of superparamagnetic iron oxide nanoparticles: insights from an image-based experimental approach. S. Ciannella 1, B. Dodge 1, K. Wu 2, J. Wang 3 and J. Gomez-Pastora 1. 1. Department of Chemical Engineering, Texas Tech University, Lubbock, TX, United States; 2. Department of Electrical and Computer Engineering, Texas Tech University, Lubbock, TX, United States; 3. Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States

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VP4-14. The Critical Behavior of Magnetization near the Curie Temperature in Highly Spin-Polarized Heusler Alloy Co$_2$TiGa$_{0.3}$Sn$_{0.7}$. H. Aoshima 1, I. Shigeta 1, A. Nomura 2, K. Yubuta 2, T. Yamauchi 3, R. Umetsu 2, T. Kanomata 3 and M. Hiroi 1. 1. Department of Physics and Astronomy, Kagoshima University, Kagoshima, Japan; 2. Tohoku University, Sendai, Japan; 3. The University of Tokyo, Kashiwa, Japan; 4. Tohoku Gakuin University, Tagajo, Japan

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VP4-16. Restoration of Magnetic Order in Heavy Metal Doped Spin Glass. S. Samatham 1, A.K. Patel 4, P. Khandelwal 2, S. Shrvan Kumar Reddy 1, G. Babbedi 3, C.S. M 1, M. Patwari 3 and K. G. Suresh 1. 1. Department of Physics, Chaitanya Bharathi Institute of Technology, Hyderabad, Hyderabad, India; 2. Department of Physics, Indian Institute of Technology Bombay, Mumbai, India; 3. Department of Chemistry, Chaitanya Bharathi Institute of Technology, Hyderabad, India; 4. Research Centre for Magnetic and Spintronic Materials, National Institute for Materials Science (NIMS), Tsukuba, Japan; 5. Department of Physics, Government College (Autonomous), Rajahmundry, India

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VP4-17. Magnetic Properties of Fe-doped MnO Nanoparticles. A. Soares de Brito 1, M. Valerio-Cuadros 1, A. Alves Oliveira 1, L. Felipe Silva Tupan 1, R. Barco 1, F. Iwashita 1, J. de Araújo 2, M. Morales Torres 2 and A. Paesano Jr 1,2. 1. Universidade Estadual de Maringá, Assis Chateaubriand, Brazil; 2. Universidade Federal do Rio Grande do Norte, Natal, Brazil

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VP4-18. Relating structural sensitivities and helical magnetic order of MnSi. S. Samatham 1, A.K. Patel 4, S. Kumar A 1, A. K. Sinha 1, M. Singh 1, S. Shrvan Kumar Reddy 1, N. Gandia 1 and K. G. Suresh 1. 1. Department of Physics, Chaitanya Bharathi Institute of Technology, Hyderabad, India; 2. Research Centre for Magnetic and Spintronic Materials, National Institute for Materials Science, Tsukuba, Japan; 3. Synchrotrons Utilization Section, Raja Ramanna Center for Advanced Technology, Indore, India; 4. Department of Physics, Magnetic Materials Laboratory, Indian Institute of Technology Bombay, Mumbai, India

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VP4-20. Effect of oxygen vacancies on the structural and magnetic properties of Fe-dopedITO studied by first-principles DFT calculations. C.A. Vílca Huayhua1 1. Instituto de Física, Universidade de Brasília, Brasília, Brazil 
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Session VP5
LINEAR MACHINES AND MAGNETIC GEARING (Poster Virtual Session)
Noureddine Takorabet, Chair
Université de Lorraine, Vandoeuvre-lès-Nancy, France

VP5-01. Cycloidal Magnetic Gear Utilizing Magnetic Repulsion Characteristics. P. Liao1, H. Lu2, M. Tsai1, P. Huang2 and T. Chang2 1. Department of Mechanical Engineering, National Cheng Kung University, Tainan, Taiwan; 2. Department of Electrical Engineering, National Cheng Kung University, Tainan, Taiwan 
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VP5-02. A Novel Continuously Variable Magnetic Geared Dual Stator Hub-Motor for an E-Bike. S.K. Warsi1 and S. Sampathiraov 1. School of Electrical Sciences, Indian Institute of Technology Goa, Ponda, India 
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VP5-03. An Energy-saving Series Elastic Actuator with Variable Torque-speed Characteristics Using Reconfigurable Epicyclic-Driven Actuation. T. Wang1,2, Z. Dong1,2, H. Wen1,2, B. Zhang1,2 and C. Liu1,2 1. Shenzhen Research Institute, City University of Hong Kong, Shenzhen, China; 2. School of Energy and Environment, City University of Hong Kong, Hong Kong 
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VP5-04. Suppressing the Three-Phase Flux Linkage Asymmetry of Modular Flux-Switching Permanent-Magnet Linear Machine by Rearranging Windings. Z. Ke1, H. Lin1 and J. Xu2 1. School of Electrical Engineering, Southeast University, Nanjing, China; 2. Naval University of Engineering, Wuhan, China 
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VP5-05. Optimization Design of Tubular Permanent Magnet Synchronous Linear Motors Considering Machining and Assembly Errors. Q. Wu1, G. Yang2 and W. Li1 1. Nanjing University of Science and Technology, Nanjing, China 
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VP5-06. A Tubular Flux-Reversal Transverse Flux Permanent Magnet Linear Generator Used in Direct Drive Wave Energy Converter. M. Chen1,2, L. Huang3, Y. Li1, G. Meng1 and T. Xia1 1. Nanjing Institute of Technology, Nanjing, China; 2. Southeast University, Nanjing, China View Digest Text

VP5-07. Vibration Analysis of Permanent Magnet Linear Synchronous Motor Considering Force-Magnetic Coupling. B. Ji1, B. Zhang1, T. Dong1, R. Fu1 and W. Feng1 1. Shenyang University of Technology, Shenyang, China View Digest Text

VP5-08. Effect of Magnetostriction on the Vibrations of Permanent Magnet Linear Synchronous Motors. R. Fu1, B. Zhang1, T. Dong1, W. Feng1 and B. Ji1 1. Shenyang University of Technology, Shenyang, China View Digest Text

VP5-09. Sensorless Magnetization Current Control for Stable Connection and Separation of Electropermanent Magnet. M. Kato1 and F. Kitayama1 1. Ibaraki University, Hitachi-shi, Japan View Digest Text

VP5-10. Design and Quantitative Analysis of Asymmetric Flux Reversal Permanent Magnet Linear Machine with Reduced Leakage Flux. Z. Chen1, Z. Li3 and Y. Shen2 1. College of Electrical Engineering, Zhejiang University, Hangzhou, China; 2. School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore; 3. KTH Royal Institute of Technology, Stockholm, Sweden View Digest Text

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Session VP6
MAGNETIZATION DYNAMICS AND MICROMAGNETICS II
(Poster Virtual Session)
Myoung-Woo Yoo, Chair
University of Illinois Urbana-Champaign, Champaign, IL, United States

VP6-02. Anisotropy Dependent Spin-Orbit-Torque Switching in Crystalline Ferromagnetic Semiconductor. A.K. Jana1 and S. Lee1 1. Department of Physics, Korea University, Seoul, The Republic of Korea View Digest Text


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VP6-05. Study on the effect of structural scale of hollow particles and core-shell particles on the properties of magnetorheological fluids. W. Shun1,2, W. Han1,2 and B. He1,2 1. Institute of Launch Dynamics, Nanjing University of Science and Technology, Nanjing, China; 2. National Key Laboratory of Complex Multibody Systems Dynamics, Nanjing University of Science and Technology, Nanjing, China

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VP6-06. Skyrmion generation from domain wall dynamics. S. Jeong3, D. Jung1, H. Han1, G. Kim1, M. Im1 and K. Lee1,2 1. Department of Materials Science and Engineering, Korea National University of Transportation, Changju, The Republic of Korea; 2. Graduate School of Semiconductor Materials and Devices Engineering, Ulsan National Institute of Science and Technology (UNIST), Ulsan, The Republic of Korea; 3. Department of Materials Science and Engineering, Ulsan National Institute of Science and Technology (UNIST), Ulsan, The Republic of Korea; 4. Lawrence Berkeley National Laboratory, Berkeley, CA, United States

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VP6-07. Static and Dynamic Magnetic Properties in Layered Synthetic Antiferromagnets. Y. Rong1,2, L. Sun1,2, F. Liu1,2, T. Wu1,2 and Y. Yang1,2 1. School of Information Science and Technology, ShanghaiTech University, Shanghai, China; 2. Shanghai Engineering Research Center of Energy Efficient and Custom AI IC, ShanghaiTech University, Shanghai, China

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VP6-08. Investigation of the dynamic magnetic properties in RuO2/Co-Fe-B stack film. T. Nguyen1,2, Y. Saito2, H. Naganuma2,3,4, S. Ikeda2,1 and T. Endoh2,1,5 1. Tohoku University, CSIS, Sendai, Japan; 2. Tohoku University, CIES, Sendai, Japan; 3. Nagoya University, NAIAS, Nagoya, Japan; 4. Nagoya University, IMaSS, Nagoya, Japan; 5. Tohoku University, ECEI, Sendai, Japan

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VP6-09. Study of Curvature Effects in Corrugated Nanostrips. J. Fernandez-Roldan1, S. Shakeel1, M. Quintana1,2, O.M. Volkov1, O. Pylypovskyi1, E. Oliveros-Mata1, F. Kronast3, M. Mohamad-Assaad4, C. Abert4, D. Susc4, D. Erb1 and D. Makarov1 1. Helmholtz-Zentrum Dresden-Rossendorf e.V., Dresden, Germany; 2. CIC nanoGUNE BRTA, Donostia—San Sebastián, Spain; 3. Helmholtz-Zentrum Berlin für Materialien und Energie, Berlin, Germany; 4. University of Vienna, Vienna, Austria

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VP6-10. Variations in Spin Seebeck Voltage in Polycrystalline Bulk Y2Fe5O12 Due to Diverse Annealing Processes. H. Ok1 and K. Lee1 1. Ulsan National Institute of Science and Technology (UNIST), Ulsan, The Republic of Korea

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VP6-11. Micromagnetic aspects of the magneto-impedance response of the FM-I-NM-I-FM multilayer film driven by a high-frequency current. G.D. Demin1, A.D. Fedina1 and N.A. Djuzhev1 1. R&D Center “MEMSEC”, National Research University of Electronic Technology (MIET), Moscow, Russian Federation

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VP7-01. High-Resolution Flaw Detection Using Eddy-Current Probe Array Based on Giant Magnetoresistance Sensors. L. Bui1, J. Jeng1, H. Huang1, H. Nguyen2, V. Doan3 and T. Nguyen1 1. National Kaohsiung University of Science and Technology, Kaohsiung, Taiwan; 2. Thai Nguyen University of Technology, Thai Nguyen, Vietnam; 3. University of Technology and Education, The University of Danang, Da Nang, Vietnam
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VP7-02. Enhanced Electrical Modelling of Spin Transfer Torque Magnetic Tunnel Junctions with Temperature Dependent Magnetic Parameters. A.C. Venuri1 and N. Kumar1 1. Department of Electronics and Communications Engineering, National Institute of Technology Calicut, Calicut, India
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VP7-03. Effect of Deposition Parameters on the Performances of Magnetic Tunnel Junction Multilayer Structure. C. Ghemes1, O.G. Dragos-Pinzaru1, M. Tibu1, G. Stoian1, G. Ababei1, N. Lupu1 and H. Chiriac1 1. National Institute of Research and Development for Technical Physics, Iasi, Romania
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VP7-04. Investigation of Partially Oxidized Cu Capping Effect on CoFeB/Pt/CuOx Multilayers by Electrical and Optical Methods. Y. Ma1,2, N. Zhang1,3, H. Xie1, L. Ke3 and Y. Wu1,2 1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore; 2. National University of Singapore (Chong Q ing) Research Institute, Chongqing, China; 3. Institute of Materials Research and Engineering, Agency for Science, Technology and Research, Singapore
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VP7-05. Efficient spin-orbit torque magnetization switching with low current density in crystalline ferromagnetic semiconductor. K. Lee1, S. Lee1, X. Liu2, M. Dobrowolska2 and J. Furdyna2 1. Department of Physics, Korea University, Seoul, The Republic of Korea; 2. Department of Physics, University of Notre Dame, Notre Dame, IN, United States
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VP7-06. Robust Field-Free Current-Induced Magnetization Switching via Oscillatory Interlayer Dzyaloshinskii–Moriya Interaction. C. Liu1, P. Wang1, Y. Huang1, W. Liao1, M. Song2, X. Bao2 and C. Pai1 1. Department of Materials Science and Engineering, National Taiwan University, Taipei, Taiwan; 2. Corporate Research, Taiwan Semiconductor Manufacturing Company, Hsinchu, Taiwan View Digest Text


VP7-10. Nanoribbon of Zigzag Silicene for Spin Field Effect Transistor with Low Voltage Bias. A. Shah1 and A. Kashyap2 1. SCEE, IIT Mandi, Mandi, India; 2. SPS, IIT Mandi, Mandi, India View Digest Text

VP7-11. Improvement of SP Decoding Considering the Influence of Recording Patterns by Neural Network in SMR. M. Nishikawa1, Y. Nakamura1, Y. Kani2 and Y. Okamoto3 1. Ehime University, Matsuyama, Japan; 2. Niigata Institute of Technology, Kashiwazaki, Japan View Digest Text


VP7-14. MTJ Based NV-SRAM Macro with Enhanced Read Margin and Low Static Power in FDSOI process. J. Su1 and H. Cai1 1. Southeast University, Nanjing, China View Digest Text

VP7-15. Electrical Manipulation of Noncollinear Antiferromagnetic State via Orbital Hall Effect. H. Xie1, N. Zhang1,2, Y. Ma1,3, X. Chen1, L. Ke2 and Y. Wu1,3 1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore; 2. Institute of Materials Research and Engineering, Agency for Science, Technology and Research, Singapore; 3. National University of Singapore (Chong Qing) Research Institute, Chongqing, China View Digest Text
VP7-16. Thickness Dependence of Unidirectional Magnetoresistance in Co$_2$MnGa Films. B. Rong$^{1,6}$, L. Ren$^2$, H. Zheng$^{1,6}$, L. Liu$^{3,5}$ and Y. Yang$^{1,6}$ 1. School of Information Science and Technology, ShanghaiTech University, Shanghai, China; 2. Department of Electrical and Computer Engineering, National University of Singapore, Singapore; 3. Key Laboratory of Artificial Structures and Quantum Control (Ministry of Education), TD Lee institute, School of Physics and Astronomy, Shanghai Jiao Tong University, Shanghai, China; 4. Hefei National Laboratory, Hefei, China; 5. Shanghai Research Center for Quantum Sciences, Shanghai, China; 6. Shanghai Engineering Research Center of Energy Efficient and Custom AI IC, ShanghaiTech University, Shanghai, China
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VP7-17. Characterization of transition metal alloys-based trilayers for magnetic field sensors. A. Lo Giudice$^{1,2}$, A. Román$^{1,2}$ and L. Steren$^{1,2}$ 1. Instituto de Nanociencia y Nanotecnologia CNEA/CONICET - Constituyentes, General San Martin, Argentina; 2. Consejo Nacional de Investigaciones Científicas y Tecnicas, Buenos Aires, Argentina
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VP7-18. Withdrawn

VP7-19. A Random Number Generator Based on a Spin-orbit Torque Device with Magnetic Entropy. M. Yang$^1$, H. Chang$^1$ and C. Yang$^1$ 1. Department of Materials Science and Engineering, National Yang Ming Chiao Tung University, Hsinchu, Taiwan
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VP7-20. Enhancement of Voltage-Controlled Magnetic Anisotropy in Orthogonally-Magnetized CoFeB/MgO/CoFeB. P. Huang$^1$, A. Chen$^1$, X. Cai$^1$, D. Wu$^1$, X. Zhang$^2$ and X. Kou$^1$ 1. ShanghaiTech University, Shanghai, China; 2. King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia; 3. Suzhou Inston Technology Co. Ltd., Suzhou, China
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VP8-02. Measurement of magnetization curves of soft magnetic materials in the highly saturated state by the pulsed magnetic field method. X. Zhao1,2, Y. Jiang1,2, D. Wang1,2 and J. Chen1,2 1. Naval University of Engineering, Wuhan, China; 2. National Key Laboratory of Electromagnetic Energy, Wuhan, China
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VP8-04. Flux Waveforms Control Using Fuzzy Neural Network PID for Magnetic Measurement Under Arbitrary Magnetization. L. Chen1, X. Liu1, T. Ben1, D. Yan1 and X. Zhang2 1. China Three Gorges University, Yichang, China; 2. Hebei University of Technology, Tianjin, China
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VP8-07. Differential Model based Parameter Estimation of IPMSMs from Multi-state Measurements. H. Cheng1, U. Deshpande2 and N. Kar1 1. University of Windsor, Windsor, ON, Canada; 2. DeV Electronics Ltd, Toronto, ON, Canada
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VP8-08. Effect of Tube Thicknesses on Electromagnetic Drag and Guidance Forces for Hyperloop with HTS Magnets. S. Choi1, Y. Oh1, C. Lee1 and J. Choe1 1. Korea Railroad Research Institute, Uiwang, The Republic of Korea
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Session VP9
MULTI-FUNCTIONAL MAGNETIC MATERIALS AND APPLICATIONS II
(Poster Virtual Session)
Alberto Mendonça, Co-Chair
Universidade Estadual de Campinas, Campinas, Brazil
Jia-Yan Law, Co-Chair
University of Seville, Seville, Spain

VP9-01. On the saturation of the magnetocaloric effect in Ni37Co13Mn34.5Ti15.5 all-d Heusler alloys. B. Beckmann1, A. Taubel1, T. Gottschall2, L. Pfeuffer1, D. Koch1, F. Scheibel1, K. Skokov1 and O. Gutfeisch1 1. Institute of Materials Science, Technical University of Darmstadt, Darmstadt, Germany; 2. Dresden High Magnetic Field Laboratory, Helmholtz-Zentrum Dresden-Rossendorf (HZDR), Dresden, Germany
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VP9-02. Magnetocaloric effect of uniformly packed ferromagnetic Gd nanoparticle clusters. A.S. Freitas², C.M. Souza³, A.L. Dantas¹,² and A.S. Carriço³ 1. Department of Science and Technology, State University of Rio Grande do Norte, Natal, Brazil; 2. Department of Physics, State University of Rio Grande do Norte, Mossoro, Brazil; 3. Department of Physics, Federal University of Rio Grande do Norte, Natal, Brazil View Digest Text

VP9-03. Electronic Structure and Magnetic Properties of the Full Heusler Alloys Mn₂YAl (Y = Fe, Co, Ni). E.D. Chernova¹ and A.V. Lukoyanov¹,² 1. M.N. Miheev Institute of Metal Physics UB of RAS, Ekaterinburg, Russian Federation; 2. Ural Federal University named after the first President of Russia, B. N. Yeltsin, Ekaterinburg, Russian Federation View Digest Text

VP9-04. Magnetically Actuated Compliant Soft Robotic Gripper for Grasping Delicate Food Items. Y. Choi¹, C. Hartzell¹ and N. Wereley¹ 1. University of Maryland at College Park, College Park, MD, United States View Digest Text

VP9-05. Theoretical Study of the AFM-FM Transition in GdNi₅Si₁₋ₓAlₓ. R.D. Mukhachev¹ and A. Lukoyanov¹,² 1. Metal Optics Laboratory, M.N. Miheev Institute of Metal Physics of Ural Branch of Russian Academy of Sciences, Yekaterinburg, Russian Federation; 2. Institute of Physics and Technology, Ural Federal University, Yekaterinburg, Russian Federation View Digest Text

VP9-06. Voltage-Controlled Anisotropic Magnetoresistance in Ferromagnetic-Piezoelectric Heterostructures. Y. Wang¹,²,³, M. Du¹,²,³, J. Li¹,²,³, D. Luo¹ and T. Wu¹,²,³ 1. ShanghaiTech University, Shanghai, China; 2. Shanghai Institute of Microsystems and Information Technology, Shanghai, China; 3. University of Chinese Academy of Sciences, Beijing, China View Digest Text

VP9-07. Measurement and Analysis of Magnetostriction of Electrical Steel Sheet Considering Grain Structure. T. Chen¹,², Q. Yang¹,², C. Zhang¹,², Y. Li¹,², Y. Dou¹,² and X. Liu¹,² 1. State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China; 2. Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability of Hebei Province, Hebei University of Technology, Tianjin, China View Digest Text

VP9-08. Influence of trace rare earth elements Pr and annealing process on texture evolution and magnetostriiction behavior of Fe₈₁Al₁₉ alloys. W. Li¹,²,³ 1. School of Materials Science and Engineering, Shenyang University of Technology, Shenyang, China; 2. Shenyang Key Laboratory of Advanced Structural Materials and Applications, Shenyang University of Technology, Shenyang, China; 3. State Key Laboratory of Baiyunobo Rare Earth Resource Researches and Comprehensive Utilization, Baotou Research Institute of Rare Earths, Baotou, China View Digest Text
Impact of Ho-doping on the magnetic and electrical properties of $\text{Y}_3\text{Ho}_{x}\text{Fe}_5\text{O}_{12}$ ($x=0, 0.1, 0.5, 0.7$) ceramics.

O. Morán. 1. Department of Physics, National University of Colombia, Medellin, Colombia

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VP10-07. The Harmonic-Balanced Finite Element Method With Laplace Transform for Transient State Nonlinear Problems. S. Gao, X. Zhao, Y. Gao, K. Muramatsu, and T. Todaka. 1. North China Electric Power University, Baoding, China; 2. Oita University, Oita, Japan; 3. Saga University, Saga, Japan

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VP10-08. Comparison of Wideband Loss Separation Technology Considering the Impact of Skin Effect. L. Chen, Z. Zhang, T. Ben, X. Wen and C. Liu. 1. China Three Gorges University, Yichang, China; 2. Hebei University of Technology, Tianjin, China

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VP10-09. Air-gap Region Topology Optimization of a Hairpin PM Motor for Electromagnetic Vibration Reduction. J. Wu and X. Zhu. 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China

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VP10-10. Loss Analysis in Spoke Dual-Stator Permanent Magnet Vernier Machine Considering Stator Mutual Effect. W. Mi, J. Yu, F. Zhao, Z. Cai and H. Zhao. 1. Harbin Institute of Technology, Shenzhen, China; 2. The Hong Kong University of Science and Technology, Guangzhou, China

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VP10-14. Variable Cross-Section End-transposed Rectangular Windings Based on Additive Manufacturing Technology for AC Loss Suppression in Electrical Machines. J. Zhang, X. Gui, Q. Deng, J. He, Z. Zhu and Z. Zhang. 1. Nanjing University of Aeronautics and Astronautics, Nanjing, China

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VP10-16. Design and Analysis of a Partitioned-Stator Hybrid Excited Permanent Magnet Arc Motor. Z. Pan1, J. Zhao1, S. Fang2, Z. Yu1 and P. Xu1 1. School of Electrical Engineering and Automation, Hefei University of Technology, Hefei, China; 2. School of Electrical Engineering, Southeast University, Nanjing, China

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VP10-17. Design and Analysis of a Novel Asymmetric PM-Assisted Synchronous Reluctance Machine Used for Electric Vehicles. W. Wang1, S. Wang1, L. Zhu1, X. Zhao1 and J. Wei1 1. College of Computer and Control Engineering, Northeast Forestry University, Harbin, China

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VP10-18. Harmonic-Oriented Design and Analysis of a Dual-Air-Gap Flux-Modulated Permanent Magnet Motor for Torque Improvement. X. Cai1, X. Zhu1 and D. Fan1 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China

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VP10-19. Multi-Material Topology Optimization of Permanent Magnet Synchronous Motor Considering Manufacturing Constraints. M. Xia1, J. Li1 and S. Yang2 1. Hangzhou City University, Hangzhou, China; 2. Zhejiang University, Hangzhou, China

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VP10-20. Comparative Analysis of a Novel Flux-Switching Arc Permanent Machine With Flux-Reversal Effect. X. Lin1 and S. Fang1 1. School of Electrical Engineering, Southeast University, Nanjing, China

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VP10-21. An Improved Machine Design Method Considering Armature Reaction and Comparison with Conventional Method. X. Li1, M. Wang1, P. Zheng1, Y. Liu1 and J. Gao1 1. Harbin Institute of Technology, Harbin, China

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VP10-22. Two-Reaction Theory Analysis of Homopolar Inductor Machine With Rotor Tooth Offset at any Angle. Q. Li, J. Yang1, Y. Pan1 and S. Huang1 1. Hunan University, College of Electrical and Information Engineering, Changsha, China

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VP10-23. Multi-Operated Points Optimization of Interior Permanent Magnet Synchronous Machine Considering Driving Cycle. Q. Zhou1, Y. Li1, S. Ding1, J. Hang1 and W. Li1 1. School of Electrical Engineering and Automation, Anhui University, Hefei, China

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VP10-24. Torque Ripple Reduction of New Dual-Stator Machines Using Squirrel Stator Teeth in Uneven Distribution. R. Yao1, H. Wang1, Y. Xu1, Y. Sha1 and C. Feng1
1. Nanjing Normal University, Nanjing, China
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VP10-25. Effect of deep-sea high-pressure environments on iron loss in motors. Y. Xu1, J. Huang1, L. Xiao1, G. Yu1 and J. Zou1
1. Harbin Institute of Technology, Harbin, China
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VP10-26. Withdrawn

VP10-27. Structural Design and Thermal Management Efficiency Study of a High-Stability Doubly-Excited Synchronous Generator. D. Li1, Y. Cao1 and W. Liu1 1. Northeast Forestry University, Harbin, China; 2. Tsinghua University, Beijing, China
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VP10-28. MMF Harmonic Analysis of Multi-M-Phase Fractional-Slot Permanent-Magnet Machines With Partial Operating Winding Sets. W. Wang1 and L. Wu1 1. Zhejiang University, Hangzhou, China
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VP10-29. The Scalable Analytical Model for Predicting the Performance of SPM Machine with Arbitrary Magnet Shape. Z. Li1,2, B. Liu3, P. Fransson2 and L. Peretti1 1. KTH Royal Institute of Technology, Stockholm, Sweden; 2. ABB Corporate Research, Vasteras, Sweden
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VP10-30. Determination Method of Nonlinear Reluctance Matrix Considering Saturation Differences for Three-phase Transformers. Y. Wang1, Z. Liang1 and B. Jin1 1. School of Mechanical and Electrical Engineering, China University of Mining and Technology, Beijing, Beijing, China
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VP10-31. Flux-driven Nonlinear Transient Model for Single Phase Transformers. Y. Wang1, J. Yu1, B. Jin1 and Z. Liang1 1. School of Mechanical and Electrical Engineering, China University of Mining and Technology, Beijing, Beijing, China
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VP10-32. An Improved Analytical Model for the Novel Counter-Rotating Axial-Flux Hybrid-Excitation Permanent Magnet Machine. K. Huang1, Y. Feng1, C. Xia1, B. Long1, Y. Gao1 and S. Huang1 1. Hunan University, Changsha, China
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Session VP11
PERMANENT MAGNET MACHINES II
(Poster Virtual Session)
Konstantin Boynov, Chair
Eindhoven University of Technology, Eindhoven, Netherlands

VP11-01. Comparative Analysis of Dual-Stator Permanent Magnet Machines With Inner Stator Teeth Designed in Hypotenuse for Electric Vehicle. Y. Xu1, H. Wang1, Y. Sha1 and R. Yao1 I. School of Electrical and Automation Engineering, Nanjing Normal University, Nanjing, China
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VP11-02. Research on Air-gap Field Modulation Effect of Torque Enhanced Hybrid Permanent Magnet Motor. Y. Chen1, X. Zhou1, M. Lu1 and Z. Li1 I. Yangzhou University, Yangzhou, China
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VP11-03. Influence of Stator Core Manufacturing Displacement on the Electromagnetic Performance of Modular Permanent Magnet Machine. H. Liu1, J. Yang1, J. Yu1 and S. Huang1 I. College of Electrical and Information Engineering, Hunan University, Changsha, China, Changsha, China
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2. Smart Agricultural Machinery R&D Group, Korea Institute of Industrial Technology, Gimje, The Republic of Korea;
3. H&A Fundamental Technology R&D Lab, LG Electronics, Seoul, The Republic of Korea
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VP11-05. Partial Demagnetization Fault Diagnosis Method for Permanent Magnet Synchronous Machines Considering Topology Structures. S. Ding1, Z. Wu1, Y. Li1, J. Hang1 and W. Li1 I. School of Electrical Engineering and Automation, Anhui University, Hefei, China
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VP11-06. Design of a Novel Transverse Flux Machine with Axial-Radial Permanent Magnet. B. Zhang1,2, R. Huang1,2, Y. Liu1,2 and C. Liu1,2 I. Shenzhen Research Institute, City University of Hong Kong, Shen Zhen, China;
2. School of Energy and Environment, City University of Hong Kong, Kowloon Tong, Hong Kong
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VP11-07. Design and Analysis of a New Consequent-Pole Hybrid Excited Permanent Magnet Machine with DC-biased Current. G. Qu1, J. Yu1, Y. Liu1 and W. Liu1 I. College of Nuclear Technology and Automation Engineering, Chengdu University of Technology, Chengdu, China
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VP11-08. Fast Prediction of No-Load Back EMF in IPMSMs Based on Small-Sample Surrogate Model. W. Jiang, S. Liu and L. Bai. 1. Nanjing University of Aeronautics and Astronautics, Nanjing, China
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VP11-09. Design of a New Consequent-Pole Hybrid Excited Machine with Segmented Stator. G. Qu, Y. Liu, J. Yu and W. Liu. 1. College of Nuclear Technology and Automation Engineering, Chengdu University of Technology, Chengdu, China
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VP11-11. Design of Radial Flux C-Gen Machine with Interior Permanent Magnets. H. Guo, R. Huang, B. Zhang and C. Liu. 1. School of Energy and Environment, City University of Hong Kong, Hong Kong
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VP11-12. High-Efficiency-Region Broadening Design and Analysis of a Variable-Leakage-Flux Permanent Magnet Motor from the Perspective of Losses Replacement. M. Jiang and X. Zhu. 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China
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VP12-01. AC Loss Analysis and Suppression of a Flat-Wire Permanent Magnet Motor Based on Slot-Leakage-Flux Variation Improvement. X. Wang, L. Quan and Z. Xiang. 1. Department of Electrical Engineering, School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China
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VP12-02. Low Vibration Research and Design of In-Wheel V-shaped PM Motor from the Perspective of Winding Magnetomotive Force. T. Liu, L. Quan and X. Zhu. 1. Department of Electrical Engineering, School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China
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VP12-03. Low Loss design method based on response surface algorithm considering multi-operation states. L. Yin², Y. Wang², R. Sun², L. Wu² and X. Xu¹. 1. Nanjing University of Posts and Telecommunications, Nan Jiang, China; 2. Lianyungang Power Supply Company, Lianyungang, China
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VP12-04. Virtual Shorted Coil Model for Six-Phase PMSM Inter-Turn Short Fault Detection. Z. Yuan¹, M. Wang², W. Liu¹, M. Wang¹ and P. Zheng¹. 1. Harbin Institute of Technology, Harbin, China; 2. State Key Laboratory of Robotics and Systems (HIT), Harbin, China
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VP12-06. Analysis of the Overload Capability of Shaftless Propulsion Motor for Autonomous Underwater Vehicle with Wide Speed Range. X. Jiang¹,²,³, Y. Jiang¹,²,³, H. Wang²,³, S. He²,³ and J. Chen¹,²,³. 1. School of Electrical Engineering, Southeast University, Nanjing, China; 2. Naval University of Engineering, Wuhan, China; 3. National Key Laboratory of Electromagnetic Energy, Wuhan, China
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VP12-08. Characterization of Permanent Magnet Demagnetization in Surface-mounted Synchronous Motors Based on the Stator Current Vector Modulus. W. Li¹,³, X. Lu¹, Y. Li¹, L. Zeng² and R. Pei¹,². 1. Department of Electrical Engineering, Shenyang University of Technology, Shenyang, China; 2. Suzhou Inn-mag New Energy Ltd., Suzhou, China; 3. School of Electrical and Mechanical Engineering, Xuchang University, Xuchang, China
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VP12-13. A Novel Speed Estimation Algorithm for a Permanent Magnet Linear Synchronous Motor Using Extended Kalman Filter with Multiple Fading Factors. X. Liu¹, J. Zhang¹, H. Xie¹ and C. Hu² 1. College of Electrical and Information Engineering, Hunan University, Changsha, China; 2. State Grid Ningbo Power Supply Company, Ningbo, China  
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VP12-15. A Novel Axial-field Juxtaposed Magnetic Circuit Variable Flux Memory Machine. Y. Gao¹, Y. Feng¹, C. Xia¹, B. Long¹ and S. Huang¹ 1. College of Electrical and Information Engineering, Hunan University, Changsha, China  
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VP12-20. Analysis of Dual-Airgap Yokeless-Stator Permanent Magnet Motor With Non-Oriented or Grain-Oriented Steels for Aircraft Propulsion. H. Xue¹, Z. Zhang¹, Y. Liu², H. Gao¹ and Q. Lin¹ 1. College of Automation Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing, China; 2. Nanjing Normal University, Nanjing, China View Digest Text

VP12-21. A Control Strategy Minimizing PM Loss of Phase-Shifted Dual-Winding PMSM for Aviation Electric Propulsion Application. Y. Zhu¹, Z. Zhang¹, J. Lu¹ and H. Xue¹ 1. Nanjing University of Aeronautics and Astronautics, Nanjing, China View Digest Text

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Session VP13
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Rogers Corp., Burlington, MA, United States

VP13-01. Localization of a crack in moving cylindrical ferromagnetic rods by measuring the Fourier coefficients of the leakage magnetic flux. K. Shiku¹, M. Kuromizu², Y. Gotoh² and T. Nara¹ 1. The University of Tokyo, Bunkyo-ku, Japan; 2. Oita University, Oita, Japan View Digest Text

VP13-02. CO₂ Detector Powered by a Rectenna. Ú.C. Resende¹, F. Fernandes dos Santos Ramalho¹, T.H. Mello¹ and I.O. Souza¹ 1. Electrical Engineering, Centro Federal de Educação Tecnológica de Minas Gerais, Belo Horizonte, Brazil View Digest Text
VP13-03. The effect of CoFeB Electrodes Compositions on Bias Voltage Dependence of Sensitivity in Tunneling Magnetoresistance Sensors. P. Wisniowski1, L. Fusnik1, S. Cardoso de Freitas2, P. Freitas2 and J. Wrona3
1. Department of Electronics, AGH University of Krakow, Krakow, Poland; 2. INESC Microsystems and Nanotechnologies and IN, Lisbon, Portugal; 3. Singulus Technologies AG, Kahl am Main, Germany
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1. Institute of Physics, Saratov State University, Saratov, Russian Federation; 2. School of Physics and Astronomy, University of Exeter, Exeter, United Kingdom; 3. MaxLLG Ltd., Exeter, United Kingdom
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VP13-07. Defect Evaluation in Mild Steel Plate Using Harmonic Ratio Induced by Square Wave Excitation Field and Nonlinear Magnetization. M. Saari1,2, M. Zaini1, M. Sulaiman1, A. Samsudin3 and T. Kiwa1
1. Faculty of Electrical & Electronics Engineering Technology, Universiti Malaysia Pahang Al-Sultan Abdullah, Pekan, Malaysia; 2. Centre for Advanced Industrial Technology, Universiti Malaysia Pahang Al-Sultan Abdullah, Pekan, Malaysia; 3. Faculty of Industrial Sciences and Technology, Universiti Malaysia Pahang Al-Sultan Abdullah, Kuantan, Malaysia; 4. Graduate School of Interdisciplinary Science and Engineering in Health System, Okayama University, Okayama, Japan
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VP13-08. Investigation of the Efficiency of Large Area and Low Aspect Ratio GMR Sensors in Biomedical Diagnostics: A Simulation Study. R.A. Mendonsa1, S. Liang2, D. Tonini1 and J. Wang1,2
1. Department of Electrical Engineering, University of Minnesota, Edina, MN, United States; 2. Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN, United States
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THz Sensor Design with Graphene Infused Metamaterial for Material Analysis. A. Eroglu1 and T. Islam2
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Angle-Dependent In-Plane Magnetic Field Detection by MEMS Resonant Sensor. Y. Wang1,2,3, M. Du1,2,3, J. Li1,2,3, D. Luo1 and T. Wu1,2,3 1. ShanghaiTech University, Shanghai, China; 2. Shanghai Institute of Microsystem and Information Technology, Shanghai, China; 3. University of Chinese Academy of Sciences, Beijing, China
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Wireless Power Transmission Using an Intelligent Metamaterial Array and Resonant Coils. I.O. Souza1, Ú.C. Resende1 and M.D. Almeida1 1. Centro Federal de Educação Tecnológica de Minas Gerais (CEFET-MG), Belo Horizonte, Brazil
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Study on Using Magnetodielectric Ferrite for Impedance Matching to Improve the Transmission-Range of Implantable Antenna. Y. Li1 and Q. Feng1 1. Southwest Jiaotong University, Chengdu, China
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Improved 2-D Magnetic Properties Measurement of Silicon Steel Based on a Novel B-H Sensor. J. Zhou2,1, Y. Li2,1, S. Yue2,1 and Z. Li2,1 1. Province-Ministry Joint Key Laboratory of EFEAR, Hebei University of Technology, Tianjin, China; 2. State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China
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VP14-10. Analysis of Magneto-Mechanical Properties at the Tooth-Yoke Embedding Position in Grain-Oriented Electrical Steel Electric Motors. Z. Li1, Y. Li1, Y. Qin1, L. Zeng2, J. Li1 and R. Pei1,2. 1. Department of Electric Engineering, Shenyang University of Technology, Shenyang, China; 2. Suzhou Inn-mag New Energy Ltd., Suzhou, China


VP14-12. Research on Magnetic-thermal Coupling of High Permeability Soft Magnets in SynRM. J. Li1, J. Ge1, Y. Li2, Z. Li1, L. Zeng2 and R. Pei1,2. 1. Department of Electrical Engineering, Shenyang University of Technology, Shenyang, China; 2. Suzhou Inn-Mag New Energy Ltd., Suzhou, China

VP14-13. Effect of Si Content on Magnetostrictive properties of Electrical Steel Sheet Considering Tensile Stress. D. Ma1, B. Tian1, L. Zeng2 and R. Pei1,2. 1. Department of Electrical Engineering, Shenyang University of Technology, Shenyang, China; 2. Suzhou Inn-Mag New Energy Ltd., Suzhou, China

VP14-14. Magnetic Measurement and Analysis of Nanocrystalline Laminates with Different Dimensions by An Improved Tester. W. Meng1, C. Zhang1, Y. Li1, H. Sun1 and Z. Wan1. 1. Hebei University of Technology, Tianjin, China


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VP15-11. Investigation of Vibration and Noise of High-frequency Transformer Cores of Different Shapes Under Non-Sinusoidal Excitation. Y. Li¹, X. Liu¹, Y. Dou¹ and T. Chen¹ 1. State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China; 2. Province-Ministry Joint Key Laboratory of EFPEAR, Hebei University of Technology, Tianjin, China  
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