

New Orleans
LOUISIANA
January 13-17, 2025



2025 Joint MMM-Intermag Conference



PROGRAM BOOK

*Jointly sponsored by AIP Publishing LLC
and the IEEE Magnetics Society*



SCOPE OF THE CONFERENCE



The 16th Joint MMM-INTERMAG Conference (2025 Joint) is sponsored jointly by AIP Publishing and the IEEE Magnetics Society. The Joint MMM-Intermag Conferences, convened every three years, are the combination of two annual premiere international conferences on magnetism: the IEEE International Magnetics Conference (Intermag) and the Conference on Magnetism and Magnetic Materials (MMM). Members of the international scientific and engineering communities interested in recent developments in fundamental and applied magnetism are invited to attend and contribute to the technical sessions. The technical program will include invited and contributed papers in oral and poster sessions, invited symposia, a tutorial, plenary, and several special sessions. This Conference provides an outstanding opportunity for worldwide participants to meet, share their research, and to discuss and learn about the most recent developments in all areas of magnetism research.

CONFERENCE INFORMATION

LOCATION: Hyatt Regency New Orleans - [View Hotel Information](#)

MOBILE APP:

The MyItinerary by ScholarOne mobile app provides attendees with instant access to the entire Conference program including abstracts, speakers, and the schedule of events. You can also use it to build your own customized schedule and to get in touch with other attendees. Download the free app before you arrive!



CONFERENCE MATERIALS:

- [Schedule-at-a-Glance](#)
- [Symposia and Invited Speakers List](#)
- [Program Book](#)
- Abstracts Book will be posted once available.
- [Special Events](#)

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PROGRAM COMMITTEE

(Name in blue indicates Team Lead)

Category	First Name	Last Name	Institution
1. Fundamental Properties and Cooperative Phenomena	Bruce	Gaulin	McMaster University
	Durga	Paudyal	University of Iowa
	Shan-Wen	Tsai	University of California Riverside
	Qiming	Shao	The Hong Kong University of Science and Technology
	Yingying	Wu	University of Florida
	Guoqiang	Yu	Chinese Academy of Sciences
2. Magnetoelectronic Materials and Phenomena	Lucas	Caretta	Brown University
	Pedram	Khalili	Northwestern University
	Christian	Rinaldi	Politecnico di Milano
	Paola	Tiberto	INRIM
	Xiaoyu (Criss)	Zhang	Northeastern University
	Zhenyi	Zheng	National University of Singapore
3. Soft Magnetic Materials	Can	Avci	Institut de Ciència de Materials de Barcelona
	Michelle	Jamer	United States Naval Academy
	Luqiao	Liu	Massachusetts Institute of Technology
4. Hard Magnetic Materials	Alexander	Gabay	University of Delaware
	H.	Sepehri-Amin	National Institute for Materials Science (NIMS)
	Pelin	Tozman	Technical Unviesity of Darmstadt
5. Structured Materials	Cristina	Bran	Spanish National Research Council (CSIC))
	Thomas	Crawford	University of South Carolina
	Angelo	Di Bernardo	University of Salerno and University of Konstanz
	Karen	Livesey	University of Newcastle
	Maria	Salvador	University of Oviedo
	Robert	Streubel	University of Nebraska-Lincoln
6. Materials with Coupled Magnetic Functionality	Dong-Hyun	Kim	Chungbuk National University
	Mathias	Kläui	Universität Mainz
	Manh-Huong	Phan	University of South Florida
7. Spintronics	Ethan	Ahn	George Mason University
	Joseph	Barker	University of Leeds
	Gerrit	Bauer	Tohoku University
	Kevin	Garello	SPINTEC
	Olena	Gomonay	Johannes Gutenberg University Mainz
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	Simranjeet	Singh	Carnegie Mellon University
	Weigang	Wang	University of Arizona
	Sarah	Watzman	University of Cincinnati
	Angela	Wittmann	Johannes Gutenberg Universität in Mainz
8. Magnetization Dynamics and Micromagnetics	Davide	Bossini	University of Konstanz
	Olivier	Boulle	SPINTEC
	Oksana	Chubykalo-Fesenko	Instituto de Ciencia de Materiales de Madrid, CSIC
	Carl	Davies	Radboud University
	Claire	Donnelly	Max Plank Institute for Chemical Physics of Solids
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	Jonathan	Leliaert	Ghent University
	Philipp	Pirro	RPTU Kaiserslautern-Landau

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	Dan	Wei	Tsinghua University
9. Magnetic Recording	Varaprasad	Bollapragada	Carnegie Mellon University
	Alagarsamy	Perumal	IITG
	Yukiko	Takahashi	NIMS
10. Sensors and Applications	Alex	Jenkins	International Iberian Nanotechnology Laboratory
	Victor	Lopez-Dominguez	Universitat Jaume I
	Andrea	Meo	Politecnico di Bari
11. Microscopy, Imaging, and Magnetic Characterization	Mi-Young	Im	LBNL
	Soong-Geun	Je	Chonnam National University
	Sascha	Schäfer	University of Regensburg
12. Interdisciplinary and Emerging Topics	Julio	Criginski Cezar	CNPEM
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	Alpha	N'Diaye	Lawrence Berkeley National Laboratory
	Cinthia	Piamonteze	Paul Scherrer Institut
	Kai	Wu	Texas Tech University
13. Electrical Machines and Power Electronics	Yacine	Amara	Université Le Havre Normandie
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	Ahmed	Hemeida	Aalto University
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	Shuangxia	Niu	The Hong Kong Polytechnic University
	Johannes	Paulides	Advanced Electromagnetics Group
	Abdelmounaim	Tounzi	Université de Lille
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	Jonathan	Bird	Portland State University
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	Varun	Chaudhary	Chalmers University of Technology
	Francesca	Garescì	University of Messina
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ONSITE SESSION CHAIRS

Title		First Name	Last Name	Institution
AA	Spin Caloritronic Metrology	Joseph	Barker	University of Leeds
AB	Ultrafast Spin-phonon Dynamics	Oksana	Chubykalo-Fesenko	Instituto de Ciencia de Materiales de Madrid, CSIC
		Carl	Davies	Radboud University
AC	Spin-orbitronics I: Angular Momentum Compensation, Out-of-plan Torques and Energy Efficient Switching	Kai	Litzius	University of Augsburg
AD	Magnetization Dynamics and Micromagnetics I	Stavros	Komineas	University of Crete
		Giovanni	Finocchio	University of Messina
AE	Altermagnets and Altermagnetic Spintronics	Lukas	Nadvornik	Charles University
AF	Structured Materials I	Cristina	Gomez-Polo	Universidad Publica de Navarra
AG	Electrical Machines and Power Electronics I	Chins	Chinnasamy	Oak Ridge National Laboratory
AP	Spintronics I	Jiahao	Han	Tohoku University
AQ	Applications of Magnetic Materials and Devices	Sevde Nur	Arpaci	Northwestern University
AR	Bio-magnetism and Biomagnetic Applications	Ping	Liu	University of Texas at Arlington
AS	Electronic Structure, Magnetism and Fundamental Physical Properties I	Santosh	KC	San Diego State University
AT	Fast and Ultrafast Magnetisation Dynamics	Carl	Davies	Radboud University
AU	Machines Optimization, Magnetic Loss, and Thermal Modeling I	Tsung Wei	Chang	National Cheng Kung University
AV	Electrical Machines and Power Electronics II	Christopher H. T.	Lee	Nanyang Technological University
BA	Fundamentals and Advances in 2D Spintronics	Guoqiang	Yu	Chinese Academy of Sciences
BB	Magnetics for Future Transportation – from Memory to Motors	Min-Fu	Hsieh	National Cheng Kung University
BC	Spin-orbitronics II: Chiral Dependence, Quantum Spin Transfer and Unconventional Torques	Yang	Lv	University of Minnesota
BD	Magnetic Recording & Sensors and Applications I	Ganping	Ju	Seagate Technology
BE	Antiferromagnets and Ferrimagnets	Xuemei	Cheng	Bryn Mawr College
BF	Hard Magnets I	Ester	Palmero	IMDEA Nanociencia
BG	Magnetoionic and Magnetoelectric Materials	Christian	Rinaldi	Politecnico di Milano
BP	Spintronics II	Tobias	Wagner	Johannes Gutenberg University Mainz
BQ	Sensors and Applications II	Alexandria	Will-Cole	Sandia National Laboratories
BR	Biomagnetics and Emerging Topics Related to Magnetism	Shin	Yabukami	Tohoku University
		Xian	Wu	The Ohio State University
BS	Electronic Structure, Magnetism and Fundamental Physical Properties II	Arti	Kashyap	Indian Institute of Technology Mandi
		Hari	Paudyal	University of Iowa
BT	2D Spintronics and Topological Materials I & Domain Walls	Qiming	Shao	The Hong Kong University of Science and Technology
BU	Energy Harvesting, Vibration Analysis and Advanced Materials Manufacturing	Dushyant	Kumar	Netaji Subhas University of Technology
BV	Electrical Machines and Power Electronics III	Massimo	Pasquale	INRIM

Title		First Name	Last Name	Institution
CA	Topological Thermoelectrics: Utilizing Topology and Spin for Next-Generation Energy Conversion	Sarah	Watzman	University of Cincinnati
CB	When Magnons Meet Quantum Spins	Gianluca	Gubbiotti	IOM-CNR
CC	2D Spintronics and Topological Materials II	Guoqiang	Yu	Chinese Academy of Sciences
CD	Magnonics I: Magnon Manipulation and Application	Jacob	Wisser	National Institute of Standards and Technology
CE	Magnetoresistive Sensors	Victor	Lopez-Dominguez	Universitat Jaume I
CF	Hard Magnets II	George	Hadjipanayis	University of Delaware
CG	Magnetoelectric Materials and Phenomena I	Paola	Tiberto	INRIM
CP	Soft Magnetic Materials I	Frank	Abel	United States Naval Academy
CQ	Magnonics II	Olivier	Boulle	SPINTEC
CR	Biomedical Therapies and Other Biomedical Applications	Samuel	Oberdick	National Institute of Standards and Technology
CS	Materials with Coupled Magnetic Phenomena I	Vijaysankar	Kalappattil	Northeastern University
CT	Domain Walls and Skyrmions I	Davi	Rodrigues	Politecnico di Bari
		Lucas	Perez	Universidad Complutense de Madrid
CU	Electrical Machines and High Speed Electrical Machines	Anh	Huynh	University of Nottingham
CV	Electrical Machines and Power Electronics IV	Christopher H. T.	Lee	Nanyang Technological University
DA	Magnetic Brain Stimulation and Imaging	Nian	Sun	Northeastern University
DB	Advanced Magnetic Materials & Manufacturing for Future Electric Motors and Power Electronics	Yacine	Amara	Université Le Havre Normandie
		Masahiro	Yamaguchi	Tohoku University
		Johannes	Paulides	Advanced Electromagnetics Group
DC	2D Spintronics and Topological Materials III	Zhenchao	Wen	National Institute for Materials Science (NIMS)
DD	Domain Walls and Skyrmions II	Christopher	Marrows	University of Leeds
DE	Spintronic Devices I: MRAM, Sensor and Energy Efficient Computing	Deyuan	Lyu	University of Minnesota
DF	Magnetocaloric Materials and Refrigeration	Manh-Huong	Phan	University of South Florida
DG	Thin Films, Multilayers, and Exchange Bias Systems I	Sarah	Watzman	University of Cincinnati
DP	Soft Magnetic Materials II	Jiahao	Han	Tohoku University
DQ	Magnonics III	Vincent	Vlaminck	IMT Atlantique
DR	Magnetization Dynamics & Materials with Coupled Magnetic Phenomena II	Jinho	Lim	University of Illinois Urbana-Champaign
DS	Magnetoelectric Materials and Phenomena II	Lucas	Caretta	Brown University
		Kai	Litzius	University of Augsburg
DT	Magnetoresistance & Domain Walls	Myoung-Woo	Yoo	University of Illinois Urbana-Champaign
DU	Electronic Structure, Magnetism and Fundamental Physical Phenomena	Hari	Paudyal	University of Iowa
DV	Analysis and Design for Electrical Machines	Ants	Kallaste	Tallinn University of Technology
		Anh	Huynh	University of Nottingham
XA	21st-Century Permanent Magnets: How to Take it to the Next Level? A Panel/Audience Dialog	Laura	Lewis	Northeastern University

Title		First Name	Last Name	Institution
EA	Novel Magnetic Tunnel Junction Mechanisms for Multifunctional Memories	Christopher	Bennett	Sandia National Laboratories
EB	Spin-orbit Torques and Spin Dynamics in 2D Systems	Simranjeet	Singh	Carnegie Mellon University
EC	Magnetoresistance, Spin Caloritronics, and Damping	William	Peria	National Institute of Standards and Technology
ED	Skyrmions	Claas	Abert	University of Vienna
EE	Spintronic Devices II: Antiferromagnetism, Voltage-controlled Effects, Domain Wall Logic and Probabilistic Switching	Fei	Xue	University of Alabama at Birmingham
EF	Soft and Hard Magnets	Xiaoyu (Criss)	Zhang	Northeastern University
		Ravi	Gautam	National Institute for Materials Science (NIMS)
EG	Magnetic Crystalline Alloys	Nicoleta	Lupu	National Institute of R&D for Technical Physics
EP	Hard Magnets III	Xin	Tang	National Institute for Materials Science (NIMS)
EQ	Magnonic and RF Sensors	Anjan	Soumyanarayanan	National University of Singapore
ER	Spintronic Devices III: CPP-GMR, SOT-MRAM and Spin-torque Oscillators	Ravi Kumar	Bandapelli	Carnegie Mellon University
ES	Magnetoelectric Devices and Applications	Pedram	Khalili	Northwestern University
ET	Thin Films, Multilayers, and Exchange Bias Systems II	Juan Luis	Palma	Universidad Central de Chile
EU	Structured Materials II	Olin	Mefford	Clemson University
EV	Machines Optimization, Magnetic Loss, and Thermal Modeling II	Po-Wei	Huang	National Cheng Kung University
FP	Hard Magnets IV	Jiasheng	Zhang	National Institute for Materials Science (NIMS)
FQ	Magnetic Devices for Sensing and Recording & Thin Films, Multilayers, and Exchange Bias Systems III	Zhenchao	Wen	National Institute for Materials Science (NIMS)
FR	Spintronic Devices IV: STT/SOT MRAMs and Switching Dynamics	Sachin	Krishnia	Johannes Gutenberg University Mainz
FS	Spintronic Neural Computing	Helena	Reichlova	Institute of Physics of the Czech Academy of Sciences
		Davi	Rodrigues	Politecnico di Bari
FT	Thin Films, Multilayers, and Exchange Bias Systems IV	Anna	Giordano	University of Messina
FU	Microscopy, Imaging, and Magnetic Characterization I	Sophie	Morley	Lawrence Berkeley National Laboratory
FV	Magnetic Aspects Related to Electromechanical Conversion, Transformers and Inductors	Johannes	Paulides	Advanced Electromagnetics Group
FA	Imaging Nanoscale Magnetization Dynamics and Spin Fluctuations	Peter	Fischer	Lawrence Berkeley National Laboratory
FB	2025 IEEE Clelio Brunetti Award Symposium	Giovanni	Finocchio	University of Messina
FC	Unconventional Computing with Magnetism and Magnetic Materials	Miguel	Romera	Universidad Complutense de Madrid
FD	Magnonics IV: Fundamental Magnonic Properties and Interactions	Edoardo	Albisetti	Politecnico di Milano
FE	Biomedical Therapies, Diagnosis and Nanomedicine	Kai	Wu	Texas Tech University
FF	Soft Magnetic Materials III	Arkady	Zhukov	Basque Foundation for Science
FG	van der Waals Materials	Ethan	Ahn	George Mason University

Title		First Name	Last Name	Institution
GA	Advanced Materials and Devices for Energy Harvesting and Conversion	Mario	Carpentieri	Politecnico di Bari
GB	New Challenges in Nanomagnetism from Topology to the Third Dimension	Riccardo	Tomasello	Politecnico di Bari
GC	Neuromorphic and Reservoir Computing	Martina	Kiechle	National Institute of Standards and Technology
GD	Microscopy, Imaging, and Magnetic Characterization II	Shawn	Pollard	The University of Memphis
GE	Analysis and Design for High-Performance Magnetic Systems	David	Lowther	McGill University
GF	Ultrafast Magnetisation Dynamics and Switching	Andrei	Kirilyuk	Radboud University
GG	Electronic Structure and Fundamental Properties	Jinke	Tang	University of Wyoming
		Durga	Paudyal	University of Iowa
GP	Hard Magnets IV & Materials with Coupled Magnetic Phenomena II	Christopher	Woodgate	University of Warwick
GQ	Spin-orbitronics II: Antiferromagnets, DMI and Unconventional Torques	Daniel	Gopman	National Institute of Standards and Technology
GR	Magnetoelectric Materials and Phenomena III & Spintronic Devices III: STT/SOT MRAMs and Switching Dynamics	Xiaoyu (Criss)	Zhang	Northeastern University
GS	Emerging Computing Using Magnetic and Spintronic Materials	Gregory	Stephen	Laboratory for Physical Sciences
GT	Magnetization Dynamics and Micromagnetics II	Michael	Donahue	National Institute of Standards and Technology
		Jonathan	Leliaert	Ghent University
GU	Microscopy, Imaging, and Magnetic Characterization III	Sascha	Schäfer	University of Regensburg
GV	Electrical Machines, Power Electronics & Electromechanical Conversion	Abdelmounaim	Tounzi	Université de Lille
HA	Cavity Magnonics and Non-reciprocal Spin Wave Propagation	Can-Ming	Hu	University of Manitoba
HB	Interdisciplinary and Emerging Topics	Alpha	N'Diaye	Lawrence Berkeley National Laboratory
		Cinthia	Piamonteze	Paul Scherrer Institut
HC	Computing with Spin Dynamics	Matthew	Daniels	National Institute of Standards and Technology
HD	Statics and Dynamics of Magnetic Textures	Alejandro	Riveros	Universidad Central de Chile
HE	Sensors and Applications III	Andrea	Meo	Politecnico di Bari
HF	Terahertz Antiferromagnetic Spintronics	Vito	Puliafito	Politecnico di Bari
HG	Energy and Power Applications	Mariappan	Paranthaman	Oak Ridge National Laboratory

VIRTUAL SESSION CHAIRS

Title		First Name	Last Name	Institution
VP1	Biomagnetics and Microfluidics	Jenifer	Gomez-Pastora	Texas Tech University
		Cristina	González Fernández	Universidad de Cantabria
VP2	Electrical Machines and Power Electronics I	Amanda	de Oliveira Barros	University of Texas at El Paso
		Ahmed	Hemeida	Aalto University
		Anh	Huynh	University of Nottingham
VP3	Electrical Machines and Power Electronics II	Amanda	de Oliveira Barros	University of Texas at El Paso
VP4	Electrical Machines and Power Electronics III	Ahmed	Hemeida	Aalto University
VP5	Electrical Machines and Power Electronics IV	Anh	Huynh	University of Nottingham
VP6	Electrical Machines and Power Electronics V	Duc-Kien	Ngo	University of Technology and Education - The University of Danang
VP7	Electrical Machines and Power Electronics VI	Christopher H. T.	Lee	Nanyang Technological University
VP8	Emerging Computing Systems & Magnetic Recording	Sara	Majetich	Carnegie Mellon University
VP9	Hard Magnets	H.	Sepehri-Amin	National Institute for Materials Science (NIMS)
VP10	High Speed Machines	Kenji	Nakamura	Tohoku University
VP11	Magnetic Aspects Related to Electromechanical Conversion, Transformers and Inductors	Yacine	Amara	Université Le Havre Normandie
VP12	Magnetic Textures and Dynamics: Experimental Detection and Modeling	Jonathan	Leliaert	Ghent University
		Lucas	Perez	Universidad Complutense de Madrid
VP13	Magnetoelectric Materials and Phenomena & Energy Harvesting and Vibration Analysis	Raghav	Sharma	Indian Institute of Technology Ropar
VP14	Materials for Spintronics & Magnetization Dynamics	Kevin	Garello	SPINTEC
VP15	Microscopy, Imaging, and Magnetic Characterization & Structured Materials	Robert	Hicken	University of Exeter
VP16	Sensors and Applications	Prasanth	Velvaluri	Northeastern University
VP17	Soft Magnetic Materials I	Vinay	Sharma	University of Maryland
VP18	Soft Magnetic Materials II	Ju-Young	Yoon	Tohoku University
VP19	Soft Magnetic Materials III	Keita	Nakagawara	Tohoku University
VP20	Special Machines and Geared Machines I	Doğa	Ceylan	Eindhoven University of Technology
VP21	Special Machines and Geared Machines II	Chuanbing	Rong	Ford Motor Company
VP22	Special Machines and Geared Machines III	Kinjal	Gandha	MP Materials
VP23	Spin-orbitronics: DMI, SOT MRAM and Energy Efficient Switching	Yufan	Li	The Chinese University of Hong Kong

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Term expiring February 2025

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Term expiring December 2025

Victorino Franco, Jean Anne Incorvia, Sean Langridge, Takahiro Moriyama, Sophie Morley, Hendrik Ohldag, Chris Rea, Aurelie Spiesser, Yoichiro Tanaka, Mingzhong Wu

Term expiring December 2026

Vivek Amin, Clarina Delacruz, Cindi Dennis, Atsufumi Hirohata, Mark Kief, Nicoleta Lupu, Hans Nembach, Timo Kuschel, Yayoi Takamura, Ken-ichi Uchida

FUTURE CONFERENCES

70th Annual Conference on Magnetism and Magnetic Materials

October 27 - 31, 2025, Palm Beach, FL

2026 Intermag Conference

April 13 - 17, 2026, Manchester, UK

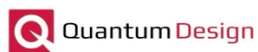
71st Annual Conference on Magnetism and Magnetic Materials

November 2 - 6, 2026, Honolulu, HI

2027 Intermag Conference

May 10 - 14, 2027, Jeju Island, South Korea

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MONDAY
AFTERNOON
2:30

CELESTIN D

Session TU
TUTORIAL: SYMMETRY IN MAGNETISM

Cindi Dennis, Chair
National Institute of Standards and Technology, Gaithersburg,
MD, United States

2:30

Welcome & Introductions

2:35

TU-01. New Prospects of Symmetry in Magnetotransport Studies.
*(Invited) H. Chen¹ 1. Colorado State University, Fort Collins,
CO, United States*

3:20

**TU-02. How to Synthesize Magnetic Materials in Various Forms
of Powder and Bulk. (Invited) Y. Hirayama¹ 1. Innovative
Functional Materials Research Institute, National Institute
of Advanced Industrial Science and Technology (AIST),
Nagoya, Japan**

4:05

TU-03. Frustration in Magnetism: Misery Loves Company.
*(Invited) N. Leo¹ 1. Loughborough University, Loughborough,
United Kingdom*

TUESDAY
MORNING
8:30

CELESTIN D

Session AA
SPIN CALORITRONIC METROLOGY

Joseph Barker, Chair
University of Leeds, Leeds, United Kingdom

8:30

**AA-01. Nernst effect in topologically and magnetically non-trivial
materials. (Invited) H. Reichlova¹ 1. Institute of Physics, Czech
Academy of Sciences, Praha, Czechia**

9:06

**AA-02. Lock-in Thermography and Thermoreflectance for Imaging
and Revealing Thermal Responses in Spin Caloritronic
Structures. (Invited) R. Iguchi¹ 1. National Institute for Materials
Science, Tsukuba, Japan**

9:42

- AA-03. Local Measurement of Thermal Spin Dynamics via NV Center Magnetometry. (Invited)** *N. Maksimovic¹, R. Xue¹, P. Dolgirev¹, L. Xia², R. Kitagawa³, A. Müller⁴, F. Machado^{5,1}, D. Klein^{2,6}, D. MacNeill², K. Watanabe⁷, T. Taniguchi⁷, P. Jarillo-Herrero², M. Lukin¹, E. Demler⁴ and A. Yacoby¹*
1. Harvard University, Cambridge, MA, United States; 2. MIT, Cambridge, MA, United States; 3. Tokyo Institute of Technology, Tokyo, Japan; 4. ETH Zurich, Zurich, Switzerland; 5. Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, United States; 6. Weizmann Institute of Science, Rehovot, Israel; 7. National Institute for Materials Science, Tsukuba, Japan

10:18

Break

10:45

- AA-04. Driving, transporting and sensing orbital currents at terahertz rates. (Invited)** *T. Seifert¹* *1. Free University of Berlin, Berlin, Germany*

11:21

- AA-05. Tunnel magneto-Seebeck effect and thermal conductivity of tunnel barriers. (Invited)** *T. Kuschel¹* *1. Faculty of Physics, Bielefeld University, Bielefeld, Germany*

TUESDAY
MORNING
8:30

CELESTIN E

Session AB

ULTRAFAST SPIN-PHONON DYNAMICS

Oksana Chubykalo-Fesenko, Co-Chair
Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain
Carl Davies, Co-Chair
Radboud University, Nijmegen, Netherlands

8:30

- AB-01. Ultrafast Phononic Switching of Magnetic Order. (Invited)** *A. Kirilyuk¹* *1. FELIX Laboratory, Nijmegen, Netherlands*

9:06

- AB-02. Polarized phonon-spin conversion in rare-earth and 2D materials. (Invited)** *H. Zhu¹* *1. Rice University, Houston, TX, United States*

9:42

- AB-03. Magnetophononics and the Chiral Phonon Misnomer. (Invited)** *R. Merlin¹* *1. Physics, University of Michigan, Ann Arbor, MI, United States*

10:18

Break

10:18

- AB-04. Magnon and Phonon Dynamics on Ultrafast Timescales.**
*(Invited) U. Staub¹ 1. Swiss Light Source, Paul Scherrer
Institute, Villigen, Switzerland*

10:54

- AB-05. Role of polarized phonons during ultrafast demagnetization.**
*(Invited) U. Nowak¹ 1. Department of Physics, University of
Konstanz, Konstanz, Germany*

TUESDAY
MORNING
8:30

CELESTIN A

Session AC

**SPIN-ORBITRONICS I: ANGULAR MOMENTUM
COMPENSATION, OUT-OF-PLAN TORQUES
AND ENERGY EFFICIENT SWITCHING**

Kai Litzius, Chair
University of Augsburg, Augsburg, Germany

8:30

- AC-01. Room temperature energy-efficient spin-orbit torque switching in two-dimensional van der Waals Fe_3GeTe_2 induced by topological insulators.** *(Invited) J. Zhang¹, W. Xie¹ and T. Nie¹ 1. Beihang University, Beijing, China*

9:06

- AC-02. Electrical mutual switching in $\text{Mn}_3\text{Sn}/\text{Mo}/\text{CoFeB}$ heterostructure.** *J. Yoon¹, Y. Takeuchi^{1,2}, R. Takechi¹, J. Han¹, T. Uchimura¹, Y. Yamane¹, S. Kanai^{1,4,5}, J. Ieda³, H. Ohno¹ and S. Fukami^{1,6} 1. Tohoku University, Sendai, Japan; 2. National Institute for Materials Science, Tsukuba, Japan; 3. Japan Atomic Energy Agency, Tokai, Japan; 4. Japan Science and Technology Agency, Kawaguchi, Japan; 5. National Institute for Quantum Science and Technology, Takasaki, Japan; 6. Inamori Research Institute for Science, Kyoto, Japan*

9:18

- AC-03. Alloying Rare Earth Nitrides for Angular Momentum Compensation.** *E. Joshy^{1,2}, J. Miller¹ and S. Granville^{1,2} 1. Robinson Research Institute, Victoria University of Wellington, Wellington, New Zealand; 2. The MacDiarmid Institute for Advanced Materials and Nanotechnology, Wellington, New Zealand*

9:30

- AC-04. Optimization of orbital torques in ferrimagnets and relationship with Gilbert damping.** *S. Ding¹, W. Legrand¹, H. Wang¹, M. Kang¹, P. Noël¹ and P. Gambardella¹ 1. Department of Materials, Zurich, Switzerland*

AC-05. Collinear spin current induced by artificial modulation of interfacial symmetry. Z. Li¹ and Z. Zhang¹
Now virtual I. Nanjing University, Nanjing, China

9:42

AC-06. Magnetization dynamics in beyond room temperature van der Waals magnet. H. Bangar¹, L. Pandey¹, B. Zhao¹ and S.P. Dash¹ *I. Department of Microelectronic and Nanotechnology, Chalmers University of Technology, Göteborg, Sweden*

9:54

AC-07. Temperature dependence of spin-orbit torque in L1₂-ordered Mn₃Pt. C. Zhang¹, Z. Tang¹, L. Yu¹, M. Al-Mahdawi² and M. Oogane^{1,2} *I. Department of Applied Physics, Tohoku University, Sendai, Japan; 2. Center for Science and Innovation in Spintronics, Tohoku University, Sendai, Japan*

10:06

Break

10:45

AC-08. Giant Spin Hall Effect with Multi-Directional Spin Components in Ni₄W. Y. Yang¹, S. Lee¹, Y. Chen¹, J. Qi¹, D. Sousa¹, M. Odlyzko¹, J. Garcia-Barriocanal¹, G. Yu¹, G. Haugstad¹, Y. Fan¹, Y. Huang¹, D. Lyu¹, Z. Cresswell¹, T. Low¹ and J. Wang¹ *I. University of Minnesota, Minneapolis, MN, United States*

AC-09. Withdrawn

10:57

AC-10. Distinct Temperature Dependency of Charge to Spin Conversion from Rashba-Edelstein Effect. J. Yoon¹, J. Lee², M. Kim^{1,3}, S. Lee¹, K. Kim⁴, Y. Choi², S. Park², D. Kim³ and S. Choe¹ *I. Department of Physics and Astronomy, Seoul National University, Seoul, The Republic of Korea; 2. Division of Scientific Instrumentation and Management, Korea Basic Science Institute, Daejeon, The Republic of Korea; 3. Center for Spintronics, Korea Institute of Science and Technology, Seoul, The Republic of Korea; 4. Department of Physics, Yonsei University, Seoul, The Republic of Korea*

11:09

AC-11. Orbital-to-Spin Ratio of Dynamic Magnetization in Co/Pt. O.A. Bakare¹, G.T. Street¹, R.E. Maizel¹, C. Klewe² and S. Emori¹ *I. Physics, Virginia Tech, Blacksburg, VA, United States; 2. Lawrence Berkeley National Laboratory, Berkeley, CA, United States*

11:21

- AC-12. Out-of-Plane Spin Torque via Symmetry Engineering in an Oxide Polar Metal.** S. Zhou¹, J. Schimpf², H. Taghinejad², P. Meisenheimer², J. Analytis², S. Cheema⁴, L. Martin³ and L.M. Caretta¹ *1. Brown University, Providence, RI, United States; 2. UC Berkeley, Berkeley, CA, United States; 3. Rice University, Houston, TX, United States; 4. Massachusetts Institute of Technology, Cambridge, MA, United States*

11:33

- AC-13. Conventional and Unconventional Spin-Orbit Torques in a Single Ferromagnetic Layer.** K. Han^{1,2}, D. Yun², S. Jang^{2,3}, J. Ahn^{1,2}, Y. Nah^{2,4}, Y. Kim^{2,4}, M. Kang^{2,5}, S. Hong², O. Lee² and H. Koo^{1,2} *1. KU-KIST Graduate School of Converging Science and Technology, Korea University, Seoul, The Republic of Korea; 2. Center for Semiconductor Technology, Korea Institute of Science and Technology, Seoul, The Republic of Korea; 3. Materials Science and Engineering, Seoul National University, Seoul, The Republic of Korea; 4. Electrical Engineering, Korea University, Seoul, The Republic of Korea; 5. Materials Science and Engineering, Korea University, Seoul, The Republic of Korea*

TUESDAY
MORNING
8:30

CELESTIN B

Session AD
MAGNETIZATION DYNAMICS
AND MICROMAGNETICS I

Stavros Komineas, Co-Chair
University of Crete, Heraklion, Greece
Giovanni Finocchio, Co-Chair
University of Messina, Messina, Italy

8:30

- AD-01. Non-Hermitian dynamics on the Bloch sphere. (Invited)** S. Komineas^{1,2} *1. Mathematics and Applied Mathematics, University of Crete, Heraklion, Greece; 2. Applied and Computational Mathematics, Foundation for Research and Technology, Heraklion, Greece*

9:06

- AD-02. Deep Learning-Based Feature Engineering for Prediction of Magnetic properties of materials.** A. Kashyap¹ and P. Joshi¹ *1. School of Physical Sciences, IIT Mandi, Mandi, India*

9:18

- AD-03. Shape Optimization of Tunneling Magnetoresistance Sensor Design via Automated Micromagnetic Simulations.** C. Fillies¹, C. Wager¹, T. Schrefl¹, S. Tibus², S.J. Holt³, A. Petrocchi³, S.A. Pathak³, M. Lang³ and H. Fangohr³ *1. Department für Integrierte Sensorsysteme, Universität für Weiterbildung Krems, Wiener Neustadt, Austria; 2. Robert Bosch GmbH, Reutlingen, Germany; 3. Structure and Dynamics of Matter, Max Planck Institute, Hamburg, Germany*

- AD-04. Semi-classical derivation of a micromagnetic model for antiferromagnets and regularization of ill-posedness.** *M. Hu¹, E. Iacocca², M.J. Donahue³ and M.A. Hoefer¹* 1. *Applied Mathematics, University of Colorado Boulder, Boulder, CO, United States*; 2. *Department of Physics and Energy Science, University of Colorado Colorado Springs, Colorado Springs, CO, United States*; 3. *Applied and Computational Mathematics Division, National Institute of Standards and Technology, Gaithersburg, MD, United States*

AD-05. Withdrawn

- AD-06. Periodic dispersion diagrams via finite element micromagnetics.** *F. Ai¹, Z. Lin¹ and V. Lomakin¹* 1. *University of California, San Diego, La Jolla, CA, United States*

- AD-07. Discretization Anisotropy In Micromagnetics.** *S.J. Holt^{1,2}, M. Lang^{1,2}, S.A. Pathak^{1,2}, A. Petrocchi^{1,2} and H. Fangohr^{1,2,3}* 1. *Max Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany*; 2. *Center for Free-Electron Laser Science, Hamburg, Dominican Republic*; 3. *University of Southampton, Southampton, United Kingdom*

- AD-08. Micromagnetics of Nanoparticle Chains.** *M.J. Donahue¹, T.Q. Bui², F.M. Abel^{3,4}, S.I. Woods², E. De Lima Correa^{4,5} and C. Dennis⁴* 1. *Information Technology Laboratory, National Institute of Standards and Technology, Gaithersburg, MD, United States*; 2. *Physical Measurement Laboratory, National Institute of Standards and Technology, Gaithersburg, MD, United States*; 3. *Physics, United States Naval Academy, Annapolis, MD, United States*; 4. *Material Measurement Laboratory, National Institute of Standards and Technology, Gaithersburg, MD, United States*; 5. *Theiss Research, La Jolla, CA, United States*

10:57

- AD-09. Route to minimally dissipative switching in magnets via terahertz phonon pumping.** M. Strungaru¹, M.O. Ellis², S. Ruta³, R.F. Evans⁴, R.W. Chantrell⁴ and O. Chubykalo-Fesenko⁵
1. Computer Science, University of Manchester, Manchester, United Kingdom; 2. School of Computer Science, University of Sheffield, Sheffield, United Kingdom; 3. College of Business, Technology and Engineering, Sheffield Hallam University, Sheffield, United Kingdom; 4. School of Physics, Engineering and Technology, University of York, York, United Kingdom; 5. Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain

11:09

- AD-10. Comprehensive Machine Learning Framework for Predicting Magnetic Properties and Identifying High-Performance Magnetic Materials.** S. Itani¹, Y. Zhang^{1,2} and J. Zang¹
1. Physics and Astronomy, University of New Hampshire, Durham, NH, United States; 2. Chemistry, University of New Hampshire, Durham, NH, United States

11:21

- AD-11. Leveraging Parallel Computing for High-Performance Simulation of Magnetic Hysteresis and Eddy Current Losses.** J. Duan¹ and V. Lomakin¹ *1. University of California, San Diego, San Diego, CA, United States*

11:33

- AD-12. Midpoint geometric integrators for inertial magnetization dynamics.** M. d'Aquino¹, S. Perna¹ and C. Serpico¹
1. DIETI, University of Naples Federico II, Naples, Italy

11:45

- AD-13. Impact of exceptional points on nonlinear dynamics of coupled spin-torque oscillators.** S. Perna¹, K. Ho², S. Wittrock³, M. d'Aquino¹, R. Lebrun², V. Cros² and C. Serpico¹ *1. DIETI, University of Naples Federico II, Naples, Italy; 2. CNRS Thales, France, Palaiseau, France; 3. Helmholtz Institute, Berlin, Germany*

TUESDAY
MORNING
8:30

CELESTIN C

Session AE
ALTERMAGNETS AND ALTERMAGNETIC
SPINTRONICS

Lukas Nadvornik, Chair
Charles University, Prague, Czechia

8:30

- AE-01. Unconventional magnetism: the emergence of nodal altermagnetism and beyond. (Invited)** J. Sinova^{1,2} *1. Johannes Gutenberg University Mainz, Mainz, Germany; 2. Texas A&M University, College Station, TX, United States*

- AE-02. Electrical detection of acoustic antiferromagnetic resonance in compensated synthetic antiferromagnets.** C. Song¹, C. Chen¹, P. Liu¹ and F. Pan¹ *1. Tsinghua University, Beijing, China*

- AE-03. Phenomenology of Altermagnets and Structure, Dynamics and Control of Altermanetic Textures.** O. Gomonay¹, V. Kravchuk², K. Yershov², J. van den Brink² and J. Sinova¹
1. Johannes Gutenberg University of Mainz, Mainz, Germany; 2. Leibniz Institute for Solid State and Materials Research in Dresden, Dresden, Germany

- AE-04. Demonstration of single-variant altermagnetic RuO₂(101) thin films on Al₂O₃*r*-plane substrates.** Z. Wen¹, C. He¹, J. Okabayashi², Y. Miura^{1,3}, T. Ohkubo¹, T. Seki^{4,5}, H. Sukegawa¹ and S. Mitani¹ *1. National Institute for Materials Science (NIMS), Tsukuba, Japan; 2. Research Center for Spectrochemistry, The University of Tokyo, Tokyo, Japan; 3. Kyoto Institute of Technology, Kyoto, Japan; 4. Institute for Materials Research, Tohoku University, Sendai, Japan; 5. Center for Science and Innovation in Spintronics, Tohoku University, Sendai, Japan*

- AE-05. Epitaxial growth and Observation of Time Reversal Symmetry Breaking in Altermagnetic RuO₂.** A. Akashdeep¹, O. Fedchenko¹, J. Minár², Q.L. Nguyen⁵, D. Kutnyakhov⁴, M. Kläui¹, T. Jungwirth³, G. Jakob¹, L. Smejkal^{1,3}, J. Sinova^{1,3} and H. Elmers¹ *1. Institut für Physik, Johannes Gutenberg-Universität Mainz, Mainz, Germany; 2. New Technologies Research Center, University of West Bohemia, Piezen, Czechia; 3. Institute of Physics Academy of Sciences of the Czech Republic, Praha 6, Czechia; 4. Deutsches Elektronen-Synchrotron DESY, Hamburg, Germany; 5. Linac Coherent Light Source, SLAC National Accelerator Laboratory, Menlo Park, CA, United States*

- AE-06. Manipulation of the Anomalous Hall Effect in MnTe Altermagnetic Thin Films.** S. Bey¹, S. Fields², N. Combs², B.G. Márkus^{3,1}, D. Beke^{3,1}, J. Wang^{1,4}, L. Riney¹, K. Yoshimura¹, A. Ievlev⁵, M. Zhukovskiy⁶, T. Orlova⁶, L. Forró^{3,1}, S.P. Bennett², X. Liu¹ and B.A. Assaf¹ *1. Dept. of Physics and Astronomy, The University of Notre Dame, Notre Dame, IN, United States; 2. Materials Science and Technology Division, U.S. Naval Research Laboratory, Washington, DC, United States; 3. Stavropoulos Center for Complex Quantum Matter, The University of Notre Dame, Notre Dame, IN, United States; 4. Materials Dept., UC Santa Barbara, Santa Barbara, CA, United States; 5. Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN, United States; 6. Notre Dame Integrated Imaging Facility, The University of Notre Dame, Notre Dame, IN, United States*

- AE-07. Altermagnetic variants in thin films of Mn_5Si .** *J. Rial*¹, M. Leiviskä^{1,2}, G. Skobjin³, A. Badura^{2,4}, G. Gaudin¹, F. Disdier¹, R. Schlitz³, I. Kounta⁵, S. Beckert⁶, D. Kriegner², A. Thomas^{6,7}, E. Schmoranzarová⁴, L. Smejkal^{2,8}, J. Sinova^{8,9}, T. Jungwirth^{2,10}, L. Michez⁵, H. Reichlova², S. Goennenwein³, O. Gomonay⁸ and V. Baltz¹ *1. SPINTEC, Grenoble, France; 2. Institute of Physics, Czech Academy of Sciences, Prague, Czechia; 3. Department of Physics, University of Konstanz, Konstanz, Germany; 4. Faculty of Mathematics and Physics, Charles University, Prague, Czechia; 5. Aix-Marseille University, Marseille, France; 6. Institute of Solid State and Materials Physics, TU Dresden, Dresden, Germany; 7. Leibniz Institute of Solid State and Materials Science, IFW Dresden, Dresden, Germany; 8. Institute for Physics, Johannes Gutenberg University Mainz, Mainz, Germany; 9. Department of Physics, Texas A&M University, Texas, TX, United States; 10. School of Physics and Astronomy, University of Nottingham, Nottingham, United Kingdom*

10:18

Break

10:45

- AE-08. Observation of unconventional spin current in altermagnetic CrSb .** *C. Tseng*¹, S. Karube^{1,2}, H. Narita¹, R. Hisatomi^{1,2}, D. Kan¹, Y. Shiota^{1,2}, Y. Shimakawa¹ and T. Ono^{1,2} *1. Institute for Chemical Research, Kyoto University, Kyoto, Japan; 2. Center for Spintronics Research Network, Kyoto University, Kyoto, Japan*

10:57

- AE-09. Anisotropic Spin to Charge Conversion in the Altermagnet RuO_2 Capped with YIG.** *D. Qu*¹, Y. Wang², C. Liao², Y. Tien² and S. Huang² *1. Center for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan; 2. Department of Physics, National Taiwan University, Taipei, Taiwan*

11:09

- AE-10. Altermagnetism in the Hopping Regime.** *E. Galindez Ruales*¹, L. Šmejkal^{1,4}, S. Das¹, C. Schmitt¹, F. Fuhrmann¹, E. Baek^{2,1}, A. Ross¹, R. Jaeschke Ubierno¹, V. Bharadwaj¹, R. González-Hernández³, A. Rothschild⁵, J. Sinova^{1,4}, C. You², G. Jakob¹ and M. Kläui^{1,6} *1. Institute of Physics, Johannes Gutenberg University Mainz, Mainz, Germany; 2. Department of Physics and Chemistry, DGIST, Daegu, The Republic of Korea; 3. Grupo de Investigación en Física Aplicada, Departamento de Física, Universidad del Norte, Barranquilla, Colombia; 4. Institute of Physics, Academy of Sciences of the Czech Republic, Prague, Czechia; 5. Department of Materials Science and Engineering, Technion-Israel Institute of Technology, Haifa, Israel; 6. Center for Quantum Spintronics, Norwegian University of Science and Technology, Trondheim, Norway*

11:21

- AE-11. Tunable Localized Currents at Crystallographic Domain Boundaries in Altermagnet RuO₂.** *G.M. Pantano^{1,2}, E. Thareja¹, L. Smejkal^{2,3}, J. Sinova² and J.D. Gayles¹*
1. Department of Physics, University of South Florida, Tampa, FL, United States; 2. Institut für Physik, Johannes Gutenberg Universität Mainz, Mainz, Germany; 3. Institute of Physics, Czech Academy of Sciences, Prague, Czechia

11:33

- AE-12. Coexistence of Anomalous Hall Effect and Weak Magnetization in Nominally Collinear Antiferromagnet MnTe.** *M. Sawicki^{1,2}, K. Kluczyk³, K. Gas^{1,4}, M.J. Grzybowski³, P. Skupinski¹, M.A. Borysiewicz⁵, T. Fas³, J. Suffczynski³, J.Z. Domagala¹, K. Graszka¹, A. Mycielski¹, M. Baj³, K.H. Ahn⁶, K. Vyborny⁶ and M. Gryglas-Borysiewicz³*
1. Institute of Physics, Polish Academy of Sciences, Warsaw, Poland; 2. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 3. Faculty of Physics, University of Warsaw, Warsaw, Poland; 4. Center for Science and Innovation in Spintronics, Tohoku University, Sendai, Japan; 5. Lukasiewicz Research Network - Institute of Microelectronics and Photonics, Warsaw, Poland; 6. FZU-Institute of Physics of the Czech Academy of Sciences, Praha, Czechia

11:45

- AE-13. Giant strain-induced spin splitting effect in MnTe, a g-wave altermagnetic semiconductor.** *K. Belashchenko¹*
1. University of Nebraska-Lincoln, Lincoln, NE, United States

TUESDAY
MORNING
8:30

IMPERIAL 5AB

Session AF STRUCTURED MATERIALS I

Cristina Gomez-Polo, Chair
Universidad Publica de Navarra, Pamplona, Spain

8:30

- AF-01. Design and control of three-dimensional topological magnetic fields using interwoven helical nanostructures.** *J. Fullerton¹ and C. Phatak^{1,2}*
1. Materials Science Division, Argonne national laboratory, Lemont, IL, United States; 2. Department of materials science and engineering, Northwestern University, Evanston, IL, United States

8:42

- AF-02. 3D Printing of Flexible Magnetic Nanocomposite via Selective Laser Sintering (SLS) with Magnetic Pole Patterning.** *N. Tarabay¹, M. Shakibmanesh¹ and C. Velez^{2,1}*
1. Department of Electrical Engineering and Computer Science, University of California, Irvine, Irvine, CA, United States; 2. Department of Mechanical and Aerospace Engineering, University of California, Irvine, Irvine, CA, United States

AF-03. Soft X-ray Tomography of Curvilinear Spin Textures.

D.W. Raftrey^{1,2}, P. Fischer^{1,2}, O. Bezsmer³, R. Xu³, D. Makarov³, D. Bhattacharya⁴, C. Langton⁴, K. Liu⁴ and A. Sorrentino⁵
1. Material Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 2. Physics, University of California, Santa Cruz, Santa Cruz, CA, United States; 3. Intelligent Materials and Systems, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 4. Physics, Georgetown University, District of Columbia, DC, United States; 5. MISTRAL beamline, ALBA Light Source, Cerdanyola del Vallès, Spain

9:06

AF-04. Domain wall dynamics in cylindrical nanowires under high current pulses.

C. Bran⁵, E. Saugar⁶, S. Catalano¹, J. Marqués-Marchán⁶, R. Perez Del Real⁶, A. Asenjo⁶, M. Foerster², M. Angel², A. Fraile Rodríguez³, M. Vázquez⁶, F. Casanova⁴ and O. Chubykalo-Fesenko⁶
1. Centro de Física de Materiales CFM/MPC (CSIC-UPV/EHU), San Sebastian, Spain; 2. ALBA Synchrotron, Cerdanyola del Valles, Spain; 3. Universitat de Barcelona, Barcelona, Spain; 4. CIC nanoGUNE, San Sebastian, Spain; 5. Instituto de Nanociencia y Materiales de Aragón (INMA-CSIC), Universidad de Zaragoza, Zaragoza, Spain; 6. Institute of Materials Science of Madrid, Madrid, Spain

9:18

AF-05. Interface Exchange Coupling in Hollow Nanostructures.

S. Slimani^{1,2}, M. Vasilakaki³, K. Trohidou³, N. Yaacoub⁴ and D. Peddis^{1,2}
1. Department of Chemistry and Industrial Chemistry, University of Genova, Genova, Italy; 2. Institute of Structure of Matter, National Research Council, Rome, Italy; 3. Institute of Nanoscience and Nanotechnology, NCSR "Demokritos", Attiki, Greece; 4. Institut Des Molécules Et Matériaux du Mans (IMMM) CNRS UMR, Le Mans, France

9:30

AF-06. Experimentally probed magnetic reversal modes in Fe₃O₄ magnetic nanotubes, including solid-state dewetting effects.

J.L. Palma^{1,2}, A. Pereira³, E. Saavedra⁴ and J. Escrig^{4,2}
1. Engineering School, Universidad Central de Chile, Santiago, Chile; 2. Center for The Development of Nanoscience And Nanotechnology CEDENNA, Santiago, Chile; 3. Universidad Adolfo Ibañez, Santiago, Chile; 4. Physics Department, Universidad de Santiago de Chile, Santiago, Chile

9:42

AF-07. Magnetic field driven spatial light modulators made by giant vertically aligned nanocomposites of garnet and perovskite.

K. Hayashi¹, Y. Kunai^{1,2}, P.E. Lauer¹ and C.A. Ross¹
1. Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, United States; 2. Advanced Research Core, Fujikura Limited, Kouto-ku, Japan

9:54

AF-08. Engineering the Self-assembly of Epitaxial CoFe₂O₄–BiFeO₃ Multiferroic Nanocomposites Using Focused Ion Beam Lithography.

R. Huynh¹, T. Su¹ and C.A. Ross¹
1. Massachusetts Institute of Technology, Cambridge, MA, United States

AF-09. Withdrawn.

10:06

Break

10:45

AF-10. Surface Spin Configurations in Magnetic Nanoparticles.
N. Kim¹, H. Wang², H. Chen² and S. Majetich^{2,1} 1. Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, PA, United States; 2. Physics, Carnegie Mellon University, Pittsburgh, PA, United States

10:57

AF-11. DFT Guided Synthesis of Substituted Ferrite Magnetic Nanoparticles to Study Effective Magnetic Anisotropy.
A.D. Malaj¹, C. Leies¹, S.S. Laha¹, V.R. Punyapu², R. Getman² and O.T. Mefford¹ 1. Materials Science and Engineering, Clemson University, Clemson, SC, United States; 2. William G. Lowrie Department of Chemical and Biomolecular Engineering, The Ohio State University, Columbus, OH, United States

AF-12. Withdrawn

11:09

AF-14. Investigation of Element Mutual Interaction in Nanopatterned Ferromagnetic Thin Film Array. *H. Yin¹ and A. El-Ghazaly¹ 1. Electrical and Computer Engineering, Cornell University, Ithaca, NY, United States*

11:21

AF-15. Tailoring Spin Textures in $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ -based Micromagnets.
D. Sasaki^{1,2}, T. Sahoo¹, I. Nihal¹, I. Snowden¹, M. Frame¹, S. Retterer³, B. Achinuq², A. Scholl², P. Rickhaus⁴, J. Lenz⁴ and Y. Takamura¹ 1. Materials Science and Engineering, University of California, Davis, Davis, CA, United States; 2. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 3. Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN, United States; 4. QNami, Muttens, Switzerland

Session AG
ELECTRICAL MACHINES AND POWER
ELECTRONICS I

Chins Chinnasamy, Chair
Oak Ridge National Laboratory, Knoxville, TN, United States

8:30

- AG-01. Development of inductor and transformer with both small iron loss and small copper loss for high frequency power converters. (Invited) T. Sato¹ and T. Mizuno¹** *1. Electrical and Computer Engineering, Shinshu University, Nagano, Japan*

9:06

- AG-03. Influences of magnetic property of beam electroplated with 3d ferromagnetic transition metal film on the output characteristics in perpendicular magnetic field assisted and inverse magnetostrictive electromagnetic vibration powered generators. Y. Nakamura¹, S. Aketa¹, S. Kamiya¹, H. Kamogawa^{1,2} and M. Ohtake¹** *1. Faculty of Engineering, Yokohama National University, Yokohama, Japan; 2. Technical Development Department, Kanto Kasei Co., Ltd., Yokosuka, Japan*

- AG-04. Topology Optimization for a Magnetic Actuator Using Different Gradient-Based Solvers. M. Mahmoud^{1,2,3}, M. Ibrahim^{1,2,4} and P. Sergeant^{1,2}** *1. Department of Electromechanical, Systems, and Metal Engineering, Ghent University, Gent, Belgium; 2. FlandersMake@UGent, Core Lab MIRO, Leuven, Belgium; 3. Electrical Engineering Department, Faculty of Engineering, Minia University, Minia, Egypt; 4. Department of Electrical Engineering, Kafrelshiekh University, Kafrelshiekh 33511, Egypt*

Now
VP5-13

9:18

- AG-05. Sensitivity analysis framework for a MIMO magnetic levitation actuator. G. Zuidema¹, D. Krop¹ and E. Lomonova¹** *1. Electrical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands*

9:30

- AG-06. Instrumentation and Characterization of Mixed GO Electrical Steel Magnetic Cores. O. Dabaj¹, C. Demian¹, J. Lecointe¹ and J. Blaszkowski²** *1. Univ. Artois, UR 4025, Laboratoire Systèmes Électrotechniques et Environnement (LSEE), Béthune, France; 2. Thyssenkrupp Electrical Steel, Isbergues, France*

9:42

- AG-07. Fleet Digital Twin of Permanent Magnet Synchronous Motors: A Novel Approach for Virtual Validation. M. Azeem^{1,2}, M. Gulec^{1,2}, K. Vanthuyne^{1,2} and P. Sergeant^{1,2}** *1. University of Ghent, Ghent, Belgium; 2. Flanders Make@UGent - MIRO, Ghent, Belgium*

9:54

AG-08. A Cost-Effective 12/10 Fractional Slot Concentrated Winding Synchronous Reluctance Motor for Electric Mid-Drive Two Wheeler Application. G. Shasikanth¹, K. Anbukumar¹ and M. Azhagar Raj¹ *1. Department of Electrical and Electronics Engineering, Anna University, Chennai, India*

10:06

AG-09. Optimal Design Study for High Power Density of PMSM for Traction of Hydrogen Powered Train. J. Lim¹, C. Park¹, H. Lee¹, J. Lee¹, I. Jo² and S. Kim² *1. Korea National University of Transportation, Uiwang, The Republic of Korea; 2. Hanyang University, Seoul, The Republic of Korea*

10:18

Break

10:45

AG-10. Improvement of Torque and Efficiency of Magnetic-Geared Switched Reluctance Motor. K. Iwaki¹ and K. Nakamura¹ *1. Graduate School of Engineering, Tohoku University, Sendai, Japan*

10:57

AG-11. Research on a new type of electrothermal multi-energy dual-stator motor and loss optimization. J. Yuan¹, H. Wang¹, H. Zhou¹ and B. Peng¹ *1. School of Electronic Engineering and Automation, Wuhan University, Wuhan, China*

11:09

AG-13. Design and Single Rotor Fault Analysis of A Magnetically Geared Segment Stator Contra-Rotating Switched Reluctance Motor for flying vehicles application. S. Ip¹ and K. Cheng² *1. Electrical and Electronic Engineering, The Hong Kong Polytechnic University, Hong Kong SAR, Hong Kong; 2. Electrical Engineering, University of California, Merced, Merced, CA, United States*

TUESDAY
MORNING
9:00

EXHIBIT HALL

**Session AP
SPINTRONICS I
(Poster Session)**

Jiahao Han, Chair
Tohoku University, Sendai, Japan

AP-01. Withdrawn

- AP-02. Harnessing Exchange Bias and Magnetic Proximity Effects for Superconducting Spintronics: A Novel GdN/FeMn Heterostructure.** *V. Singhal*¹, P.K. Sharma¹, B. Dutta¹ and A. Pal¹ *1. MEMS, IIT Bombay, Mumbai, India*
- AP-03. Direct X-PEEM imaging of the altermagnetic order of Hematite.** *E. Galindez Ruales*¹, C. Schmitt¹, R. González-Hernández², O. Gomonay¹, E. Golias³, Y. Niu³, A. Zakharov³ and M. Kläui^{1,4} *1. Institute of Physics, Johannes Gutenberg University Mainz, Mainz, Germany; 2. Grupo de Investigación en Física Aplicada, Departamento de Física, Universidad del Norte, Barranquilla, Colombia; 3. MAX IV Laboratory, Lund, Sweden; 4. Center for Quantum Spintronics, Norwegian University of Science and Technology, Trondheim, Norway*
- AP-04. Electric-field-controlled picosecond switching of antiferromagnets.** *V. Lopez-Dominguez*¹ *1. Institute of Advanced Materials, Universitat Jaume I, Castellon de la Plana, Spain*
- AP-05. Effect of controlled oxidation of Ni→NiO in YIG/Ta/Ni heterostructure.** S.K. Jha^{1,2}, M. Sharma^{1,3}, N.K. Puri² and B.K. Kuanr¹ *1. Special Centre for Nanoscience, Jawaharlal Nehru University, New Delhi, India; 2. Applied Physics Department, Delhi Technological University, New Delhi, India; 3. Department of Physics, Deshbandhu College, University of Delhi, New Delhi, India*
- AP-07. Enhancing Magnetic Tunnel Junction-Based Molecular Spintronic Devices (MTJMSDs) Through Bottom Electrode Trenching for Small Molecule Attachment.** *E. Peigney*¹, H. Brown¹, B. Sankhi¹ and P. Tyagi¹ *1. NSF CREST Center for Nanotechnology Research and Education, University of the District of Columbia, Washington, DC, United States*
- AP-08. Probing an amplified spin-orbit torque effect in antiferromagnetic oxide utilizing a magnetoresistance-based loop-shift method.** H. Tseng¹ and C. Yang¹ *1. Materials Science and Engineering, National Yang Ming Chiao Tung University, Hsinchu, Taiwan*

TUESDAY
MORNING
9:00

EXHIBIT HALL

Session AQ

APPLICATIONS OF MAGNETIC MATERIALS AND DEVICES (Poster Session)

Sevde Nur Arpacı, Chair
Northwestern University, Evanston, IL, United States

- AQ-01. Additive Manufacturing of Stretchable Frequency-Reconfigurable Frequency Selective Surfaces with Split-Ring Resonators.** *T. Boland*¹, C.S. Smith¹ and H. ElBidiwehy¹ *1. Electrical and Computer Engineering, United States Naval Academy, Annapolis, MD, United States*

- AQ-02. Inspection of CFRP plate backside delamination using electromagnetic vibration and sound pressure measurement.** *Y. Hosono¹, S. Niwa¹, R. Takasugi¹, T. Ohashi³ and Y. Gotoh²*
1. Graduate School of Engineering, Oita University, Oita, Japan; 2. Faculty of Science and Technology, Oita university, Oita, Japan; 3. IHI Corporation, Yokohama, Japan
- AQ-03. Micromagnetic Simulations of Concentration Detection Capability of Large Area Low Aspect Ratio GMR Sensors in Biomedical Diagnostics.** *R.A. Mendonsa¹, S. Liang¹, D. Tonini¹ and J. Wang¹* *1. University of Minnesota, Minneapolis, MN, United States*
- AQ-04. Numerical analysis of inspection method of hot spring scale attached to steel pipes in geothermal power plants using electromagnetic vibration.** *R. Takasugi¹, H. Ikusada¹, Y. Hosono¹, S. Niwa⁴, Y. Gao², T. Sasayama³ and Y. Gotoh²*
1. Division of Mechatronics, Graduate School of Engineering, Oita University, Oita, Japan; 2. Division of Intelligent Mechanical System, Faculty of Science and Technology, Oita University, Oita, Japan; 3. Graduate School of Information Science and Electrical Engineering, Kyushu University, Fukuoka, Japan; 4. Division of Mechanical Energy Engineering, Graduate School of Engineering, Oita University, Oita, Japan
- AQ-05. A Self-Assembled Magnetic Millirobot with an Elastic 3D Linear Structure for Minimally Invasive Medicine.** *Y. Lee¹, J. Lee² and S. Jeon²* *1. Mechanical Engineering, Kongju National University, Cheonan, Chungnam, The Republic of Korea; 2. Mechanical and Automotive Engineering, Kongju National University, Cheonan, Chungnam, The Republic of Korea*
- AQ-06. Hydrogen gas sensing using Pd coated spin-valve GMR with magneto-strictive FeSiB layer.** *D. Oshima¹, T. Kato^{1,2} and S. Iwata³* *1. Department of Electronics, Natoya University, Nagoya, Japan; 2. Institute of Materias and Systems for Sustainability, Nagoya University, Nagoya, Japan; 3. Nagoya Industrial Science Research Institute, Nagoya, Japan*
- AQ-07. Detecting and Differentiating Magnetic Signals from Moving Magnetic Nanoparticles for Enhanced Biosensing and Diagnostic Applications.** *K. Hwang¹, D. Brown¹, S. Attanayake¹, D. Luu¹, M. Nguyen², T. Lee² and M. Phan¹*
1. Physics, University of South Florida, Tampa, FL, United States; 2. Chemistry, University of Houston, Houston, TX, United States
- AQ-08. Magnetoconvection analysis of the cooling properties of magnetic nanoparticles in vegetable-based transformer oil.** *H. Lee¹* *1. Division of Smart Convergence Engineering, Changshin University, Changwon-si, The Republic of Korea*

Session AR
BIO-MAGNETISM AND BIOMAGNETIC
APPLICATIONS
(Poster Session)

Ping Liu, Chair

University of Texas at Arlington, Keller, TX, United States

- AR-01. Towards next-generation nerve repair: using glass-coated magnetic microwires to enhance and guide neurite outgrowth.** X. Zhang^{1,2}, K. Neuman¹, B.T. Lejeune¹, A. Koppes¹, R. Koppes¹, M. Vázquez³ and L.H. Lewis^{1,2,4}
1. Chemical Engineering, Northeastern University, Boston, MA, United States; 2. Mechanical and Industrial Engineering, Northeastern University, Boston, MA, United States; 3. Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain; 4. Physics, Northeastern University, Boston, MA, United States
- AR-02. Magnetic relaxation of Gd doped MnFe₂O₄ nanoparticles for MR effect and heat dissipation.** N. Kataoka^{1,4}, K. Aoki¹, A. Usui³, T. Sakamoto¹, H. Amano¹, Y. Kusumoto¹ and Y. Ichihyanagi^{1,2}
1. Physics, Yokohama National University, Yokohama, Japan; 2. Osaka University, Toyonaka, Japan; 3. Tohoku University, Sendai, Japan; 4. Sojitsu Corporation, Tokyo, Japan
- AR-03. Directional Dependence of Moderate Magnetic Fields on HT22 Cell Proliferation.** M. Pirbhai¹, N. Wagner¹, C. Ferguson³ and A. Estevez²
1. Physics, St. Lawrence University, Canton, NY, United States; 2. Biology, St. Lawrence University, Canton, NY, United States; 3. Bioengineering, University of Oregon, Eugene, OR, United States
- AR-04. Optimization of a Quadrupole Magnetic Sorter for Continuous Flow Fractionation of Red Blood Cells from whole blood.** K. Paz Gonzalez¹, S. Ciannella¹, L. Nguyen T. Tran¹, X. Wu³, H. Choe³, P. Iyer³, K. Wu², J. Chalmers³ and J. Gomez-Pastora¹
1. Chemical Engineering, Texas Tech University, Lubbock, TX, United States; 2. Electrical and Computer Engineering, Texas Tech University, Lubbock, TX, United States; 3. William G. Lowrie Department of Chemical and Biomolecular Engineering, The Ohio State University, Columbus, OH, United States
- AR-05. Conformable Electromagnetic Shielding Materials for Intentional Low to Medium Frequency Electromagnetic Interference in Brain Implants.** W. Lohr¹, K. Feng², S. Smith³ and R.L. Hadimani^{2,4}
1. Department of Biomedical Engineering, Virginia Commonwealth University, Richmond, VA, United States; 2. Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States; 3. Chemical & Life Science Engineering, Virginia Commonwealth University, Richmond, VA, United States; 4. Electrical and Computer Engineering, Iowa State University, Ames, IA, United States

AR-06. Systematic Analysis of Transcranial Magnetic Stimulation Motor Response and EEG Functional Connectivity Relationship in Mild to Moderate TBI Patients.

E.R. Sprouse⁵, C.M. Harris^{1,2}, A. Jamil^{3,6}, L. Manning-Franke⁴ and R.L. Hadimani^{2,5} 1. Department of Life Sciences, Virginia Commonwealth University, Richmond, VA, United States; 2. Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States; 3. Massachusetts General Hospital, Boston, MA, United States; 4. Department of Physical Medicine and Rehabilitation, Virginia Commonwealth University, Richmond, VA, United States; 5. Department of Biomedical Engineering, Virginia Commonwealth University, Richmond, VA, United States; 6. Harvard Medical School, Boston, MA, United States

AR-07. Relationship of Motor Threshold in Transcranial Magnetic Stimulation with Quantitative Measures of White Matter Anisotropy.

C.M. Harris^{4,1}, C.J. Lewis^{3,1}, C.L. Peterson³ and R.L. Hadimani^{1,2} 1. Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States; 2. Department of Electrical and Computer Engineering, Iowa State University, Ames, IA, United States; 3. Department of Biomedical Engineering, Virginia Commonwealth University, Richmond, VA, United States; 4. Center for Biological Data Science, Virginia Commonwealth University, Richmond, VA, United States

AR-08. Co-Fe nanowires for the destruction of cancer cells through magnetomechanical effect. *H. Chiriac¹, A. Minuti¹, C. Stavila¹ and N. Lupu¹* 1. National Institute of Research and Development for Technical Physics, Iasi, Romania

TUESDAY
MORNING
9:00

EXHIBIT HALL

Session AS

**ELECTRONIC STRUCTURE, MAGNETISM AND
FUNDAMENTAL PHYSICAL PROPERTIES I
(Poster Session)**

Santosh KC, Co-Chair

San Diego State University, San Diego, CA, United States

Tej Nath Lamichhane, Co-Chair

University of Central Oklahoma, Edmond, Oklahoma,
United States

AS-01. Modeling Magnetic Dipoles in Atoms Based on Hypothetical Magnetic Monopoles. *R.R. Morusupalli^{1,2}*

1. HP Inc, Palo Alto, CA, United States; 2. Formerly with Department of Materials Science and Engineering, Stanford, CA, United States

AS-02. Various magnetic properties and spin states of

$\text{Ba}_3\text{Co}_{1-x}\text{Ca}_x\text{Ru}_2\text{O}_9$ ($0 \leq x \leq 1$). *Y. Yasui¹, A. Nagaya¹, A. Horie¹, I. Terasaki² and J. Kikuchi¹* 1. Physics, Meiji University, Kawasaki, Japan; 2. Physics, Nagoya University, Nagoya, Japan

- AS-03. Adsorption of Ag, Au, Cu, and Ni on MoS₂: theory and experiment.** *A.J. Stollenwerk¹, H. Harms¹, C.J. Cunningham¹, C. Sadler¹, E. O'Leary², T. Kidd¹ and P. Lukashev¹* *1. University of Northern Iowa, Cedar Falls, IA, United States; 2. Iowa State University, Ames, IA, United States*
- AS-04. Effect of surface preparation on spin glass behavior at the Ni/MoS₂ interface.** *H.A. Harms¹, C.J. Cunningham¹, C. Hemesath¹, A.J. Stollenwerk¹, P. Lukashev¹, T. Kidd¹, B. Wei^{2,3}, L. Zhou^{2,3}, R. Prozorov^{3,4} and P. Shand¹* *1. Physics, University of Northern Iowa, Cedar Falls, IA, United States; 2. Material Science and Engineering, Iowa State University, Ames, IA, United States; 3. Materials Sciences and Engineering, Ames National Laboratory, Ames, IA, United States; 4. Physics and Astronomy, Iowa State University, Ames, IA, United States*
- AS-05. Competing Antiferromagnetic Interactions and Associated Large Inverse Magnetocaloric Effect in TbSi and TbSi_{0.6}Ge_{0.4}.** *A. Kumar¹, P. Singh¹, A. Doyle¹, D. L. Schlagel¹ and Y. Mudryk¹* *1. Material Science Division, Ames National Laboratory, Ames, IA, United States*
- AS-06. Novel Magnetic States in Ba₃Zn_{1-x}Ca_xRu₂O₉.** *R. Sadamatsu¹ and Y. Yasui¹* *1. Physics, Meiji University, Kawasaki, Japan*
- AS-07. Effect of Hole Doping on the Structural, Electronic and Magnetic properties of CrAs.** *B.S. Jacobs¹ and A. Pandey²* *1. Physics, University of Johannesburg, Johannesburg, South Africa; 2. School of Physics, University of the Witwatersrand, Johannesburg, South Africa*

**TUESDAY
MORNING
9:00**

EXHIBIT HALL

**Session AT
FAST AND ULTRAFast MAGNETISATION
DYNAMICS
(Poster Session)**

Carl Davies, Chair
Radboud University, Nijmegen, Netherlands

- AT-01. Spin-Orbit Torques in Te/Ferromagnetic Devices.** *S. Li¹, A. Hoffmann¹, C. Niu², R. Liu¹ and P. Ye²* *1. University of Illinois at Urbana-Champaign, Urbana, IL, United States; 2. Purdue University, Lafayette, IN, United States*
- AT-02. Withdrawn**

- AT-03. Sub 100 ps Deterministic Switching of Synthetic Antiferromagnetic p-MTJ purely by the Electric Field.** J. Qi¹, Y. Chen¹, Y. Lv¹, D. Zhang¹, O. Benally¹, Y. Huang², D. Lyu¹, S. Liang¹, Y. Yang¹ and B. Zink¹ *1. University of Minnesota, Minneapolis, MN, United States; 2. Chiao Tung University, Hsinchu, Taiwan*
- AT-04. Directional Damping in Co₂TiSn Thin Films.** A. Karki¹, U. Karki¹, R. Nahar¹, R. Nold¹, B. Akintunde¹, N. Derksen¹, A. Hauser¹ and J. Mohammadi¹ *1. Physics and Astronomy, The University of Alabama, Tuscaloosa, AL, United States*
- AT-05. Magnetostriction dynamics in CoFe/Pt magnetic multilayers.** T. Fernandes¹, F.M. Matinaga², L.H. de Andrade¹ and M. Martins² *1. SENAN, Centro de Desenvolvimento de Tecnologia Nuclear, Belo Horizonte, Brazil; 2. SEMAV, Centro de Desenvolvimento de Tecnologia Nuclear, Belo Horizonte, Brazil*
- AT-06. Observation of coherently coupled cation spin dynamics in an insulating ferrimagnetic oxide.** C. Klewe¹, P. Shafer^{2,1}, J. Shoup³, C. Kons³, Y. Pogoryelov⁴, R. Knut⁴, B.A. Gray⁵, H. Jeon⁶, B.M. Howe⁵, O. Karis⁴, Y. Suzuki^{7,8}, E. Arenholz^{2,9}, D.A. Arena³ and S. Emori^{10,7} *1. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 2. National Synchrotron Light Source II, Brookhaven National Laboratory, Upton, NY, United States; 3. Department of Physics, University of South Florida, Tampa, FL, United States; 4. Department of Physics and Astronomy, Molecular and Condensed Matter Physics, Uppsala University, Uppsala, Sweden; 5. Materials and Manufacturing Directorate, Air Force Research Laboratory, Wright Patterson Air Force Base, WPAFB, OH, United States; 6. KBR, Beavercreek, OH, United States; 7. Geballe Laboratory for Advanced Materials, Stanford University, Stanford, CA, United States; 8. Department of Applied Physics, Stanford University, Stanford, CA, United States; 9. Pacific Northwest National Laboratory, Richland, WA, United States; 10. Department of Physics, Virginia Tech, Blacksburg, VA, United States*
- AT-07. On the relevance of the Landau-Lifshitz-Gilbert equation in the optical limit.** B.J. Assouline¹ and A. Capua¹ *1. Applied Physics, Hebrew University, Jerusalem, Israel*

Session AU
MACHINES OPTIMIZATION, MAGNETIC LOSS,
AND THERMAL MODELING I
(Poster Session)

Tsung Wei Chang, Chair
National Cheng Kung University, Tainan, Taiwan

- AU-01. Modeling Approach for Ultra-Thin Wound Iron Cores Based on Equivalent Complex Permeability.** *X. Li^{1,2}, J. Yuan^{1,2} and H. Zhou^{1,2}* *1. State Key Laboratory of Power Grid Environmental Protection, Wuhan University, Wuhan, China; 2. School of Electrical Engineering and Automation, Wuhan University, Wuhan, China*
- AU-02. Analysis of Core Loss of 10MW Direct Drive Permanent Magnet Synchronous Generator considering 3D Magnetic Flux Path and Rotor Overhang.** *S. Kim¹, H. Shin², K. Shin³ and J. Choi¹* *1. Chungnam National University, Daejeon, The Republic of Korea; 2. Hyundai Mobis, Uiwang, The Republic of Korea; 3. Changwon National University, Changwon, The Republic of Korea*
- AU-04. Investigation of the contribution of Grain-Oriented Sheets to the performance of an Axial-Flux Switched-Reluctance Machine.** *A. El Hajji¹, J. Drappier¹, A. Tounzi¹ and J. Korecki¹* *1. University of Lille, Lille, France*
- AU-05. A Frequency Independent Excess Loss Modeling for Arbitrary Waveforms.** *T. Yamada¹, K. Semba¹, T. Sato¹ and H. Sano¹* *1. JMAG Business Company, JSOL Corporation, Tokyo, Japan*
- AU-06. Surrogate Model Based Drive Cycle Modelling and Optimization of Synchronous Reluctance Machines for Electric Vehicles.** *Y. Gong¹, A. Gneiting¹, S. Weigel¹, N. Parspour¹ and Z. An¹* *1. Institute of Electrical Energy Conversion (IEW), University of Stuttgart, Stuttgart, Germany*
- AU-07. Effect of Laser Welding on Magnetic Properties of Laminated Cores of Non-Oriented Electrical Steel Sheets Cut by EDM and Laser Cutting.** *Y. Tsuchida¹ and K. Otsuka¹* *1. Oita University, Oita, Japan*
- AU-08. Effect of Saturation Magnetic Flux Density on Cogging Torque of SPMSM According to Rolling Direction of Non-Oriented Electrical Steel.** *J. Kim¹, Y. Won², S. Park³ and M. Lim²* *1. Mechanical Engineering, Yeungnam University, Gyeongsan, The Republic of Korea; 2. Automotive Engineering (Automotive-Computer Convergence), Hanyang University, Seoul, The Republic of Korea; 3. Mechanical, Robotics and Energy Engineering, Dongguk University, Seoul, The Republic of Korea*

Session AV
ELECTRICAL MACHINES AND POWER
ELECTRONICS II
(Poster Session)

Christopher H. T. Lee, Chair
Nanyang Technological University, Singapore, Singapore

- AV-01. Electromagnetic Vibration and Torque Ripple Analysis of Multi-unit PMSMs.** *Q. Wei¹, I. Dong¹, W. Li¹, M. Andriollo² and D. Zeng¹* *1. Harbin Engineering University, Harbin, China; 2. University of Padova, Padova, Italy*
- AV-04. Design and Optimization of Wireless Power Transfer Module for Electrically Excited Axial Flux Motor.** *Y. Xin¹, W. Geng¹, J. Liu¹, Y. Fu¹ and Y. Gu¹* *1. Nanjing University of Science and Technology, Nanjing, China*
- AV-05. Research on reduction of cogging torque of spoke type generator using ferrite permanent magnets.** *S. Kim¹ and S. Jeong²* *1. KETI, Gangju Metropolitan City, The Republic of Korea; 2. Gwangju University, Gangju Metropolitan City, The Republic of Korea*
- AV-06. Design for Performance Improvement of PMa-SynRM with Asymmetric Rotor Shape Considering Mechanical stiffness.** *S. Kim¹, W. Jung¹, T. Kim¹, K. Shin² and J. Choi¹* *1. Department of Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea; 2. Department of Electrical Engineering, Changwon National University, Changwon, The Republic of Korea*
- AV-07. Torque Improvement and Core Loss Reduction with Controllable Flux-Leakage Design in Spoke-Type Flux-Intensifying PM Motors.** *M.L. Duong¹, A.T. Huynh² and M. Hsieh¹* *1. Department of Electrical Engineering, National Cheng Kung University, Tainan, Taiwan; 2. Power Electronics and Machines Centre, Faculty of Engineering, University of Nottingham, Nottingham, United Kingdom*
- AV-08. A Novel Traction Motor Design Approach Considering Efficiency Enhancing Current.** *L.J. Caceres Vera¹ and M. Hsieh¹* *1. Department of Electrical Engineering, National Cheng Kung University, Tainan, Taiwan*

Session BA
FUNDAMENTALS AND ADVANCES IN
2D SPINTRONICS

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

2:00

- BA-01. Observation of Quantum Spin Hall States in Monolayer TaIrTe₄. (Invited) Q. Ma¹** *1. Physics, Boston College, Chestnut Hill, MA, United States*

2:36

- BA-02. Racetrack Memories enabled by novel spintronic materials and phenomena. (Invited) S. Parkin¹** *1. Max Planck Institute of Microstructure Physics, Halle (Saale), Germany*

3:12

- BA-03. van der Waals Magnets and Antiferromagnets Interacting with Electron Spins. (Invited) D.C. Ralph¹, R. Jain¹, T.M. Cham¹, M. Roddy¹, B. Huang^{1,4}, V. Gupta^{1,2} and Y.K. Luo^{1,3}** *1. Cornell University, Ithaca, NY, United States; 2. Yale University, New Haven, CT, United States; 3. Univ. of Southern California, Los Angeles, CA, United States; 4. Princeton University, Princeton, NJ, United States*

3:48

Break

- BA-04. Withdrawn**

4:15

- BA-05. Field-free perpendicular magnetization switching by out-of-plane spins from two-dimensional materials. (Invited) G. Shi¹ and H. Yang¹** *1. National University of Singapore, Singapore, Singapore*

Session BB
**MAGNETICS FOR FUTURE TRANSPORTATION –
FROM MEMORY TO MOTORS**

Min-Fu Hsieh, Chair
National Cheng Kung University, Tainan, Taiwan

2:00

- BB-01. Embedded STT-MRAM for Automotive Applications.**
(Invited) A. Wang¹, E. Chien¹, C. Chen¹, T. Chiang¹, K. Huang¹, R. Wang¹ and H. Chuang¹ *1. TSMC, Hsinchu, Taiwan*

2:36

- BB-02. About Multiphysic Modelling of High-Speed Electrical Machines for Electric Powertrains.** *(Invited)* L. Dahnoun¹, J. Fontchastagner¹ and N. Takorabet¹ *1. GREEN, Université de Lorraine, Nancy, France*

3:12

- BB-03. An adaptive hybrid magnetic sensing technology for enhanced electric vehicle applications.** *(Invited)* M. Lai¹ *1. iSentek, New Taipei City, Taiwan*

3:48

Break

4:15

- BB-04. High Frequency Magnetic Design for EV Fast Charging.**
(Invited) A. Knight¹ *1. Electrical and Software Engineerign, University of Calgary, Calgary, AB, Canada*

4:51

- BB-05. Materials and Considerations for Motors to Support Efficient Transportation.** *(Invited)* L.H. Lewis¹ *1. Northeastern University, Boston, MA, United States*

Session BC

**SPIN-ORBITRONICS II: CHIRAL DEPENDENCE,
QUANTUM SPIN TRANSFER AND
UNCONVENTIONAL TORQUES**

Yang Lv, Chair

University of Minnesota, Minneapolis, MN, United States

2:00

- BC-01. Chiral-induced Unidirectional Spin-to-charge Conversion.**
(Invited) A. Wittmann¹ 1. JGU Mainz, Mainz, Germany

2:36

- BC-02. Deterministic Switching of Noncentrosymmetric, Ferromagnetic Weyl Semimetals with Higher-order Spin-orbit Torque.** *N. Fokkens¹, J. Shi¹ and F. Xue¹
1. Physics, University of Alabama at Birmingham, Birmingham, AL, United States*

2:48

- BC-03. Plasmonics for low energy and ultrafast creation of magnetic topological structures.** *R. Sbiaa¹, W.Z. Al Saidi¹, Y. Dusch² and N. Tiercelin² 1. Physics, Sultan Qaboos University, Al-Khoud, Oman; 2. CNRS, Centrale Lille, UMR 8520, IEMN, University of Lille, Lille, France*

3:00

- BC-04. Coexistence of Unconventional Spin Hall Effect and Antisymmetric Planar Hall Effect in IrO₂.** *Y. Yang¹, S. Nair¹, Y. Fan¹, Y. Chen¹, J. Qi¹, S. Lee¹, T. Low¹, B. Jalan¹ and J. Wang¹
1. University of Minnesota, Minneapolis, MN, United States*

3:12

- BC-05. Current-Induced Circular Dichroism on Metallic Surfaces: A First-Principles Study.** *F. Mahfouzi¹, P. Haney¹ and M. Stiles¹
1. PML, National Institute of Standards and Technology, Gaithersburg, MD, United States*

3:24

- BC-06. A spin-orbit torque knob to tailor stochasticity for physically secured applications.** *M. Yang¹ and C. Yang¹ 1. Materials Science and Engineering, National Yang Ming Chiao Tung University, Hsinchu, Taiwan*

3:36

- BC-07. Large Interfacial Rashba Torques in Atomically Thin Co|Al Systems.** *N. Sebe¹, S. Krishnia², S. Mallick³, Y. Sassi¹, S. Collin¹, T. Denneulin⁴, A. Kovács⁴, R.E. Dunin-Borkowski⁴, A. Fert¹, J. George¹, V. Cros¹ and H. Jaffrès¹ 1. Laboratoire Albert Fert, Palaiseau, France; 2. Institute of Physics, Johannes Gutenberg University Mainz, Mainz, Germany; 3. SRMIST, Chennai, India; 4. Forschungszentrum Jülich, Jülich, Germany*

3:48

Break

4:15

- BC-08. Design of an ultra-low magnetic field sensor based on spin Hall magnetoresistance.** M. Kuepferling¹, W. Skowronski², E. Losero¹, P. Wisniowski², A. Magni¹, V. Basso¹, J. Langer³ and B. Ocker³ *1. INRiM, Torino, Italy; 2. AGH University of Science and Technology, Krakow, Poland; 3. Singulus Technologies AG, Kahl am Main, Germany*

4:27

- BC-10. Efficient magnetization switching and non-reciprocal magnon transport via orbital currents.** S. Krishnia¹, O. Ledesma¹, R. Gupta¹, E. Galindez Ruales¹, F. Kammerbauer¹, A. Bose¹, C. Bouard², S. Martin², M. Drouard², D. Go¹, G. Jakob¹, Y. Mokrousov¹ and M. Kläui¹ *1. Institut für Physik, Johannes Gutenberg-Universität Mainz, Mainz, Germany; 2. Antaios, Meylan, France*

4:39

- BC-11. Unconventional Spin-Orbit torques in Mn₃Pt.** R. Klause¹ and A. Hoffmann¹ *1. Materials Science and Engineering and Materials Research Laboratory, University of Illinois Urbana Champaign, Urbana, IL, United States*

4:51

- BC-12. In Search of Quantum Spin Transfer in Spin-Orbit Bilayers.** G.T. Street¹ and S. Emori¹ *1. Physics, Virginia Tech, Blacksburg, VA, United States*

5:03

- BC-13. Anti-damping Orbital Torque Driven by Inverse Orbital Rasha-Edelstein Effect in Co/Pt/CuOx.** P. Bissokarma¹ and E. Montoya¹ *1. Department of Physics and Astronomy, University of Utah, Salt Lake City, UT, United States*

TUESDAY
AFTERNOON
2:00

CELESTIN B

Session BD
MAGNETIC RECORDING & SENSORS
AND APPLICATIONS I

Ganping Ju, Chair
Seagate Technology, Fremont, CA, United States

2:00

- BD-01. Determination of oscillation state of a spin-torque oscillator fabricated in a MAMR head using injection locking.** *(Invited)* Y. Nakagawa¹, H. Suto² and T. Maeda¹ *1. Corporate Research and Development Center, Toshiba Corporation, Kawasaki, Japan; 2. Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science (NIMS), Tsukuba, Japan*

BD-02. Chemical Ordering of Sputtered FePt / *h*-BN

Granular Media Using RF Substrate Bias. *B.L. Reese*^{1,2},
C. Aros-Caballero^{1,2,3}, *E. Eleson*^{1,2,4}, *B. Turner*^{2,5}, *V. Bollapragada*^{2,5},
D.E. Laughlin^{1,2,5} and *J. Zhu*^{1,2,5} *1. Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, PA, United States; 2. Data Storage Systems Center, Carnegie Mellon University, Pittsburgh, PA, United States; 3. Materials Science and Engineering, University of Michigan, Ann Arbor, MI, United States; 4. Materials Science and Engineering, Pennsylvania State University, University Park, PA, United States; 5. Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA, United States*

2:48

BD-03. Laser Current and Write Current Optimization Using DC Noise Measurement in Heat-Assisted Magnetic Recording Hard Disk Drives.

*A. Sakoguchi*¹, *J. Zhang*² and *J. Lee*²
1. Western Digital Technologies GK, Fujisawa, Japan;
2. Western Digital Technologies, Irvine, CA, United States

3:00

BD-04. Dual Layer Media Modeling for Heat Assisted Magnetic Recording.

*A. Venugopal*¹, *T.Y. Chang*¹, *P. Steiner*¹ and
*P. Czoschke*¹ *1. Seagate Technology LLC, Bloomington, MN, United States*

3:12

BD-05. Mutual Soft-Information Improvement Techniques for Lower Layer Performance Improving in Double-Layered Magnetic Recording Systems.

*A. Khametong*¹, *S. Greaves*² and
*C. Warisarn*¹ *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*

3:24

BD-07. Track Misregistration Estimation Technique based on Hybrid K-means and EM Algorithm in Bit-Patterned Media Recording Systems.

*P. Kochcha*¹, *K. Kankhunthod*¹ and *C. Warisarn*¹
1. College of Advanced Manufacturing Innovation, King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand

3:36

BD-08. Advancing Spatially Selective All-Optical Magnetic Switching in Nanomagnets for Magnetic Memory and Computing.

*D. Bromley*¹, *T. Farchy*¹, *J. Gartside*¹, *D. Cielecki*¹,
*K.D. Stenning*¹, *A. Vanstone*¹, *H. Holder*¹, *T. Zheng*¹, *X. Xiao*²,
*R. Sapienza*¹, *R. Oulton*¹ and *W.R. Branford*¹ *1. Physics, Imperial College London, London, United Kingdom; 2. Technology Innovation Institute, Abu Dhabi, United Arab Emirates*

3:48

Break

4:15

- BD-09. Spin Transport Calculation in Aluminum Thin Film by Drift-Diffusion Equation.** *R. Hao*¹ and *R. Victora*¹
1. University of Minnesota, Minneapolis, MN, United States

4:27

- BD-10. Study on Planar Hall Magnetoresistive Sensor and its Application for Magnetic Encoder.** *T. Jeon*¹, *C. Jeon*¹, *J. Kim*¹, *B. Lim*² and *C. Kim*¹ *1. Department of Physics and Chemistry, Daegu Gyeongbuk Institute of Science and Technology, Daegu, The Republic of Korea; 2. Department of Smart Sensor Engineering, Andong National University, Andong, The Republic of Korea*

4:39

- BD-12. Design Optimization of a Position Sensor for Linearity Range Extension.** *M. Mirzaei*¹, *P. Ripka*¹ and *J. Maier*¹
1. Electrical Engineering, Czech Technical University, Prague, Czechia

4:51

- BD-13. An MLP-based ITI Suppression Method for Multi-Head Multi-Track Bit-Patterned Magnetic Recording.** *S. Koolkarnkhai*², *C. Warisarn*¹ and *P. Kovintavewat*²
1. College of Advanced Manufacturing Innovation, King Mongkut's Institute of Technology, Ban, Thailand; 2. Department of Electrical Engineering, Nakhon Pathom Rajabhat University, Nakhon Pathom, Thailand

TUESDAY
AFTERNOON
2:00

CELESTIN C

Session BE ANTIFERROMAGNETS AND FERRIMAGNETS

Xuemei Cheng, Chair
Bryn Mawr College, Bryn Mawr, PA, United States

2:00

- BE-01. Control of magnon spin transport in multiferroics. (Invited)** *T. Nan*¹ *1. Tsinghua University, Beijing, China*

2:36

- BE-02. Mechanisms Of Electrical Switching Of Ultrathin CoO/Pt Bilayers.** *C. Schmitt*^{1*}, *A. Rajan*¹, *G. Beneke*¹, *A. Kumar*¹, *T. Sparmann*¹, *H. Meer*¹, *B. Bednarz*¹, *R. Ramos*^{2,3}, *M. Angel*⁴, *M. Foerster*⁴, *E. Saitoh*^{3,5} and *M. Kläui*¹ *1. Johannes Gutenberg University Mainz, Mainz, Germany; 2. Universidade de Santiago de Compostela, Santiago de Compostela, Spain; 3. Tohoku University, Sendai, Japan; 4. ALBA Synchrotron Light Facility, Cerdanyola del Valles (Barcelona), Spain; 5. The University of Tokyo, Tokyo, Japan*

- BE-03. Emergent Topological Magnetism in As-Grown Polycrystalline FCC FeMn.** *R.E. Maizel¹, C. Horn², M. Murayama², S. Channa³, D. O'Mahoney³, Y. Suzuki³, C. Klewe⁴, A.T. N'Diaye⁴, R. Khatiwada¹, O.A. Bakare¹, G.T. Street¹, S. Abdizadeh¹, J. Zhao⁵, M.F. Michel⁵, J.J. Heremans¹ and S. Emori¹* *1. Physics, Virginia Tech, Blacksburg, VA, United States; 2. Material Science, Virginia Tech, Blacksburg, VA, United States; 3. Applied Physics and Geballe Laboratory for Advanced Materials, Stanford University, Stanford, CA, United States; 4. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 5. Geoscience, Virginia Tech, Blacksburg, VA, United States*

3:00

- BE-04. Observation of Néel Vector Rotation in Amorphous Ferrimagnetic GdCo Thin Films.** *T. Mandokoro¹, Y. Shiota^{1,2}, T. Ito¹, H. Matsumoto¹, H. Narita¹, R. Hisatomi^{1,2}, S. Karube^{1,2} and T. Ono^{1,2}* *1. ICR, Kyoto Univ, Uji, Japan; 2. CSRN, Kyoto Univniv, Uji, Japan*

3:12

- BE-05. Comparative investigation of temperature-dependent Gilbert damping in non-collinear antiferromagnetic Mn₃PtN and Mn₃Pt thin films.** *N. Tripathi¹, S. Mishra¹ and S. Isogami²* *1. School of Materials Science & Technology, Indian Institute of Technology, IIT(BHU), Varanasi, India; 2. Research Centre for Magnetic and Spintronics Materials, National Institute of Materials Science, Tsukuba, Japan*

- BE-06. Withdrawn**

3:24

- BE-07. Magnetic Spin Hall Effect and Chirality Control of Antiferromagnetic Domain Walls in Compensated Ferrimagnets.** *S. Ko¹, H. Kim¹, J. Kang², P. Cao Van³, W. Choi⁴, S. Kim⁴, J. Jeong³, B. Park², A.M. Park¹, K. Kim⁵ and K. Kim^{1,6}* *1. Physics, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, The Republic of Korea; 2. Material Science and Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, The Republic of Korea; 3. Material Science and Engineering, Chungnam National University, Daejeon, The Republic of Korea; 4. Physics, University of Ulsan, Ulsan, The Republic of Korea; 5. Physics, Yonsei University, Seoul, The Republic of Korea; 6. Graduate School of Quantum Science and Technology, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, The Republic of Korea*

3:36

Break

4:15

- BE-08. Manipulation of the quantum-metric structure in a topological chiral antiferromagnet. (Invited)** *J. Han¹, T. Uchimura¹, Y. Araki², J. Yoon¹, Y. Takeuchi^{1,3}, Y. Yamane¹, S. Kanai^{1,4,5}, J. Ieda², H. Ohno¹ and S. Fukami^{1,6}* *1. Tohoku University, Sendai, Japan; 2. Japan Atomic Energy Agency, Tokai, Japan; 3. National Institute for Materials Science, Tsukuba, Japan; 4. PRESTO, Japan Science and Technology Agency, Kawaguchi, Japan; 5. National Institutes for Quantum Science and Technology, Takasaki, Japan; 6. Inamori Research Institute for Science, Kyoto, Japan*

4:51

- BE-09. Comparison of Magnetometry and Hall Transport in Ferrimagnetic Gd/Co Bilayers: Silent Spins and Altered Anisotropy.** *L. Hernandez¹, R.W. Greening¹, M.J. Roos¹, X. Fan¹ and B.L. Zink¹* *1. Physics & Astronomy, University of Denver, Denver, CO, United States*

5:03

- BE-10. Start-to-Finish Tuning of Magnetic Anisotropy in Iron Garnet Thin Films.** *A. Kaczmarek^{1*}, M. Aguiar¹, T.P. Grossmark¹, G. Beach¹ and C.A. Ross¹* *1. Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, United States*

5:15

- BE-11. Strain Effects on Fluctuation Properties of Noncollinear Antiferromagnets for Probabilistic Computing Applications.** *M. Rahman^{2,1} and M. Stiles¹* *1. Physical Measurement Laboratory, National Institute of Standards and Technology, Gaithersburg, MD, United States; 2. Department of Chemistry & Biochemistry, University of Maryland, College Park, MD, United States*

TUESDAY
AFTERNOON
2:00

IMPERIAL 5AB

**Session BF
HARD MAGNETS I**

Ester Palmero, Chair
IMDEA Nanociencia, Madrid, Spain

2:00

- BF-01. Development of High-Performance Nd-Fe-B Based Magnet: Combating Materials Criticality. (Invited)** *X. Tang¹, H. Sepehri-Amin¹, T. Ohkubo¹ and K. Hono¹* *1. National Institute for materials Science, Tsukuba, Japan*

- BF-02. Bulk Magnetic Hardening in $\text{Sm}(\text{Fe},\text{V})_{12}$ Alloys.** Y. Xu¹, C. Han², C. Ni², A. Gabay¹ and G. Hadjipanayis^{1,3} *1. Department of Physics and Astronomy, University of Delaware, Newark, DE, United States; 2. Department of Materials Science and Engineering, University of Delaware, Newark, DE, United States; 3. Department of Chemical Engineering, Northeastern University, Boston, MA, United States*

2:48

- BF-03. Achieving high coercivity in post-sinter annealed Cu-doped $\text{Sm}(\text{Fe},\text{Ti},\text{V})_{12}$ -based sintered magnets.** J. Zhang¹, X. Tang¹, T. Ohkubo¹, K. Hono¹ and H. Sepehri-Amin¹ *1. National Institute for Materials Science, Tsukuba, Japan*

3:00

- BF-04. Magnetic Properties and Microstructures of (Nd,Ce)-Fe-B Based HDDR Magnet Powders.** R. Shimbo^{1,2}, T. Horikawa^{1,2}, M. Yamazaki², M. Matsuura¹, R. Kainuma¹ and S. Sugimoto¹ *1. Graduate School of Engineering, Tohoku University, Sendai-shi, Japan; 2. Aichi Steel Corporation, Tokai-shi, Japan*

3:12

- BF-05. 2- and 3-dimensional measurements of magnetic domain wall pinning in $\text{Sm}_2(\text{CoFeCuZr})_{17}$.** A. Kovács¹, A. Silinga², Y. Yang³, T. Almeida², T. Smoliarova⁴, B. Xu³, K. Skokov³, O. Gutfleisch³, M. Farle⁴ and R.E. Dunin-Borkowski¹ *1. Forschungszentrum Juelich, Juelich, Germany; 2. University of Glasgow, Glasgow, United Kingdom; 3. Technische Universität Darmstadt, Darmstadt, Germany; 4. University of Duisburg-Essen, Duisburg, Germany*

3:24

- BF-07. Magnetic domain imaging for Sm-Fe-N powder by magnetic force microscopy.** Y. Hirayama¹, W. Yamaguchi¹ and S. Okada¹ *1. Innovative Functional Materials Research Institute, Nagoya, Japan*

3:36

- BF-08. Progress towards Gas Atomized Feedstock to Substitute for Strip Casting in Scalable Manufacturing of Dy-free Ultrafine Grained Nd-Fe-B Magnets.** B. Finney^{2,1}, M.J. Kramer², W. Tang², B. Cui², J. Cui^{2,1} and I.E. Anderson^{2,1} *1. Materials Science and Engineering, Iowa State University, Ames, IA, United States; 2. Ames National Laboratory, Ames, IA, United States*

3:48

Break

4:15

- BF-09. Increase of energy products of $\text{Sm}_2\text{Fe}_{17}\text{N}_3$ sintered magnet using novel sintering aid.** Y. Iida^{1,2}, A. Hosokawa², W. Yamaguchi² and Y. Hirayama² *1. Niterra Co., Ltd., Komaki, Japan; 2. National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan*

4:27

- BF-10. Metal coating of $\text{Sm}_2\text{Fe}_{17}\text{N}_3$ powder to realize heat-resistant resin-bonded magnet applications.** *W. Yamaguchi*¹, K. Takagi¹, A. Hosokawa¹ and Y. Hirayama¹ *1. National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan*

4:39

- BF-11. Synthesis Optimization for $\text{Sm}_2\text{Fe}_{17}\text{N}_3$ for Bulk Magnet Fabrication.** *R. Kuchi*¹, I.Z. Hlova¹, X. Liu¹, O. Palasyuk¹, D. Schlagel¹, A. Peirsol² and M.J. Kramer¹ *1. Ames National Laboratory, Ames, IA, United States; 2. Iowa State University, Ames, IA, United States*

4:51

- BF-12. Fe based approaches for rare-earth reduced and free permanent magnets.** *L. Alff*¹ *1. TU Darmstadt, Darmstadt, Germany*

TUESDAY
AFTERNOON
2:00

IMPERIAL 5CD

Session BG
MAGNETOIONIC AND MAGNETOELECTRIC
MATERIALS

Christian Rinaldi, Chair
Politecnico di Milano, Milano, Italy

2:00

- BG-01. Recent Progress in Nitrogen Magneto-ionics: New Materials and Phenomena for Brain-inspired Memory Devices.** *(Invited) J. Sort*^{1,2}, N. López¹, A. Arredondo¹, Z. Tan¹, Z. Ma¹, I. Spasojevic¹, P. Monalisha¹, N. Casañ-Pastor³, A. Quintana³, E. Pellicer¹, C. Jensen^{5,7}, Z. Chen⁵, F. Ceglegato⁶, K. Liu⁵, J. Nogués^{4,2} and E. Menéndez¹ *1. Universitat Autònoma de Barcelona, Bellaterra, Spain; 2. ICREA, Barcelona, Spain; 3. Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Bellaterra, Spain; 4. Catalan Institute of Nanoscience and Nanotechnology (ICN2), Bellaterra, Spain; 5. Georgetown University, Washington, DC, United States; 6. INRIM, Torino, Italy; 7. NIST, Gaithersburg, MD, United States*

2:36

- BG-02. Correlations between Defect Density and Magnetic Properties of Heusler Alloy Films.** *C. Leung*², Y. Ling², H. Koizumi¹, S. Panda³, A. Markou³, E. Lesne³, C. Felser³ and A. Hirohata^{1,3} *1. Center for Science and Innovation in Spintronics, Tohoku University, Sendai, Japan; 2. Department of Material Science and Engineering, City University of Hong Kong, Kowloon, Hong Kong; 3. Max-Planck-Institut für Chemische Physik fester Stoffe, Dresden, Germany*

- BG-03. Control of perpendicular anisotropy and compensation behaviour in $\text{Tb}_x\text{Co}_{1-x}$ with Hydrogen ion implantation.** R.G. Hunt¹, D. Moldarev¹, M.P. Grassi¹, D. Primetzhofer¹ and G. Andersson¹ 1. *Physics and Astronomy, Uppsala University, Uppsala, Sweden*

3:00

- BG-04. Regulating the Magnetic Properties of $\text{La}_{0.5}\text{Sr}_{0.5}\text{FeO}_{3-\delta}$ Through Voltage-Controlled Oxygen Content.** P. Nizet², F. Chiabrera², N. López-Pintó¹, N. Alayo², P. Langner², F. Baiutti², A. Morata², J. Sort^{1,3} and A. Tarancon^{2,3} 1. *Universitat Autònoma de Barcelona (UAB), Barcelona, Spain*; 2. *Institut de Recerca en Energia de Catalunya (IREC), Barcelona, Spain*; 3. *ICREA, Barcelona, Spain*

3:12

- BG-05. Ionically Driven Synthesis of Compensated Ferrimagnet $\text{Mn}_{4-x}\text{Co}_x\text{N}$ with Giant Exchange Bias.** Z. Chen¹, C. Liu², X. Zhang² and K. Liu¹ 1. *Physics, Georgetown University, Washington, DC, United States*; 2. *King Abdullah University of Science & Technology, Thuwal, Saudi Arabia*

Now VP13-10

- BG-06. Magneto-Ionic Vortices: Voltage-Controlled Curling-Spin Analog-Memory Nanomagnets.** I. Spasojević¹, Z. Ma¹, A. Barrera², F. Celegato³, A. Palau², P. Tiberto³, K. Buchanan⁵ and J. Sort^{1,4} 1. *Physics Department, Autonomous University of Barcelona, Bellaterra, Spain*; 2. *Institute of Materials Science of Barcelona (ICMAB), Bellaterra, Spain*; 3. *Advanced materials and Life science Division, Istituto Nazionale di Ricerca Metrologica (INRIM), Turin, Italy*; 4. *Catalan Institution for Research and Advanced Studies (ICREA), Bellaterra, Spain*; 5. *Physics Department, Colorado State University, Fort Collins, CO, United States*

3:24

- BG-07. Magnetic Phase Diagram of Non-collinear Antiferromagnet $\text{Mn}_{3+x}\text{Sn}_{1-x}$ Thin Films.** K. Gas^{1,2}, J. Yoon¹, Y. Sato¹, H. Kubota¹, J.Z. Domagala², P. Dłuzewski², Y.K. Edathumkandy², Y. Takeuchi^{1,3}, S. Kanai^{1,4,5}, H. Ohno¹, M. Sawicki^{2,1} and S. Fukami¹ 1. *Tohoku University, Sendai, Japan*; 2. *Institute of Physics, Polish Academy of Sciences, Warsaw, Poland*; 3. *National Institute for Materials Science, Tsukuba, Japan*; 4. *PRESTO, Japan Science and Technology Agency (JST), Kawaguchi, Japan*; 5. *National Institutes for Quantum Science and Technology, Takasaki, Japan*

3:36

Break

4:15

- BG-08. Bipolarity of anomalous Nernst effect in quaternary equiatomic Heusler alloys.** A. Chanda¹, J. Nag², N. Schulz¹, A. Alam², K. G. Suresh², M. Phan¹ and H. Srikanth¹ 1. *Physics, University of south Florida, Tampa, FL, United States*; 2. *Physics, Indian Institute of Technology Bombay, Bombay, India*

- BG-09. Electric Field Control of Magnetization in FeGa microstructures on PMN-PT.** *G. Pradhan*^{1,2}, F. Celegato¹, A. Magni¹, G. Barrera¹, M. Coisson¹, P. Rizzi² and P. Tiberto¹
1. INRIM, Turin, Italy; 2. UNITO, Turin, Italy

- BG-10. Controlling Magneto-Ionics by Defect Engineering Through Light Ion Implantation.** *Z. Ma*¹, S. Martins¹, Z. Tan¹, S. Chen², E. Monteblanco³, M. Liedke⁴, M. Butterling⁴, A. Attallah⁴, E. Hirschmann⁴, A. Wagner⁴, D. Ravelosona³, J. Sort¹ and E. Menéndez¹
1. Universitat Autònoma de Barcelona, Barcelona, Spain; 2. Université Paris-Saclay, Paris, France; 3. Spin-Ion Technologies, Paris, France; 4. Helmholtz-Zentrum Dresden – Rossendorf, Dresden, Germany

- BG-11. Griffiths phase like behaviour in the nearly half metallic Heusler alloy CoFeVAI: experimental and computational study.** *B. Bandyopadhyay*¹, J. Nag^{2,1}, S. Paul¹, M.K. Chattopadhyay³, A. Lakhani⁴, A. Alam¹ and K. G. Suresh¹
1. Physics, IIT BOMBAY, Mumbai, India; 2. Material Research Institute, Pennsylvania State University, PA, PA, United States; 3. Free Electron Laser Utilization Laboratory, Raja Ramanna Centre for Advanced Technology, Indore, India; 4. UGC-DAE Consortium for Scientific Research, Indore, India

- BG-12. Tuning the type of magnetic order through the Cr-substitution in Co₃O₂BO₃ Ludwigite.** *D.L. Mariano*¹, D.R. Candela², D.C. Freitas², C.S. Mejia⁴, M.A. Continentino³ and L. Ghivelder¹
1. physics, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil; 2. physics, Universidade Federal Fluminense, Niteroi, Brazil; 3. physics, Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil; 4. physics, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany

- BG-13. Giant magnitude of ultraviolet magnetic circular dichroism in thin film Co₂MnGa_{1-x}Ge_{1-x} Heusler alloys.** *S. Granville*^{1,2}, Y. Zhang¹, Y. Yin³ and H. Shu⁴
1. Robinson Research Institute, Victoria University of Wellington, Lower Hutt, New Zealand; 2. MacDiarmid Institute for Advanced Materials and Nanotechnology, Wellington, New Zealand; 3. Department of Materials Science & Engineering, Monash University, Clayton, VIC, Australia; 4. Department of Applied Physics, National Pingtung University, Pingtung, Taiwan

Session BP
SPINTRONICS II
(Poster Session)

Tobias Wagner, Chair

Johannes Gutenberg University Mainz, Mainz, Germany

- BP-01. 10 MHz Polarization Control in Spintronic Terahertz Emitters.** G. Lezier¹, J. Lampin², M. Vanwolleghem² and N. Tiercelin¹ *1. AIMAN-FILMS, Universite de Lille, CNRS, Centrale Lille, Universite Polytechnique des Hauts-de-France, UMR 8520-IEMN, Lille, France; 2. Photonique THz, Universite de Lille, CNRS, Centrale Lille, Universite Polytechnique des Hauts-de-France, UMR 8520-IEMN, Lille, France*
- BP-02. Thermal stability of epitaxial and polycrystalline Mn₃Sn nanodots.** Y. Sato^{1,2}, H. Kubota^{1,2}, Y. Takeuchi^{3,4}, Y. Yamane^{1,5}, J. Yoon^{1,2}, S. Kanai^{1,2,4}, J. Ieda⁶, H. Ohno^{1,4,7} and S. Fukami^{1,2,4} *1. Laboratory for Nanoelectronics and Spintronics, RIEC, Tohoku Univ., Sendai, Japan; 2. Graduate School of Engineering, Tohoku Univ., Sendai, Japan; 3. ICYS, NIMS, Tsukuba, Japan; 4. WPI-AIMR, Tohoku Univ., Sendai, Japan; 5. FRIS, Tohoku Univ., Sendai, Japan; 6. ASRC, JAEA, Ibaraki, Japan; 7. CSIS, Tohoku Univ., Sendai, Japan*
- BP-03. Enhanced THz Emission in Magnetic Hybrid Nanostructures with L1₀ Interfacial FePt layer.** O. Crisan¹, A. Crisan¹ and E. Papaioannou^{1,2} *1. National Institute for Materials Physics, Magurele, Romania; 2. Aristotle University of Thessaloniki, Thessaloniki, Greece*
- BP-04. Investigating Magnetic Ordering in Proposed Altermagnetic RuO₂ Thin Films.** S. Bhatt¹, F.M. Abel^{2,3}, T. Adel³, D.T. Plouff¹, X. Wang¹, V. Sharma⁴, S. Jois⁴, G.M. Stephen⁴, A. Friedman⁴, R. Torsi³, M. Munoz³, D. Wines³, A.R. Hight Walker³, B. Donavon², M.E. Jamer² and J.Q. Xiao¹ *1. University of Delaware, Newark, DE, United States; 2. United States Naval Academy, Annapolis, MD, United States; 3. National Institute of Standards and Technology, Gaithersburg, MD, United States; 4. Laboratory of Physical Sciences, College Park, MD, United States*
- BP-05. Enhancing the Magneto-Optical Kerr Effect in Non-collinear Antiferromagnets via a Dielectric Layer.** E. Gong¹, M. Yoo¹ and A. Hoffmann¹ *1. Materials Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, United States*

BP-06. Effect of strain on altermagnetic properties of Mn_5Si_3 . A. Badura^{1,2}, E. Schmoranzarová², Z. Sadeghi², P. Nemec², Z. Soban¹, M. Leiviska¹, H. Reichlova^{1,3}, S. Beckert³, V. Baltz⁴, I. Kounta⁵, L. Michez⁵, L. Smejkal⁶, J. Sinova⁶, S. Goennenwein⁷ and D. Kriegner¹ *1. Institute of Physics ASCR v.v.i, Prague, Czechia; 2. Faculty of Mathematics and Physics, Charles University, Prague, Czechia; 3. Technical University Dresden, Dresden, Germany; 4. SPINTEC, Univ. Grenoble Alpes, CNRS, CEA, Grenoble, France; 5. Aix Marseille University, CNRS, IM2NP, Marseille, France; 6. Institute of Physics, Johannes Gutenberg University Mainz, Mainz, Germany; 7. Department of Physics, University of Konstanz, Konstanz, Germany*

BP-07. Withdrawn

BP-08. Intricate Extraordinary Hall Effect and Magnetization Switching in GdFeCo Device with a Vertical Composition Gradient. R.C. Bhatt¹, L. Ye¹, J. Lin¹, N. Hai², J. Wu² and T. Wu¹ *1. Graduate School of Materials Science, National Yunlin University of Science and Technology, Yunlin, Taiwan; 2. Department of Physics, National Changhua University of Education, Changhua, Taiwan*

TUESDAY
AFTERNOON
2:30

EXHIBIT HALL

Session BQ
SENSORS AND APPLICATIONS II
(Poster Session)

Alexandria Will-Cole, Chair
Sandia National Laboratories, Albuquerque, NM, United States

BQ-01. Effects of wire diameter on the sensitivity of output voltages for amorphous wire-based magnetic sensors. F. Akagi¹, S. Yamada¹, Y. Honkura² and S. Honkura² *1. Kogakuin University, Tokyo, Japan; 2. MagneDesign corporation, Aichi, Japan*

BQ-02. Method for Estimating Crack Length and Depth using RBF in Eddy Current Testing. D. Kosaka¹, H. Hanawa² and T. Hirano³ *1. Polytechnic University, Kodaira-shi, Japan; 2. The Japanese Association for Non-Destructive Testing Industry, Chiyoda-ku, Japan; 3. Hazardous Materials Safety Techniques Association, Minato-ku, Japan*

BQ-03. Material-Dependent Sensitivity Degradation of Magnetoelastic Torque Transducers Under Cyclic Torsional Stress. R. Kari¹ and M. Callahan¹ *1. MagCanica, Inc., San Diego, CA, United States*

BQ-04. Expanding the Field Range of PHE Sensors for Increased Industrial Applicability. *D. Lahav*¹, *M. Schultz*¹, *S. Amrusi*², *A. Grosz*² and *L. Klein*¹ *1. Physics, Bar Ilan Institute of Nanotechnology and Advanced Materials, Department of Physics, Bar-Ilan University, Ramat Gan, Tel Aviv 52900, Israel; 2. Department of Electrical and Computer Engineering, Ben-Gurion University of the Negev, Beer-Sheva, Israel*

BQ-05. Localization of multiple cracks in a cylindrical ferromagnetic rod based on the Fourier coefficients of the radial leakage magnetic flux. *K. Shiku*¹ and *T. Nara*¹
1. The University of Tokyo, Bunkyo-ku, Japan

BQ-06. Optimal Design of Dual Induction Eddy Current Probe for Vibration Suppression. *K. Matsushima*¹, *D. Kosaka*¹ and *Y. Kumakura*² *1. Polytechnic University, Kodaira, Japan; 2. Tex Riken Co., Ltd, Nishinomiya, Japan*

TUESDAY
AFTERNOON
2:30

EXHIBIT HALL

Session BR
BIOMAGNETICS AND EMERGING TOPICS RELATED TO MAGNETISM
(Poster Session)

Shin Yabukami, Co-Chair
Tohoku University, Sendai, Japan

Xian Wu, Co-Chair
The Ohio State University, Burlington, MA, United States

BR-01. Advancing Single-Cell Hematological Analysis: A Microfluidic Approach to Measure RBC Physical Properties.
*L. Nguyen T. Tran*¹, *K. Paz Gonzalez*¹, *H. Choe*², *X. Wu*², *P. Iyer*², *K. Wu*³, *J. Chalmers*² and *J. Gomez-Pastora*¹ *1. Chemical Engineering, Texas Tech University, Lubbock, TX, United States; 2. Chemical and Biomolecular Engineering, The Ohio State University, Columbus, OH, United States; 3. Electrical and Computer Engineering, Texas Tech University, Lubbock, TX, United States*

BR-02. Study of Oversized SPIO Nanoparticles with a Magnetic Particle Spectrometer for Suitability as MPI Tracers.
C. Bastajian^{1,2}, *C. McDonough*¹, *C. Hunt*^{1,3} and *A. Tonyushkin*¹
1. Physics, Oakland University, Rochester, MI, United States; 2. Electrical Engineering, Oakland University, Rochester, MI, United States; 3. Mechanical Engineering, Oakland University, Rochester, MI, United States

BR-03. Tuning Excitation Field Amplitude for Higher Magnetic Particle Imaging Resolution: A Modeling Study. *E. Azizi*¹, *B. Rezaei*¹, *S. Mostufa*¹, *C. Li*¹, *J. Gomez-Pastora*², *R. He*¹ and *K. Wu*¹ *1. Electrical and Computer Engineering, Texas Tech University, Lubbock, TX, United States; 2. Chemical Engineering, Texas Tech University, Lubbock, TX, United States*

- BR-04. Experimental investigation of magnetic microbead recovery using a quadrupole magnetic field: insights toward process intensification.** S. Ciannella¹, X. Wu², H. Choe², K. Wu³, J. Chalmers² and J. Gomez-Pastora¹ *1. Department of Chemical Engineering, Texas Tech University, Lubbock, TX, United States; 2. William G. Lowrie Department of Chemical and Biomolecular Engineering, The Ohio State University, Columbus, OH, United States; 3. Department of Electrical and Computer Engineering, Texas Tech University, Lubbock, TX, United States*
- BR-05. Basic Study on the Application of Wireless Power Transfer to Sensing Systems related to functionalized petri dishes.** R. Jomae¹, Y. Hara¹, M. Yokosawa¹, F. Sato¹, O. Ito¹, K. Sagara² and S. Sasaki² *1. Tohoku Gakuin University, Sendai, Japan; 2. Hikaridenshi, Osaka, Japan*
- BR-06. Impact of Number of Paramagnetic Nanostructure Coupled with Two Ferromagnetic Electrodes of a Cross-Junction Shaped Molecular Spintronics Device at Different Thermal Energies.** C. D'Angelo¹ and P. Tyagi¹ *1. University of the District of Columbia, Washington, DC, United States*
- BR-07. Magnetic Field-Flow Fractionation of Diamagnetic Particles.** N. Carlstedt¹, P. Brungi¹, P. Wang¹ and P. Andrei¹ *1. Florida State University, Tallahassee, FL, United States*
- BR-08. Synthesized and Commercial Iron Sulfide Particles as Contaminant Sorbents.** N. Shuvo^{1,3}, J. Bussey^{2,3}, A. Lere-Adams^{2,3}, M. Dixon Wilkins³, S. Karcher³ and J. McCloy^{1,2,3} *1. Chemistry, Washington State University, Pullman, WA, United States; 2. School of Mechanical and Materials Engineering, Washington State University, Pullman, WA, United States; 3. Institute of Materials Research, Washington State University, Pullman, WA, United States*

TUESDAY
AFTERNOON
2:30

EXHIBIT HALL

Session BS ELECTRONIC STRUCTURE, MAGNETISM AND FUNDAMENTAL PHYSICAL PROPERTIES II (Poster Session)

Arti Kashyap, Co-Chair
Indian Institute of Technology Mandi, Mandi, India
Hari Paudyal, Co-Chair
University of Iowa, Ames, IA, United States

- BS-01. Probing Magnetic Anisotropy and Switching Fields in TbMn₆Sn₆ Kagome Quantum Magnet: Impact of Spin Reorientation.** D. Le¹, R. Roy Chowdhury¹, W. Zhao², J. Karel², H. Srikanth¹, J.D. Gayles¹ and M. Phan¹ *1. Department of Physics, University of South Florida, Tampa, FL, United States; 2. Monash University, Melbourne, VIC, Australia*

- BS-02. Challenges of Using FeMn for Magnetic Tunnel Junction-Based Molecular Spintronics Devices (MTJMSD).** *B. Sankhi*¹ and *P. Tyagi*¹ *1. Mechanical Engineering, University of District of Columbia, Washington, DC, United States*
- BS-03. Using the critical behavior to probe the relationship between quasi-two-dimensional and three-dimensional spin-glasses.** *T.M. Pekarek*¹, *I. Miotkowski*² and *A. Ramdas*² *1. Physics, University of North Florida, Ja, FL, United States; 2. Physics, Purdue University, West Lafayette, IN, United States*
- BS-04. Muon Probing and Magnetism in Cuprate Superconductors.** *C. Boekema*^{1,2} *1. Physics, San Jose State, San Jose CA 95106, CA, United States; 2. Ad Fysi Care, Los Gatos CA 95032, CA, United States*
- BS-05. Anomalous magnetic behavior and large exchange bias in non-centrosymmetric Sm_7Pd_3 .** *A. Biswas*¹, *A. Kumar*¹, *D.L. Schlagel*¹ and *Y. Mudryk*¹ *1. Ames National Laboratory, Ames, IA, United States*
- BS-07. Spin-resolved Electronic Structure of the Ferromagnetic Triple-layered Ruthenate $\text{Sr}_4\text{Ru}_3\text{O}_{10}$.** *P. Ngabonziza*², *J. Denlinger*¹, *A. V. Fedorov*¹, *G. Cao*³, *G. Gebreyesus*⁴, *J. Allen*⁶ and *R. Martin*⁵ *1. Advanced Light Source, Lawrence Berkeley National Laboratory, California, CA, United States; 2. Physics, Louisiana State University, Baton Rouge, LA, United States; 3. Physics, University of Colorado at Boulder, Boulder, CO, United States; 4. Physics, University of Ghana, Accra, Ghana; 5. Physics, University of Illinois at Urbana-Champaign, Champaign-Urbana, IL, United States; 6. Randall Laboratory of Physics, University of Michigan, Michigan, MI, United States*
- BS-08. Transition Phase and Magnetic Properties of LaTiO_3 Perovskite Under Hydrostatic Pressure.** *J. Cervantes*¹, *J. Antonio*², *H. Muñoz*³, *A. Torres*³ and *E. Carvajal*³ *1. Universidad Nacional Autónoma de México, Instituto de Investigaciones en Materiales, Ciudad de México, Mexico; 2. Universidad Nacional Autónoma de México, Facultad de Ciencias, Ciudad de México, Mexico; 3. Instituto Politécnico Nacional, ESIME-Cul., Ciudad de México, Mexico*

TUESDAY
AFTERNOON
2:30

EXHIBIT HALL

Session BT
2D SPINTRONICS AND TOPOLOGICAL
MATERIALS I & DOMAIN WALLS
(Poster Session)

Qiming Shao, Chair
The Hong Kong University of Science and Technology,
Kowloon, Hong Kong

- BT-01. 2D magnetism in layered systems with honeycomb lattice: A theoretical calculation.** *K. Pokhrel*¹ and *K. Carva*¹ *1. Condensed matter, Charles University, Prague, Czechia*

- BT-02. Superparamagnetic Properties of Metal-free Nitrogen-doped Graphene Quantum Dots.** *M. Sultan¹, W. Jadwisieniczak², B. Weiner³ and G. Morell¹* *1. Department of Physics, University of Puerto Rico - Rio Piedras, San Juan, PR, United States; 2. School of Electrical Engineering and Computer Science, Ohio University, Athens, OH, United States; 3. Department of Chemistry, University of Puerto Rico - Rio Piedras, San Juan, PR, United States*
- BT-03. Investigation of Ferromagnetism Induced in Gamma-Ray Irradiated Molybdenum Disulfide Nano-Thin Films.** *C. Wang¹ and C. Lee¹* *1. Department of Engineering and System Science, National Tsing Hua University, Hsinchu City, Taiwan*
- BT-04. Graphene Induced Invertible Magnetoresistance in Variable Phase Iron Oxides.** *N. Schulz¹, D. DeTellem¹, G. Datt², A. Chanda¹, R. Roy Chowdhury¹, A.I. Ojo¹, T. Sarkar³, H. Rodríguez Gutiérrez¹, S. Witanachchi¹, D.A. Arena¹, M. Venkata Kamalakar², M. Phan¹ and H. Srikanth¹* *1. University of South Florida, Tampa, FL, United States; 2. Department of Physics and Astronomy, Upsala University, Upsala, Sweden; 3. Department of Materials Science and Engineering, Upsala University, Upsala, Sweden*
- BT-05. Exchange effects from a magnetic substrate in transition metal dichalcogenides zigzag ribbons.** *M.M. Salazar Cardona¹, O. Avalos Ovando^{2,3} and J.P. Ramos Andrade¹* *1. Physics, University of Antofagasta, Antofagasta, Chile; 2. Physics and Astronomy, Ohio University, Athens, OH, United States; 3. Nanoscale and Quantum Phenomena Institute, Athens, OH, United States*
- BT-06. Thermal magnetization fluctuation in geometrically constrained magnetic domain wall on the ferromagnetic nanowire.** *S. Ahn¹* *1. POSTECH, Pohang, The Republic of Korea*
- BT-07. Dipolar Field-assisted Domain Wall Depinning in Trilayer Structures.** *X. Chen², W. Liu¹ and M. Bryan³* *1. Electrical Engineering and Electronics, University of Liverpool, Brownlow Hill, United Kingdom; 2. Physics, Royal Holloway, University of London, Egham, United Kingdom; 3. Electrical Engineering, Royal Holloway, University of London, Egham, United Kingdom*
- BT-08. Impact of Inertial and Nonlinear Damping Effects on the Strain-induced Domain Wall Motion in Bilayer Composite Structure.** *S. Dolui¹ and S. Dwivedi¹* *1. Mathematics, National Institute of Technology Andhra Pradesh, Tadepalligudem, India*

Now
VP14-10

Now
VP12-09

Session BU
ENERGY HARVESTING, VIBRATION ANALYSIS AND
ADVANCED MATERIALS MANUFACTURING
(Poster Session)

Dushyant Kumar, Chair
Netaji Subhas University of Technology, New Delhi, India

- BU-01. Distribution characterization of magnetic flux density variation in soft magnetic rectangular beam during perpendicular magnetic field assisted electromagnetic vibration powered generation.** *Y. Nakamura¹, S. Kamiya¹ and M. Ohtake¹* *1. Faculty of Engineering, Yokohama National University, Yokohama, Japan*
- BU-02. Integrated Micro-Generator Design for Energy Harvesting in Smart Flow Meters.** *P. Liao¹ and M. Tsai¹* *1. Mechanical Engineering, National Cheng Kung University, Tainan, Taiwan*
- BU-03. Robotic End Effector for Magnetic Sample Collection.** *L. Schorr¹, I. Scaparo¹, J.P. Nunez¹, I. Thakur¹, F. Hanna¹ and R.L. Hadimani^{1,2}* *1. Department of Mechanical Engineering, Virginia Commonwealth University, Richmond, VA, United States; 2. Department of Biomedical Engineering, Virginia Commonwealth University, Richmond, VA, United States*
- BU-04. Exploring the Magnetic and Magnetocaloric Properties of PLA Composite Filaments of $\text{Mn}_{0.5}\text{Fe}_{0.5}\text{Ni}_{0.95}\text{Cr}_{0.05}\text{Si}_{0.95}\text{Al}_{0.05}$ for Additive Manufacturing.** *T.F. McKenzie¹, J.R. DeFeo², A. Bhatta¹, J. Casey², V. Yenugonda², S. Mukaddashonov¹, G. Toromani¹, A.K. Pathak² and M. Khan¹* *1. Physics, Miami University, Oxford, OH, United States; 2. Physics, SUNY Buffalo State University, Buffalo, NY, United States*
- BU-05. Crossover from mono to multi-stable coupled non-linearity in a wideband electromagnetic vibrational energy harvester for self-powering wireless sensor nodes.** *S. Roy¹, A. Amann² and K. Roy¹* *1. School of Physics, Tyndall National Institute, Cork, Ireland; 2. School of Mathematical Science, University College Cork, Cork, Ireland*
- BU-06. Beyond 1-watt energy harvester based on beam vibration and electromagnetic induction.** *H. Kijima-Aoki¹ and H. Masumoto¹* *1. Tohoku University, Sendai, Japan*
- BU-07. Withdrawn**
- BU-08. Withdrawn**

Session BV
ELECTRICAL MACHINES AND POWER
ELECTRONICS III
(Poster Session)

Massimo Pasquale, Chair
INRIM, Torino, Italy

- BV-01. Study on an Assistance Yoke Structure for Improving Magnetization Performance Through Post-Assembly Magnetization.** *J. Hwang¹, T. Kim¹, J. Moon¹ and D. Kang¹*
1. Energy Conversion System Lab(ECSL), Keimyung University, Daegu, The Republic of Korea
- BV-02. Design and Analysis for Improved Efficiency Based on Design Variables and Performances Considering the Nonlinear Core Material of IPMSM.** *S. Lee¹, T. Kim¹, Y. Choi¹, K. Shin² and J. Choi¹*
1. Chungnam National University, Daejeon, The Republic of Korea; 2. Changwon National University, Changwon, The Republic of Korea
- BV-03. Design and Experimental Verification of a Surface-Mounted Permanent Magnet Synchronous Machine with Bread-Loaf Shape Magnets Considering Multi-physics Analysis.** *S. Kim¹, S. Kim¹, W. Jung¹, K. Shin² and J. Choi¹*
1. Chungnam National University, Daejeon, The Republic of Korea; 2. Changwon National University, Changwon, The Republic of Korea
- BV-04. Electromagnetic Analysis of AFPM based on Quasi-3D FEM Considering End Effects.** *J. Jang¹, J. Yang¹, H. Ban¹, K. Shin² and J. Choi¹*
1. Department of Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea; 2. Department of Electrical Engineering, Changwon National University, Changwon, The Republic of Korea
- BV-05. Optimal Split Ratio Design of Outer Rotor SPMSM Considering Variations in Magnetic Properties of Ferrite PM within the Same Grade.** *K. Kim¹, Y. Bai¹, J. Kim² and M. Lim¹*
1. Automotive engineering, Hanyang University, Seoul, The Republic of Korea; 2. Mechanical Engineering, Yeungnam University, Gyeongsan, The Republic of Korea
- BV-06. Analysis of Magnetic Field Behavior and Core Losses in Permanent Magnet Synchronous Generators for Wave Energy Converter according to Load Conditions.** *W. Jung¹, J. Park¹, S. Kim¹, K. Kim², J. Park², K. Shin³ and J. Choi¹*
1. Chungnam National University, Daejeon, The Republic of Korea; 2. Korea Research Institute of Ships and Ocean Engineering, Daejeon, The Republic of Korea; 3. Changwon National University, Changwon, The Republic of Korea
- BV-08. Temperature Performance of SmFe12 Permanent Magnets in Electric Motors.** *H. Baldino², D. Hedlund¹ and P. Kulik¹*
1. Electrical and Computer Engineering, University of Central Florida, Orlando, FL, United States; 2. Material Science and Engineering, University of Central Florida, Orlando, FL, United States

EVENING SESSION: SCIENCE AND HISTORY OF ROCK AND ROLL

Amal El-Ghazaly, Co-Chair
Cornell University, Ithaca, NY, United States
Vivek Amin, Co-Chair
Indiana University
Matt Sakakeeny, Co-Chair
Tulane University

Session CA TOPOLOGICAL THERMOELECTRICS: UTILIZING TOPOLOGY AND SPIN FOR NEXT-GENERATION ENERGY CONVERSION

Sarah Watzman, Chair
University of Cincinnati, Cincinnati, OH, United States

8:30

CA-01. Topology for energy efficient spintronics and energy conversion. (Invited) C. Felser¹ *1. Topological Quantum Chemistry, Max Planck Institute Chemical Physics of Solids, Dresden, Germany*

CA-02. Withdrawn

9:06

CA-03. Thermoelectric Properties of Thin Films of Cadmium Arsenide. (Invited) S. Stemmer¹ *1. University of California, Santa Barbara, Santa Barbara, CA, United States*

9:42

CA-04. Record-Breaking Nernst Thermopower and Thermal Hall Angle in YbMnBi2. (Invited) J. Wen¹, K. Manna^{2,3}, D. Vu^{4,5}, Y. Pan^{2,6}, C. Felser², B. Skinner⁷ and J.P. Heremans^{1,4,7}
1. Department of Materials Science and Engineering, The Ohio State University, Columbus, OH, United States; 2. Max Planck Institute for Chemical Physics of Solids, Dresden, Germany; 3. Department of Physics, Indian Institute of Technology Delhi, New Delhi, India; 4. Department of Mechanical and Aerospace Engineering, The Ohio State University, Columbus, OH, United States; 5. Department of Applied Physics, Yale University, New Haven, CT, United States; 6. Center of Quantum Materials & Devices, Chongqing University, Chongqing, China; 7. Department of Physics, The Ohio State University, Columbus, OH, United States

10:18

Break

10:45

CA-05. Unusual transport properties of TiSe₂ and GeTe for Solid-State Cooling. (Invited) *M. Zebarjadi¹, S. Akhanda¹ and S. Das¹ I. University of Virginia, Charlottesville, VA, United States*

WEDNESDAY
MORNING
8:30

CELESTIN E

Session CB
WHEN MAGNONS MEET QUANTUM SPINS

Gianluca Gubbiotti, Chair
IOM-CNR, Perugia, Italy

8:30

CB-01. Quantum magnonics via color centers. (Invited)
Y. Tserkovnyak¹ I. Physics and Astronomy, University of California, Los Angeles, Los Angeles, CA, United States

CB-02. Withdrawn

9:06

CB-03. Using spins and microwaves to probe an ultra-low damping organic-based ferrimagnet. (Invited) *G. Fuchs¹ I. Cornell University, Ithaca, NY, United States*

CB-04. Withdrawn

9:42

CB-05. Nonlinear spin dynamics in magnon/nitrogen-vacancy hybrid system. (Invited) *Z. Hu¹, Z. He¹, Q. Wang¹, C. Chou¹, J. Hou¹ and L. Liu¹ I. Massachusetts Institute of Technology, Cambridge, MA, United States*

Session CC
2D SPINTRONICS AND TOPOLOGICAL
MATERIALS II

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

8:30

- CC-01. Proximity Phenomena in Van der Waals Heterostructures.**
(Invited) J. Svetlik², T. Guillet², V. Zlatko², F. Herling²,
R. Galceran³, W. Saverio Torres², L. Camosi², M. Jamet⁴,
F. Bonell⁴, J. Sierra² and S.O. Valenzuela^{1,2} 1. ICREA, Barcelona,
Spain; 2. ICN2 - Catalan Institute of Nanoscience and
Nanotechnology, Bellaterra, Spain; 3. University of Barcelona,
Barcelona, Spain; 4. SPINTEC, Grenoble, France

CC-02. Withdrawn

9:06

- CC-03. Thickness-Dependent Behavior of Magnetic Domains in van der Waals Fe₃GeTe₂ during Magnetization Reversal.**
J. Garland^{1,2}, J. Fullerton², P. Cai³, Y. Li², E. Santos³,
C. Phatak^{2,4} and A. Petford-Long^{2,4} 1. Applied Physics Program,
Northwestern University, Evanston, IL, United States;
2. Materials Science Division, Argonne National Laboratory,
Lemont, IL, United States; 3. School of Physics and Astronomy,
University of Edinburgh, Edinburgh, United Kingdom;
4. Materials Science and Engineering Department,
Northwestern University, Evanston, IL, United States

- CC-04. Origin and Thermal Evolution of Exchange Bias in MnPS₃/Fe₃GeTe₂ antiferromagnetic/ferromagnetic van der Waals Heterostructures.** *A. Puthirath Balan*¹, *A. Kumar*¹, *P. Reiser*², *J. Vas*³, *T. Denneulin*³, *D. Le*⁴, *T. Saunderson*^{1,10}, *M. Tschudin*², *C. Pellet-Mary*², *D. Dutta*², *C. Schrader*², *T. Scholz*⁵, *J. Geuchies*⁶, *S. Fu*⁶, *H. Wang*⁶, *A. Bonanni*⁷, *B. Lotsch*⁵, *U. Nowak*⁸, *G. Jakob*¹, *J.D. Gayles*⁴, *A. Kovács*³, *R.E. Dunin-Borkowski*³, *P. Maletinsky*² and *M. Kläui*^{1,9} *1. Institute of Physics, Johannes Gutenberg University Mainz, 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 Jülich, Jülich, Germany; 4. Department of Physics, University of South Florida, Florida, FL, United States; 5. Max Planck Institute for Solid State Research, Stuttgart, Germany; 6. Max Planck Institute for Polymer Research Mainz, Mainz, Germany; 7. Johannes Kepler University Linz, Linz, Austria; 8. Department of Physics, University of Konstanz, Konstanz, Germany; 9. Centre for Quantum Spintronics, Department of Physics, Norwegian University of Science and Technology, Trondheim, Norway; 10. Peter Grünberg Institut and Institute for Advanced Simulation, Forschungszentrum Jülich and JARA, Jülich, Germany*

9:30

- CC-05. Gilbert damping in large-area CVD monolayer MoS₂/permalloy heterostructures.** *H. De Libero*¹, *E. Chalmers*¹, *N. Natera Cordero*¹, *A. Strudwick*¹, *I. Vera Marun*¹ and *T. Thomson*¹ *1. University of Manchester, Manchester, United Kingdom*

9:42

- CC-06. Phase and compositional influence on the magnetic properties of atmospheric chemical vapour deposition (APCVD) grown FeTe_x (1 ≤ x ≤ 2) system.** *B.P. Jena*¹ and *S. Chandran*¹ *1. Physics, IIT Madras, Chennai, India*

9:54

- CC-07. Room Temperature 2D Ferromagnetism in Chromium doped Transition-Metal Dichalcogenide PdTe₂.** *S. Cheng*¹, *H. Shiu*¹, *Y. Lai*¹, *W. Tseng*¹, *W. Chen*¹, *T. Chuang*¹, *D. Wei*¹, *C. Lue*² and *Y. Hsu*^{1,3} *1. National Synchrotron Radiation Research Center, Hsinchu, Taiwan; 2. Department of Physics, National Cheng Kung University, Tainan, Taiwan; 3. Department of Photonics, National Cheng Kung University, Tainan, Taiwan*

10:06

Break

10:45

- CC-08. C-paired spin-valley locking in layered van der Waals antiferromagnetic materials. (Invited)** *J. Liu*¹ *1. Physics, Hong Kong University of Science and Technology, Kowloon, Hong Kong*

11:21

- CC-09. Valley-spin-polarization of MoS₂ monolayer induced by ferromagnetic order of an antiferromagnet.** C. Chan¹ and C. Yang¹ *1. Materials Science and Engineering, National Yang Ming Chiao Tung University, Hsinchu, Taiwan*

11:33

- CC-10. Enhanced Controllability of Valley Polarization in ML-WSe₂ Using the Single-Contact Method.** J. Siao¹, H. Lin¹, T. Lin¹, Y. Chu¹ and M. Lin^{1,2,3} *1. Physics, National Taiwan University, Taipei, Taiwan; 2. Atomic and Molecular Sciences, Academia Sinica, Taipei, Taiwan; 3. Research Center for Applied Sciences, Academia Sinica, Taipei, Taiwan*

11:45

- CC-11. Withdrawn**

WEDNESDAY
MORNING
8:30

CELESTIN B

Session CD
**MAGNONICS I: MAGNON MANIPULATION
AND APPLICATION**

Jacob Wisser, Chair
National Institute of Standards and Technology,
Broomfield, CO, United States

8:30

- CD-01. Reconfigurable standalone magnonic devices exploiting micromagnets and MEMS. (Invited)** R. Bertacco¹
1. Department of Physics, Politecnico di Milano, Milano, Italy

9:06

- CD-02. Magneto-ionic voltage control of spin-wave phase with negligible amplitude modulation.** L. Flajsman¹, M. Ameziane¹, R. Mansell¹ and S. van Dijken¹ *1. Aalto University, Espoo, Finland*

- CD-03. Withdrawn**

9:18

- CD-04. On-chip integrated spin-wave transducers: optimization and nonlinear limits.** F. Kohl¹, M. Wagner¹, B. Heinz¹ and P. Pirro¹
1. Physics, RPTU Kaiserslautern, Kaiserslautern, Germany

9:30

- CD-05. Very Narrow Linewidth of Propagating Magnons with Submicron-Scale Wavelength and Associated Damping.** J. Lim¹, T. Lo¹, R. Klause¹, Y. Li², V. Novosad² and A. Hoffmann¹
1. Materials Science and Engineering, University of Illinois Urbana-Champaign, Urbana, IL, United States; 2. Materials Science Division, Argonne National Laboratory, Lemont, IL, United States

9:42

- CD-06. Spin pumping driven by magnon-photon polaritons in a ferromagnet-coplanar superconducting resonator hybrid system.** D. Wagle^{1*}, Y. Li², A. Rai¹ and B. Jungfleisch¹
1. Physics and Astronomy, University of Delaware, Newark, DE, United States; 2. Argonne National Laboratory, Lemont, IL, United States

9:54

- CD-07. Magnon lifetimes in YIG spheres for quantum magnonics at millikelvin temperatures.** R. Serha^{1,2}, K. McAllister³, D. Schmoll^{1,2}, P.E. Schmidt⁸, I.Y. Yang^{5,6}, M. Trupke^{8,7}, S. Knauer¹, T. Reimann⁴, C. Dubs⁴, C. Gonzalez Ballesterio⁹, M. Aspelmeyer^{7,8}, G. Kirchmair^{5,6}, D.A. Bozhko³ and A. Chumak¹
1. Faculty of Physics, University of Vienna, Vienna, Austria; 2. Vienna Doctoral School in Physics, University of Vienna, Vienna, Austria; 3. Department of Physics and Energy Science, University of Colorado Colorado Springs, Colorado Springs, CO, United States; 4. INNOVENT e.V. Technologieentwicklung, Jena, Germany; 5. Institute for Quantum Optics and Quantum Information, Austrian Academy of Sciences, Innsbruck, Austria; 6. Institute for Experimental Physics, University of Innsbruck, Innsbruck, Austria; 7. Vienna Center for Quantum Science and Technology (VCQ), Faculty of Physics, University of Vienna, Vienna, Austria; 8. Institute for Quantum Optics and Quantum Information (IQOQI) Vienna, Austrian Academy of Sciences, Vienna, Austria; 9. Institute for Theoretical Physics, Vienna University of Technology, Vienna, Austria

10:06

Break

10:45

- CD-08. Shaping non-reciprocal caustic beams.** V. Vlaminck^{1,2}, D. Stoeffler⁴, D. Wagle³, V.M. Castel^{1,2}, L. Temdie-Kom^{1,2}, M.T. Kaffash³, H. Majjad⁴, Y. Henry⁴, B. Jungfleisch³ and M. Bailleul⁴
1. MO, IMT Atlantique, Brest, France; 2. Lab-STICC, Brest, France; 3. University of Delaware, Newark, DE, United States; 4. IPCMS, Strasbourg, France

- CD-09. Mutual nonlinear interactions between parametrically excited spin-wave modes in a YIG microdisk.** *G. Soares¹, R. Lopes Seeger^{1,2}, A. Kolli¹, M. Massouras², N. Beaulieu³, J. Ben Youssef³, M. Muñoz⁴, P. Che⁶, A. Anane⁶, S. Perna⁵, M. d'Aquino⁵, C. Serpico⁵, T. Srivastava², H. Merbouche¹, J. Kim² and G. de Loubens¹* *1. Service de Physique de l'État Condensé, CEA Paris-Saclay, Université Paris-Saclay, CNRS, Gif-sur-Yvette, France; 2. Centre de Nanosciences et de Nanotechnologies, Université Paris-Saclay, CNRS, Palaiseau, France; 3. LabSTICC, CNRS, Université de Bretagne Occidentale, Brest, France; 4. Instituto de Tecnologías Físicas y de la Información (CSIC), Madrid, Spain; 5. Department of Electrical Engineering and ICT, University of Naples Federico II, Napoli, Italy; 6. Laboratoire Albert Fert, CNRS, Thales, Univ. Paris-Saclay, Palaiseau, France*

- CD-10. Three-dimensional nanoscale control of magnetism in crystalline Yttrium Iron Garnet for magnonics.** *V. Levati¹, M. Vitali¹, A. Del Giacco¹, N. Pellizzi¹, R. Silvani², L. Ciaccarini Mavilla², M. Madami², I. Biancardi¹, D. Girardi¹, M. Panzeri¹, P. Florio¹, D. Breitbach³, P. Pirro³, G. Corrielli⁴, R. Osellame⁴, R. Bertacco¹, V. Russo¹, A. Li Bassi¹, S. Tacchi⁵, D. Petti¹ and E. Albisetti¹* *1. Politecnico di Milano, Milan, Italy; 2. Università di Perugia, Perugia, Italy; 3. RPTU Kaiserslautern-Landau, Kaiserslautern, Germany; 4. CNR-IFN, Milan, Italy; 5. CNR-IOM, Perugia, Italy*

- CD-11. Fabrication and Characterization of Suspended YIG Microstructures.** *S.W. Kurfman¹, F. Heyroth² and G. Schmidt^{1,2}* *1. Institute for Physics, Martin Luther University Halle-Wittenberg, Halle (Saale), Germany; 2. Interdisziplinäres Zentrum für Materialwissenschaften, Martin Luther University Halle-Wittenberg, Halle (Saale), Germany*

- CD-12. Imaging of magnon modes in a YIG microdisk with a magnetic vortex.** *L. Peeters¹, L. Flajsman¹ and S. van Dijken¹* *1. Applied Physics, Aalto University, Espoo, Finland*

- CD-13. Manipulation of Spin-wave Transport in a YIG Film by an Array of Magnetic Vortices.** *J. Hyun¹, N. Kuznetsov¹, L. Flajsman¹ and S. van Dijken¹* *1. Department of Applied Physics, Aalto University, Espoo, Finland*

Session CE
MAGNETORESISTIVE SENSORS

Victor Lopez-Dominguez, Chair
Universitat Jaume I, Castellon de la Plana, Spain

8:30

- CE-01. TMR Sensors on the Edge: non-invasive and agnostic monitoring of Industrial Tools. (Invited)** *R. Ferreira¹, E. Paz¹, A. Talantsev¹, A. Araújo¹, E. Iranmehr¹ and T. Boehnert¹*
1. INL - International Iberian Nanotechnology Laboratory, Braga, Portugal

9:06

- CE-02. Arrays of coupled magnetic tunnel junctions for sensor applications.** *A. Meo¹, F. Garesci², A. Grimaldi^{2,3}, D. Rodrigues¹, M. Carpentieri¹ and G. Finocchio³*
1. Department of Electrical and Information Engineering, Politecnico di Bari, Bari, Italy; 2. Department of Engineering, University of Messina, Messina, Italy; 3. Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina, Messina, Italy

- CE-03. Withdrawn**

9:18

- CE-04. Flexible planar-Hall magnetometer with nT resolution at extremely low frequencies.** *J. Schmidtpeter^{1,2}, P.T. Das¹, P. Makushko¹, E. Oliveros-Mata¹, Y. Zabala¹, C. Schubert¹, T. Wondrak² and D. Makarov¹*
1. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf e.V., Dresden, Germany; 2. Institute of Fluid Dynamics, Helmholtz-Zentrum Dresden-Rossendorf e.V., Dresden, Germany

9:30

- CE-05. Multi-Functional Flexible Planar Hall Effect Sensors.** *D. Lahav¹, H. Nhalil¹, M. Schultz¹, S. Amrusi², A. Grosz² and L. Klein¹*
1. Physics, Bar Ilan Institute of Nanotechnology and Advanced Materials, Department of Physics, Bar-Ilan University, Ramat Gan, Tel Aviv 52900, Israel; 2. Electrical and Computer Engineering, Ben-Gurion University of the Negev, Beer-Sheva, Israel

- CE-06. Optically Broadband Piezo-Optomechanical Magnetometer.** Z. Castillo^{1,2}, B.P. Smith¹, A. Will-Cole¹, M. Dong³, K. Bussmann⁴, P. Finkel⁴ and M. Eichenfield^{1,5} *1. Sandia National Laboratories, Albuquerque, NM, United States; 2. Department of Physics and Astronomy, University of New Mexico, Albuquerque, NM, United States; 3. The MITRE Corporation, Bedford, MA, United States; 4. US Naval Research Laboratory, Washington, DC, United States; 5. Wyant College of Optical Sciences, University of Arizona, Tucson, AZ, United States*

9:54

- CE-07. Organic Solvent Chemical Sensing with various Magnetic Tunnel Junction based Molecular Spintronics Device Configurations.** H. Brown¹ and P. Tyagi¹ *1. University of The District of Columbia, Washington, DC, United States*

10:06

Break

10:45

- CE-08. Gain Enhancement and Ground Plane Immunity of Mechanically Driven Thin-Film Bulk Acoustic Wave Resonator Magnetolectric Antenna Arrays.** B. Luo^{1*}, X. Liang¹, H. Chen¹, N. Sun¹, H. Lin² and N.X. Sun¹ *1. Electrical and computer engineering, Northeastern University, Boston, MA, United States; 2. Winchester Technologies, Burlington, MA, United States*

- CE-09. Advanced TMR Sensor-Based Magnetorodes for High-Sensitivity Biomagnetic Field Detection.** J. Chen^{1,2,3} *1. State Key Laboratory of Transducer Technology, 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*

Now
VP16-14

10:57

- CE-11. Multichannel Giant Magnetoresistance Eddy-Current Probes with Dynamic Lifting Correction.** L. Bui^{1,2}, J. Jeng¹, H. Huang¹ and T. Nguyen¹ *1. Department of Mechanical Engineering, National Kaohsiung University of Science and Technology, Kaohsiung, Taiwan; 2. Faculty of Mechanical Engineering, Hung Yen University of Technology and Education, Hung yen, Vietnam*

11:09

- CE-12. Noise Characterization of Spin-Transfer-Torque-based Magnetic Field Sensor.** K. Komuro¹, H. Nicolas², B. Dieny³, D. Oshima¹, T. Kato⁴ and R. Sousa³ *1. Electronics, Graduate School of Engineering, Nagoya University, Nagoya, Japan; 2. University of Strasbourg, Strasbourg, France; 3. IRIg, Spintec, Grenoble, France; 4. ImaSS, Nagoya University, Nagoya, Japan*

CE-13. Simultaneous measurements of magnetomyographic and magnetocardiographic signals using SQUIDS and relocatable magnetoresistive-device-based flux sensors.

*Y. Adachi*¹, *T. Tatsuoka*², *T. Fukui*³, *T. Shibuya*⁴ and *S. Kawabata*⁵
1. Applied Electronics Laboratory, Kanazawa Institute of Technology, Kanazawa, Japan; 2. METOOL Inc., Tokyo, Japan; 3. LibreFields LLC, Tokyo, Japan; 4. TDK Corp., Tokyo, Japan; 5. Department of Advanced Technology in Medicine, Tokyo Medical and Dental University, Tokyo, Japan

WEDNESDAY
 MORNING
 8:30

IMPERIAL 5AB

**Session CF
 HARD MAGNETS II**

George Hadjipanayis, Chair
 University of Delaware, Newark, DE, United States

8:30

CF-01. Assessing Induced Short-Range Order and Magnetocrystalline Anisotropy in Equiatomic FeNi.

*L.H. Lewis*¹, *P. Stamenov*², *P. Henry*³, *J. O'Brien*² and *S. Langridge*³
1. Northeastern University, Boston, MA, United States; 2. Trinity College, Dublin, Ireland; 3. Rutherford Appleton Laboratory, Didcot, United Kingdom

CF-02. Withdrawn

8:42

CF-03. Influence of Strain and Applied Field on the L1₀ Atomic Ordering and Subsequent Hard Magnetic Properties of Near-Equiatomic FeNi.

C.D. Woodgate^{1,2}, *L.H. Lewis*^{3,4} and *J.B. Staunton*¹ *1. Department of Physics, University of Warwick, Coventry, United Kingdom; 2. H. H. Wills Physics Laboratory, University of Bristol, Bristol, United Kingdom; 3. Department of Chemical Engineering, Northeastern University, Boston, MA, United States; 4. Department of Mechanical and Industrial Engineering, Northeastern University, Boston, MA, United States*

8:54

CF-04. Synthesis of Fe₅C₂ nanocrystals with enhanced anisotropy.

*P. Joshi*¹, *H. Abbas*¹, *T. Karki*¹, *J. Mohapatra*¹ and *P. Liu*¹
1. Department of Physics, University of Texas at Arlington, Arlington, TX, United States

9:06

- CF-05. A novel ferromagnetic phase Fe₃Cu exhibiting high anisotropy.** *H. Abbas¹, P. Joshi¹, T. Karki¹, J. Mohapatra¹ and P. Liu¹* *1. Physics, University of Texas at Arlington, Arlington, TX, United States*

9:18

- CF-06. Process-Structure-Property Relationships in Additively Manufactured Alnico Permanent Magnets.** *A.R. Duong¹, I.M. Smith³, K. Snyder², S. Sarker¹, O. Bishop^{1,2}, E. Carpenter³ and R. Barua¹* *1. Mechanical Engineering, Virginia Commonwealth University, Richmond, VA, United States; 2. Commonwealth Center for Advanced Manufacturing, Disputanta, VA, United States; 3. Chemistry, Virginia Commonwealth University, Richmond, VA, United States*

9:30

- CF-07. Influence of Nitrogen Stoichiometry on the Crystal Structure and Magnetic Properties of Antiperovskite Mn₃GeN.** *S. O'Donnell^{1,2}, C.E. Regier², S. Mahatara¹, S. Lany¹, S. Bauers¹, R.W. Smaha¹ and J.R. Neilson²* *1. National Renewable Energy Laboratory, Golden, CO, United States; 2. Chemistry, Colorado State University, Fort Collins, CO, United States*

9:42

- CF-08. Densification of Nitride Permanent Magnet Nanoparticles.** *R.W. Smaha^{1,2}, S. O'Donnell^{1,2}, R. Kuchi^{1,3}, Y. Wu^{1,4}, R. Kinner^{1,5}, S. Bauers^{1,2}, F. Johnson^{1,4}, I.Z. Hlova^{1,3} and M.J. Kramer^{1,3}* *1. Critical Materials Innovation Hub, U.S. Department of Energy, Ames, IA, United States; 2. National Renewable Energy Laboratory, Golden, CO, United States; 3. Ames National Laboratory, Ames, IA, United States; 4. Niron Magnetics, Minneapolis, MN, United States; 5. Powdermet, Euclid, OH, United States*

9:54

- CF-09. Giant coercivity in Manganese Substituted Strontium M-type Hexaferrite Nanopowders.** *A. Sassi^{1,2}, A. Pasko¹, S. Gam-Derouich⁴, V. Yenugonda², F. Mazaleyrat¹ and A. Pathak^{2,3}* *1. SATIE, CNRS, Université Paris-Saclay, ENS Paris-Saclay, Gif-sur-Yvette, France; 2. Department of Physics, SUNY Buffalo State, Buffalo, NY, United States; 3. One Research Circle, GE Aerospace Research, Niskayuna, NY, United States; 4. ITODYS, UMR CNRS 71086, Université Paris Diderot, Sorbonne Paris Cité, Paris, France*

10:06

Break

- CF-10. L1₀ FeNi films synthesized through denitridding of reactively sputtered FeNiN.** *W. Beeson*¹, *C. Jensen*², *V. Stanic*³, *J. Jordan-Sweet*³, *H. Zhang*⁴, *S. Krylyuk*⁴, *A. Davydov*⁴, *J. Borchers*², *A.J. Grutter*², *C. Kinane*⁵, *A. Caruana*⁵ and *K. Liu*¹
1. Department of Physics, Georgetown University, Washington, DC, United States; 2. NIST Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD, United States; 3. IBM T.J. Watson Research Center, Yorktown Heights, NY, United States; 4. Materials Science and Engineering Division, National Institute of Standards and Technology, Gaithersburg, MD, United States; 5. ISIS, Rutherford Appleton Lab, Didcot, United Kingdom

- CF-11. Optimization of Coercivity and Price of a Permanent Magnet considering the Microstructure.** *C. Wager*^{1,2}, *C. Fillies*¹, *T. Schrefl*^{1,2}, *A. Kovacs*^{1,2}, *H. Oezelt*¹, *D. Böhm*¹, *Q. Ali*¹, *H. Yamano*³, *M. Yano*³, *N. Sakuma*³, *A. Kinoshita*³, *T. Shoji*³ and *A. Kato*³
1. Department of 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. Toyota Motor Corporation, Shizuoka, Japan

- CF-12. FeCo nanowire – strontium ferrite composites: an alternative for the fabrication of rare-earth-free permanent magnets.** *L. Perez*^{1,2}, *A. Berja*³, *L. Álvaro-Gómez*¹, *L. Gómez-Cruz*², *L. Lorenzo*², *C. Granados Miralles*³, *C. Salazar*⁴, *A. Pérez*⁴, *C. Garijo*⁴, *C. Fernández*⁴ and *A. Quesada*³
1. Física de Materiales, Universidad Complutense de Madrid, Madrid, Spain; 2. IMDEA Nanociencia, Madrid, Spain; 3. Instituto de Cerámica y Vidrio - CSIC, Madrid, Spain; 4. Lurederra Technological Center, Los Arcos, Navarra, Spain

- CF-13. First-Principles Study of Influence of Nitrogen Stoichiometry on Magnetic Ordering in Mn₃AN (A = Ge, Ga).** *S. Mahatara*¹, *S. O'Donnell*^{1,2}, *R.W. Smaha*¹, *J.R. Neilson*², *S. Bauers*¹ and *S. Lany*¹
1. MCCR, National Renewable Energy Laboratory, Golden, CO, United States; 2. Department of Chemistry, Colorado State University, Fort Collins, CO, United States

- CF-14. Enhancing magnetic properties and Curie temperature of 4d and 5d transition metal and p-block element co-doped Fe₂P alloys.** *K. Baatartsogt*¹, *T. Namsrai*², *J. Narmandakh*¹, *U. Enkhnarant*¹, *S. Deleg*¹, *O. Narantogtokh*², *S. Dorj*², *O. Tumentseren*³, *O. Khorgolkhuu*⁴ and *O. Dorj*³
1. Functional Materials Laboratory, Institute of Physics and Technology, Mongolian Academy of Sciences, Ulaanbaatar, Mongolia; 2. Physics, National University of Mongolia, Ulaanbaatar, Mongolia; 3. Physics, Incheon National University, Incheon, The Republic of Korea; 4. National Institute for Computational Sciences, Oak Ridge, TN, United States

- CF-15. Hot Axial Pressure during Quenching of Bulk Millimetric $(\text{Mn}_{0.6}\text{Al}_{0.4})_{98}\text{C}_2$: Influence on their Hard Magnetic Properties.** V. Madurga¹, J. Vergara^{1,2} and C. Favieres^{1,2} *1. Laboratory of Magnetism. Department of Science, Physics, Public University of Navarre, Pamplona, Spain; 2. IMANAT². Institute for Advanced Materials and Mathematics, Public University of Navarre, Pamplona, Spain*

WEDNESDAY
MORNING
8:30

IMPERIAL 5CD

Session CG
MAGNETOELECTRIC MATERIALS
AND PHENOMENA I

Paola Tiberto, Chair
INRIM, Torino, Italy

8:30

- CG-01. Chirality: a new degree of freedom for skyrmionics. (Invited)** C. Gueneau¹, F. Ibrahim¹, J. Fischer¹, C. Fillion¹, L. Vojáček¹, R. Kumar¹, A. Fassatoui², S. Pizzini², L. Ranno², D. Ourdani³, M. Belmeguenai³, Y. Roussigné³, S. Chérif³, S. Auffret¹, J. Faure-Vincent¹, I. Joumard¹, O. Boulle¹, G. Gaudin¹, L.D. Buda-Prejbeanu¹, M. Chshiev^{1,4}, C. Baraduc¹ and H. Béa^{1,4} *1. Spintec, Grenoble, France; 2. Néel Institute, Grenoble, France; 3. Laboratoire des Sciences des Procédés et des Matériaux, Villetaneuse, France; 4. Institut Universitaire de France, Paris, France*

9:06

- CG-02. Epitaxial Strain Induced Enhancement of Dielectric Constant and VCMA Effect in MgO Based Magnetic Tunnel Junctions.** T. Nozaki¹, H. Onoda¹, S. Tamaru¹, H. Nakayama¹, M. Konoto¹, T. Nozaki¹ and S. Yuasa¹ *1. Research Center for Emerging Computing Technologies, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan*

9:18

- CG-04. RIXS-MCD of Multiferroic $\epsilon\text{-Fe}_2\text{O}_3$ Nanoparticles.** R. Nickel¹, G. Buccoliero¹, M. dos Reis Cantarino¹ and K. Kummer¹ *1. ESRF, Grenoble, France*

- CG-05. Withdrawn**

9:30

- CG-07. Electrically Controlled Dzyaloshinskii–Moriya Interaction via Magnetic Textures in a Weyl Semimetal.** *Y. Semenov¹ and K.W. Kim¹ 1. North Carolina State University, Raleigh, NC, United States*

9:42

- CG-08. Compositional Tuning of Magnetic and Magnetotransport Properties of $\text{Co}_2\text{MnGa}_{1-x}\text{Ge}_x$ Heusler alloys thin films - from a Weyl semi-metal to a Half-metal.** *B. Patel^{1,2}, Y. Zhang¹ and S. Granville^{1,2} 1. Robinson Research Institute, Victoria University of Wellington, Wellington, Netherlands; 2. MacDiarmid Institute for Advanced Materials and Nanotechnology, Wellington, New Zealand*

9:54

- CG-10. Ferroelectric control of magnetic anisotropy in the layered multiferroic $\text{Co/Hf}_{0.5}\text{Zr}_{0.5}\text{O}_2$.** *G. Gandini¹, J. Hertel², G. Spaccia¹, D. Benettin¹, F. Fagiani¹, M. Cantoni¹, T. Gurieva², C.A. Durner², M. Lederer², B. Lilienthal-Uhlig², A. Manchon³ and C. Rinaldi¹ 1. Physics, Politecnico di Milano, Milano, Italy; 2. Center Nanoelectronic Technologies (CNT), Fraunhofer IPMS, Dresden, Germany; 3. Aix-Marseille Université, CNRS, CINAM, Marseille, France*

10:06

Break

10:45

- CG-09. Voltage control of spin-to-charge interconversion in Mn_2Au films. (Invited)** *C. Song¹, X. Chen¹, L. Huang¹ and F. Pan¹ 1. Tsinghua University, Beijing, China*

11:21

- CG-11. Magnetic and Structural Polymorphism of CuMnSb Thin Films.** *M. Sawicki^{1,2}, A. Ciechan¹, P. Dłuzewski¹, S. Kret¹, K. Gas^{1,3}, L. Scheffler^{4,5}, C. Gould^{4,5}, J. Kleinlein^{4,5}, L.W. Molenkamp^{4,5} and P. Boguslawski¹ 1. Institute of Physics, Polish Academy of Sciences, Warszawa, Poland; 2. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 3. Center for Science and Innovation in Spintronics, Tohoku University, Sendai, Japan; 4. Physikalisches Institut (EP3), Universität Würzburg, Würzburg, Germany; 5. Institute for Topological Insulators, Universität Würzburg, Würzburg, Germany*

Session CP
SOFT MAGNETIC MATERIALS I
(Poster Session)

Frank Abel, Chair

United States Naval Academy, Annapolis, MD, United States

- CP-01. Magnetic, structural, and morphological properties behavior of $\text{Ni}_{1-x}\text{Co}_x\text{Fe}_2\text{O}_4$ magnetic nanoparticles: theoretical and experimental study.** *J.A. Lopez Medina², C. Velez¹, N. Tarabay³, D. Dominguez Vargas⁴, S. Sharma², P. Piza⁵, J. Guerrero⁴, S. Aguila Puentes⁴, M. Farias⁴, G. Soto⁴ and R. Ponce⁴* *1. Department of Mechanical and Aerospace Engineering- University of California, Irvine, Irvine, CA, United States; 2. CONAHCYT – IxM - Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, Ensenada, Mexico; 3. Department of Electrical Engineering and Computer Science- University of California, Irvine, Irvine, CA, United States; 4. Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, Ensenada, Mexico; 5. Centro de Investigación en Materiales Avanzados, Chihuahua, Mexico*
- CP-02. Effect of Cerium Doping and Two-step Annealing on Terbium Iron Garnet on Si.** *P. Liu¹, K. Srinivasan^{2,3} and B. Stadler^{3,1}* *1. Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN, United States; 2. Electrical and Computer Engineering, Boise State University, Boise, ID, United States; 3. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States*
- CP-03. A systematic study on the influence of the microscopic structures on FMR of YIG based iron garnet dots.** *Y. Omori¹, H. Someya¹ and M. Ishida¹* *1. NEC Corporation, Minato-ku, Japan*
- CP-04. Additive Manufacturing of Soft Magnetic Material with Insulator Characteristic.** *T. Chang¹ and P. Huang²* *1. Electric Motor Technology Research Center, National Cheng Kung University, Tainan, Taiwan; 2. Mechanical Engineering, National Cheng Kung University, Tainan, Taiwan*
- CP-05. Magnetic and Thermal Properties of Hybrid Soft Magnetic Composites with Ferrite.** *J. Fuzer¹, S. Vovk¹, S. Dobák¹, P. Kollár¹, R. Bureš², M. Fáberová², V. Tsakaloudi³ and V. Zaspalis³* *1. Institute of Physics, P.J. Šafárik University in Košice, Košice, Slovakia; 2. Institute of Materials Research, Slovak Academy of Sciences, Košice, Slovakia; 3. Department of Chemical Engineering, Centre for Research and Technology-Hellas, Thessaloniki, Greece*
- CP-06. Fabrication of Buffer Layers for Highly Sensitive TMR Sensors with Co-based Heusler alloy electrodes.** *H. Hamasaki¹, T. Hojo¹, M. Tsunoda² and M. Oogane¹* *1. Department of Applied Physics, Graduate School of Engineering, Tohoku University, Sendai, Japan; 2. Development of Electronic Engineering, Graduate School of Engineering, Tohoku University, Sendai, Japan*

- CP-07. Chiral Induced Anisotropy in Soft Magnetic Films.** R. Pasnak¹, M. Hasan¹ and L.M. Malkinski^{1,2} *1. Department of Physics, University of New Orleans, New Orleans, LA, United States; 2. Advanced Materials Research Institute, University of New Orleans, New Orleans, LA, United States*
- CP-08. Single domain wall propagation in Co-rich magnetic microwires with graded magnetic anisotropy.** P. Corte-Leon^{1,2,3}, V. Zhukova^{1,2,3}, J. Blanco^{2,3} and A. Zhukov^{1,2,4} *1. Polym. and Adv. Mater., Univ. Basque Country, UPV/EHU, San Sebastian, Spain; 2. Appl. Phys., University of Basque Country, EIG, UPV/EHU, San Sebastian, Spain; 3. EHU Quantum Center, University of the Basque Country, UPV/EHU, San Sebastian, Spain; 4. IKERBASQUE, Basque Foundation for Science, Bilbao, Spain*

WEDNESDAY
MORNING
9:00

EXHIBIT HALL

Session CQ
MAGNONICS II
(Poster Session)

Olivier Boulle, Chair
SPINTEC, Grenoble, France

- CQ-01. Proposal of Spin Auto-Oscillation Based on Nonlinear Gain-Driven Magnon-Polaritons.** R. Suzuki¹, T. Chiba^{1,2} and H. Matsueda^{1,3} *1. Tohoku University, Sendai-shi, Japan; 2. FRIS, Sendai-shi, Japan; 3. CSIS, Sendai-shi, Japan*
- CQ-02. Contribution of Three-magnon Scattering to Gilbert Damping at Elevated Temperatures.** Y. Chen¹ and R. Victora¹ *1. University of Minnesota, Minneapolis, MN, United States*
- CQ-03. Thickness and Width Dependence of Spin Wave Propagation in Permalloy Microstripe Waveguides.** D. M S¹, S.N. Adithya¹, M. Kuchibhotla¹, A.O. Adeyeye² and A. Haldar¹ *1. Physics, Indain institute of technology Hyderabad, Hyderabad, India; 2. Physics, Durham university, Durham, United Kingdom*
- CQ-05. Spin Wave Dynamics in Bicomponent Sierpinski Square.** R. Mehta¹ and S. Saha¹ *1. Department of Physics, Ashoka University, Sonipat-131029, India*
- CQ-06. Magneto-Raman spectroscopy of spin waves in bulk CrI₃ with Ni.** C.J. Cunningham¹, G. Ye², C. Nnokwe², T. Nguyen², C. Sadler¹, K. Wu², W. Liu³, B. Lv³, P. Lukashev¹, P. Shand¹, A.J. Stollenwerk¹ and R. He² *1. Department of Physics, University of Northern Iowa, Cedar Falls, IA, United States; 2. Department of Electrical and Computer Engineering, Texas Tech University, Lubbock, TX, United States; 3. Department of Physics, University of Texas at Dallas, Richardson, TX, United States*

CQ-07. Thickness Dependence of Spin-wave Propagation in Low-damping CoFe Thin Films. *M. Kiechle*¹, *J.J. Wisser*¹, *W.K. Peria*¹, *J.M. Shaw*¹ and *H.T. Nembach*¹ *1. Physical Measurement Laboratory, National Institute of Standards and Technology, Boulder, CO, United States*

CQ-08. Brillouin Light Scattering measurements of Dzyaloshinskii Moriya Interaction: reproducibility and uncertainty. *M. Madami*¹, *S. Tacchi*², *C. Marrows*³, *E. Darwin*³, *B.J. Hickey*³, *A. Huxtable*³, *A. Magni*⁴, *A. Di Pietro*⁴, *G. Durin*⁴, *M. Kuepferling*⁴ and *G. Carlotti*¹ *1. Department of Physics and Geology, University of Perugia, Perugia, Italy; 2. CNR - Istituto Officina dei Materiali, Perugia, Italy; 3. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 4. Istituto Nazionale di Ricerca Mertologica (INRiM), Torino, Italy*

WEDNESDAY

EXHIBIT HALL

MORNING

9:00

Session CR

BIOMEDICAL THERAPIES AND OTHER BIOMEDICAL APPLICATIONS (Poster Session)

Samuel Oberdick, Chair

National Institute of Standards and Technology,
Boulder, CO, United States

CR-01. A Hybrid Machine Learning Algorithm for Predicting Resting Motor Thresholds in Patients with Schizophrenia and Healthy Individuals Undergoing Transcranial Magnetic Stimulation. *Y.R. Saxena*^{1,2}, *C.J. Lewis*³, *M. Alam*¹, *J. Atulasimha*^{1,4}, *U.M. Mehta*⁵ and *R.L. Hadimani*^{1,3,6}
1. Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States; 2. Electrical Engineering and Computer Science, University of California at Berkeley, Berkeley, CA, United States; 3. Biomedical Engineering, Virginia Commonwealth University, Richmond, VA, United States; 4. Electrical and Computer Engineering, Virginia Commonwealth University, Richmond, VA, United States; 5. National Institute of Mental Health and Neurosciences, Bangalore, India; 6. Electrical and Computer Engineering, Iowa State University, Ames, IA, United States

CR-02. Optimization of pulse magnetic field for effective magnetic hyperthermia treatment. *A. Kuwahata*¹, *Y. Adachi*¹, *E. Nakamura*² and *S. Yabukami*¹ *1. Tohoku University, Sendai, Japan; 2. High Energy Accelerator Research Organization (KEK), Tsukuba, Japan*

CR-03. Development of magnetic hyperthermia coil system for wide treatment temperature area on breast and neck cancer patients. *A. Yamazaki*¹, *T. Kagami*², *A. Kuwahata*^{1,2} and *S. Yabukami*^{1,2} *1. Graduate School of Engineering, Tohoku University, Sendai, Japan; 2. Graduate School of Biomedical Engineering, Tohoku University, Sendai, Japan*

- CR-04. Magnetic Hyperthermia Performance of Commercial Iron Oxide Magnetic Nanoparticles.** B. Rezaei¹, S. Mostufa¹, E. Azizi¹, Y.A. Wang², C. Li¹, J. Gomez-Pastora³, R. He¹ and K. Wu¹ *1. Department of Electrical and Computer Engineering, Texas Tech University, Lubbock, TX, United States; 2. Ocean Nano Tech LLC, San Diego, CA, United States; 3. Department of Chemical Engineering, Texas Tech University, Lubbock, TX, United States*
- CR-05. Gd-Doped Cobalt Ferrite Nanoparticles: Structural, Magnetic, and Cytotoxicity Studies for Improved Hyperthermia Therapy.** S. Attanayake¹, S. Jan¹, Ç. Demirci^{2,3}, T. Demircan⁴, H. Srikanth¹ and M. Phan¹ *1. Physics, University of South Florida, Tampa, FL, United States; 2. Physics, Mugla Sitki Kocman University, Mugla, Turkey; 3. The Center of Research Laboratories, Mugla Sitki Kocman University, Mugla, Turkey; 4. Department of Medical Biology, Mugla Sitki Kocman University, Mugla, Turkey*
- CR-06. Effects of X-ray Irradiation on Self-Regulating Hyperthermia Magnetic Nanoparticles of Gadolinium Silicide.** S. Smith¹, S.B. Naranjo², J.R. Marin² and R.L. Hadimani² *1. Chemical and Life Science Engineering, Virginia Commonwealth University, Richmond, VA, United States; 2. Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States*
- CR-07. Evaluation of cytokeratin in lymph node metastasis using magnetic nanoparticles and protein aggregates.** S. Yabukami^{1,2}, T. Murayama¹, K. Kaneko², A. Ban¹, Y. Ozawa³, H. Okamoto³ and T. Kamei³ *1. Graduate School of Biomedical Engineering, Tohoku University, Sendai, Japan; 2. Graduate School of Engineering, Tohoku University, Sendai, Japan; 3. Graduate School of Medicine, Tohoku University, Sendai, Japan*
- CR-08. Polyol-Mediated Synthesis of Iron Oxide Nanoflowers for Biomedical Applications.** A.D. Malaj¹, S.S. Laha¹ and O.T. Mefford¹ *1. Materials Science and Engineering, Clemson University, Clemson, SC, United States*

WEDNESDAY
MORNING
9:00

EXHIBIT HALL

Session CS
MATERIALS WITH COUPLED MAGNETIC
PHENOMENA I
(Poster Session)

Vijaysankar Kalappattil, Chair
Northeastern University, Burlington, MA, United States

- CS-01. Noncollinear Interlayer Exchange Coupling Across IrFe Spacer Layers.** J. Lisik¹, S. Myrtle¹ and E. Girt¹ *1. Department of Physics, Simon Fraser University, Burnaby, BC, Canada*

- CS-02. Field-induced transformation of complex spin ordering and magnetodielectric and magnetoelastic coupling in MnGeTeO6.** *A. Pal*¹ *1. Faculty of Science and Engineering, University of Groningen, Groningen, Netherlands*
- CS-03. Magnetism and magnetocaloric effect of multicomponent rare earth intermetallic compound hydride Gd_{0.2}Tb_{0.2}Dy_{0.2}Ho_{0.2}Er_{0.2}NiH_{1.4}.** *A. Mohapatra*¹, *D. A. R*¹, *A. Chelvane*², *A. Morozkin*³, *R. S*¹ and *R. Nirmala*¹ *1. Physics, Indian Institute of Technology Madras, Chennai, India; 2. Defence Metallurgical Research Laboratory, Hyderabad, India; 3. Moscow Lomonosov State University, Moscow, Russian Federation*
- CS-06. Effects of Boron Content on Magnetostriction and Temperature Dependent Magnetic Damping in FeGaB Thin Films.** *Z. Zhang*¹ and *A. Hoffmann*¹ *1. Materials Science and Engineering, University of Illinois Urbana-Champaign, Urbana, IL, United States*
- CS-07. On correctly assessing the reversibility of the magnetocaloric effect.** *R. Kiefe*¹ and *J. Amaral*¹ *1. Physics, University of Aveiro, CICECO, Aveiro, Portugal*
- CS-08. Phase Transitions and Magnetic Properties of Cu and Fe Doped Ni₂Mn_{0.55}Cu_{0.35}Fe_{0.10}Ga Heusler Alloy.** *H.A. Adedo*¹, *J.R. DeFeo*², *V. Yenugonda*², *S. Rahman*¹, *A.K. Pathak*² and *M. Khan*¹ *1. Department of Physics, Miami University, Oxford, OH, United States; 2. Department of Physics, SUNY Buffalo State University, Buffalo, NY, United States*

WEDNESDAY
MORNING
9:00

EXHIBIT HALL

Session CT DOMAIN WALLS AND SKYRMIONS I (Poster Session)

Davi Rodrigues, Co-Chair
Politecnico di Bari, Bari, Italy
Lucas Perez, Co-Chair
Universidad Complutense de Madrid, Madrid, Spain

- CT-01. Possibility of Achieving Both Skyrmion Stability and High-Speed Transport on W/CoFeB.** *T. Cheng*¹, *L. Zhang*¹, *R. Satone*¹, *Y. Kurokawa*¹, *K. Tokunaga*¹ and *H. Yuasa*¹ *1. Graduate school and Faculty of Information Science and Electrical Engineering, Kyushu University, Fukuoka, Japan*
- CT-02. Theoretical study of current induced domain wall motion in perpendicularly magnetized nanotubes in three-dimensional magnetic shift register.** *N. Umetsu*¹, *H. Tokuhira*¹, *M. Quinsat*¹, *S. Hashimoto*¹, *T. Kondo*¹ and *M. Kado*¹ *1. Frontier Technology R&D institute, Kioxia Corporation, Yokohama, Japan*

- CT-03. Kinematic Model of Magnetic Domain Wall Motion for Fast, High-Accuracy Simulations.** *A.J. Edwards*¹, K. Doleh¹, L. Humphrey¹, C.M. Linseisen¹, M.D. Kitcher², J.M. Martin¹, C. Cui³, J.C. Incorvia³, F. García Sánchez⁴, N. Hassan¹ and J.S. Friedman¹ *1. Electrical and Computer Engineering, The University of Texas at Dallas, Richardson, TX, United States; 2. Materials Science & Engineering, Carnegie Mellon University, Pittsburgh, PA, United States; 3. Electrical and Computer Engineering, The University of Texas at Austin, Austin, TX, United States; 4. Departamento de Física Aplicada, Universidad de Salamanca, Salamanca, Spain*
- CT-04. Micromagnetic Study of the Controlled Conversion of a 360 deg DW to Pairs of Bimeron – Antibimeron.** *P. Babu*¹ and J. Sinha¹ *1. Physics and Nanotechnology, SRM Institute of Science and Technology, Chennai, India*
- CT-06. Enhanced High Harmonic Generation Beamline for Ultrafast Resonant Magnetic Scattering.** *I. Binnie*¹, J. Thurston¹, D. Morrill¹, G. Gui¹, C. Klein¹, Y. Li¹, H. Fang¹, H.C. Kapteyn¹ and M.M. Murnane¹ *1. University of Colorado, Boulder, Boulder, CO, United States*
- CT-07. Formation Process of Dipole Antiskyrmions in Fe/Gd Multilayers.** *J.A. Reddinger*¹ and B. McMorran¹ *1. Physics, University of Oregon, Eugene, OR, United States*
- CT-08. Theoretical Insights into Square Skyrmion Lattice Origin in GdRu₂Si₂ and Uniaxial Pressure Effects.** *R. Pathak*¹, S. Sarkar¹, O. Eriksson^{1,2} and V. Borisov¹ *1. Physics and Astronomy, Uppsala University, Uppsala, Sweden; 2. Wallenberg Initiative Materials Science for Sustainability, Uppsala University, Uppsala, Sweden*

WEDNESDAY
MORNING
9:00

EXHIBIT HALL

Session CU
ELECTRICAL MACHINES AND HIGH SPEED
ELECTRICAL MACHINES
(Poster Session)

Anh Huynh, Chair
University of Nottingham, Nottingham, United Kingdom

- CU-01. Novel Dual Inverter Two-Layer Sub-Harmonic Vernier Machine.** *S. Rafin*¹, Q. Ali², H. Hussein¹ and O.A. Mohammed¹ *1. Electrical and Computer Engineering, Florida International University, Miami, FL, United States; 2. Electrical Engineering, Sukkur IBA University, Sukkur, Pakistan*
- CU-02. Optimized Design of Sub-Harmonic Synchronous Machines.** *S. Rafin*¹, Q. Ali², H. Hussein¹ and O.A. Mohammed¹ *1. Electrical and Computer Engineering, Florida International University, Miami, FL, United States; 2. Electrical Engineering, Sukkur IBA University, Sukkur, Pakistan*

CU-03. Analysis of Electromagnetic Characteristic of Hybrid-Type Double-Cage Induction Motor Using Subdomain Method. S. Eom¹, H. Ban¹, K. Yu¹, J. Yang¹, K. Shin² and J. Choi¹
1. Chungnam National University, Daejeon, The Republic of Korea; 2. Changwon National University, Changwon-si, The Republic of Korea

CU-04. AC loss of high-speed permanent magnet synchronous motor according to winding type considering current harmonics. Y. Choi¹, K. Kwak¹, S. Kim¹, S. Lee¹, K. Shin² and J. Choi¹
1. Chungnam National University, Daejeon, The Republic of Korea; 2. Changwon National University, Changwon, The Republic of Korea

CU-05. Characteristic Analysis and Optimal Design for Efficiency Improvement of Wound Field Synchronous Machine with Grain-Oriented Electrical Steel. K. Yu¹, W. Jung¹, M. Nguyen¹, S. Eom¹, H. Ban¹, K. Shin² and J. Choi¹
1. Chungnam National University, Daejeon, The Republic of Korea; 2. Changwon National University, Changwon, The Republic of Korea

CU-08. Rotor Design Process of Ultra-High-Speed Permanent Magnet Synchronous Motor Considering Rotor Interference Fit Tolerance. J. Kim¹ and D. Kim²
1. Mechanical Engineering, Yeungnam University, Gyeongsan, The Republic of Korea; 2. Automotive Engineering, Honam University, Gwangju, The Republic of Korea

WEDNESDAY
MORNING
9:00

EXHIBIT HALL

Session CV
ELECTRICAL MACHINES AND POWER
ELECTRONICS IV
(Poster Session)

Christopher H. T. Lee, Chair
Nanyang Technological University, Singapore, Singapore

CV-01. Design of Magnetization Yoke to Reduce the Number of Double Spoke Type PMSM Magnetization Using I-Core. D. Choi¹, D. Nam¹, Y. Lee¹, N. Jo¹ and W. Kim²
1. Next Generation Smart Energy System Convergence, Gachon University, Seongnam, The Republic of Korea; 2. Electrical Engineering, Gachon University, Seongnam, The Republic of Korea

CV-02. A study on Performance Improvement of Axial Flux Motor Through Halbach Array and Same Direction Skew. M. Hong², W. Kim¹, N. Jo¹, J. Kim¹ and S. Ko¹
1. Electrical Engineering, Gachon University, Seongnam, The Republic of Korea; 2. Electrical Engineering, Hanyang University, Seoul, The Republic of Korea

CV-03. Study on axial flux motor using pcb stator for collaborative robot joint electric motor using Halbach array and slit structure. M. Hong¹, N. Jo¹, H. Kim¹, J. Kim¹ and W. Kim¹
1. Electrical Engineering, Hanyang University, Seoul, The Republic of Korea

CV-05. Modal Analysis of Electromagnetic Vibrations in Switched Reluctance Machines. O. Naderi Samani¹, S. Taghipour Boroujeni¹ and N. Takorabet² 1. *Engineering Dep., Shahrekord University, Shahrekord, The Islamic Republic of Iran;* 2. *GREEN, Université de Lorraine, Nancy, France*

CV-06. A Study on the Analysis of Reluctance Torque Based on Rotor I-Core Thickness in Double Spoke Type PMSM. N. Jo¹, D. Nam¹, Y. Lee¹, M. Hong² and W. Kim¹ 1. *Gachon University, Gyeonggi-do, The Republic of Korea;* 2. *Hanyang University, Seoul, The Republic of Korea*

CV-07. A Study on the Design of Axial Flux Motor for Increased Power Density Compared to Radial Flux Motor. M. Youn¹, J. Kim¹, Y. Song¹, Y. Lee¹ and W. Kim¹ 1. *Gachon University, Seongnam, The Republic of Korea*

WEDNESDAY
AFTERNOON
2:00

CELESTIN D

Session DA
MAGNETIC BRAIN STIMULATION AND IMAGING

Nian Sun, Chair
Northeastern University, Boston, MA, United States

2:00

DA-01. Multi-Magnetic Material Coils and Prediction of Stimulation Strength Using Machine Learning in Transcranial Magnetic Stimulation. (Invited) R.L. Hadimani^{1,2} 1. *Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States;* 2. *Department of Electrical and Computer Engineering, Iowa State University, Richmond, VA, United States*

2:36

DA-02. Enabling a Wireless Non-invasive Two-Way Brain-Machine Interface with Magnetoelectric Nanoparticles. (Invited) P. Liang³, E. Zhang¹, S. Chen⁴, M. Abdel-Mottaleb⁵, V. Andre⁵, M. Shotbolt⁵, J. Tian¹, A. Scott-Vandusen⁵, E. Zhu⁵ and S. Khizroev^{1,2} 1. *Electrical and Computer Engineering, University of Miami, Coral Gables, FL, United States;* 2. *Biochemistry and Molecular Biology, University of Miami, Miami, FL, United States;* 3. *Cellular Nanomed, Irvine, CA, United States;* 4. *Chemical, Environmental and Materials Engineering, University of Miami, Coral Gables, FL, United States;* 5. *Biomedical Engineering, University of Miami, Coral Gables, FL, United States*

3:12

DA-03. Cellular Mechanisms of Transcranial Magnetic Stimulation in Cerebellar Cortex. (Invited) P. Sundaram¹ 1. *Radiology, MGH/Martinos Center, Boston, MA, United States*

3:48

Break

- DA-04. Engineering Magnetic Particles for Positive MRI Contrast. (Invited)** *S. Oberdick^{4,2}, S. Dodd¹, G. Erich², A. Hunter³, K. Jordanova^{9,2}, K. Keenan², A. Koretsky¹, J. Lundstrom^{4,2}, O.T. Mefford³, G. Parigi^{5,6,7}, M. Poorman⁸ and G. Zabow²*
1. LFMI, NINDS, NIH, Bethesda, MD, United States; 2. NIST, Boulder, CO, United States; 3. Dept. of Mat. Sci. and Eng., Clemson University, Clemson, SC, United States; 4. Dept. of Physics, University of Colorado, Boulder, Boulder, CO, United States; 5. CERM, University of Florence, Sesto Fiorentino, Italy; 6. Dept. of Chem. "Ugo Schiff", University of Florence, Sesto Fiorentino, Italy; 7. CIRMMP, Sesto Fiorentino, Italy; 8. Hyperfine, Inc., Guilford, CT, United States; 9. Radiology, Stanford University, Palo Alto, CA, United States

4:51

- DA-05. MRI and Safety - Focusing on High Static Magnetic Fields. (Invited)** *S. Yamaguchi-Sekino¹*
1. National Institute of Information and Communications Technology (NICT), Koganei, Japan

WEDNESDAY
 AFTERNOON
 2:00

CELESTIN E

Session DB

ADVANCED MAGNETIC MATERIALS & MANUFACTURING FOR FUTURE ELECTRIC MOTORS AND POWER ELECTRONICS

Yacine Amara, Co-Chair

Université Le Havre Normandie, Le Havre, France

Masahiro Yamaguchi, Co-Chair

Tohoku University, Sendai, Japan

Johannes Paulides, Co-Chair

Advanced Electromagnetics Group, Waalwijk, Netherlands

2:00

- DB-01. Design Freedoms and Challenges in Additively Manufactured Electrical Machines. (Invited)** *A. Kallaste¹*
1. Electrical Power Engineering and Mechatronics, Tallinn University of Technology, Tallinn, Estonia

2:36

- DB-02. High Power Density Motor Equipped with Additively Manufactured Windings. (Invited)** *A. El-Refaie¹*
1. Marquette University, Milwaukee, WI, United States

3:12

- DB-03. Novel Applications of Additive Manufacturing for Improved Electrical Machine Design and Performance. (Invited)**
M. Tsai¹, P. Huang¹, T. Chang²
1. Mechanical Engineering, National Cheng Kung University, Tainan, Taiwan. 2. Electric Motor Technology Research Center, National Cheng Kung University, Tainan, Taiwan

3:48

Break

- DB-04. Novel approaches of nanocrystalline alloys with large saturation magnetization for next-generation power-electronics applications. (Invited)** *S. Okamoto*¹, *A. Urata*², *H. Oikawa*², *S. Hiramoto*¹, *N. Ono*¹, *R. Gautam*³, *H. Sepehri-Amin*³, *T. Ohkubo*³ and *T. Ogasawara*⁴ *1. Tohoku University, Sendai, Japan; 2. Tokin Corp., Shiroishi, Japan; 3. NIMS, Tsukuba, Japan; 4. AIST, Tsukuba, Japan*

- DB-05. Metrology for Steel Laminations and Power Electronics Magnetic Cores: Loss Measurement Techniques and Uncertainties from DC to the Microwave Regime. (Invited)** *M. Pasquale*¹, *C. Beatrice*¹, *E. Ferrara*¹, *N. Banu*¹, *F. Fiorillo*¹, *C. Ragusa*² and *L. Solimene*² *1. Advanced Materials Metrology and Life Sciences, INRIM, Torino, Italy; 2. Department of Energy, Politecnico di Torino, Torino, Italy*

WEDNESDAY
AFTERNOON
2:00

CELESTIN A

Session DC
2D SPINTRONICS AND TOPOLOGICAL
MATERIALS III

Zhenchao Wen, Chair

National Institute for Materials Science (NIMS), Tsukuba, Japan

- DC-01. Withdrawn**

- DC-02. Quantum Transport in Sputtered Topological Semimetal α -Sn Thin Films.** *V. Kalappattil*¹, *C. Liu*¹, *M. Mehraeen*², *R. Li*², *Z. Chen*³, *S. Zhang*², *K. Liu*³ and *M. Wu*¹ *1. Department of Physics, Northeastern University, Boston, MA, United States; 2. Department of Physics, Case Western Reserve University, Cleveland, OH, United States; 3. Department of Physics, Georgetown University, Washington, DC, United States*

- DC-03. Probing Intrinsic Magnetization Dynamics of the $\text{Y}_3\text{Fe}_5\text{O}_{12}/\text{Bi}_2\text{Te}_3$ Interface at Low Temperature.** *A. Will-Cole*^{1,2}, V. Lauter³, A.J. Grutter⁴, C. Dubs⁵, J.L. Hart⁶, D.A. Lidsky¹, M. Lindner⁵, T. Reimann⁵, N. Bhattacharjee², T. Lu¹, P. Sharma¹, N.R. Valdez¹, C.J. Pearce¹, T.C. Monson¹, J. Cha⁶, D. Heiman² and N.X. Sun² *1. Sandia National Laboratories, Albuquerque, NM, United States; 2. Northeastern University, Boston, MA, United States; 3. Oak Ridge National Laboratory, Oak Ridge, TN, United States; 4. National Institute of Standards and Technology, Gaithersburg, MD, United States; 5. Innovent, Jena, Germany; 6. Cornell University, Ithaca, NY, United States*

DC-04. Withdrawn

- DC-05. Electronic Structure and Magnetism of Fe_3GaTe_2 . (Invited)** *J. Lee*^{1,2,3} *1. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 2. Max Planck POSTECH, Pohang, The Republic of Korea; 3. Department of Physics, UC Berkeley, Berkeley, CA, United States*

- DC-06. Emergent Spin Textures and Magnetoresistive Anomalies in Doped Fe_3GeTe_2 : Unraveling Complexities in 2D Ferromagnets.** *R. Roy Chowdhury*¹, H. Srikanth¹, R. Singh² and M. Phan¹ *1. Department of Physics, University of South Florida, Tampa, FL, United States; 2. Department of Physics, Indian Institute of Science Education and Research Bhopal, Bhopal, India*

DC-07. Withdrawn

- DC-08. Exciton-Activated Giant Phonon Magnetic Moment in Monolayer MoS_2 .** *H. Mustafa*³, G. Ye¹, C. Nnokwe¹, M. Fang², S. Chaudhary⁶, D. Smirnov⁴, J. Yan⁵, K. Law³, M. Mahjouri-Samani³, K. Wu¹, E. Yang², G.A. Fiete⁶, R. He¹ and W. Jin³ *1. Texas Tech University, Lubbock, TX, United States; 2. Stevens Institute of Technology, Hoboken, NJ, United States; 3. Auburn University, Auburn, AL, United States; 4. National High Magnetic Field Laboratory, Tallahassee, FL, United States; 5. Towson University, Towson, MD, United States; 6. Northeastern University, Boston, MA, United States*

- DC-09. Intrinsic Ferromagnetism in Liquid Phase Exfoliated 2D van der Waals CrCl_3 .** *F.A. Silva*^{5,6,2}, H. Chang², *L.A. Hernandez*², J.H. Warner³, J.R. Fernandes⁴, S.G. Santos^{1,7}, F.D. Magalhães^{5,6}, A.M. Pinto^{5,6,1} and J.C. Incorvia² *1. Instituto de Investigação e Inovação em Saúde, Universidade do Porto, Porto, Portugal; 2. Electrical and Computer Engineering, University of Texas at Austin, Austin, TX, United States; 3. Mechanical Engineering, University of Texas at Austin, Austin, TX, United States; 4. Centro de Química Vila Real, Departamento de Física, Universidade de Trás-os-Montes e Alto Douro, Vila Real, Portugal; 5. Laboratory for Process Engineering, Environment, Biotechnology and Energy, Universidade do Porto, Porto, Portugal; 6. Associate Laboratory in Chemical Engineering, Universidade do Porto, Porto, Portugal; 7. Instituto de Engenharia Biomédica, Universidade do Porto, Porto, Portugal*

3:26

Break

4:15

- DC-11. Gate-tunable ferromagnetic transport properties in monolayer graphene/Fe₃GeTe₂ heterostructures.** *M. Aoki*¹, *V. Zlatko*¹, *T. Guillet*¹, *M. Shiraishi*^{2,4}, *J. Sierra*¹ and *S.O. Valenzuela*^{1,3} *1. Catalan Institute of Nanoscience and Nanotechnology, Barcelona, Spain; 2. Electronic Science and Engineering, Kyoto University, Kyoto, Japan; 3. Catalan Institution for Research and Advanced Studies, Barcelona, Spain; 4. CSRN, Kyoto University, Kyoto, Japan*

4:27

- DC-12. Kondo Effect in CVD-Grown Large Area Continuous 2D VSe₂ Thin Film.** *V. Samanta*¹ and *S. Chandran*¹ *1. Physics, Indian Institution of Technology Madras, Chennai, India*

WEDNESDAY
AFTERNOON
2:00

CELESTIN B

Session DD
DOMAIN WALLS AND SKYRMIONS II
Christopher Marrows, Chair
University of Leeds, Leeds, United Kingdom

2:00

- DD-01. Highly efficient current-driven magnetic octupole domain-wall motion in noncollinear antiferromagnets.** *(Invited) Y. Otani*^{1,2,3} *1. ISSP, University of Tokyo, Kashiwa, Japan; 2. CEMS, RIKEN, Wako, Japan; 3. Trans-Scale Quantum Science Institute, University of Tokyo, Tokyo, Japan*

2:36

- DD-02. Numerical calculations of collective octupole dynamics in noncollinear antiferromagnets.** *M. Yoo*¹ and *A. Hoffmann*¹ *1. University of Illinois at Urbana-Champaign, Urbana, IL, United States*

- DD-03. Direct Evidence for Magnetic Bloch Point Quadrupoles Constituting Hybrid Topological Strings.** *F.S. Yasin^{1,2}, J. Masell^{3,2}, Y. Takahashi⁴, T. Akashi⁴, N. Baba⁵, K. Karube², D. Shindo², T. Arima^{2,6}, Y. Taguchi², Y. Tokura^{2,7,8}, T. Tanigaki⁴ and X. Yu²* *1. Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN, United States; 2. Center for Emergent Matter Science, RIKEN, Wako, Japan; 3. Institute of Theoretical Solid State Physics, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany; 4. Research and Development Group, Hitachi Ltd., Hatoyama, Japan; 5. Research Institute for Science and Technology, Kogakuin University, Hachioji, Japan; 6. Department of Advanced Materials Science, University of Tokyo, Tokyo, Japan; 7. Department of Applied Physics, University of Tokyo, Tokyo, Japan; 8. Tokyo College, University of Tokyo, Tokyo, Japan*

3:00

- DD-04. Spin Textures and Magnetization Dynamics in Cylindrical Nanowires.** *L. Perez^{1,2}, L. Gómez-Cruz², L. Álvaro-Gómez¹, S. Ruiz Gómez³, C. Fernandez Gonzalez³, L. Aballe³, E. Pereiro³, N. Mille⁴, R. Belkhou⁴, C. Thirion⁵, D. Gusakova⁶, A. Masseboeuf⁶ and O. Fruchart⁶* *1. Física de Materiales, Universidad Complutense de Madrid, Madrid, Spain; 2. Fundación IMDEA Nanociencia, Madrid, Spain; 3. Alba Synchrotron, Cerdanyola del Valles, Spain; 4. Synchrotron SOLEIL, Gif-sur-Yvette, France; 5. Univ. Grenoble Alpes, CNRS, Institut Neel, Grenoble, France; 6. SPINTEC, Grenoble, France*

3:12

- DD-05. Complex dynamics of Bloch point domain walls in cylindrical magnetic nanowires.** *O. Chubykalo-Fesenko¹, E. Saugar¹, F. Tejo² and K. Gusliyenkov³* *1. Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain; 2. Universidad Central de Chile, Santiago de Chile, Chile; 3. Universidad del Pais Vasco, San Sebastian, Spain*

3:24

- DD-06. Energy Landscape and Pinning Fields of Bloch-Point Domain Walls in Curved Nanowires.** *C. Abert¹, S. Ruiz-Gomez^{2,3}, P. Morales Fernandez², S. Koraltan¹, L. Danesi¹, A. Hierro-Rodriguez⁵, A. Fernández-Pacheco⁴, C. Donnelly² and D. Suess¹* *1. University of Vienna, Vienna, Austria; 2. Max Planck Institute for Chemical Physics of Solids, Dresden, Germany; 3. ALBA Synchrotron Light Source, Barcelona, Spain; 4. TU Wien, Vienna, Austria; 5. Universidad de Oviedo, Oviedo, Spain*

3:36

- DD-07. Current-induced domain wall dynamics for Fe-based amorphous microwires.** *E. Calle¹, M. Vázquez² and R. Perez Del Real²* *1. Universidad Autónoma de Madrid, Madrid, Spain; 2. Institute of Materials Science of Madrid, Madrid, Spain*

3:48

Break

4:15

DD-08. Helimagnet-Based Spintronics: Control and Detection of Magnetic Chirality. (Invited) *H. Masuda*¹ *1. Institute for Materials Research, Tohoku University, Sendai, Japan*

4:51

DD-09. Decoupling the influences of chiral damping and Dzyaloshinskii-Moriya interaction in chiral magnetic domain walls. *C.A. Akosa*^{1,2,3}, *G. Tatara*², *A. Manchon*⁴ and *M. Mochizuki*¹ *1. Applied Physics, Waseda University, Tokyo, Japan; 2. CEMS, RIKEN, Wako, Japan; 3. Theoretical & Applied Physics, AUST, Abuja, Nigeria; 4. CNRS, CINaM, Aix-Marseille Université, Marseille, France*

5:03

DD-10. X-ray Scattering Studies on the Phase Transitions of the Nematic Magnetic Helical Phase in Amorphous FeGe. *Z. Tumbleson*^{4,1}, *S.A. Morley*¹, *E. Hollingworth*², *A. Singh*¹, *T. Bayarar*¹, *N. Burdet*³, *A. Us-Saleheen*¹, *M. McCarter*¹, *D.W. Raftrey*^{4,1}, *R. Pandolfi*¹, *V. Esposito*³, *G. Dakovski*³, *F. Decker*³, *A. Reid*³, *T. Assefa*³, *P. Fischer*^{1,4}, *S. Griffin*¹, *S. Kevan*¹, *F. Hellman*^{2,1}, *J.J. Turner*³ and *S. Roy*^{1,4} *1. Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 2. University of California, Berkeley, Berkeley, CA, United States; 3. SLAC National Accelerator Laboratory, Menlo Park, CA, United States; 4. University of California, Santa Cruz, Santa Cruz, CA, United States*

DD-11. Withdrawn

WEDNESDAY
AFTERNOON
2:00

CELESTIN C

Session DE
SPINTRONIC DEVICES I: MRAM, SENSOR AND
ENERGY EFFICIENT COMPUTING

Deyuan Lyu, Chair
University of Minnesota, Minneapolis, MN, United States

2:00

DE-01. Magnetism for the next-computing era. (Invited) *K. Lee*¹
1. Samsung Electronics, Yongin-si, The Republic of Korea

DE-02. Exploring $\text{Ge}_x\text{Sn}_y\text{Te}$ for Energy-Efficient Computing Devices Using Ferroelectric Rashba Semiconductors.

*F. Fagiani*¹, *L. Nelli*¹, *G. Gandini*¹, *S. Cecchi*², *F. Delodovici*⁴, *G. Vinai*³, *I. Vobornik*³, *K. Rohit*⁵, *A. Rubano*⁵, *M. Fiebig*⁶, *S. Picozzi*⁴, *M. Cantoni*¹, *R. Bertacco*¹ and *C. Rinaldi*¹ *1. Physics, Politecnico Milano, Milano, Italy; 2. Università Bicocca, Milano, Italy; 3. CNR-IOM, Trieste, Italy; 4. CNR-SPIN, Chieti, Italy; 5. Università Federico II, Napoli, Italy; 6. ETH Zürich, Zurich, Switzerland*

2:48

DE-03. Temperature dependent spin dynamics in LSMO/Pt bilayer.

B. Sahoo^{1,2}, *A. K*³, *K. Matthews*², *S. Petit-Watelot*³, *J. Rojas-Sanchez*³, *A. Frano*², *S. Das*² and *E. Fullerton*^{1,2}
1. Center for Memory and Recording Research, University of California, San Diego, San Diego, CA, United States; 2. Physics, University of California, San Diego, San Diego, CA, United States; 3. Physics, Institut Jean Lamour Université Lorraine - CNRS (UMR 7198) Campus Artem, Nancy Cedex, France

DE-04. Withdrawn

3:00

DE-05. Non-Local Spin Valve Optimization via Wide-Range Interfacial Resistance Tuning: Toward Spin Accumulation Sensors.

*B. Kaiser*¹, *J. Ramberger*¹, *M. Norum*¹, *N. Nandakumaran*¹, *J. Dewey*¹ and *C. Leighton*¹ *1. University of Minnesota, Minneapolis, MN, United States*

3:12

DE-06. Magnetic tunnel junction implementations of unconventional computing.

*D. Rodrigues*¹, *E. Raimondo*^{2,3}, *R. Tomasello*¹, *M. Carpentieri*¹ and *G. Finocchio*³ *1. Department of Electrical and Information Engineering, Politecnico di Bari, Bari, Italy; 2. Istituto Nazionale di Geofisica e Vulcanologia, Roma, Italy; 3. Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina, Messina, Italy*

3:24

DE-07. Spin-Orbit Torque Magnetic Tunnel Junctions at Cryogenic Temperatures.

*K. Senapati*¹, *A. Fassatoui*¹, *L. Vila*¹, *A. Kandazoglou*¹, *G. Gaudin*¹, *S. Rao*², *S. Couet*² and *K. Garelo*¹ *1. SPINTEC, Grenoble, France; 2. Interuniversitair Micro-Elektronica Centrum, Leuven, Belgium*

3:36

Break

- DE-08. Spin transmission through NiO in Pt/NiO/NM/Py heterostructure.** *B. Sahoo*^{1,2}, *C. Safranski*², *G. Hu*², *J. Liang*², *M. Robbins*², *P. Hashemi*² and *J.Z. Sun*² *1. Physics, University of California, San Diego, San Diego, CA, United States; 2. IBM T.J. Watson Research Center, Yorktown Heights, NY, United States*

- DE-09. Strong antiferromagnetic interlayer exchange coupling caused by small amounts of Re addition in synthetic AF system with Ir-Re spacer.** *Y. Saito*¹, *T. Roy*², *S. Ikeda*^{1,2,3}, *M. Shirai*^{2,3}, *H. Honjo*¹, *H. Inoue*¹ and *T. Endoh*^{1,2,4} *1. Center for Innovative Integrated Electronic Systems, Tohoku University, Sendai, Japan; 2. Center for Science and Innovation in Spintronics, Tohoku University, Sendai, Japan; 3. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 4. Department of Electrical Engineering, Graduate School of Engineering, Tohoku University, Sendai, Japan*

- DE-10. Thermal Effects on Damping Determination of Perpendicular MRAM Devices by Spin-Torque Ferromagnetic Resonance.** *H.J. Richter*¹, *R.V. Chopdekar*¹, *G. Mihajlović*¹, *J. Gibbons*¹, *N. Davila*¹, *M.K. Grobis*¹ and *T. Santos*¹ *1. Research, Western Digital, San Jose, CA, United States*

- DE-11. Nonlinear amplification of microwave signals in spin-torque oscillators.** *K. Zhu*¹, *M. Carpentieri*⁴, *L. Zhang*¹, *B. Fang*¹, *J. Cai*¹, *R.V. Verba*², *A. Giordano*³, *V. Puliafito*⁴, *B. Zhang*¹, *G. Finocchio*⁵ and *Z. Zeng*¹ *1. Suzhou Institute of Nano-Tech and Nano-Bionics, Nanofabrication Facility, Chinese Academy of Sciences, Suzhou, China; 2. Institute of Magnetism, Kyiv, Ukraine; 3. Engineering, University of Messina, Messina, Italy; 4. Electrical and Information Engineering, Politecnico di Bari, Bari, Italy; 5. Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina, Messina, Italy*

- DE-12. Field-free deterministic spin-orbit torque switching in all-2D van der Waals heterostructures at room temperature.** *L. Pandey*¹, *B. Zhao*¹, *P. Rout*¹, *H. Bangar*¹, *R. Ngaloy*¹, *M. Abdel-Hafiez*², *H. Chang*³ and *S.P. Dash*^{1,4} *1. Department of Microtechnology and Nanoscience, Chalmers University of Technology, Göteborg, Sweden; 2. Department of Applied Physics and Astronomy, University of Sharjah, Sharjah, United Arab Emirates; 3. School of Materials Science and Engineering, Huazhong University of Science and Technology, Hubei, China; 4. Graphene Centre, Chalmers University of Technology, Göteborg, Sweden*

- DE-13. Magnetic domain wall type Spin-Memristor for neuromorphic computing.** *T. Gushi*¹, *S. Yamada*¹, *I. Shinto*¹, *T. Shibata*¹ and *S. Tomoyuki*¹ *1. Advanced Products Development Center, Technology & Intellectual Property HQ, TDK corporation, Ichikawa, Japan*

Session DF
MAGNETOCALORIC MATERIALS
AND REFRIGERATION

Manh-Huong Phan, Chair
University of South Florida, Tampa, FL, United States

2:00

- DF-01. Hysteresis, Reversibility, and Partial Transformations in Magnetocaloric Materials: a Combined Analysis Using TFORC and Thermography. (Invited) V. Franco¹, J. Revuelta-Losada¹, A.N. Khan¹, L.M. Moreno-Ramírez¹ and J. Law¹ 1. University of Seville, Seville, Spain**

2:36

- DF-02. Understanding the microscopic origin of the relation between magnetoelasticity and magnetic damping constant in $\text{Fe}_{4x}\text{Co}_{4-4x}\text{N}$. I. Kurniawan¹, K. Ito², T. Seki^{2,3}, K. Masuda¹ and Y. Miura^{1,4} 1. National Institute for Materials Science, Tsukuba, Japan; 2. Institute for Materials Research, Tohoku University, Sendai, Japan; 3. Center for Science and Innovation in Spintronics, Tohoku University, Sendai, Japan; 4. Kyoto Institute of Technology, Kyoto, Japan**

2:48

- DF-03. Magnetocaloric effect in the full hydrogen liquefaction range in $\text{Gd}_3\text{Ni}_6\text{XY}$. I. Aseguinolaza¹, A. Herrero¹, A. Garcia-Adeva¹, E. Apiñaniz¹, A. Garshev^{2,3}, A. Morozkin² and A. Oleaga¹ 1. University of the Basque Country, Bilbao, Spain; 2. Department of Chemistry, Moscow State University, Moscow, Russian Federation; 3. Faculty of Materials Science, Moscow State University, Moscow, Russian Federation**

3:00

- DF-04. FEMCE - A 3D Finite Element Simulation Tool for Magnetic Refrigerants. R. Kiefe¹ and J. Amaral¹ 1. Physics, University of Aveiro, CICECO, Aveiro, Portugal**

3:12

- DF-05. Direct Measurement of the Rotative Magnetocaloric Effect of Anisotropic Magnetic Materials. O.L. Bernard^{1,2,3}, P. Fournier^{1,2,3} and M. Balli⁴ 1. Physic, Université de Sherbrooke, Sherbrooke, QC, Canada; 2. Institut Quantique, Sherbrooke, QC, Canada; 3. Regroupement Québécois sur les Matériaux de Pointe, Sherbrooke, QC, Canada; 4. Physic, Ecole Supérieure d'Ingénierie des Energies, International University of Rabat, Rabat, Morocco**

3:24

- DF-06. Enhancing Magnetocaloric Properties of Ni-Mn-In by Sn Doping. S. Aksoy Esinoglu¹ and M. Acet² 1. Physics Engineering Department, Istanbul Technical University, Istanbul, Turkey; 2. Faculty of Physics, Duisburg-Essen University, Duisburg, Germany**

- DF-07. Prospects and Challenges: Magnetic-field-assisted Direct Ink Writing of Magnetocaloric Heat Exchange Structures.** V. Sharma¹, K. Bhandari¹, H. Zhao¹ and R. Barua¹ *1. Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States*

3:48

Break

4:15

- DF-08. Extending the revolutionary high entropy design concept to tune the critical crossover point of magnetocaloric materials.** J. Law¹, Z. Tian^{2,3}, L.M. Moreno-Ramírez¹, V. Franco¹, F. Hu^{2,3} and B. Shen^{2,3,4} *1. University of Seville, Seville, Spain; 2. Beijing National Laboratory for Condensed Matter Physics & State Key Laboratory of Magnetism, Institute of Physics, Chinese Academy of Sciences, Beijing, China; 3. School of Physical Sciences, University of Chinese Academy of Sciences, Beijing, China; 4. Ningbo Institute of Materials Technology & Engineering, Chinese Academy of Sciences, Zhejiang, China*

4:27

- DF-09. Field induced change in the behavior of magnetic transition in Eu₂In.** A. Kumar¹, A. Biswas¹ and Y. Mudryk¹ *1. Material Science Division, Ames National Laboratory, USA, Ames, IA, United States*

4:39

- DF-10. Transition from Ferromagnetic to Noncollinear to Paramagnetic State with Increasing Ru Concentration in FeRu Films.** J. Lisik¹, M. Rojas¹, S. Myrtle¹, D.H. Ryan², R. Hübner³, P. Omelchenko¹, C. Abert⁴, A. Ducevic⁴, D. Suess⁴, I. Soldatov⁵, R. Schaefer⁵, J. Seyd⁶, M. Albrecht⁶ and E. Girt¹ *1. Department of Physics, Simon Fraser University, Burnaby, BC, Canada; 2. Physics Department and Centre for the Physics of Materials, McGill University, Montreal, QC, Canada; 3. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 4. Physics of Functional Materials, University of Vienna, Vienna, Austria; 5. Leibniz Institute for Solid State and Materials Research Dresden, Dresden, Germany; 6. Institute of Physics, University of Augsburg, Augsburg, Germany*

4:51

- DF-11. Magnetic Field-Induced Thermal Behavior and Sedimentation of Strontium Ferrite-PDMS Composites for Actuator Applications.** M. Islam¹, M. Kashem², W. Li² and W. Geerts^{1,3} *1. MSEC, Texas State University, San Marcos, TX, United States; 2. Chemical Engineering, Texas Tech University, Lubbock, TX, United States; 3. Physics, Texas State University, San Marcos, TX, United States*

5:03

- DF-12. Direct determination of carrier parameters in indium tin oxide nanocrystals using concepts from magnetoplasmonics.** A. Gabbani^{1,2}, E. Della Latta¹, X. Li³, M. Kociak³, M. Geppi¹, S. Borsacchi⁴ and F. Pineider^{1,2} *1. Department of Chemistry and Industrial Chemistry, University of Pisa, Pisa, Italy; 2. Department of Physics and Astronomy, University of Florence, Sesto Fiorentino (FI), Italy; 3. Laboratoire de Physique des Solides, University of Paris-Saclay, Orsay, France; 4. ICCOM, CNR, Pisa, Italy*

5:15

- DF-13. Modelling of Nonlinear Magneto-Thermo-Mechanical Behaviour of Magnetostrictive Materials Subjected to Prestress and Thermal Load.** S. Somavarapu¹, P. Kondaiah¹ and K. Deepak² *1. Mahindra University, Hyderabad, India; 2. Indian Institute of Technology (BHU) Varanasi, Varanasi, India*

WEDNESDAY
AFTERNOON
2:00

IMPERIAL 5CD

Session DG
THIN FILMS, MULTILAYERS, AND EXCHANGE
BIAS SYSTEMS I

Sarah Watzman, Chair
University of Cincinnati, Cincinnati, OH, United States

2:00

- DG-01. Magnetotransport properties of epitaxial films and Hall bar devices of $\text{Sr}_3\text{Ru}_2\text{O}_7$.** P. Ngabonziza^{1,2}, A. Sharma¹, A. Scheid³, S. Sajeed¹, P. A. van Aken³ and J. Mannhart³ *1. Physics and Astronomy, Louisiana State University, Baton Rouge, LA, United States; 2. Physics, University of Johannesburg, Auckland Park, South Africa; 3. Max Planck Institute for Solid State Research, Stuttgart, Germany*

2:12

- DG-02. Fast spin precession in ferrimagnetic Mn_4N thin films with perpendicular magnetic anisotropy.** S. Granville^{1,2} and Y. Zhang¹ *1. Robinson Research Institute, Victoria University of Wellington, Wellington, New Zealand; 2. MacDiarmid Institute for Advanced Materials and Nanotechnology, Wellington, New Zealand*

2:24

- DG-03. Experimental realization of the recently predicted magnetic antiperovskite Co_3PdN .** S. Bauers¹ *1. National Renewable Energy Laboratory, Golden, CO, United States*

DG-04. Interfacial Alloying Induced Magnetic Proximity Effect in Platinum/Dysprosium Iron Garnet Heterostructures.

*M.J. Gross*¹, *J. Herrero-Martín*², *S. Valencia*³, *A.J. Grutter*⁴, *J. Borchers*⁴, *Y. Choi*⁵, *G. Fabbri*⁵, *A. Kossak*⁶, *A. Kaczmarek*⁶, *S. Kundu*⁷, *S. Ghosh*⁷, *A. Mykhoyan*⁷, *A. Wittmann*⁸ and *C.A. Ross*⁶ *1. Electrical Engineering and Computer Science, Massachusetts Institute of Technology, Cambridge, MA, United States; 2. ALBA Synchrotron Light Source, Barcelona, Spain; 3. Helmholtz-Zentrum Berlin für Materialien und Energie, Berlin, Germany; 4. NIST Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD, United States; 5. Advanced Photon Source, Argonne National Laboratory, Argonne, IL, United States; 6. Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, United States; 7. Chemical Engineering and Materials Science, University of Minnesota, Twin Cities, MN, United States; 8. Physics, Johannes Gutenberg University Mainz, Mainz, Germany*

2:48

DG-05. Co/Gd-based Synthetic Ferrimagnets with PMA for Magneto-Photonic Integration: Growth, Magnetostatics and Modeling.

*T.J. Kools*¹, *J. Hintermayr*¹, *B. Koopmans*¹ and *R. Lavrijsen*¹ *1. Applied Physics, Eindhoven University of Technology, Eindhoven, Netherlands*

3:00

DG-06. Skyrmions in Biased Ferromagnetic and Antiferromagnetic Coupled Multilayers.

*E. Darwin*¹, *R. Tomasello*², *M. Carpentieri*², *G. Finocchio*³ and *H.J. Hug*^{1,4} *1. Empa, Zurich, Switzerland; 2. Politecnico di Bari, Bari, Italy; 3. University of Messina, Messina, Italy; 4. University of Basel, Basel, Switzerland*

3:12

DG-08. Effect of oxygen pressure and layer thickness on the magnetic properties of iron garnet superlattices.

*T.P. Grossmark*¹, *A.C. Kaczmarek*¹, *B. Khurana*¹ and *C.A. Ross*¹ *1. The Department of Materials Science and Engineering, The Massachusetts Institute of Technology, Cambridge, MA, United States*

3:24

DG-09. Enhancement of Magnetic Stability in Antiferromagnetic CoO Films by Adsorption of Organic Molecules.

*I. Bergenti*¹, *L. Gnoli*¹, *C. Del Conte*⁵, *M. Benini*¹, *K. Lin*², *G. Fratesi*³, *S. Achilli*³, *E. Molteni*³, *V. Dediu*¹ and *M. Cinchetti*⁴ *1. CNR-ISMN, Bologna, Italy; 2. National Chung Hsing University, Taichung, Taiwan; 3. University of Milan, Milan, Italy; 4. TU Dortmund, Dortmund, Germany; 5. University of Bologna, Bologna, Italy*

3:36

DG-10. Angular-Dependent Magnetic Properties in V₂O₃/Ni Hybrid Heterostructures.

*K. Ignatova*¹ and *U. Arnalds*¹ *1. The Institute of Physical Sciences, Physics Division, University of Iceland, Reykjavik, Iceland*

3:48

Break

- DG-11. Complex Exchange Bias driven by Natural Oxide Layers in CrPS₄/Fe₃GeTe₂ Antiferromagnetic/Ferromagnetic van der Waals Heterostructures.** *A. Puthirath Balan*¹, *A. Kumar*¹, *T. Scholz*², *Z. Lin*³, *A. Shahee*¹, *S. Fu*⁴, *T. Denneulin*⁵, *J. Vas*⁵, *A. Kovács*⁵, *R.E. Dunin-Borkowski*⁵, *H. Wang*⁴, *J. Yang*³, *B. Lotsch*², *U. Nowak*⁶ and *M. Kläui*^{1,7} *1. Institute of Physics, Johannes Gutenberg University Mainz, Mainz, Germany; 2. Max Planck Institute for Solid State Research, Stuttgart, Germany; 3. School of Physics, Peking University, Beijing, China; 4. Max Planck Institute for Polymer Research Mainz, Mainz, Germany; 5. Ernst Ruska-Centre for Microscopy and Spectroscopy with Electrons and Peter Grünberg Institute, Forschungszentrum Jülich, Jülich, Germany; 6. Department of Physics, University of Konstanz, Konstanz, Germany; 7. Centre for Quantum Spintronics, Department of Physics, Norwegian University of Science and Technology, Trondheim, Norway*

- DG-12. Understanding All-Optical Exchange Bias Reversal by Phase Space Exploration.** *F. van Riel*¹, *S. Vercruysse*¹, *B. Koopmans*¹ and *D. Leita*¹ *1. Applied Physics, Eindhoven University of Technology, Eindhoven, Netherlands*

- DG-13. Magneto-Ionically Tuning the Magnetization and Exchange Bias in all-solid-state CoMnN Heterostructures.** *N. López-Pintó*¹, *C. Jensen*^{2,3}, *Z. Chen*², *Z. Tan*¹, *Z. Ma*¹, *M. Liedke*⁴, *M. Butterling*⁴, *A. Wagner*⁴, *J. Herrero-Martín*⁶, *E. Menéndez*¹, *J. Nogués*^{5,7}, *K. Liu*² and *J. Sort*^{1,7} *1. Fisica de materials II, Universitat Autònoma de Barcelona, Barcelona, Spain; 2. Georgetown University, Washington, DC, United States; 3. NIST center for neutron research, Gaithersburg, MD, United States; 4. Helmholtz-Zentrum Dresden, Rossendorf, Germany; 5. Institut Català de Nanociència i Nanotecnologia (ICN2), Barcelona, Spain; 6. ALBA synchrotron, Barcelona, Spain; 7. ICREA, Barcelona, Spain*

- DG-14. Flexible Exchange-Biased Films with Superior Strain Stability.** *H. Yang*¹, *X. Bao*¹, *Y.I. Xie*¹ and *R. Li*¹ *1. Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, Ningbo, China*

- DG-15. An phase of elongated magnetic bubbles by imprinting a magnetic vortex on the FeGeTe₂ (FGT) stripe phase.** *A.T. N'Diaye*¹, *T. Wang*², *A. Scholl*¹, *X. Huang*², *H. Zhang*², *X. Zhang*³, *C. Hwang*⁴, *R. Ramesh*⁵, *M. Crommie*² and *Z.Q. Qiu*² *1. Advanced Light Source, Lawrence Berkeley National Lab, Berkeley, CA, United States; 2. UC Berkeley, Berkeley, CA, United States; 3. King Abdullah Univ of Sci & Tech (KAUST), Thuwal, Saudi Arabia; 4. Quantum Technology Institute, Korea Reserach Institute of Standards and Science, Daejeon, The Republic of Korea; 5. Rice University, Houston, TX, United States*

Session DP
SOFT MAGNETIC MATERIALS II
(Poster Session)

Jiahao Han, Chair
Tohoku University, Sendai, Japan

- DP-01. Analysis and Design of Current Transformers for Low-Frequency Transmission Systems Using Hybrid Magnetic Materials.** M. Xu¹, Z. Li¹, S. Lu¹, T. Huang¹, G. Ma^{2,3}, H. Zhou² and J. Yuan² *1. State Grid Jiangsu Electric Power Co., Ltd. Marketing Service Center, Nanjing, China; 2. Electrical Engineering and Automation, Wuhan University, Wuhan, China; 3. Department of Electrical and Electronic Engineering, The Hong Kong Polytechnic University, Hong Kong, China*
- DP-02. The varying magnetic properties of different doping concentration of MnO doped C₄AF.** L. Huang¹, A. Baral², C. Pesce³, N. Morley¹ and T. Hanein² *1. University of Sheffield, Sheffield, United Kingdom; 2. University of Leeds, Leeds, United Kingdom; 3. earth4Earth, Sheffield, United Kingdom*
- DP-03. Research on Vibration Characteristics and Suppression Measure of Saturation Core Fault Current Limiter Based on Nanocrystalline Materials.** J. Yuan^{1,2}, Y. Liu^{1,2}, Y. Sun³, X. Li^{1,2} and H. Zhou^{1,2} *1. State Key Laboratory of Power Grid Environmental Protection, Wuhan University, Wuhan, China; 2. School of Electrical Engineering and Automation, Wuhan University, Wuhan, China; 3. State Grid Hubei Electric Power Co., LTD. Wuhan Power Supply Company, Wuhan, China*
- DP-04. AC electrical property and generation of extra eddy current loss in Mn-Zn ferrites in the high frequency range.** Y. Ying¹ and Z. Li¹ *1. Zhejiang University of Technology, Hangzhou, China*
- DP-05. Measurement and Analysis of Magnetostriction of Nanocrystalline Alloy Laminations under Medium-frequency Excitation.** C. Zhang¹, H. Zhang¹, Y. Li¹ and T. Chen¹ *1. State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China*
- DP-06. Band-structure and ferromagnetism of the GaMnAsP epitaxial layers.** N. Tataryn¹, O. Yastrubchak¹, S. Mamykin¹, V. Romanyuk¹, O. Kondratenko¹, B.A. Assaf², J. Furdyna², X. Liu², G. Schönhense³, H. Elmers³, K. Medjanik³, R. Serha⁴, K. Levchenko⁴, M. Sawicki⁵ and K. Gas⁵ *1. V. E. Lashkaryov Institute of Semiconductor Physics, National Academy of Sciences of Ukraine, Kyiv, Ukraine; 2. Department of Physics and Astronomy, University of Notre Dame, Notre Dame, IN, United States; 3. Institut für Physik, Johannes Gutenberg-Universität, Mainz, Germany; 4. Faculty of Physics, Nanomagnetism and Magnonics, University of Vienna, Vienna, Austria; 5. Institute of Physics, Polish Academy of Sciences, Warsaw, Poland*

DP-07. Domain Wall Depinning in Rapidly Quenched Submicrometric Amorphous Wires. *T.A. Ovari¹, S. Corodeanu¹, G. Ababei¹, H. Chiriac¹ and N. Lupu¹*
1. National Institute of Research and Development for Technical Physics, Iasi, Romania

DP-08. Exploratory synthesis and characterization of Mn-based chiral nanomagnets, thin films and multi layers. *J. Moore¹*
1. School of Engineering, University of Central Oklahoma, Edmond, OK, United States

**WEDNESDAY
AFTERNOON
2:30**

EXHIBIT HALL

**Session DQ
MAGNONICS III
(Poster Session)**
Vincent Vlaminck, Chair
IMT Atlantique, Nantes, France

DQ-01. Dipole-exchange spin waves in van der Waals Néel-type antiferromagnetic films and nanoribbons. *B. Hussain¹ and M.G. Cottam²* *1. University of Michigan, Dearborn, MI, United States; 2. University of Western Ontario, London, ON, Canada*

DQ-02. Spin-Wave Dispersion in a Skyrmion Chain. *K. Zulfikar^{1,2,5}, S.J. Holt^{1,5}, M. Lang^{1,5}, S.A. Pathak^{1,5}, E. Vinas Bostroem^{3,5} and H. Fangohr^{1,4,5}* *1. SSU-CS, Max Planck Institute for Structure and Dynamics of Matter, Hamburg, Germany; 2. University of Hamburg, Hamburg, Germany; 3. Theory, Max Planck Institute for Structure and Dynamics of Matter, Hamburg, Germany; 4. University of Southampton, Southampton, United Kingdom; 5. Center for Free-Electron Laser Science, Hamburg, Germany*

DQ-03. A Modified Model Based on Boltzmann Approach for Studying Viscous Fluid Transport of Magnons. *X. Liu¹, Y. Li¹, C. Chen¹ and J. Zhang¹* *1. Tongji University, Shanghai, China*

DQ-04. Enhanced Magnon-Magnon Coupling in Artificial Square Ice with Perpendicular Magnetic Anisotropy. *S. Sankaran Kunnath¹, M.K. Zelent¹, M. Moalic¹ and M. Krawczyk¹*
1. Faculty of Physics, Institute of Spintronics and Quantum Information, Adam Mickiewicz University, Poznan, Poland

DQ-05. Effect of Ru underlayer on magnetic anisotropy and magnetization reversal in CoFeB thin film structures. *S. Sahu^{1,2} and G. Basheed^{1,2}* *1. Indian Reference Material, CSIR National Physical Laboratory, New Delhi, India; 2. Academy of Scientific and Innovative Research (AcSIR), Ghaziabad, India*

DQ-06. Hybrid Spin-Photon Systems: Exploring the Purcell Effect. *S. Verma¹, A. Maurya¹, R. Singh¹ and B. Bhoi¹* *1. Department of Physics, Indian Institute of Technology (BHU) Varanasi, India, Varanasi, India*

DQ-07. Rotational Dependence of Photon-Magnon Coupling in a Planar ELCR-YIG System. *A. Maurya¹, S. Verma¹, R. Singh¹ and B. Bhoi¹ 1. Department of Physics, Indian Institute of Technology (BHU) Varanasi, India, Varanasi, India*

DQ-08. Magnon-Polaron Excitations in Olivine-Type Silicates. *A.B. Niraula¹, Q. Huang¹, Y. Cheng³, G. Granroth³, H. Zhou² and X. Bai¹ 1. Physics and Astronomy, Louisiana State University, Baton Rouge, LA, United States; 2. Physics and Astronomy, University at Tennessee, Knoxville, TN, United States; 3. Neutron Scattering Division, Oakridge National Laboratory, Oak Ridge, TN, United States*

WEDNESDAY
AFTERNOON
2:30

EXHIBIT HALL

Session DR
MAGNETIZATION DYNAMICS & MATERIALS WITH
COUPLED MAGNETIC PHENOMENA II
(Poster Session)

Jinho Lim, Chair
University of Illinois Urbana-Champaign, Urbana, IL, United States

DR-01. Strain-induced annihilation of dipolar skyrmions in uniaxial ferromagnet Fe-Sn. *M. Charilaou¹ 1. Physics, University of Louisiana at Lafayette, Lafayette, LA, United States*

DR-02. Highly Tunable of Electronic States near Chirality-reversed Planar Defect with Magnetic Interstitial Atomic Layer in Magnetic Weyl Semimetals. *E. Thareja¹, J.D. Gayles¹ and I. Vekhter² 1. Department of Physics, University of South Florida, Tampa, FL, United States; 2. Department of Physics and Astronomy, Louisiana State University, Baton Rouge, LA, United States*

DR-04. Geometrically Tunable Spin Superfluidity and a Spin Pumping-Induced Magnetoresistance Enabled by Spontaneous Symmetry Breaking in Easy-Plane Magnets. *M.D. Kitcher¹ and G. Beach¹ 1. Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, United States*

DR-05. Quantum Landauer Erasure using Magnetic Tunneling Junctions. *C. Wang¹, X. Li² and J. Hong³ 1. School of Sciences, Hubei Institute of Technology, Wuhan, China; 2. Huazhong University of Science and Technology, Wuhan, China; 3. UC Berkeley, Berkeley, CA, United States*

DR-06. An Ultrasensitive Molecular Detector for Direct Sensing of Spin Currents at Room Temperature. *T. Feggeler^{1,2}, R. Meckenstock³, T. Strusch³, M.V. Efremova⁴, M. Farle³ and U. Wiedwald³ 1. Department of Physics, University of California, Berkeley, CA, United States; 2. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 3. Faculty of Physics, University of Duisburg-Essen, Duisburg, Germany; 4. Department of Applied Physics, Eindhoven University of Technology, Eindhoven, Netherlands*

DR-07. Sputter Deposited Magnetostrictive $\text{Fe}_{(100-x)}\text{Al}_x$ Alloy on Flexible Substrate. P. Kumar^{1,4,3}, R. Kumar¹, S. .¹, V. Sharma², M.K. Khanna¹ and B.K. Kuanr³ *1. Department of Electronic Science, University of Delhi, New Delhi, India; 2. Department of Physics, Northeastern University, Boston, MA, United States; 3. SCNS, Jawaharlal Nehru university, New Delhi, India; 4. Physics, Motilal Nehru College, University of Delhi, New Delhi, India*

DR-08. The Effect of Cu Doping on the Magnetic and Magnetocaloric Properties of $\text{Al}_{1.2}\text{Si}_{0.15}\text{Fe}_{2-x}\text{Cu}_x\text{B}_2$. S. Rahman¹, J.R. DeFeo², H.A. Adedo¹, V. Yenugonda², A.K. Pathak² and M. Khan¹ *1. Department of Physics, Miami University, Oxford, OH 45056, USA, Oxford, OH, United States; 2. Department of Physics, SUNY Buffalo State University, Buffalo, NY 14222, USA, Buffalo, NY, United States*

WEDNESDAY
AFTERNOON
2:30

EXHIBIT HALL

Session DS
MAGNETOELECTRIC MATERIALS
AND PHENOMENA II
(Poster Session)

Lucas Caretta, Co-Chair
Brown University, Providence, RI, United States
Kai Litzius, Co-Chair
University of Augsburg, Augsburg, Germany

DS-01. Investigating Physical Properties and Evolution of Griffiths Phase in $\text{Tb}_2\text{Ni}_{1-x}\text{Co}_x\text{MnO}_6$ Double Perovskites. A. Raghu¹ and S.D. Kaushik¹ *1. Physics, UGC DAE CSR Mumbai Centre, Mumbai, India*

DS-02. Tuning Magnetocaloric Effect at Constant Temperature in $\text{Ho}_{36}\text{Co}_{64-x}\text{Al}_x$ Multiphase Alloys. E.A. Balfour¹, H. Fu², D. Ami-Erigo¹, J.S. Bayor¹ and R.L. Hadimani³ *1. Applied Physics, C. K. Tedam University of Technology and Applied Sciences, Navrongo, Ghana; 2. School of Physics, University of Electronic Science and Technology of China, Chengdu, China; 3. Department of Mechanical and Nuclear Engineering and Department of Biomedical Engineering, Virginia Commonwealth University, Richmond, VA, United States*

DS-03. Visualizing Domain Structures in Multiferroic ϵ -Iron Oxide Thin Films. D. DeTellem¹, S. Witanachchi¹ and M. Phan¹ *1. Physics, University of South Florida, Tampa, FL, United States*

DS-04. Realization of Perpendicular Magnetic Anisotropy of (001) $\text{Mn}_{1.5}\text{Ga}$ on SiO_2 substrate. N. Zahrin¹, K. Tokunaga¹, Y. Kurokawa¹ and H. Yuasa¹ *1. Kyushu University, Fukuoka, Japan*

DS-05. Exploring spin-gapless semiconducting properties of FeVTaAl and FeCrZrAl . C. Sadler¹, S. Smith², B. Schmidt¹, P. Kharel³, P. Shand¹ and P. Lukashev¹ *1. Physics, University of Northern Iowa, Cedar Falls, IA, United States; 2. Cedar Falls High School, Cedar Falls, IA, United States; 3. Chemistry, Biochemistry and Physics, South Dakota State University, Brookings, SD, United States*

- DS-06. Synthesis of Regular and Iron-Doped Lanthanum Calcium Manganese Oxide Nanoparticles for Magnetic Refrigeration.** *I.M. Smith¹, J. Ahmed¹, P. Moberg¹ and E. Carpenter¹ 1. Chemistry, Virginia Commonwealth University, Richmond, VA, United States*
- DS-08. Enhancing Magnetic and Insulating Properties of BiFeO₃-Based Multiferroic Thin Films via B-Site Dual Substitution of Ni and Co along with Oxygen-Rich Target for Magnetic Memory Device Applications.** *S.S. Das^{1,2}, Y. Suzuki¹, S. Ratha¹, G. Egawa¹ and S. Yoshimura¹ 1. Graduate School of Engineering Science, Akita University, Akita, Japan; 2. Department of Material Science, Akita University, Akita, Japan*

WEDNESDAY
AFTERNOON
2:30

EXHIBIT HALL

Session DT
MAGNETORESISTANCE & DOMAIN WALLS
(Poster Session)

Myoung-Woo Yoo, Chair

University of Illinois Urbana-Champaign, Champaign, IL, United States

- DT-01. Tunnel magnetoresistance up to 405% at room temperature in exchange-spin-valve CoFeB/MgO/CoFeB junctions by *in-situ* MgO annealing.** *H. Sukegawa¹, T. Scheike¹, J. Uzuhashi¹, Z. Wen¹, S. Kasai¹, T. Ohkubo¹ and S. Mitani¹ 1. National Institute of Materials Science, Tsukuba, Japan*
- DT-02. Interfacial Contributions to the Anisotropic Magnetoresistance in FeRh Films Capped with Pt or SiN_x.** *A. Tsai¹, E. Eremina¹, T. Wing¹, S.K. Patel², E. Fullerton² and J.C. Eckert¹ 1. Physics, Harvey Mudd College, Claremont, CA, United States; 2. CMRR, UCSD, San Diego, CA, United States*
- DT-03. Longitudinal and transverse conductivity measurements across the Verwey transition in Fe₃O₄ thin film.** *N. Bano¹, A. Tripathy¹, H. Singh¹ and D.K. Shukla¹ 1. Physics, UGC-DAE CSR, Indore, Indore, India*
- DT-04. Spin-Valve-Like Magnetoresistance in MnZnSb Single Crystal.** *J. Dev^{1,2}, S. Sardar^{1,2}, S. Singh¹ and P. Kushwaha¹ 1. CSIR-National Physical Laboratory (NPL), New Delhi, India; 2. Academy of Scientific and Innovation Research (AcSIR), Ghaziabad, India*
- DT-05. Magnetotransport in van der Waals ferromagnet Fe₃GeTe₂ bulk with current out of plane.** *R. Jhang¹, N. Hai¹, L. Tsai¹, R. Jain¹, K. Raju¹, R. Sankar¹, J. Liang² and S. Lee¹ 1. Institute of Physics, Academia Sinica, Taipei, Taiwan; 2. Department of Physics, Fu Jen Catholic University, Taipei, Taiwan*
- DT-06. Observation of Magnetoresistance Effect in Ni₇₈Fe₂₂/Erq₃/FeCo Organic Spin Valves.** *R. Miyamoto¹, M. Matsuzaka¹, M. Taniguchi¹, T. Ueda¹, C. Hashimoto¹, K. Kashima¹, K. Ando^{1,2} and H. Kaiju^{1,2} 1. Faculty of Science and Technology, Keio University, Yokohama, Japan; 2. Center for Spintronics Research Network, Keio University, Yokohama, Japan*

DT-07. A temperature sensor based on magnetic skyrmions.
D. Kechrakos¹, M. Lianeris², D. Rodrigues², A. Meo²,
M. Carpentieri², R. Tomasello² and G. Finocchio³ *1. Physics
Laboratory, School of Pedagogical and Technological
Education, Athens, Greece; 2. Department of Electrical and
Information Engineering, Politecnico di Bari, Bari, Italy;
3. Department of Mathematical and Computer Sciences,
Physical Sciences and Earth Sciences, University of Messina,
Messina, Italy*

**DT-08. Strain-induced ultrafast magnetization dynamics in
cubic magnetostrictive materials with inertial and
nonlinear dissipative effects.** S. Dolui¹ and S. Dwivedi¹
*1. Mathematics, National Institute of Technology Andhra
Pradesh, Tadepalligudem, India*

WEDNESDAY
AFTERNOON
2:30

EXHIBIT HALL

Session DU
**ELECTRONIC STRUCTURE, MAGNETISM AND
FUNDAMENTAL PHYSICAL PHENOMENA**
(Poster Session)

Arti Kashyap, Co-Chair
Indian Institute of Technology Mandi, Mandi, India
Hari Paudyal, Co-Chair
University of Iowa, Ames, IA, United States

DU-01. Withdrawn

DU-02. High-Throughput Studies of Novel Magnetism in Borides.
Z. Zhang¹, A. Kutepov², K. Belashchenko² and V. Antropov^{1,3}
*1. Iowa State University, Ames, IA, United States; 2. University
of Nebraska-Lincoln, Lincoln, NE, United States; 3. Ames National
Laboratory, Ames, IA, United States*

**DU-03. Prediction of Magnetic Order and Dimensionality in
Cerium-Based Compounds Guided by Structural
Characteristics and Tri-Critical Exponents.** J.A. Torres¹,
A.S. Poulou¹, T. Lamichhane¹, J. Littleton¹ and J. Moore¹
*1. Engineering Physics, University of Central Oklahoma,
Edmond, OK, United States*

**DU-04. High-Throughput Computational Approach to Designing
Unconventional Magnets: Transition Metal Phosphates
T₂PO₅.** Y. Jia¹, A. Alsaad², R. Sabirianov³, A. Kutepov⁴,
K. Belashchenko⁴, Z. Zhang⁵ and V. Antropov⁵ *1. UCSD,
San Diego, CA, United States; 2. JUST, Irbid, Jordan;
3. UNO, Omaha, NE, United States; 4. UNL, Lincoln, NE,
United States; 5. ISU, Ames, IA, United States*

**DU-05. Intrinsic Magnetism and Thermal Stability of Transition
Metal and Rare-Earth Adatoms on MoSe₂ monolayer.**
N. Batnyam¹, B. Odontuya², G. Munkhsaikhan² and D. Odkhui¹
*1. Department of Physics, Incheon National University, Incheon,
The Republic of Korea; 2. Department of Physics, Mongolian
University of Science and Technology, Ulaanbaatar, Mongolia*

DU-06. Models of spin-split bands in antiferromagnets. G. Bednik¹ and R. Sabirianov¹ *1. Physics, University of Nebraska Omaha, Omaha, NE, United States*

DU-07. Observed Frustrated Antiferromagnetism in Ni-Mn-Based Functional Heusler Alloys. S. Aksoy Esinoglu¹ and M. Acet² *1. Physics Engineering Department, Istanbul Technical University, Istanbul, Turkey; 2. Faculty of Physics, Duisburg-Essen University, Duisburg, Germany*

DU-08. Withdrawn

WEDNESDAY
AFTERNOON
2:30

EXHIBIT HALL

Session DV
ANALYSIS AND DESIGN FOR ELECTRICAL
MACHINES
(Poster Session)

Ants Kallaste, Co-Chair
Tallinn University of Technology, Tallinn, Estonia
Anh Huynh, Co-Chair
University of Nottingham, Nottingham, United Kingdom

DV-01. Model Order Reduction of Bidirectional CLLC Converter for Flywheel Energy Storage System. K. Xu¹, Y. Zhu¹, Y. Guo¹, G. Lei¹ and J. Zhu² *1. School of Electrical and Data Engineering, University of Technology Sydney, Sydney, NSW, Australia; 2. School of Electrical and Information Engineering, The University of Sydney, Sydney, NSW, Australia*

DV-02. Synergetic Optimization Based on Doubly Salient Pole-changing Machine for Torque Ripple Reduction. W. Wenjie¹, S. Niu¹ and M. Jiang¹ *1. EEE, Hong Kong Polytechnic University, Hong Kong, Hong Kong*

DV-03. Improved Analytical Technique for Electromagnetic Analysis of Axial Flux Permanent Magnet Motor Considering 3D Leakage Flux. J. Yang¹, T. Kim¹, K. Shin² and J. Choi¹ *1. Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea; 2. Electrical Engineering, Changwon National University, Changwon, The Republic of Korea*

- DV-04. 3D FEM Calculation of Eddy Current Losses in Clamping Structures Considering Stator End-Windings of High-Power Electrical Machines.** W.M. Mohand Oussaid^{1,2}, A. Tounzi¹, A. Benabou¹, J. Korecki¹, R. Romary², W. Boughanmi³ and D. Laloy³ *1. L2EP, Univ. Lille, Arts et Métiers Institute of Technology, Centrale Lille, Junia, ULR 2697 - L2EP, Lille, France; 2. Univ. Artois, UR 4025, Laboratoire Systèmes Électrotechniques et Environnement (LSEE), Béthune, France; 3. R&D, Jeumont Electric, Jeumont, France*
- DV-05. Calculation of Core and PM Losses Considering Current Harmonics and Saturation Effects Based on Exact Analytical Model.** D. Hoang¹, M. Nguyen¹, K. Shin², Y. Kim¹, A. Phung³ and J. Choi¹ *1. Chungnam National University, Daejeon, The Republic of Korea; 2. Changwon National University, Changwon, The Republic of Korea; 3. Hanoi University of Science and Technology, Hanoi, Vietnam*
- DV-06. Analytical and Experimental Approaches to Predicting Magnetic Field Asymmetry and Electromagnetic Forces in Slotted Surface-Mounted Permanent Magnet Machines with Rotor Eccentricity.** Y. Kim¹, J. Yang¹, K. Shin² and J. Choi¹ *1. Chungnam National University, Daejeon, The Republic of Korea; 2. Changwon National University, Changwon, The Republic of Korea*
- DV-07. Novel Electromagnetic Analysis Method for a YASA Motor Based on Multi-Dimensional Hybrid FEA.** J. Son¹ and D. Lim¹ *1. Department of Electrical, Electronic, and Computer Engineering, University of Ulsan, Ulsan, The Republic of Korea*
- DV-08. A Method of Deriving Electromagnetic Characteristics of a SPMSM Based on Two-Stage Magnetostatic FEA.** J. Lee¹ and D. Lim¹ *1. Department of Electrical, Electronic, and Computer Engineering, University of Ulsan, Ulsan, The Republic of Korea*

WEDNESDAY
EVENING
6:45

CELESTIN D

Session XA
21ST-CENTURY PERMANENT MAGNETS:
HOW TO TAKE IT TO THE NEXT LEVEL?
A PANEL/AUDIENCE DIALOG

Laura Lewis, Chair
Northeastern University, Boston, MA, United States

6:45

- XA-01. Sm(Fe,Co)₁₂-based Hard Magnetic Materials: Perspective 1. (Invited)** G. Hadjipanayis^{1,2}, C. Han³ and C. Ni³ *1. Department of Physics and Astronomy, University of Delaware, Newark, DE, United States; 2. Department of Chemical Engineering, Northeastern University, Boston, MA, United States; 3. Department of Materials Science and Engineering, University of Delaware, Newark, DE, United States*

6:57

- XA-02. Sm(Fe,Co)12-based and its relative magnetic materials: Perspective 2. (Invited) Y. Takahashi¹ 1. NIMS, Tsukuba, Japan**

7:09

- XA-03. Progress and Prospects of Hard Hexaferrites for Permanent Magnet Applications. (Invited) C. de Julián Fernández¹ 1. Institute of Materials for Electronics and Magnetism C.N.R., Parma, Italy**

7:21

- XA-04. Synthetic L1₀-FeNi: Achievements and Challenges. (Invited) I.Z. Hlova¹, O. Dolotko¹, M. Abramchuk¹, A. Biswas¹ and Y. Mudryk¹ 1. Ames National Laboratory of the US Department of Energy, Ames, IA, United States**

7:33

- XA-05. Development of Sustainable Rare Earth-free Permanent Magnets based on MnAlC through Conventional and Advanced Manufacturing. (Invited) E.M. Palmero¹, C. Muñoz Rodriguez¹, L. Feng², T. Mix², J. Rial¹, J. de Vicente¹, T. Woodcock² and A. Bollero¹ 1. Group of Permanent Magnets and Applications, IMDEA Nanociencia, Madrid, Spain; 2. Institute of Metallic Materials, Leibniz IFW Dresden, Dresden, Germany**

7:45

- XA-06. Computational Insight into L1₀ FeNi optimization. (Invited) J.B. Staunton¹, C.D. Woodgate^{1,2}, G.A. Marchant¹ and L.H. Lewis^{3,4} 1. Physics, University of Warwick, Coventry, United Kingdom; 2. Physics, University of Bristol, Bristol, United Kingdom; 3. Chemical Engineering, Northeastern University, Boston, MA, United States; 4. Mechanical and Industrial Engineering, Northeastern University, Boston, MA, United States**

7:57

Discussion Panel

THURSDAY
MORNING
8:30

CELESTIN D

Session EA NOVEL MAGNETIC TUNNEL JUNCTION MECHANISMS FOR MULTIFUNCTIONAL MEMORIES

Christopher Bennett, Chair
Sandia National Laboratories, Albuquerque, NM, United States

8:30

- EA-01. Complex Spintronic Synapses Exploiting Magnetoionics. (Invited) D. Querlioz¹ and L. Herrera Diez¹ 1. Univ. Paris-Saclay, CNRS, Palaiseau, France**

9:06

- EA-02. Measurement-driven modeling of superparamagnetic tunnel junctions for computing applications. (Invited) M. Daniels¹**
1. Physical Measurement Laboratory, National Institute of Standards and Technology (NIST), Gaithersburg, MD, United States

9:42

- EA-03. Experimental Demonstration of Magnetic Tunnel Junction-Based Computational Random-Access Memory. (Invited) Y. Lv¹, B. Zink¹, R. Bloom¹, H. Cilasun¹, P. Khanal², S. Resch¹, Z. Chowdhury¹, A. Habiboglu², W. Wang², S. Sapatnekar¹, U. Karpuzcu¹ and J. Wang¹**
1. Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States; 2. Department of Physics, University of Arizona, Tucson, AZ, United States

10:18

Break

10:45

- EA-04. Nanomagnetic and Skyrmion Devices: Hardware AI and Quantum Control. (Invited) J. Atulasimha¹**
1. Mechanical and Nuclear Engineering; Electrical and Computer Engineering; Physics, Virginia Commonwealth University, Richmond, VA, United States

11:21

- EA-05. Advances in Antiferromagnetic Tunnel Junctions. (Invited) S. Arpaci^{1,2}**
1. Department of Electrical and Computer Engineering, Northwestern University, Evanston, IL, United States; 2. Applied Physics Program, Northwestern University, Evanston, IL, United States

THURSDAY
MORNING
8:30

CELESTIN E

Session EB
SPIN-ORBIT TORQUES AND SPIN DYNAMICS
IN 2D SYSTEMS

Simranjeet Singh, Chair
Carnegie Mellon University, Pittsburgh, PA, United States

8:30

- EB-01. Lossless Spin-Orbit Torque in layered Antiferromagnetic Topological Insulators. (Invited) R. Cheng^{1,2,3} and J. Tang²**
1. Electrical and Computer Engineering, University of California Riverside, Riverside, CA, United States; 2. Physics and Astronomy, University of California Riverside, Riverside, CA, United States; 3. Materials Science and Engineering, University of California Riverside, Riverside, CA, United States

9:06

EB-02. Real-Space Investigation of the Stability, Nucleation and Sub-nanosecond Dynamics of Chiral Topological Spin Textures. (Invited) *K. Litzius¹ 1. University of Augsburg, Augsburg, Germany*

9:42

EB-03. Resonant optical detection of 2D spin textures. (Invited) *X. Zhang¹ 1. University of Florida, Gainesville, FL, United States*

10:18

Break

10:45

EB-04. Quantum Noise Spectroscopy of Critical Dynamics in Two-dimensional Magnets. (Invited) *S. Chatterjee¹, F. Machado², M. Ziffer³, N. Yao², E. Demler⁴, E. Davis⁵ and A. Pasupathy³ 1. Physics, Carnegie Mellon University, Pittsburgh, PA, United States; 2. Harvard University, Cambridge, MA, United States; 3. Columbia University, New York City, NY, United States; 4. ETH Zurich, Zurich, Switzerland; 5. New York University, New York City, NY, United States*

11:21

EB-05. Quantum spintronics with graphene-based magnetic heterostructures. (Invited) *T. Ghiasi¹ 1. Harvard University, Cambridge, MA, United States*

THURSDAY
MORNING
8:30

CELESTIN A

Session EC
MAGNETORESISTANCE, SPIN
CALORITRONICS, AND DAMPING

William Peria, Chair
National Institute of Standards and Technology,
Boulder, CO, United States

8:30

EC-01. Enhancement of tunnel magnetoresistance in fully perpendicular MnGa-based magnetic tunnel junctions with metastable bcc CoMnFe interlayer. *D. Kumar¹, N. Kamata^{2,1}, K. Hyeokjin^{2,1} and S. Mizukami^{1,3} 1. WPI Advanced Institute for Materials Research, Tohoku University, Sendai 980-8577, Japan, Sendai, Japan; 2. Department of Applied Physics, Tohoku University, Sendai 980-8579, Japan, Sendai, Japan; 3. Center for Science and Innovation in Spintronics, Tohoku University, Sendai 980-8577, Japan, Sendai, Japan*

- EC-02. Tunnel Magnetoresistance in Fully Epitaxial CoPt/MgO/CoPt(111) Perpendicular Magnetic Tunnel Junctions.** J. Song^{1,2}, T. Scheike¹, C. He¹, Z. Wen¹, T. Ohkubo¹, K. Kim³, H. Sukegawa¹ and S. Mitani^{1,2} *1. National Institute for Materials Science, Tsukuba, Japan; 2. Graduate School of Science and Technology, University of Tsukuba, Tsukuba, Japan; 3. Samsung Advanced Institute of Technology, Suwon, The Republic of Korea*

- EC-03. Tunnel magnetoresistance enhancement by ultrathin MgO insertions in Fe/MgGa₂O₄/Fe(001) magnetic tunnel junctions.** R.R. Sihombing¹, T. Scheike¹, Z. Wen¹, J. Uzuhashi¹, T. Ohkubo¹, S. Mitani¹ and H. Sukegawa¹ *1. CMSM, National Institute of Materials Science, Tsukuba, Japan*

- EC-04. Theory for the TMR oscillation as a function of the barrier thickness.** K. Masuda¹, T. Scheike¹, H. Sukegawa¹, Y. Kozuka¹, S. Mitani¹ and Y. Miura^{1,2} *1. National Institute for Materials Science, Tsukuba, Japan; 2. Kyoto Institute of Technology, Kyoto, Japan*

- EC-05. Observed Perpendicular Magnetic Anisotropy in CoFe₂O₄/MgO/ZnFe₂O₄ Magnetic Tunnel Junction: X-ray Magnetic Circular Dichroism Study.** R. Charak¹, S. Gautam², S. Garg², P. Thakur³, N. Goyal⁴, Y. Kim⁵ and K. Chae⁶ *1. Energy Research Centre, Panjab University, Chandigarh, India; 2. Dr. SSB Univ Inst Chem Engg & Tech, Panjab University, Chandigarh, India; 3. Beamline Division, Diamond Light Source Ltd., Didcot Oxfordshire, United Kingdom; 4. Department of Physics, Panjab University, Chandigarh, India; 5. Pohang Accelerator Lab, POSTECH, Pohang, The Republic of Korea; 6. Advanced Analysis & Data Center, Korea Institute of Science and Technology, Seoul, The Republic of Korea*

- EC-06. Spin-selective transport in chiral molecular junctions on semiconductors.** Y. Adhikari¹, T. Liu², H. Wang³, Z. Hua¹, H. Liu¹, P. Schlottmann¹, H. Gao¹, P. Weiss², B. Yan⁴, J. Zhao³ and P. Xiong¹ *1. Department of Physics, Florida State University, Tallahassee, FL, United States; 2. Department of Chemistry and Biochemistry, University of California, Los Angeles, Los Angeles, CA, United States; 3. State Key Laboratory of Superlattices and Microstructures, Institute of Semiconductors, Chinese Academy of Sciences, Beijing, China; 4. Department of Condensed Matter Physics, Weizmann Institute of Science, Rehovot, Israel*

- EC-07. Colossal anisotropic absorption of spin currents induced by chirality.** R. Sun¹, Z. Wang², B.P. Bloom³, A.H. Comstock¹, C. Yang², A. McConnell¹, C. Clever³, M. Molitoris³, D. Lamont⁴, Z. Cheng⁵, Z. Yuan^{5,7}, W. Zhang⁶, A. Hoffmann⁸, J. Liu², D.H. Waldeck³ and D. Sun¹ *1. Physics, North Carolina State University, Raleigh, NC, United States; 2. Department of Mechanical and Aerospace Engineering, North Carolina State University, Raleigh, NC, United States; 3. Department of Chemistry, University of Pittsburgh, Pittsburgh, PA, United States; 4. Petersen Institute of Nanoscience and Engineering, University of Pittsburgh, Pittsburgh, PA, United States; 5. Institute of Physics, CAS, Beijing, China; 6. Department of Physics and Astronomy, University of North Carolina at Chapel Hill, Chapel Hill, NC, United States; 7. Department of Physics, Beijing Normal University, Beijing, China; 8. Department of Materials Science & Engineering and Materials Research Laboratory, University of Illinois at Urbana-Champaign, Urbana, IL, United States*

9:54

- EC-08. Observations of Non-Local Spin-Valve Signal and Hanle Signal in Perpendicularly Magnetized Mn/Co/n-GaAs Junctions via All Electrical Methods.** M. Ogawa¹, K. Nara¹, M. Yamanouchi¹ and T. Uemura¹ *1. Grad. School of Information Science and Technology, Hokkaido University, Sapporo, Japan*

10:06

- EC-09. Low spin-flip probability of the Kondo scattering in Cu channels with dilute Fe impurities.** Y. Ji¹ and X. Shen¹ *1. University of Delaware, Newark, DE, United States*

10:18

Break

10:45

- EC-11. Influence of oxidic and metallic interfaces and spacers on the magnetic damping of Permalloy thin films.** V. Ney¹, K. Lenz², R. Hübner², F. Ganss², R. Salikhov², O. Hellwig², J. Lindner² and A. Ney¹ *1. Solid State Physics Division, Johannes Kepler University Linz, Linz, Austria; 2. Helmholtz Zentrum Dresden Rossendorf, Dresden, Germany*

10:57

- EC-12. Observation of the Transverse Thomson Effect.** A. Takahagi¹, T. Hirai², A. Alasli¹, S.J. Park², H. Nagano¹ and K. Uchida^{2,3} *1. Department of Mechanical Systems Engineering, Nagoya University, Nagoya, Japan; 2. National Institute for Materials Science, Tsukuba, Japan; 3. Department of Advanced Materials Science, The University of Tokyo, Kashiwa, Japan*

11:09

- EC-13. Temperature gradient-driven motion of domains in a chiral magnetic metal multilayer.** L. Huang^{1,2}, L. Kailas¹, S. Connell¹, G. Burnell¹ and C. Marrows¹ *1. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 2. School of Material Science, University of Sheffield, Sheffield, United Kingdom*

11:21

- EC-14. Spin caloritronics in topological and nonunitary superconductors.** T. Matsushita², T. Mizushima³, Y. Masaki⁴, S. Fujimoto³ and I. Vekhter¹ 1. *Department of Physics and Astronomy, Louisiana State University, Baton Rouge, LA, United States*; 2. *Department of Physics and Yukawa Institute, Kyoto University, Kyoto, Japan*; 3. *Department of Materials Engineering Science, Osaka University, Osaka, Japan*; 4. *Department of Applied Physics, Tohoku University, Sendai, Japan*

11:33

- EC-15. Nernst Effect in Bismuth at Different Crystal Orientations.** A. Sola¹, E.S. Olivetti¹ and V. Basso¹ 1. *INRIM, Torino, Italy*

THURSDAY
MORNING
8:30

CELESTIN B

**Session ED
SKYRMIONS**

Claas Abert, Chair
University of Vienna, Vienna, Austria

8:30

- ED-01. Experimental Visualizations of Three-Dimensional Skyrmion Topological Transition and Stabilization Pathways. (Invited)** M. Henderson¹ 1. *Neutron Scattering Division, Oak Ridge National Laboratory, Oak Ridge, TN, United States*

9:06

- ED-02. Skyrmion, stripe domain, and sublattice skyrmion spin textures in synthetic antiferromagnetic multilayers.** C. Barker^{1,2}, R. Aboljadayel¹, R. Peremadathil-Pradeep³, K. Fallon⁴, Z. Tumbleson⁵, S.A. Morley⁶, S. McVitie⁴, H.J. Hug³ and C. Marrows¹ 1. *School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom*; 2. *National Physical Laboratory, Teddington, United Kingdom*; 3. *EMPA, Dübendorf, Switzerland*; 4. *SUPA, School of Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom*; 5. *University of California Santa Cruz, Santa Cruz, CA, United States*; 6. *Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA, United States*

9:18

- ED-03. Topological spin-torque diode effect in skyrmion-based magnetic tunnel junctions.** R. Tomasello¹, B. Fang², M. Carpentieri¹, E. Darwin³, W. Jiang⁴, X. Zhang⁵, G. Finocchio⁶ and Z. Zeng² 1. *Politecnico di Bari, Bari, Italy*; 2. *Nanofabrication Facility, Suzhou Institute of Nano-Tech and Nano-Bionics, Chinese Academy of Sciences, Suzhou, China*; 3. *Swiss Federal Laboratories for Materials Science and Technology, EMPA, Dübendorf, Switzerland*; 4. *State Key Laboratory of Low-Dimensional Quantum Physics and Department of Physics, Tsinghua University, Beijing, China*; 5. *Physical Science and Engineering Division, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia*; 6. *University of Messina, Messina, Italy*

9:30

- ED-05. Realizing Quantitative Quasi-Particle Modeling of Skyrmion Dynamics in Arbitrary Potentials.** *M.A. Brems*¹, T. Sparmann¹, S.M. Fröhlich¹, J. Rothörl¹, F. Kammerbauer¹, E.M. Jefremovas¹, O. Farago², M. Kläui¹ and P. Virnau¹ *1. Institute of Physics, Johannes Gutenberg University Mainz, Mainz, Germany; 2. Biomedical Engineering Department, Ben Gurion University of the Negev, Be'er Sheva, Israel*

9:42

- ED-06. Slow Ordering Kinetics of Magnetic Skyrmions.** N. Liyanage¹, N. Tang¹, R. Dally², L. Quigley¹, C.C. Buchanan¹, G. Shu³, N. Butch², K. Krycka², M. Bleuel², J. Borchers², L. DeBeer-Schmitt⁴ and D.A. Gilbert¹ *1. University of Tennessee, Knoxville, TN, United States; 2. National Institute of Standards and Technology, Gaithersburg, MD, United States; 3. National Taiwan University, Taipei, Taiwan; 4. Oak Ridge National Laboratory, Oak Ridge, TN, United States*

9:54

- ED-07. Curvature-induced enhancement of thermal stability of skyrmions.** A.G. Silva-Junior¹, J.M. Fonseca¹, J.I. Costilla¹, M.M. Amaral¹, A. Riveros² and V. Carvalho¹ *1. Departamento de Física, Universidad Federal de Viçosa, Viçosa, Brazil; 2. Escuela de Ingeniería, Universidad Central de Chile, Santiago, Chile*

10:06

- ED-09. Topological Melting of a 2D Skyrmion Lattice.** R. Gruber¹, M.A. Brems¹, F. Kammerbauer¹, J. Rothörl¹, O. Farago², P. Virnau¹ and M. Kläui^{1,3} *1. Physics, Johannes Gutenberg University Mainz, Mainz, Germany; 2. Biology, Ben Gurion University of the Negev, Beer Sheva, Israel; 3. Center for Quantum Spintronics, NTNU, Trondheim, Norway*

10:18

Break

10:45

- ED-08. Experimental observation of current-driven antiskyrmion sliding in stripe domains. (Invited)** Y. Zhang¹ *1. Chinese Academy of Science, Institute of Physics, Beijing, China*

11:21

- ED-10. Multidimensional Soliton Lattices in Iron-Gadolinium Thin Films.** C.C. Buchanan¹, N. Tang¹, N. Liyanage², S. Montoya³, E. Fullerton³, D.A. Gilbert^{1,2} and L. DeBeer-Schmitt⁴ *1. Materials Science and Engineering, University of Tennessee, Knoxville, TN, United States; 2. Physics and Astronomy, University of Tennessee, Knoxville, TN, United States; 3. Center for Memory and Recording Research, University of California San Diego, La Jolla, CA, United States; 4. Neutron Scattering Division, Oak Ridge National Laboratory, Oak Ridge, TN, United States*

- ED-11. Propagation and interaction of skyrmions in antiferromagnets.** *S. Komineas*^{1,2} and *G. Theodorou*^{1,2}
1. Mathematics and Applied Mathematics, University of Crete, Heraklion, Greece; 2. Foundation for Research and Technology, Heraklion, Greece

THURSDAY
 MORNING
 8:30

CELESTIN C

Session EE

SPINTRONIC DEVICES II: ANTIFERROMAGNETISM, VOLTAGE-CONTROLLED EFFECTS, DOMAIN WALL LOGIC AND PROBABILISTIC SWITCHING

Fei Xue, Chair

University of Alabama at Birmingham, Birmingham, AL, United States

8:30

- EE-01. Toggle SOT-MRAM Architecture with Self-Terminating Write Operation.** *E.C. Usih*¹, *N. Hassan*¹, *A.J. Edwards*¹, *F. García Sánchez*², *P. Khalili*³ and *J.S. Friedman*¹ *1. Electrical and Computer Engineering, The University of Texas at Dallas, Richardson, TX, United States; 2. Departamento de Fisica Aplicada, Universidad de Salamanca, Salamanca, Spain; 3. Electrical and Computer Engineering, Northwestern University, Evanston, IL, United States*

- EE-02. Withdrawn**

8:42

- EE-03. Precise quantification of ferromagnetic exchange in thin films via Brillouin light scattering.** *J.J. Wissner*¹, *M. Tanksalvala*¹, *J.S. Harms*², *M. Kiechle*¹, *W.K. Peria*¹, *R.A. Duine*³, *J.M. Shaw*¹ and *H.T. Nembach*^{1,4} *1. NIST, Boulder, CO, United States; 2. University of Konstanz, Konstanz, Germany; 3. Utrecht University, Utrecht, Netherlands; 4. University of Colorado, Boulder, CO, United States*

8:54

- EE-04. Error-Free and Current-Driven Synthetic Antiferromagnetic Domain Wall Memory Enabled by Channel Meandering.** *P. Zhang*^{1,3}, *W. Haensch*^{1,3}, *C. Phatak*^{1,2} and *S. Guha*^{1,3}
1. Materials Science Division, Argonne National Laboratory, Lemont, IL, United States; 2. Materials Science and Engineering, Northwestern University, Evanston, IL, United States; 3. Pritzker School of Molecular Engineering, University of Chicago, Chicago, IL, United States

- EE-05. Effects of Temperature on the Performance of STT-MRAM Devices with Different Thicknesses.** S. Mangadahalli Siddaramu¹, M. Hindenberg¹, M. Wagner-Reetz¹, J. Müller² and J. Chatterjee¹
1. Fraunhofer Institute for Photonic Microsystems, CNT, Dresden, Germany; 2. GlobalFoundries Fab1 LLC and Company KG, Dresden, Germany

EE-06. Withdrawn

- EE-07. Ultrafast Coupled Domain Wall Motion in Mn₂Au-Permalloy.** S. Jenkins¹, T. Wagner^{2*}, O. Gomonay² and K. Everschor-Sitte¹
1. Faculty of Physics and Center for Nanointegration Duisburg-Essen (CENIDE), University of Duisburg-Essen, Duisburg, Germany; 2. Institute of Physics, Johannes Gutenberg University Mainz, Mainz, Germany

- EE-08. Energy-Efficient Manipulation of Stochastic Switching Behavior by Voltage Controlled Exchange Coupling in Magnetic Tunnel Junctions.** J. Qi¹, B. Zink¹, O. Benally¹, D. Zhang¹, Y. Lv¹, D. Lyu¹ and J. Wang¹ *1. University of Minnesota, Minneapolis, MN, United States*

- EE-09. Numerical analysis of vortex spin torque oscillator with an additional free layer.** K. Horizumi¹, T. Chiba^{2,3} and T. Komine¹
1. Graduate School of Science and Engineering, Ibaraki University, Hitachi, Japan; 2. Department of Applied Physics, Graduate School of Engineering, Tohoku University, Sendai, Japan; 3. Frontier Research Institute for Interdisciplinary Sciences(FRIS), Tohoku University, Sendai, Japan

EE-10. Withdrawn

- EE-11. Voltage-Gated Spin-Orbit Torque for Selective Data Writing in IrMn-Based Perpendicular Magnetic Tunnel Junction Arrays.** Z. Liu¹, W. Li¹, S. Peng¹, J. Lu¹, J. Liu¹, X. Li¹, S. Lu¹, Y. Otani² and W. Zhao¹ *1. Fert Beijing Institute, School of Integrated Circuit Science and Engineering, Beihang University, Beijing, China; 2. Institute for Solid State Physics, University of Tokyo, Tokyo, Japan*

- EE-12. Towards an Ising Machine Simulator based on Spintronic Oscillator Digital Twins.** C. Chopin¹, A. Hakam¹, M. Ibarra Gomez¹, L.D. Buda-Prejbeanu¹, S. de Wergifosse², F. Abreu Araujo², E. Aubouin³, L. Hutin³, F. Badets³, P. Talatchian¹ and U. Ebels¹ *1. Univ. Grenoble Alpes, CEA, CNRS, Grenoble-INP, SPINTEC, Grenoble, France; 2. Institute of Condensed Matter and Nanosciences, Université Catholique de Louvain, Louvain-la-Neuve, Belgium; 3. Univ. Grenoble Alpes, CEA, LETI, Grenoble, France*

10:18

Break

- EE-14. Large spin orbit torque induced by high temperature annealed BiSb topological insulator on oxidized Si substrates.** *H. Ho¹, W. Li¹, S. Takahashi², Y. Hirayama², Y. Kato² and H.N. Pham¹*
1. Electrical and Electric Engineering, Tokyo Institute of Technology, Meguro, Japan; 2. Samsung Japan Corp., Yokohama, Japan

10:45

- EE-15. Magnetic and Transport Properties of Altermagnetic Candidate GdAlSi.** *J. Shi¹, N. Fokkens¹ and F. Xue¹*
1. Physics, University of Alabama at Birmingham, Birmingham, AL, United States

10:57

- EE-13. Investigation and design of Magnetic Tunnel Junction Molecular Spintronic Devices based Solar Cells via Monte Carlo Simulation.** *O. Kirkland¹ and P. Tyagi¹* *1. University of the District of Columbia, Washington, DC, United States*

THURSDAY
MORNING
8:30

IMPERIAL 5AB

Session EF SOFT AND HARD MAGNETS

Xiaoyu (Criss) Zhang, Co-Chair
Northeastern University, Boston, MA, United States

Ravi Gautam, Co-Chair
National Institute for Materials Science (NIMS), Tsukuba, Japan

8:30

- EF-01. High-temperature phase transition during hydrogen disproportionation of Nd-Fe-B alloys.** *G. Bacchetta¹, F. Orlandini Keller¹, C. Flament¹, L. Magnier¹, S. Luca¹, J. Garandet¹ and C. Rado¹* *1. Univ. Grenoble Alpes, CEA LITEN, Grenoble, France*

8:42

- EF-02. Controlling High Dense Particle Settling for 3D Printing of Functional Objects by Vat Photopolymerization.** *C.E. Frank¹, E.M. Palmero¹, C.M. Montero¹ and A. Bollero¹* *1. Group of Permanent Magnets and Applications, IMDEA Nanociencia, Madrid, Spain*

8:54

EF-03. Magnetic properties of RE-Co₅ intermetallic compounds. *V. Antropov¹, Z. Zhang¹ and L. Pourovskii² 1. Ames National Laboratory, Ames, IA, United States; 2. CPHT, CNRS, École Polytechnique, Institut Polytechnique de Paris, Paris, France*

EF-04. Withdrawn

9:06

EF-05. A material processing prospective on exchange-spring permanent magnets. *A.S. Poulo¹, J.A. Torres¹, J. Littleton¹, J. Moore¹ and T. Lamichhane¹ 1. University of Central Oklahoma, Edmond, OK, United States*

9:18

EF-06. Electrically Switchable Magnetic Elastomer. *O. Sodomka¹ and F. Mach¹ 1. Department of Electrical and Computational Engineering, University of West Bohemia in Pilsen, Pilsen, Czechia*

9:30

EF-07. Influence of Cationic Distribution on the Magnetic and Electromagnetic Properties of Substituted Barium Hexaferrite within X-band (8.2 GHz-12.4 GHz). *K. Rana¹, M. Tomar^{1,2} and A. Thakur³ 1. Physics, Electronic Materials and Device Laboratory, New Delhi, Delhi, India; 2. Physics, Miranda College, Delhi, India; 3. Applied Physics, Amity University, Gurugram, India*

9:42

EF-08. Nonreciprocity of surface acoustic waves coupled to spin waves propagating in a ferromagnetic bilayer having non-collinear magnetizations of layers. *L. Ushii¹, A.N. Slavin², V. Tyberkevych² and R.V. Verba¹ 1. Institute of Magnetism, Kyiv, Ukraine; 2. Physics, Oakland University, Rochester, MI, United States*

9:54

EF-09. Garnet Microcavity Using Ce:YIG and GGG Showing Perpendicular Magnetic Anisotropy. *T. Goto¹, Y. Yoshihara¹, T. Koguchi¹, T. Watanabe², K. Mori¹, H. Miyashita¹, C.A. Ross³ and K. Ishiyama¹ 1. Tohoku University, Sendai, Japan; 2. Shin-Etsu Chemical, Annaka, Japan; 3. Massachusetts Institute of Technology, Canbridge, MA, United States*

10:06

Break

10:45

- EF-10. FeGa Thin Film Coupled to a Network of Photoresponsive Liquid Crystals: Control of Magnetic Properties by Light Irradiation.** G. Barrera¹, F. Celegato¹, D. Martella^{2,4}, M. Coisson¹, C. Parmeggiani^{2,3}, N. Fuochi^{2,4}, D. Wiersma^{2,3} and P. Tiberto¹ *1. Advance Materials and Life Sciences, INRIM, Torino, Italy; 2. European Laboratory for Non Linear Spectroscopy (LENs), Sesto Fiorentino (FI), Italy; 3. Physics and Astronomy Department, University of Florence, Sesto Fiorentino, Italy; 4. Chemistry "Ugo Schiff" Department, University of Florence, Firenze, Italy*

10:57

- EF-11. Anomalous Optical Properties of Single-Molecule Magnet (SMM) Modified Magnetic Tunnel Junction (MTJ) at Room Temperature.** J.E. Hernandez¹, J. Martinez-Lillo² and P. Tyagi¹ *1. University of the District of Columbia, Washington, DC, United States; 2. Universitat de València, Valencia, Spain*

11:09

- EF-12. Hybrid magnon-phonon cavity realized in a magnetoelastic heterostructure.** C. Tang^{1,2}, H. Goyal^{1,2}, D. Sasaki³, Y. Xiong⁴, M. Mahjouri-Samani¹, M. Adams¹, Y. Takamura³, W. Zhang⁴ and W. Jin^{2,1} *1. Department of Electrical and Computer Engineering, Auburn University, Auburn, AL, United States; 2. Department of Physics, Auburn University, Auburn, AL, United States; 3. Department of Materials Science and Engineering, University of California, Davis, Davis, CA, United States; 4. Department of Physics and Astronomy, University of North Carolina at Chapel Hill, Chapel Hill, NC, United States*

11:21

- EF-13. Magnetoplasmonic Nanocolumnar Films Fabricated by Sputtering.** M. Garrido-Segovia^{1,2}, E. Navarro^{2,3}, A. Espinosa⁴ and J. García-Martín¹ *1. Instituto de Micro y Nanotecnología, CSIC, Tres Cantos, Spain; 2. Depto. Física de Materiales, UCM, Madrid, Spain; 3. Instituto de Magnetismo Aplicado, Las Rozas, Spain; 4. Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain*

11:33

- EF-15. Effect of Rare-Earth Doping on Magnetic Softness and Magnetization Dynamics of Fe-Ga Films.** S. Ajia¹, R. Nishina¹, T. Miyazaki², S. Muroga¹ and Y. Endo^{1,3} *1. Department of Electrical Engineering, Tohoku University, Sendai, Japan; 2. School of Engineering, Tohoku University, Sendai, Japan; 3. CSIS, Tohoku University, Sendai, Japan*

Session EG
MAGNETIC CRYSTALLINE ALLOYS

Nicoleta Lupu, Chair
National Institute of R&D for Technical Physics, Iasi, Romania

8:30

- EG-01. Interplay Between Magnetism and Short-Range Order in Medium- and High-Entropy Alloys: CrCoNi, CrFeCoNi, and CrMnFeCoNi.** *C.D. Woodgate^{1,2}, L.H. Lewis^{3,4} and J.B. Staunton¹* *1. Department of Physics, University of Warwick, Coventry, United Kingdom; 2. H. H. Wills Physics Laboratory, University of Bristol, Bristol, United Kingdom; 3. Department of Chemical Engineering, Northeastern University, Boston, MA, United States; 4. Department of Mechanical and Industrial Engineering, Northeastern University, Boston, MA, United States*

8:42

- EG-02. Relationship between chemical bonding state, magnetostrictive coefficient, and Gilbert damping coefficient in Fe-Al-N alloy system.** *K. Imamura¹, T. Sato¹, S. Isogami², N.H. Oono¹ and M. Ohtake¹* *1. Faculty of Engineering, Yokohama National University, Yokohama, Japan; 2. Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science, Tsukuba, Japan*

8:54

- EG-03. Synthesis and Magnetic Properties of Fe-Co-N-based Magnetic Materials.** *T. Tabata¹, Y. Asari¹, M. Noujima¹ and S. Terada¹* *1. Research & Development Group, Hitachi Ltd., Hitachi, Japan*

9:06

- EG-04. Anisotropy of Losses in Non-Segmented Assemblies of Grain-Oriented Steel with Circular Easy Axis Distribution.** *S. Dobák¹, J. Fuzer¹, I. Petryshynets², P. Kollár¹ and F. Kováč²* *1. Institute of Physics, Faculty of Science, P. J. Safarik University in Kosice, Kosice, Slovakia; 2. Institute of Materials Research, Slovak Academy of Sciences, Kosice, Slovakia*

9:18

- EG-05. Enhanced permeability of high-frequency Nd₂Fe₁₇N₃ magnetic powder with a reduced surface iron oxide layer by inert gas annealing.** *J. Akamatsu¹, S. Abe¹ and N. Imaoka¹* *1. Magnet Material Development Dept., Nichia Corporation, Anan, Japan*

9:30

- EG-06. Statistical modeling of soft magnetic composites' permeability.** *F. Mazaleyrat¹* *1. SATIE CNRS, ENS Paris-Saclay, Gif-sur-Yvette, France*

- EG-07. The Impact of the Physical, Electrical and Magnetic Properties of Ferromagnetic Materials on their Excess Loss.** *S. Jacobs¹ and J. Rens² 1. ArcelorMittal Global R&D, Zwijnaarde, Belgium; 2. ArcelorMittal Global R&D Gent, Zwijnaarde, Belgium*

9:54

- EG-08. Development of Co-rich glass-coated microwires with high GMI effect.** *A. Gonzalez Villegas^{1,2}, P. Corte-Leon^{1,2,4}, V. Zhukova^{1,2}, J. Blanco^{2,3} and A. Zhukov^{1,2,3} 1. Department Polymers and Advanced Materials, University of Basque Country, San Sebastian, Spain; 2. Department Applied Physics, University of Basque Country, San Sebastian, Spain; 3. Ikerbasque, Bilbao, Spain; 4. Department of Materials Science & Metallurgy, University of Cambridge, Cambridge, United Kingdom*

10:06

- EG-09. Magnetic, structural, and transport properties of Heusler alloy Cr₂FeSn.** *G. Karthik¹ and R. Kuppan¹ 1. Department of Nuclear Physics, University of Madras, Chennai, India*

10:18

Break

10:45

- EG-10. Effects of Isothermal Aging on the Magnetic Properties of Non-Oriented Electrical Steels: Interpretation Based on the Iron Loss Separation Approach.** *L. Saleh¹, O. Messal¹, A. Benabou¹ and M. Dumont² 1. Electrical Engineering and Power Electronics Laboratory, University of Lille, Lille, France; 2. Mechanics, Surfaces and Materials Processing (MSMP), Ecole Nationale Supérieure d'Arts et Métiers, Lille, France*

10:57

- EG-11. Permeability enhancement and eddy current suppression of the bioinspired nacre structural soft magnetic composites for high frequency application.** *W. Li¹, W. Xiang¹, H. Cai¹, Y. Ying¹ and S. Che¹ 1. Zhejiang University of Technology, Hangz, China*

11:09

- EG-13. Quaternary magnetic semiconductors for photonic and spintronic applications.** *O. Yastrubchak², N. Tataryn¹, S. Mamykin¹, V. Romanyuk¹, O. Kondratenko¹, O. Kolomys², L. Borkovska³, L. Khomenkova³, J. Furdyna⁴, B.A. Assaf⁴, X. Liu⁴ and Y. Ichiyanagi⁵ 1. Department of Kinetic Phenomena and Polaritonics, V. E. Lashkaryov Institute of Semiconductor Physics, National Academy of Sciences of Ukraine, Kyiv, Ukraine; 2. Optical Submicron Spectroscopy Lab, V. E. Lashkaryov Institute of Semiconductor Physics, National Academy of Sciences of Ukraine, Kyiv, Ukraine; 3. Department of Sensor Systems, V. E. Lashkaryov Institute of Semiconductor Physics, National Academy of Sciences of Ukraine, Kyiv, Ukraine; 4. Department of Physics and Astronomy, University of Notre Dame, Notre Dame, IN, United States; 5. Department of Physics, Graduate School of Engineering Science, Yokohama National University, Yokohama, Japan*

- EG-14. Theoretical and experimental investigation of half-metallic properties in V_2CoAl .** P. Kharel¹, C. Brown¹, B. Schmidt², C. Sadler², S. Diallo², M. Anas¹, P. Shand² and P. Lukashev²
1. Chemistry, Biochemistry and Physics, South Dakota State University, Brookings, SD, United States; 2. Physics, University of Northern Iowa, Cedar Falls, IA, United States

- EG-15. Ultra-stable Weyl topology in association with magnetic textures in shandite compound $Co_3Sn_2S_{(2-x)}Se_x$.** D. Le¹, B. Konushbaev¹, G.M. Pantano¹, Y. Mokrousov^{3,2}, M. Phan¹ and J.D. Gayles¹
1. Department of Physics, University of South Florida, Tampa, FL, United States; 2. Institute of Physics, Johannes Gutenberg University Mainz, Mainz, Germany; 3. Peter Grünberg Institut and Institute for Advanced Simulation, Forschungszentrum Jülich and JARA, Jülich, Germany

THURSDAY
MORNING
9:00

EXHIBIT HALL

**Session EP
HARD MAGNETS III
(Poster Session)**

Xin Tang, Chair

National Institute for Materials Science (NIMS), Tsukuba, Japan

- EP-01. Aluminum praseodymium doped M type ferrite for replacing rare earth magnets in EVS motor applications.** D. Sharma¹, A. Dogra² and M. Singh¹
1. Physics, Himachal Pradesh University, Shimla, India; 2. Physics, CSIR NPL, Delhi, India
- EP-02. Facile synthesis and magnetic characterization of FeNi magnetic alloys.** P. Agoeyevu¹, M. Jiang² and E. Carpenter¹
1. Chemistry, Virginia Commonwealth University, Richmond, VA, United States; 2. Department of Chemical and Life Science Engineering, Virginia Commonwealth University, Richmond, VA, United States
- EP-03. Theoretical Estimate of Thermal Stability Range of $\alpha''\text{-Fe}_{16}\text{N}_2$ Within the Iron Nitride Binary Phase Diagram.** P. Stoeckl¹ and J. Wang^{2,1}
1. Physics, University of Minnesota, Minneapolis, MN, United States; 2. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States
- EP-05. Sm-Fe-N Bulk Magnets Prepared by Hot Pressing Using Zn-Coated Magnetic Powder by Electrodeposition.** S. Che¹, D. Shi¹ and J. Zheng¹
1. Research Center of Magnetic and Electronic Materials, Zhejiang University of Technology, Huzhou, China

- EP-06. Understanding Structure-Composition-Property Relations in Manganese Zinc Nitride Antiperovskites.** C.E. Regier², S. O'Donnell¹, S. Mahatara¹, R.W. Smaha¹, S. Lany¹ and J.R. Neilson^{2,3} 1. National Renewable Energy Lab (NREL), Golden, CO, United States; 2. Chemistry, Colorado State University, Fort Collins, CO, United States; 3. Materials Science, Colorado State University, Fort Collins, CO, United States
- EP-07. Unusually High Coercivity of Sputtered Fe₁₆N₂ Thin Films.** E. Gokce-Polat^{1,3}, B. Wolf¹, A. DeRuiter², W. Echtenkamp¹, H. Kim⁴ and J. Wang¹ 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; 3. Department of Engineering Physics, Istanbul Medeniyet University, Istanbul, Turkey; 4. Hyundai Motor Company, Uiwang-Si, The Republic of Korea
- EP-08. Rare-earth free permanent magnet – triple-doped iron phosphide (Fe₂P).** O. Narantogtokh¹, T. Namsrai¹, S. Dorj^{1,2}, J. Narmandakh², K. Baatartsogt², U. Enkhnarant², S. Deleg², O. Tumentsereg³, O. Dorj³ and O. Khorgolkhuu⁴ 1. Department of Physics, National University of Mongolia, Ulaanbaatar, Mongolia; 2. Functional Material Laboratory, Institute of Physics and Technology, Mongolian Academy of Sciences, Ulaanbaatar, Mongolia; 3. Department of Physics, Incheon National University, Incheon, The Republic of Korea; 4. National Institute for Computational Sciences, Oak Ridge, TN, United States

THURSDAY
MORNING
9:00

EXHIBIT HALL

Session EQ MAGNONIC AND RF SENSORS (Poster Session)

Anjan Soumyanarayanan, Chair
National University of Singapore, Singapore, Singapore

- EQ-02. Coupled Spin Wave-Surface Acoustic Wave Interactions Supported in a Scandium-Doped Aluminum Nitride-Silicon Carbide Acoustic Platform.** A. Will-Cole², X. Du¹, J.E. Shoup³, B. Luo⁴, V. Lauter⁵, A.J. Grutter³, O. Pitcl⁶, M. Miller², B.P. Smith², L. Hackett², Y. Deng², N.X. Sun⁴, D.B. Gopman³, R. Olsson¹ and M. Eichenfield^{2,6} 1. University of Pennsylvania, Philadelphia, PA, United States; 2. Sandia National Laboratories, Albuquerque, NM, United States; 3. National Institute of Standards and Technology, Gaithersburg, MD, United States; 4. Northeastern University, Boston, MA, United States; 5. Oak Ridge National Laboratory, Oak Ridge, TN, United States; 6. University of Arizona, Tucson, AZ, United States
- EQ-04. Multilayer Garnet Integrated Tunable Resonators.** N. Gagnon¹, H. Baldino², Z. Franz¹, D. Evans¹, D. Hedlund¹ and P. Kulik¹ 1. Electrical and Computer Engineering, University of Central Florida, Orlando, FL, United States; 2. Material Science and Engineering, University of Central Florida, Orlando, FL, United States

- EQ-05. Giant Non-Reciprocity Driven by Strong Magnon-Phonon Coupling in Low-Loss Fundamental Mode Surface Acoustic Wave Magnetoacoustic RF Devices.** *B. Luo¹, A. Winkler², H. Schmidt², Y. Liu¹, B. Davaji¹ and N.X. Sun¹* *1. Electrical and Computer Engineering, Northeastern University, Boston, MA, United States; 2. SAWLab Saxony, Dresden, Germany*
- EQ-06. Comprehensive investigation of magnetoimpedance on micromachined soft magnetic material.** *H. Kikuchi¹ and Z. Wang¹* *1. Iwate University, Morioka, Japan*
- EQ-07. Modeling Magnetic Field in Racetrack-Core Fluxgates at High Excitation Frequency.** *J. Maier¹, P. Ripka¹ and M. Mirzaei¹* *1. Department of Measurement, Czech Technical University in Prague, Prague, Czechia*
- EQ-08. MR-scanner Independent Three-dimensional Magnetic Field Mapping System of RF Coil with Phantom Loading.** *M. Takahashi¹, A. Kuwahata¹, M. Fushimi², M. Sekino² and S. Yabukami¹* *1. Tohoku University, Sendai, Japan; 2. The University of Tokyo, Tokyo, Japan*

THURSDAY
MORNING
9:00

EXHIBIT HALL

Session ER
SPINTRONIC DEVICES III: CPP-GMR, SOT-MRAM
AND SPIN-TORQUE OSCILLATORS
(Poster Session)

Ravi Kumar Bandapelli, Chair
Carnegie Mellon University, Pittsburgh, PA, United States

- ER-01. Magnetoresistance Effect Based on Spin-Selective Transport in Nano-Devices Using Chiral Molecules.** *M. Matsuzaka¹, R. Miyamoto¹, K. Kashima¹, T. Ueda¹, K. Terai¹, T. Yamamoto¹, K. Sambe², T. Akutagawa² and H. Kaiju^{1,3}* *1. Faculty of Science and Technology, Keio University, Yokohama, Japan; 2. Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan; 3. Center for Spintronics Research Network, Keio University, Yokohama, Japan*
- ER-02. Spin Transfer Torque assisted Field-Free Spin Orbit Torque Switching in CPP-GMR with Antiferromagnetically Coupled Perpendicularly Magnetized Co/Pd Memory Layer.** *D. Pan¹, D. Oshima¹, B. Zhu¹ and T. Kato¹* *1. Electronics, Nagoya University, Nagoya, Japan*
- ER-03. Spin-torque diode effect driven by magnetization phase-transitions: a theoretical analysis.** *M. Lianeris¹, A. Meo¹, M. Carpentieri¹, R. Tomasello¹ and G. Finocchio²* *1. Department of Electrical and Information Engineering, Polytechnic University of Bari, Bari, Italy; 2. Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina, Messina, Italy*

- ER-04. BEOL-compatible, 5 ns-fast, single pulse field-free switching 50 nm AFM(PtMn)-TopSOT-MRAM.** *C. Lin^{2,1}, K. Li¹, J. Shieh¹, Y. Chen¹, C. Hsu¹, W. Chen^{1,3}, C. Shen¹, T. Hou¹, J. Sun^{1,4}, D. Tang⁵, C. Hsin³ and C. Lai^{2,6}* *1. Taiwan Semiconductor Research Institute, Hsinchu, Taiwan; 2. College of Semiconductor Research, National Tsing Hua University, Hsinchu, Taiwan; 3. Department of Electrical Engineering, National Taiwan University, Taipei, Taiwan; 4. Industry-Academia Innovation School, National Yang Ming Chiao Tung University, Hsinchu, Taiwan; 5. Industrial Technology Research Institute, Hsinchu, Taiwan; 6. Department of Materials Science and Engineering, National Tsing Hua University, Hsinchu, Taiwan*
- ER-05. Swift Skyrmion as True Random Number Generator.** *A. Joy^{1,2}* *1. Physics, Indian Institute of Science Bangalore, Bangalore, India; 2. NISE, Max Planck Institute for Microstructure Physics, Halle, Germany*
- ER-06. Coupling of Self-Generated Spin Waves and Spin Transfer Torque Driven Oscillations in Biquadratic Coupled Orthogonal Magnetization Disks.** *T. Cheng¹, C. Liu¹, Y. Kurokawa¹ and H. Yuasa¹* *1. Graduate School and Faculty of Information Science and Electrical Engineering, Kyushu University, Fukuoka, Japan*
- ER-07. Imaging of dispersion relation of magnetoelastic waves in epitaxial ferromagnetic Heusler alloys using multiple-overtone surface acoustic wave.** *K. Yamanoi¹, S. Yamada², K. Hamaya² and Y. Nozaki¹* *1. Keio University, Yokohama, Japan; 2. Osaka University, Toyonaka, Japan*
- ER-08. Anharmonic potential induced chaotic dynamics of spintronic oscillator.** *R. Tatsumi¹, T. Chiba^{1,2}, T. Komine³ and H. Matsueda^{1,4}* *1. Engineering, Tohoku University, Sendai, Japan; 2. FRIS, Sendai, Japan; 3. Engineering, Ibaraki University, Hitachi, Japan; 4. CSIS, Sendai, Japan*

THURSDAY
MORNING
9:00

EXHIBIT HALL

Session ES
MAGNETOELECTRIC DEVICES AND APPLICATIONS
(Poster Session)
Pedram Khalili, Chair
Northwestern University, Evanston, IL, United States

- ES-01. Demonstration of Spintronic Devices and Arrays Based on Field-Free Voltage-Gated Spin-Orbit Torque Switching.** *Z. Liu¹, H. Zhang¹, J. Liu¹, Y. Zhang¹, W. Li¹, J. Lu¹ and S. Peng¹* *1. Fert Beijing Institute, School of Integrated Circuit Science and Engineering, Beihang University, Beijing, China*

- ES-02. Voltage-controlled magnetic anisotropy driven non-linear parametric resonance.** *A. Giordano*¹, *A. Grimaldi*¹, *R. Sharma*², *E. Raimondo*⁴, *R. Tomasello*³, *M. Carpentieri*³, *H. Yang*² and *G. Finocchio*¹ *1. University of Messina, Messina, Italy; 2. University of Singapore, Singapore, Singapore; 3. Politecnico di Bari, Bari, Italy; 4. INGV, Messina, Italy*
- ES-03. Towards Cancer Theragnostics using Magnetoelectric Nanoparticles.** *V. Andre*¹, *M. Abdel-Mottaleb*¹, *S. Chen*¹, *M. Shotbolt*¹, *S. Khizroev*¹ and *P. Liang*² *1. University of Miami, Miami, FL, United States; 2. Cellular NanoMed Inc, Irvine, CA, United States*
- ES-04. High Data-Rate VLF Magnetoelectric Communications with Single-Side-Band Nonlinear Antenna Modulation.** *Y. Liu*¹, *T. Noochan*¹, *B. Luo*¹ and *N.X. Sun*¹ *1. Electrical and Computer Engineering, Northeastern University, Boston, MA, United States*
- ES-05. Electric Field Controlled Nanowire based Domain Wall Logic Device.** *J. Weng*¹, *P. Zhang*¹ and *J. Hong*² *1. School of Sciences, Hubei University of Technology, Wuhan, China; 2. UC Berkeley, Berkeley, CA, United States*
- ES-06. Boron Doping and Voltage Effects on Spin Reversal of Antiferromagnetic Domains in Cr₂O₃ Thin Films and Devices.** *A. Erickson*¹, *S. Shah*¹, *A. Mahmood*¹, *P. Buragohain*¹, *I. Fescenko*², *A. Gruverman*¹, *C. Binek*¹ and *A. Laraoui*¹ *1. University of Nebraska-Lincoln, Lincoln, NE, United States; 2. University of Latvia, Riga, Latvia*
- ES-07. Electric field effect on exchange coupling induced T_c-modulation in superconducting spin valves.** *T. Kikuta*¹, *S. Komori*¹, *K. Imura*² and *T. Taniyama*¹ *1. Department of Physics, Nagoya University, Nagoya, Japan; 2. ILAS, Nagoya University, Nagoya, Japan*
- ES-08. Stabilizing Topological Non-collinear Magnetoelectric Textures at Room Temperature.** *A. Ghosal*¹, *S. Zhou*², *M. Ramesh*⁸, *S. Husain*⁴, *H. Zhang*⁴, *C. Klewe*⁷, *J. Mundy*⁶, *D. Schlom*⁸, *P. Stevenson*³, *R. Ramesh*^{5,4} and *L.M. Caretta*¹ *1. School of Engineering, Brown University, Providence, RI, United States; 2. Department of Physics, Brown University, Providence, RI, United States; 3. Department of Physics, Northeastern University, Boston, MA, United States; 4. Department of Materials Science and Engineering, University of California, Berkeley, Berkeley, CA, United States; 5. Department of Materials Science and Nanoengineering, Rice University, Houston, TX, United States; 6. Department of Physics, Harvard University, Cambridge, MA, United States; 7. Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 8. Department of Materials Science and Engineering, Cornell University, Ithaca, NY, United States*

Session ET
THIN FILMS, MULTILAYERS, AND EXCHANGE
BIAS SYSTEMS II
(Poster Session)

Juan Luis Palma, Chair
Universidad Central de Chile, Santiago, Chile

- ET-01. Structural and Magnetic Properties of $\text{Fe}_x\text{Sn}_{1-x}$ Thin Films.** C. Brennan-Rich¹, T. Almeida², S. McVitie², S. Collins^{3,4}, R. Drummond-Brydson⁴ and C. Marrows¹ *1. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 2. School of Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom; 3. School of Chemistry, University of Leeds, Leeds, United Kingdom; 4. School of Chemistry and Process Engineering, University of Leeds, Leeds, United Kingdom*
- ET-02. Investigation of Curie Temperature and Gilbert Damping of Magnetron Sputtered $\text{Al}_{0.25}\text{CrFeCoNi}$ Thin Films.** M. Noor¹, T. Das Gupta¹, A. Vasdev^{2,3}, M. Detisch⁴, L. De-Long⁵, W. Gannon⁵, B. Jungfleisch⁶, T. Balk¹, T. Hastings² and P. Rottmann¹ *1. Chemical and Materials Engineering, University of Kentucky, Lexington, KY, United States; 2. Electrical and Computer Engineering, University of Kentucky, Lexington, KY, United States; 3. Materials Science Division, Argonne National Laboratory, Lemont, IL, United States; 4. Electron Microscopy Center, University of Kentucky, Lexington, KY, United States; 5. Physics & Astronomy, University of Kentucky, Lexington, KY, United States; 6. Physics and Astronomy, University of Delaware, Newark, DE, United States*
- ET-03. Thin film synthesis, structural analysis and magnetic properties of novel ternary transition metal nitride MnCoN_2 .** S. Dugu¹, R.W. Smaha¹, A. Treglia², S. Lany¹ and S. Bauers¹ *1. National Renewable Energy Laboratory, Golden, CO, United States; 2. Colorado State University, Fort Collins, CO, United States*
- ET-04. Exchange-Bias Effects in the Hysteresis Losses of Core-Shell Nanoparticles.** C. de Julián Fernández¹, A. López-Ortega², E. Lottini³, B. Muzzi⁴, M. Albino⁴ and C. Sangregorio⁴ *1. Institute of Materials for Electronics and Magnetism C.N.R., Parma, Italy; 2. Departamento de Ciencias, Universidad Pública de Navarra, Pamplona, Spain; 3. INSTM- Università di Firenze, Florence, Italy; 4. Institute of Chemistry and Organometallic Compounds CNR, Florence, Italy*
- ET-05. Temperature Dependence of the Interlayer Exchange Coupling in Epitaxial Fe/MgO/Fe (001) Heterostructures.** A.I. Ojo¹, A. Ravensburg², M.P. Grassi², V. Kapaklis² and D.A. Arena¹ *1. Department of Physics, University of South Florida, Tampa, FL, United States; 2. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden*
- ET-06. Exploring FeCo -based nanogranular thin film with reduced eddy current loss.** G. Wei¹, A. Masood¹, R. Anjum¹ and R. Sai¹ *1. Tyndall National Institute, Cork, Ireland*

- ET-07. Unveiling the magnetic and optical properties of one-step grown, epitaxial SmCrO_3 thin films.** *M. Madaan*¹, *A. Jain*² and *V. Malik*¹ *1. Physics, Indian Institute of Technology Roorkee, Roorkee, India; 2. Solid State Physics Division, Bhabha Atomic Research Centre, Mumbai, India*
- ET-08. Focused Ion Beam Milling of Ta/Co/NiFe Magnetic Tunnel Junction based Molecular Spintronics Device.** *H. Brown*¹, *E. Mutunga*¹ and *P. Tyagi*¹ *1. University of The District of Columbia, Washington, DC, United States*

THURSDAY
MORNING
9:00

EXHIBIT HALL

Session EU
STRUCTURED MATERIALS II
(Poster Session)

Olin Mefford, Chair
Clemson University, Clemson, SC, United States

- EU-01. Evaluating the Heating Efficacy of Short Nanowires Produced by Improved Multilayered Template-assisted Electrodeposition.** *R. Kolisnyk*², *A. Harpel*¹, *A. Afful*² and *B. Stadler*^{2,1} *1. Chemical Engineering and Material Science, University of Minnesota, Minneapolis, MN, United States; 2. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States*
- EU-02. Importance of Magnetic Anisotropy in Determining Heating and Imaging Performance of Magnetic Nanoflower Colloids.** *J. Borchers*¹, *K. Krycka*¹, *B.B. Santos*², *E. De Lima Correa*², *A. Sharma*³, *H. Carlton*³, *Y. Dang*², *M.J. Donahue*⁴, *C. Gruettner*⁵, *R. Ivkov*^{3,6,7} and *C. Dennis*² *1. NIST Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD, United States; 2. Material Measurement Laboratory, National Institute of Standards and Technology, Gaithersburg, MD, United States; 3. Department of Radiation Oncology and Molecular Radiation Sciences, Johns Hopkins University School of Medicine, Baltimore, MD, United States; 4. Information Technology Laboratory, National Institute of Standards and Technology, Gaithersburg, MD, United States; 5. micromod Partikeltechnologie, GmbH, 18057 Rostock, Germany; 6. Department of Oncology, Sydney Kimmel Comprehensive Cancer Center, Johns Hopkins University, Baltimore, MD, United States; 7. Department of Mechanical Engineering, Johns Hopkins University, Baltimore, MD, United States*
- EU-03. Growth Mechanism of One-Dimensional Assemblies Consisting of Silica-Coated Magnetic Nanoparticles.** *C. Oka*¹, *T. Shiojima*¹, *J. Sakurai*¹ and *S. Hata*¹ *1. Department of Micro-Nano Mechanical Science and Engineering, Nagoya University, Nagoya, Japan*

- EU-04. High Magnetoresistance in Magnetic Polymer Nanocomposites Comprising Fe Nanoparticles and PEDOT: PSS.** *S. Liang*¹, *R.A. Mendonsa*², *V.K. Chugh*², *D. Su*¹, *K. Wu*³ and *J. Wang*^{1,2}
1. Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN, United States; 2. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States; 3. Electrical and Computer Engineering, Texas Tech University, Lubbock, TX, United States
- EU-05. Magnetization Dynamics in Co-CoFe₂O₄ Based Nanostructures: A Multimodal Characterizations Study to Understand Interparticle Interactions.** *S. Jan*¹, *S. Attanayake*¹, *N. Schulz*¹, *H. Khurshid*², *M. Phan*¹, *D.A. Arena*¹ and *H. Srikanth*¹
1. Department of Physics, University of South Florida, Tampa, FL, United States; 2. Department of Applied Physics and Astronomy, University of Sharjah, Sharjah, United Arab Emirates
- EU-06. Withdrawn**
- EU-07. Emergent Ferromagnetism and Phase Coexistence in 3D-Printed CrMnFeCoNi High Entropy Alloys.** *V. Mishra*¹, *N. Mudiyansele*¹, *D. DeTelle*¹, *M. Jin*², *S. Witanachchi*¹, *M. Pham*² and *M. Phan*¹ *1. Physics, University of South Florida, Tampa, FL, United States; 2. Department of Materials, Imperial College London, London, United Kingdom*
- EU-08. Static magnetic field modulates spinodal decomposition in Cu-Ni-Fe system.** *X. Zhang*^{1,2}, *C. Woodgate*³, *G. Hadjipanayis*^{1,4}, *J.B. Staunton*³ and *L.H. Lewis*^{1,2,5} *1. Chemical Engineering, Northeastern University, Boston, MA, United States; 2. Mechanical and Industrial Engineering, Northeastern University, Boston, MA, United States; 3. Physics, University of Warwick, Coventry, United Kingdom; 4. Physics and Astronomy, University of Delaware, Newark, DE, United States; 5. Physics, Northeastern University, Boston, MA, United States*

THURSDAY
 MORNING
 9:00

EXHIBIT HALL

Session EV
MACHINES OPTIMIZATION, MAGNETIC LOSS,
AND THERMAL MODELING II
(Poster Session)

Po-Wei Huang, Chair
 National Cheng Kung University, Tainan, Taiwan

- EV-01. Investigation on the Steel Sheet Subdivision and Orientation Potentials of the Stator Core of an Axial Flux Machine.** *S. Weigel*¹, *A. Schaefer*¹ and *N. Parspour*¹ *1. Institute of Electrical Energy Conversion, University of Stuttgart, Stuttgart, Germany*

- EV-02. Vibration Analysis of Permanent Magnet Synchronous Motors Considering Magneto-Thermal Coupling and Structural Deformation.** *H. Cao^{1,4}, D. Zeng², Y. Li³, Z. Sun⁴, X. Wang^{1,4} and C. Jiang^{1,4}* *1. College of Energy, Xiamen University, Xiamen, China; 2. Harbin Engineering University, Harbin, China; 3. Four Academies and Four Departments of Aerospace Science and Industry, Beijing, China; 4. Innovation Laboratory for Sciences and Technologies of Energy Materials of Fujian Province (IKKEM), Xiamen, China*
- EV-03. BH curve normalization method for semi-infinity silicon steel sheets model based on vector magnetic circuit theory.** *W. Qin¹, X. Ma¹, M. Cheng¹, Z. Wu¹ and X. Zhu²* *1. Southeast University, Nanjing, China; 2. North China Electric Power University, Baoding, China*
- EV-04. Optimal Design of a Six-Phase Motor for Large Ships to Reduce Cogging Torque and Torque Ripple.** *D. Choi¹, H. Han¹, H. Kim¹, S. Jeon¹ and W. Kim²* *1. Next Generation Smart Energy System Convergence, Gachon University, Seongnam, The Republic of Korea; 2. Electrical Engineering, Gachon University, Seongnam, The Republic of Korea*
- EV-05. A Study on the Support Structure for the Improvement of Counter Torque Strength of Urban Small Wind Power Generator with Block Coil.** *H. Kim¹, M. Hong², S. Ko¹, D. Jung³ and W. Kim⁴* *1. Next Generation Energy System Convergence, Gachon University, Seongnam, The Republic of Korea; 2. Electrical Engineering, Hanyang University, Seongdong-gu, The Republic of Korea; 3. Department of Electrical and New Materials Engineering, Andong National University, Andong-si, The Republic of Korea; 4. Electrical Engineering, Gachon University, Seongnam, The Republic of Korea*
- EV-06. Density-Based Rotor Topology Optimization of High-Power Density Wound-Field Flux-Switching Machine for Traction Applications.** *M. Fereydoonian¹ and W. Lee¹* *1. Elmore Family School of Electrical and Computer Engineering, Purdue University, West Lafayette, IN, United States*
- EV-07. Efficient and Versatile Anhysteretic Magnetization Models for Soft Magnetic Materials in FEA and Circuit Simulations.** *A. Schaefer¹, S. Weigel¹ and N. Parspour¹* *1. Institute of Electrical Energy Conversion (iew), University of Stuttgart, Stuttgart, Germany*
- EV-08. Design and analysis of a novel watch speaker using top magnets structure for a thinner smart watch.** *Y. Oh¹, Y. Jung¹, K. Park¹, Z. Jiang¹ and S. Hwang¹* *1. Mechanical Engineering, Pusan National University, Pusan, The Republic of Korea*

Session FP
HARD MAGNETS IV
(Poster Session)

Jiasheng Zhang, Chair

National Institute for Materials Science (NIMS), Tsukuba, Japan

- FP-01. Strong dependence of exchange coupling on soft phase magnetization in hard/soft nanocomposites.** C. Pahwa¹ and P. Sharma¹ *1. School of Basic & Applied Sciences, IILM University, Greater Noida, India*
- FP-02. Coercivity enhancement in heavy rare earth free Nd-Fe-B magnet by grain boundary diffusion.** S. Singh^{1,2}, A. Diraviam², R. Dasary M², A. Halder¹ and M. Muthuvel² *1. Department of Physics, Indian Institute of Technology, Hyderabad, India; 2. Defence Metallurgical Research Laboratory, Kanchanbagh, Hyderabad, India*
- FP-03. Spark Plasma Sintered Manganese Substituted Strontium M-type Nanohexaferrite.** A. Sassi^{1,2}, A. Pasko¹, S. Amara⁴, C. Florica⁵, V. Yenugonda², G. Setti⁴, F. Mazaleyra¹ and A. Pathak^{2,3} *1. SATIE, CNRS, Université Paris-Saclay, ENS Paris-Saclay, Gif-sur-Yvette, France; 2. Department of Physics, SUNY Buffalo State, Buffalo, NY, United States; 3. One Research Circle, GE Aerospace Research, Niskayuna, NY, United States; 4. Computer, Electrical and Mathematical Sciences and Engineering, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia; 5. Nanofabrication Core Lab, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia*
- FP-04. The HDDR Process – A Novel Approach for Obtaining Sintered Nanostructured Nd₂Fe₁₄B-, SmCo₅- and Sm₂Co₁₇-Based Magnets.** I. Bulyk^{1,2,3}, M. Yang^{1,3,4}, B. Yang^{1,3,4}, R. Liu^{1,3,4}, H. Wang^{1,3}, I. Boruch² and O. Kononiuk² *1. Jiangxi Province Key Laboratory of Magnetic Metallic Materials and Devices, Jiangxi University of Science and Technology, Ganzhou, China; 2. Karpenko Physico-Mechanical Institute of National Academy of Sciences of Ukraine, Lviv, Ukraine; 3. National Rare Earth Functional Materials Innovation Center, Ganzhou, China; 4. Ganjiang Innovation Academy, Chinese Academy of Science, Ganzhou, China*
- FP-05. Evaluating the disordering kinetics of tetrataenite, employing integrated magnetic and metallurgical perspectives.** X. Zhang^{1,2}, E. Dos Santos³, J. Gattacceca⁴ and L.H. Lewis^{1,2,5} *1. Chemical Engineering, Northeastern University, Boston, MA, United States; 2. Mechanical and Industrial Engineering, Northeastern University, Boston, MA, United States; 3. Instituto de Ciência e Tecnologia, Universidade Federal dos Vales do Jequitinhonha e Mucuri (UFVJM), Diamantina, Brazil; 4. Centre de Recherche et d'Enseignement des Géosciences de l'Environnement (CEREGE), Aix-en-Provence, France; 5. Physics, Northeastern University, Boston, MA, United States*

FP-06. Effect of Mn Substitution on Coercivity of $\text{SrFe}_{8-x}\text{Mn}_x\text{Al}_4\text{O}_{19}$ Nanoparticles. *P. Joshi*¹, *H. Abbas*¹, *T. Karki*¹, *J. Mohapatra*¹ and *P. Liu*¹ *I. Department of Physics, University of Texas at Arlington, Arlington, TX, United States*

FP-07. Thermodynamics of materials synthesis under applied magnetic fields. *A. Rauf*¹ and *W. Sun*¹ *I. Materials Science and Engineering, University of Michigan, Ann Arbor, MI, United States*

FP-08. Computational search of $\alpha''\text{-Fe}_{16}\text{N}_2$ inspired nitrides for novel permanent magnets. *A. Rauf*¹ and *W. Sun*¹ *I. Materials Science and Engineering, University of Michigan, Ann Arbor, MI, United States*

THURSDAY
AFTERNOON
1:00

EXHIBIT HALL

Session FQ
MAGNETIC DEVICES FOR SENSING AND
RECORDING & THIN FILMS, MULTILAYERS,
AND EXCHANGE BIAS SYSTEMS III
(Poster Session)

Zhenchao Wen, Chair
National Institute for Materials Science (NIMS), Tsukuba, Japan

FQ-01. Development of Flexible Sendust Composite Sheets with Enhanced Magnetic Permeability for Microwave Absorbers and Antennas. *M.P. Whalen*¹, *D.T. Plouff*², *N.B. Shevchenko*³, *M. Mirotznik*⁴ and *J.Q. Xiao*² *I. Quantum Science and Engineering Program, University of Delaware, Newark, DE, United States; 2. Department of Physics and Astronomy, University of Delaware, Newark, DE, United States; 3. Center for Composite Materials, University of Delaware, Newark, DE, United States; 4. Department of Electrical and Computer Engineering, University of Delaware, Newark, DE, United States*

FQ-02. Innovative assessment of carburized steel hardness profiles using low-frequency magnetic incremental permeability. *H. Lberni*¹, *B. Ducharne*², *H. Petitpré*¹, *J. Mogniotte*³, *Y. Tene Deffo*⁴, *F. Zhang*¹ and *C. Gallais*⁵ *I. CETIM, Senlis, France; 2. Tohoku University, Sendai, Japan; 3. INSA Lyon, Villeurbanne, France; 4. University of Buea, Buea, Cameroon; 5. Safran Transmission Systems, Collombes, France*

FQ-03. Flexible Polymer/Ferrite Composites for Millimeter Wave Applications. *B.M. Mears*¹, *G. Macedo*¹, *V.S. Peytchev*¹ and *D. Arnold*¹ *I. Electrical and Computer Engineering, University of Florida, Gainesville, FL, United States*

- FQ-04. Development of a tri-axis concentric fluxgate magnetometer with high orthogonality and high linearity.** T. Nguyen¹, J. Jeng¹ and L. Bui^{1,2} *1. Department of Mechanical Engineering, National Kaohsiung University of Science and Technology, Kaohsiung, Taiwan; 2. Faculty of Mechanical Engineering, Hung Yen University of Technology and Education, Hung Yen, Vietnam*
- FQ-06. Combined and Separated Signal Processing Techniques for Dual Layer Bit-Patterned Magnetic Recording.** N. Rueangnetr¹, S. Greaves² and C. Warisarn¹ *1. College of Advanced Manufacturing Innovation, King Mongkut's Institute of Technology, Bangkok, Thailand; 2. Research Institute of Electrical Communication (RIEC), Tohoku University, Sendai, Japan*
- FQ-07. Development of highly conductive SrMoO₃ epitaxial thin films for advanced spintronic applications.** M. Roy Chowdhury^{1,2}, C. He², K. Tang², H. Koizumi², Z. Wen², S. Thota¹, H. Sukegawa² and S. Mitani² *1. Physics, Indian Institute of Technology Guwahati, Guwahati, India; 2. National Institute for Materials Science, Tsukuba, Japan*
- FQ-08. Massive replacement of Cu in FePt-Carbon ultra-thin buffer layer for K_u enhancement of FePt granular films.** K. Tham¹, D. Miyazaki¹ and S. Saito² *1. Material Company, TANAKA KIKINZOKU KOGYO K. K., Tsukuba, Japan; 2. Electronic Engineering, Graduate School of Engineering, Tohoku University, Sendai, Japan*

THURSDAY
AFTERNOON
1:00

EXHIBIT HALL

Session FR
SPINTRONIC DEVICES IV: STT/SOT MRAMS
AND SWITCHING DYNAMICS
(Poster Session)

Sachin Krishnia, Chair
Johannes Gutenberg University Mainz, Mainz, Germany

- FR-01. Magnetization States and Switching Dynamics of Noncollinear Spin-Torque Devices.** A. Terko¹, G. Lertzman Lepofsky¹, P. Flauger², D. Suess², E. Girt¹ and C. Abert² *1. Department of Physics, Simon Fraser University, Burnaby, BC, Canada; 2. Faculty of Physics, University of Vienna, Vienna, Austria*
- FR-02. Energy Landscape of Noncollinear Exchange Coupled Magnetic Multilayers.** G. Lertzman Lepofsky¹, A. Terko¹, S. Koraltan², D. Suess², E. Girt¹ and C. Abert² *1. Department of Physics, Simon Fraser University, Burnaby, BC, Canada; 2. Faculty of Physics, University of Vienna, Vienna, Austria*

- FR-03. Anomalous Hall Resistance in Ta/Co₄₀Fe₄₀B₂₀/MgO/Ta for Constructing Physical Unclonable Function.** *D. Divyanshu¹, M. Tang¹, A.H. Lone¹, S. Amara¹ and G. Setti¹ I. CEMSE (Integrated Intelligent Systems (I2S)), King Abdullah University of Science and Technology, Thuwal, Saudi Arabia*
- FR-04. Fabrication of high aspect ratio magnetic dot array with honeycomb structure.** *Y. You¹, K. Yamanoi¹ and Y. Nozaki¹ I. Department of Physics, Keio University, Yokohama, Japan*
- FR-05. Coherent Spin-Orbit Torque Magnetization Switching of Ring-Shaped MTJ for High-Density SOT-MRAM.** *M. Yoshikawa¹, M. Koike¹, N. Umetsu¹, T. Li¹ and M. Quinsat¹ I. Frontier Technology R&D Institute, Kioxia Corporation, Yokohama, Japan*
- FR-06. Understanding stability and behavior of Magnetic Tunnel Junction (MTJ) using Electron Spin Resonance (ESR).** *J.E. Hernandez¹, P. Tyagi¹, B.N. Mengesha¹ and A. Feutmba¹ I. University of the District of Columbia, Washington, DC, United States*
- FR-07. Correlation between the top electrode size and the spin orientations in T-shaped Magnetic Tunnel Junction Based Molecular Spintronic Devices (MTJMDS).** *J.E. Hernandez¹, P. Tyagi¹, H. Brown¹ and B. Sankhi¹ I. University of the District of Columbia, Washington, DC, United States*
- FR-08. Influence of Ferromagnetic Interlayer Exchange Coupling on Current-Induced Magnetization Switching and Dzyaloshinskii-Moriya Interaction in Co/Pt/Co Multilayer System.** *K. Grochot¹, P. Ogrodnik², J. Mojsiejuk¹, P. Mazalski³, U. Guzowska³, W. Skowronski¹ and T. Stobiecki¹ I. Institute of Electronics, AGH University of Krakow, Kraków, Poland; 2. Faculty of Physics, Warsaw University of Technology, Warsaw, Poland; 3. Faculty of Physics, University of Białystok, Białystok, Poland*

THURSDAY
AFTERNOON
1:00

EXHIBIT HALL

Session FS SPINTRONIC NEURAL COMPUTING (Poster Session)

Helena Reichlova, Co-Chair

Institute of Physics of the Czech Academy of Sciences, Praha, Czechia

Davi Rodrigues, Co-Chair

Politecnico di Bari, Bari, Italy

- FS-02. All-Magnonic Neurons Based on Chiral Magnonic Resonators.** *K. Fripp¹, A. Shytov¹ and V. Kruglyak¹ I. University of Exeter, Exeter, United Kingdom*
- FS-03. Computing with Magnetic Tunnel Junction Based Sigmoidal Activation Functions.** *Y. Bao¹, S. Yang¹, Z. Yao¹ and H. Yang¹ I. Department of Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore*

- FS-04. Development of zero-field skyrmionic devices.** W. Griggs¹, I. Charalampidis¹, V. Pavlidis¹ and C. Moutafis¹ *1. University of Manchester; Manchester, United Kingdom*
- FS-05. Restricted Boltzmann Machine for Modeling Complex Physical Systems: A Case Study in Artificial Spin Ice.** R.B. Popy¹, M. Hamdi¹ and R.L. Stamps¹ *1. Physics and Astronomy, University of Manitoba, Winnipeg, MB, Canada*
- FS-06. Domain Wall and Skyrmion Devices-based Spiking Neural Networks.** A.H. Lone¹, D.N. Rahimi¹, M. Tang¹, D. Divyanshu¹, S. Amara¹ and G. Setti¹ *1. CEMSE (Integrated Intelligent Systems (I2S)), King Abdullah University of Science and Technology, KAUST, Thuwal, Saudi Arabia*
- FS-07. On-Chip Learning of UNet Architecture Using Spintronic Devices for Image Segmentation.** 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*
- FS-08. Ultrafast Skyrmions for Neuromorphic Computation.** A. Joy^{1,2}, S. Satheesh¹ and P. Anil Kumar¹ *1. Physics, Indian Institute of Science Bangalore, Bangalore, India; 2. NISE, Max Planck Institute for Microstructure Physics, Halle, Germany*

THURSDAY
AFTERNOON
1:00

EXHIBIT HALL

Session FT
THIN FILMS, MULTILAYERS, AND EXCHANGE BIAS
SYSTEMS IV
(Poster Session)
Anna Giordano, Chair
University of Messina, Messina, Italy

- FT-01. Chiral Magnonic Crystals Induced by Periodically Tailoring Interfacial Dzyaloshinskii-Moriya Interaction.** F. Wei¹, Y. Zhou¹, W. Zhang² and S. Kang¹ *1. Shandong University, Jinan, China; 2. Weifang University, Weifang, China*
- FT-02. Magnetic and Transport Properties of LaSrMnRuO₆ Double Perovskite Thin Films.** A. Kumar^{1,2}, D. Palai³, D. Samal³ and P. Santhosh^{1,2} *1. Department of Physics, IIT Madras, Chennai, India; 2. Functional Oxide Research Group, IIT Madras, Chennai, India; 3. Department of Physics, Institute of Physics, Bhubaneswar, India*
- FT-03. Hydrogen-Mediated Spin-Orbit Torque and Voltage-Controlled Magnetic Anisotropy in [Tb/Co]₃/PtTb Structures.** B. Chen¹, C. Lin² and C. Lai¹ *1. Material Science and Engineering, National Tsing Hua University, Hsinchu, Taiwan; 2. College of Semiconductor Research, National Tsing Hua University, HsinChu, Taiwan*

- FT-04. Conductivity-like Gilbert damping for iron-rich Fe-Si thin films at low temperature.** *Y. Jiang*¹, T. Miyazaki², S. Ajia¹, S. Muroga¹ and Y. Endo^{1,3} *1. Department of Electrical Engineering, Graduate School of Engineering, Tohoku University, Sendai, Japan; 2. Faculty of Engineering, Tohoku University, Sendai, Japan; 3. Center for Science and Innovation in Spintronics (CSIS), Tohoku University, Sendai, Japan*
- FT-05. Evidence of bilinear coupling in IrMn/Co/Cu/NiFe spin valves.** *B.R. de Castro*¹, M.G. Silva¹, A.C. Krohling¹, L.H. de Andrade¹ and M. Martins¹ *1. Centro de Desenvolvimento da Tecnologia Nuclear, Belo Horizonte, Brazil*
- FT-07. Anomalous Temperature Dependence of Magnetic Damping in La_{0.5}Sr_{0.5}MnO₃ Thin Films.** *R. Arakawa*¹, T. Onogi¹, S. Komori¹ and T. Taniyama¹ *1. Physics, Nagoya University, Nagoya, Japan*
- FT-08. Exploring Interfacial Effects in Transition Metal Dichalcogenide / Ferrimagnetic Alloy Heterostructure.** *L. Ramos*¹, D.A. Arena¹, A.I. Ojo¹, Y. Wadumesthri¹ and H. Rodríguez Gutiérrez¹ *1. Physics, University of South Florida, Tampa, FL, United States*

THURSDAY
AFTERNOON
1:00

EXHIBIT HALL

Session FU MICROSCOPY, IMAGING, AND MAGNETIC CHARACTERIZATION I (Poster Session)

Sophie Morley, Chair

Lawrence Berkeley National Laboratory, Berkeley, CA, United States

- FU-01. Modular Cryogenic Piezoelectric Scanner for Scanning SQUID Microscopy.** *J. Bedard*¹, J.D. Franklin¹, Z. Ritchey¹, M. Roshdy³, O.R. Bilal^{3,4}, M. Jain^{1,2,4} and I. Sochnikov^{1,2,4} *1. Department of Physics, University of Connecticut, Storrs, CT, United States; 2. Department of Material Science & Engineering, University of Connecticut, Storrs, CT, United States; 3. School of Mechanical, Aerospace, and Manufacturing Engineering, University of Connecticut, Storrs, CT, United States; 4. Institute of Material Science, University of Connecticut, Storrs, CT, United States*
- FU-03. Nondestructive Ferromagnetic Resonance as a Tool to Evaluate Quality in Samples with Perpendicular Magnetic Anisotropy.** *A. Harpel*¹, M. Anas², A. Wege², R. Franklin² and B. Stadler^{2,1} *1. Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN, United States; 2. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States*

- FU-04. Estimation of Rebar Corrosion Level using Magnetic Sensor Array with Convolutional Neural Network.** *Y. Ogata^{1,2}, T. Yanagida¹, B. Kakinuma¹ and K. Kobayashi²*
1. Advantest Laboratories Ltd., Sendai, Japan; 2. Graduate School of Science and Engineering, Iwate University, Morioka, Japan
- FU-05. In-situ correlative facility for advanced magnetic materials.** *S. Ruiz Gómez¹, A. Arché¹, W. Khaliq¹, A. Garcia de Herreros¹, N. Bagués¹ and L. Aballe¹* 1. ALBA Synchrotron, Barcelona, Spain
- FU-06. Withdrawn**
- FU-07. Characterization of Magnetic Core-Shell Nanoparticles in Carbon Matrices.** *V. Pena Perez¹, C.R. Gonzalez¹, E. Villegas¹, J. Baughman¹, F. Iglesias¹, A. Khodagulyan¹, O. Bernal¹ and A.N. Kocharian¹* 1. Department of Physics and Astronomy, California State University Los Angeles, Los Angeles, CA, United States

THURSDAY
AFTERNOON
1:00

EXHIBIT HALL

Session FV
MAGNETIC ASPECTS RELATED TO
ELECTROMECHANICAL CONVERSION,
TRANSFORMERS AND INDUCTORS
(Poster Session)

Johannes Paulides, Chair
Advanced Electromagnetics Group, Waalwijk, Netherlands

- FV-01. Influence of Particle Size and Fabrication Conditions on Magnetic Properties of Dust Cores Composed of Iron Powders.** *Y. Kodama¹, S. Ajia¹, T. Miyazaki², S. Muroga¹ and Y. Endo^{1,3}* 1. Graduate School of Engineering, Tohoku University, Sendai, Japan; 2. Faculty of Engineering, Tohoku University, Sendai, Japan; 3. Center for Science and Innovation in Spintronics, Tohoku University, Sendai, Japan
- FV-02. Development of dual-spring linear resonant actuator for improved haptic performance.** *K. Park¹, Z. Jiang¹, Y. Oh¹, Y. Jung¹ and S. Hwang¹* 1. Mechanical Engineering, Pusan National University, Pusan, The Republic of Korea

- FV-03. Loss estimation for toroidal cores composed by electrolytic iron powder based on machine learning.** *S. Muroga¹, S. Ajia¹, Y. Kodama¹, S. Matsumoto² and Y. Endo^{1,3}*
1. Graduate School of Engineering, Tohoku University, Sendai, Japan; 2. School of Engineering, Tohoku University, Sendai, Japan; 3. Center for Science and Innovation in Spintronics, Tohoku University, Sendai, Japan
- FV-06. Novel Zero-Sequence Current Excited Double-Sided Vernier Reluctance Linear Machine with High-Order - Harmonic Toroidal Winding.** *Z. Li¹, F. Ni¹ and S. Niu¹*
1. Department of Electrical and Electronic Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong
- FV-07. Novel Transverse-Flux Tubular Linear Reluctance Machine with Dynamic DC-Saturation-Relieving Function.** *Z. Li¹, F. Ni¹ and S. Niu¹*
1. Department of Electrical and Electronic Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong
- FV-08. Fundamental Study of Factors Leading to Performance Variations in Cancellation Coil Systems for Wireless Power Transfer.** *M. Yokosawa¹, F. Sato¹, S. Miyahara¹, H. Matsuki², K. Inada³, T. Abe³ and S. Sasaki⁴*
1. Tohoku Gakuin University, Sendai, Japan; 2. Tohoku University, Sendai, Japan; 3. NITTOKU, Saitama, Japan; 4. Hikaridenshi, Osaka, Japan

THURSDAY
 AFTERNOON
 1:30

CELESTIN D

Session FA IMAGING NANOSCALE MAGNETIZATION DYNAMICS AND SPIN FLUCTUATIONS

Peter Fischer, Co-Chair
 Lawrence Berkeley National Laboratory, Berkeley, CA, United States
 Sujoy Roy, Co-Chair
 Lawrence Berkeley National Laboratory, Berkeley, CA, United States

1:30

- FA-01. Time-Resolved Magnetic Imaging Using Electrons and Extreme-Ultraviolet Photons. (Invited)** *C. Ropers^{1,2}*
1. Ultrafast Dynamics, MPI-NAT, Göttingen, Germany;
2. University of Göttingen, Göttingen, Germany

2:06

- FA-02. Neutrons and Skyrmions: Unraveling the Spin-tastic Mysteries of Magnetic Materials. (Invited)** *L. DeBeer-Schmitt¹*
1. Neutron Science Division, Oak Ridge National Laboratory, Oak Ridge, TN, United States

2:42

- FA-03. Time resolved scanning Kerr microscopy: a flexible probe of magnetization dynamics for challenging sample environments. (Invited)** *R. Hicken¹*
1. Physics and Astronomy, University of Exeter, Exeter, United Kingdom

Session FB

2025 IEEE CLEDO BRUNETTI AWARD SYMPOSIUM

Giovanni Finocchio, Chair
University of Messina, Messina, Italy

1:30

- FB-01. Development of Embedded Spin-Transfer-Torque MRAM. (Invited)** *D. Worledge¹, G. Hu¹, S. Brown¹, C.P. D'Emic¹, M.G. Gottwald¹, P. Hashemi¹, J.Z. Sun¹ and P.L. Trouilloud¹*
1. IBM-Samsung MRAM Alliance, Yorktown Heights, NY, United States

2:06

- FB-02. From Niche to Mainstream: MRAM Innovations and Application Expansion. (Invited)** *G. Koh¹* *1. Sungkyunkwan University, Suwon, The Republic of Korea*

2:42

- FB-03. Spin-Transfer-Torque MRAM for Last-Level Cache Applications. (Invited)** *G. Hu¹, C. Safranski¹, M.G. Gottwald¹, P.L. Trouilloud¹, L. Rehm¹, G. Kim¹, S. Brown¹, J. Bruley¹, C.P. D'Emic¹, C. Lavoie¹, J. Liang¹, M. Robbins¹, J.Z. Sun¹, P. Hashemi¹ and D. Worledge¹* *1. IBM T J Watson Research Center, Yorktown Heights, NY, United States*

Session FC

**UNCONVENTIONAL COMPUTING WITH
MAGNETISM AND MAGNETIC MATERIALS**

Miguel Romera, Chair
Universidad Complutense de Madrid, Madrid, Spain

1:30

- FC-01. Physics and engineering of stochastic magnetic tunnel junction for probabilistic computer. (Invited)** *S. Fukami¹*
1. Tohoku University, Sendai, Japan

2:06

- FC-02. Probability fluctuations in fast true random number generators based on perpendicular magnetic tunnel junctions.** *A. Sidi El Valli¹, M. Tsao¹ and A.D. Kent¹*
1. New York University, New York, NY, United States

- FC-03. Quantized Neural Networks using MRAM-based Stochastic Computing Units.** *S. Sabyasachi*¹, *W. Al Misba*¹, *Y. Shao*², *P. Khalili*² and *J. Atulasimha*¹ *1. Department of Mechanical & Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States; 2. Department of Electrical and Computer Engineering, Northwestern University, Evanston, IL, United States*

- FC-04. Identifying Angular Dependent States in Superparamagnetic Artificial Spin Ice with Tunnel Magnetoresistance.** *C. Sullivan*¹, *H. Chen*², *B. Fang*³, *X. Zhang*³ and *S. Majetich*² *1. Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, PA, United States; 2. Physics, Carnegie Mellon University, Pittsburgh, PA, United States; 3. Materials Science and Engineering, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia*

- FC-05. Deterministic and stochastic SOT-driven switching in Pt/Co bilayers by DMI modulation.** *R.I. Salinas*¹ and *C. Lai*¹ *1. Materials Science and Engineering, National Tsing Hua University, Hsinchu, Taiwan*

- FC-06. Experimental implementation of a programmable Ising Machine using vortex-based Spin-Torque Nano-Oscillators.** *A. Hakam*¹, *L. Martins*¹, *L. Hutin*², *F. Badets*², *L. Benetti*³, *A. Jenkins*³, *R. Ferreira*³, *P. Talatchian*¹ and *U. Ebels*¹ *1. Univ. Grenoble Alpes, CEA, CNRS, Grenoble INP, SPINTEC, 38000, Grenoble, France; 2. Université Grenoble Alpes, CEA, LETI, 38000, Grenoble, France; 3. International Iberian Nanotechnology Laboratory (INL), 4715-31, Braga, Portugal*

- FC-07. Solving Combinatorial Optimization Problems through Stochastic Landau-Lifshitz-Gilbert Dynamical Systems.** *D. Chen*¹, *A.D. Kent*¹, *D. Sels*^{1,2} and *F. Morone*¹ *1. Physics, New York University, New York, NY, United States; 2. Center for Computational Quantum Physics, Flatiron Institute, New York, NY, United States*

- FC-09. Optimization of a GPU-accelerated Ising Machine for the solution of very large problems based on the synchronization of oscillators.** *L. Mazza*¹, *M. Carpentieri*¹, *G. Finocchio*² and *V. Puliafito*¹ *1. Politecnico di Bari, Bari, Italy; 2. University of Messina, Messina, Italy*

- FC-10. Effect of device-to-device variation in spintronic probabilistic ising machines.** *E. Raimondo*^{1,2}, *E. Garzòn*³, *Y. Shao*⁴, *A. Grimaldi*², *S. Chiappini*¹, *R. Tomasello*⁵, *N. Davila*⁶, *J. Katine*⁶, *M. Carpentieri*⁵, *M. Chiappini*¹, *M. Lanuzza*³, *P. Khalili*⁴ and *G. Finocchio*² *1. Istituto Nazionale di Geofisica e Vulcanologia, Rome, Italy; 2. University of Messina, Messina, Italy; 3. University of Calabria, Rende, Italy; 4. Northwestern University, Evanston, IL, United States; 5. Politecnico di Bari, Bari, Italy; 6. Western Digital, San Jose, CA, United States*

- FC-11. A Time- and Energy-Efficient Ising Machine Based on Voltage-Controlled Magneto-Resistive Devices.** *Z. Tong*¹, *Y. Hou*¹, *Y. Jiang*¹, *Z. Xiao*¹, *X. Wu*¹, *A. Lee*², *D. Wu*² and *Q. Shao*^{1,3} *1. Department of Electronic and Computer Engineering, The Hong Kong University of Science and Technology, Clear Water Bay, Hong Kong; 2. InstonTech, Suzhou, China; 3. Department of Physics, The Hong Kong University of Science and Technology, Clear Water Bay, Hong Kong*

THURSDAY
AFTERNOON
1:30

CELESTIN B

Session FD MAGNONICS IV: FUNDAMENTAL MAGNONIC PROPERTIES AND INTERACTIONS

Edoardo Albisetti, Co-Chair
Politecnico di Milano, Milano, Italy

Philipp Pirro, Co-Chair
RPTU Kaiserslautern-Landau, Kaiserslautern, Germany

- FD-01. Spin Nutation Driven Non-Resonantly in Ferromagnets.** *J. Schlegel*¹, *A. De*², *A. Lentfert*², *L. Scheuer*², *B. Stadtmüller*², *P. Pirro*², *G. von Freymann*³, *M. Aeschlimann*² and *U. Nowak*¹ *1. Department of Physics, University of Konstanz, Konstanz, Germany; 2. OPTIMAS, RPTU Kaiserslautern-Landau, Kaiserslautern, Germany; 3. Fraunhofer ITWM, Kaiserslautern, Germany*

- FD-02. Non-bosonic damping of spin waves at elevated temperatures in van der Waals ferromagnetic films.** *M.G. Cottam*¹ and *B. Hussain*² *1. University of Western Ontario, London, ON, Canada; 2. University of Michigan, Dearborn, MI, United States*

- FD-03. Study of Spin-Wave Transport Properties in Thin Thulium Iron Garnet Films Grown on GGG and sGGG Substrates.** *R. Timalisina*¹, *B. Giri*¹, *H. Wang*¹, *A. Erickson*¹, *S. Sarin*¹, *S. Lamichhane*¹, *S. Liou*¹, *J. Shield*¹, *X. Xu*¹ and *A. Laraoui*¹ *1. University of Nebraska-Lincoln, Lincoln, NE, United States*

- FD-04. Unveiling the Origins of Strong Magnetostriction in Cobalt Ferrite Using Neutron Scattering.** *G. Kaur*², *H. Lane*¹, *C. Stock*² and *P. Gehring*³ *1. Physics and Astronomy, St Andrews, Edinburgh, United Kingdom; 2. Physics and Astronomy, The University of Edinburgh, Edinburgh, United Kingdom; 3. National Institute of Standards and Technology, Gaithersburg, MD, United States*

2:06

- FD-05. Magnetoelastic Coupling between Surface Acoustic Waves and Backward Volume Spin Waves.** *N. Homrocky*¹, *C. Trevillian*¹, *A.N. Slavin*¹ and *V. Tyberkevych*¹ *1. Oakland University, Rochester, MI, United States*

2:18

- FD-06. Backward Volume Spin Waves in Graded Magnonic Media.** *K. Fripp*¹ and *V. Kruglyak*¹ *1. University of Exeter, Exeter, United Kingdom*

2:30

- FD-07. Spin wave band structure in ferromagnetic waveguides with a sinusoidal magnetization distribution.** *P. Micalletti*¹, *A. Roxburgh*², *M. Marzolla*³, *E. Iacocca*² and *F. Montoncello*¹ *1. Department of Physics and Earth Sciences, University of Ferrara, Ferrara, Italy; 2. Department of Physics, University of Colorado at Colorado Springs, Colorado Springs, CO, United States; 3. Department of Information Science and Engineering, University of Bologna, Bologna, Italy*

2:42

- FD-08. Mode Crossing in Interface-coupled TmIG/CoFeB Bilayers with Perpendicular Magnetization.** *W. Al Misba*¹, *J.E. Shoup*², *M.J. Gross*³, *K. Hayashi*⁴, *C.A. Ross*⁴, *J. Atulasimha*¹ and *D.B. Gopman*² *1. Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States; 2. Materials Science and Engineering Division, National Institute of Standards and Technology, Gaithersburg, MD, United States; 3. Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology, Cambridge, MA, United States; 4. Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, United States*

2:54

- FD-09. Creation of Bose-Einstein condensate of magnons in antiferromagnet using rapid cooling.** *P. Artemchuk*¹, *V. Tyberkevych*¹ and *A.N. Slavin*¹ *1. Department of Physics, Oakland University, Rochester, MI, United States*

3:06

- FD-10. Exotic antiferromagnetic magnons on a Möbius strip: Topology-induced symmetry breaking.** *K. Deng*¹ and *R. Cheng*^{1,2,3} *1. Electrical and Computer Engineering, University of California Riverside, Riverside, CA, United States; 2. Physics and Astronomy, University of California Riverside, Riverside, CA, United States; 3. Materials Science and Engineering, University of California Riverside, Riverside, CA, United States*

- FD-13. Thickness crossover from two- to three-dimensional magnon transport properties.** *C.M. Webb¹ and S. Zhang¹ 1. Physics, University of Arizona, Tucson, AZ, United States*

THURSDAY
AFTERNOON
1:30

CELESTIN C

**Session FE
BIOMEDICAL THERAPIES, DIAGNOSIS
AND NANOMEDICINE**

Kai Wu, Chair
Texas Tech University, Lubbock, TX, United States

1:30

- FE-01. Magnetoplasmonic Nanocapsules as Wirelessly Controlled Nanotherapies. (Invited)** *J. Nogués^{1,2}, A. Lafuente¹, A. Flucksman³, A. Gómez Roca¹, J. Sort^{4,2}, C. Nogues⁴, O. Benny³ and B. Sepulveda⁵ 1. Catalan Institute of Nanoscience and Nanotechnology (ICN2), Bellaterra, Spain; 2. ICREA, Barcelona, Spain; 3. Institute for Drug Research, The Hebrew University of Jerusalem, Jerusalem, Israel; 4. Universitat Autònoma de Barcelona, Bellaterra, Spain; 5. Instituto de Microelectrónica de Barcelona (IMB-CNM, CSIC), Bellaterra, Spain*

2:06

- FE-02. Analyzing the magnetic properties of iron oxide nanorods for biomedical applications.** *S.S. Laha¹, E. Odion¹ and O.T. Mefford¹ 1. Materials Science and Engineering, Clemson University, Clemson, SC, United States*

2:18

- FE-03. Highly Uniform Star-shaped Multifunctional Magnetic-plasmonic Au-Fe₃O₄ Nano-heterostructures.** *B. Muzzi¹, M. Albino^{1,2}, E. Balica², A. Omelyanchik³, A. Gabbani^{4,1}, A. Laurenzana⁵, F. Pineider⁴ and C. Sangregorio^{1,2} 1. ICCOM-CNR, Sesto Fiorentino (FI), Italy; 2. Dept. of Chemistry U.Schiff, Univ. of Florence, Sesto Fiorentino (FI), Italy; 3. Dept. of Chemistry and Industrial Chemistry, Univ. of Genova, Genova, Italy; 4. Dept. of Chemistry and Industrial Chemistry, Univ. of Pisa, Pisa, Italy; 5. Dept. of Experimental and Clinical Biomedical Sciences, Univ. of Florence, Florence, Italy*

- FE-04. Withdrawn**

FE-05. Enhanced Imaging Capabilities of a Single-Sided Magnetic Particle Imaging Scanner for Large Phantoms.

C. McDonough¹, M. Jurj¹ and A. Tonyushkin¹

1. Physics, Oakland University, Rochester, MI, United States

FE-06. Magnetic position determination with giant-magnetoresistance and moving field-free point in catheter. *L. Paquet^{1,2,3},*

A. Solignac⁴, K. Tse Ve Koon¹, M. Ohta^{3,5}, N. Tsuruoka⁶, Y. Haga^{5,6}, C. Fermon⁴, M. Pannetier-Lecoeur⁴ and B. Ducharne^{2,7}

1. CREATIS, Université Lyon 1, CNRS UMR5220, INSERM U1206, INSA-Lyon, Lyon, France; 2. ELyTMax, IRL3757, Univ Lyon, INSA-Lyon, Centrale Lyon, Université Claude Bernard Lyon 1, Tohoku University, Sendai, Japan; 3. Institute of Fluid Science, Tohoku University, Sendai, Japan; 4. SPEC, CEA, CNRS, Université Paris-Saclay, CEA-Saclay, Gif-Sur-Yvette, France; 5. Graduate School of Biomedical Engineering, Tohoku University, Sendai, Japan; 6. Graduate School of Engineering, Tohoku University, Sendai, Japan; 7. Université de Lyon, INSA-Lyon, LGEF EA682, Lyon, France

FE-07. Novel Smart Implants for Brain Aneurysms. *P. Velvaluri¹,*

B. Luo¹, E. Spetzler², E. Mackensen², J. McCord², E. Quandt²,

D. Meyners² and N.X. Sun¹ 1. Northeastern University, Boston, MA, United States; 2. Kiel University, Kiel, Germany

FE-08. Advanced Magnetoelectric Neuromodulation: Remote control over multiple channels. *E. Zhang¹, V. Pustovalov¹,*

H. Ye¹, S. Sevim¹, B. Nelson¹ and S. Pané¹ 1. MAVT, ETH Zurich, Zurich, Switzerland

FE-09. Development of a Portable Cell-on-Chip Platform Using Advanced Magnetophoresis Technology. *B. Lim¹, Y. Kang²*

and C. Kim² 1. Department of Smartsensor Engineering, Andong National University, Andong, The Republic of Korea;

2. Department of Physics and Chemistry, DGIST, Daegu, The Republic of Korea

FE-10. Designing Magnetic Pathways for Precise Microrobot Navigation and Bio-applications. *Y. Kang¹, A. Ali¹, H. Kim²,*

B. Lim³ and C. Kim¹ 1. DGIST, Daegu, The Republic of Korea;

2. National Nanofab Center, Daejeon, The Republic of Korea;

3. Andong University, Andong, The Republic of Korea

- FE-11. Prediction of resting motor threshold using machine learning on multimodal data in transcranial magnetic stimulation.** *M. Garcia*^{1,2}, *M. Tashli*³, *C.M. Harris*^{3,4}, *J. Coleman*¹, *A. Jamil*^{1,2}, *L. Manning-Franke*⁴, *B. Wade*^{1,2} and *R.L. Hadimani*^{3,5} *1. Psychiatry, Massachusetts General Hospital, Boston, MA, United States; 2. Harvard Medical School, Boston, MA, United States; 3. Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States; 4. Physical Medicine and Rehabilitation, Virginia Commonwealth University, Richmond, VA, United States; 5. Electrical and Computer Engineering, Iowa State University, Ames, IA, United States*

THURSDAY
AFTERNOON
1:30

IMPERIAL 5AB

Session FF SOFT MAGNETIC MATERIALS III

Arkady Zhukov, Chair
Basque Foundation for Science, San Sebastian, Spain

1:30

- FF-01. High-Frequency Core Loss Reduction in Fe-Based Soft Magnetic Ribbons: A Microstructural Approach. (Invited)** *R. Gautam*¹, *S. Hiramoto*², *H. Mamiya*¹, *T. Ogasawara*³, *S. Okamoto*², *T. Ohkubo*¹ and *H. Sepehri-Amin*¹ *1. National Institute for Materials Science, Tsukuba, Japan; 2. Tohoku University, Sendai, Japan; 3. National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan*

- FF-02. Soft magnetic composites casted from ferrites and construction binders with lowest core loss for high-efficient wireless charging.** *M. Esguerra*¹, *I.R. Ellithy*¹ and *R. Radhakrishnan*¹ *1. Magment GmbH, Munich, Germany*

Now
VP19-10

- FF-03. Withdrawn**

2:06

- FF-04. Superior Stability and Enhanced Heating Performance in Mn- and Zn-Substituted Ferrite-Based Fluids for Magnetic Hyperthermia with Improved Biocompatibility.** *P. Kumar*^{1,2,3}, *A. Singh*^{2,4}, *S. Pathak*⁴ and *R. Pant*⁵ *1. Department of Physics, RMIT University, Melbourne, VIC, Australia; 2. Indian Reference Materials Divisions, CSIR NPL, New Dehli, Delhi, India; 3. Indian Reference Materials Divisions, ACSIR, Delhi, India; 4. Department of Physics, IIT JAMMU, JAMMU, India; 5. Department of Material Sciences and Engineering, Seoul National University, Seoul, The Democratic People's Republic of Korea*

2:18

- FF-05. Minnealloy: An Ultra-High Saturation Magnetization Soft Ferromagnet.** *A.S. Padgett¹, J. Wang², S.R. Bishop¹, W. Echtenkamp², P.F. Weck¹, L.J. Treadwell¹, J.D. Boissiere¹, C.R. Riley¹ and D.R. Lowry¹* *1. Sandia National Laboratories, Albuquerque, NM, United States; 2. Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States*

2:30

- FF-06. Stability and Evolution of Induced Anisotropies in Nanocrystalline Soft Magnetic Alloys for Extreme Temperature Application.** *T. Paplham¹, A. Leary² and P. Ohodnicki^{1,3,4}* *1. Mechanical Engineering and Materials Science, University of Pittsburgh, Pittsburgh, PA, United States; 2. NASA Glenn Research Center, Cleveland, OH, United States; 3. Electrical and Computer Engineering, University of Pittsburgh, Pittsburgh, PA, United States; 4. Physics and Astronomy, University of Pittsburgh, Pittsburgh, PA, United States*

2:42

- FF-07. Fe₃CoC nanocrystals with high magnetization.** *H. Abbas¹, P. Joshi¹, T. Karki¹, J. Mohapatra¹ and P. Liu¹* *1. Physics, University of Texas at Arlington, Arlington, TX, United States*

2:54

- FF-08. Advanced Magnetic Anisotropy Engineering in Soft Magnetic Co-Based Amorphous Wires for Enhanced Performance.** *H. Chiriac¹, M. Lostun¹, S. Corodeanu¹, T.A. Ovari¹ and N. Lupu¹* *1. National Institute of Research and Development for Technical Physics, Iasi, Romania*

3:06

- FF-09. Fabricating and characterizing soft ferromagnetic Fe-CN (Minnealloy) ribbons for use in efficient high frequency transformer cores.** *W. Echtenkamp¹, A.S. Padgett², S. House², S.R. Bishop², D.R. Lowry² and J. Wang¹* *1. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States; 2. Sandia National Laboratories, Albuquerque, NM, United States*

3:18

- FF-10. Analysis of iron loss and complex permeability using Cole-Cole diagram for Fe-based nanocrystalline core.** *Y. Tomita¹, T. Iriyama¹ and H. Takabayashi¹* *1. Corporate Research & Development center, Daido Steel. co., ltd., Nagoya, Japan*

Session FG
VAN DER WAALS MATERIALS

Ethan Ahn, Chair
George Mason University, Fairfax, VA, United States

1:30

- FG-01. Gate tunable spin transport in a two-dimensional semiconductor. (Invited)** *A. Avsar^{1,2,3} 1. Materials Science and Engineering, National University of Singapore, Singapore, Singapore; 2. Department of Physics, National University of Singapore, Singapore, Singapore; 3. Center for Advanced 2D Materials, National University of Singapore, Singapore, Singapore*

2:06

- FG-02. Anomalous Hall Effect in Cr₂Te₃/Pt Heterostructures.** *C. Huai¹, M. Bian¹, K. He², A. Mucchietto³, E. Kirstein³, R. Sabirianov⁴, S. Crooker³, J. Bird² and H. Zeng¹ 1. Physics, University at Buffalo, Buffalo, NY, United States; 2. Electrical Engineering, University at Buffalo, Buffalo, NY, United States; 3. National High Magnetic Field Laboratory, Los Alamos National Lab, Los Alamos, NM, United States; 4. Department of Physics, University of Nebraska-Omaha, Omaha, NE, United States*

2:18

- FG-04. Spin- and orbital-charge conversion at the surface states of Bi_{1-x}Sb_x topological insulator.** *A. Pezo¹, J. George¹ and H. Jaffrès¹ 1. Laboratoire Albert Fert, Essonne, France*

2:30

- FG-05. Twist-angle tunable spin texture in WSe₂/graphene van der Waals heterostructures. (Invited)** *F. Casanova^{1,2} 1. CIC nanoGUNE, San Sebastian, Spain; 2. IKERBASQUE, Bilbao, Spain*

3:06

- FG-06. Quantized transport in one-dimensional nanowire-graphene spin injectors.** *D. Burrow¹, J. Toscano-Figueroa¹, V. Guarochico Moreira¹, K. Omari¹, I. Grigorieva¹, T. Thomson¹ and I. Vera Marun¹ 1. The University of Manchester, Manchester, United Kingdom*

3:18

- FG-07. Unidirectional Magnetoresistance in Heterostructures of Weyl Semimetal and Ferromagnetic Insulator.** *R. Bandapelli¹, I. Kao¹, J. Tang², S. Xu³, Q. Ma², J. Katoch¹ and S. Singh¹ 1. Physics, Carnegie Mellon University, Pittsburgh, PA, United States; 2. Physics, Boston College, Chestnut Hill, MA, United States; 3. Department of Chemistry and Chemical Biology, Harvard University, CAMBRIDGE, MA, United States*

FG-08. Unidirectional magnetoresistance in van der Waals antiferromagnet. *L. Jia¹, Z. Zheng¹ and J. Chen¹ 1. National University of Singapore, Singapore, Singapore*

FG-09. Magnonic Otto thermal machine. *N. Vidal-Silva¹, F. Peña², R. Troncoso³ and P. Vargas² 1. Universidad de La Frontera, Temuco, Chile; 2. Universidad Técnica Federico Santa María, Valparaíso, Chile; 3. Universidad Adolfo Ibáñez, Santiago, Chile*

THURSDAY
AFTERNOON
4:30

CELESTIN D&E

IEEE AWARDS CEREMONY

Adekunle Adeyeye, Co-Chair
Durham University, Durham, United Kingdom
Ron Goldfarb, Co-Chair
National Institute of Standards & Technology,
Boulder, CO, United States

THURSDAY
EVENING
5:30

CELESTIN D&E

PLENARY SESSION

Mark Stiles, Chair
NIST, Gaithersburg, MD, United States

**Innovation of Magnetism in Data Storage and
Magnetoresistance: Past, Present, and Future.**
Yoichiro Tanaka¹ 1. Tohoku University

FRIDAY
MORNING
8:30

CELESTIN D

Session GA

ADVANCED MATERIALS AND DEVICES FOR ENERGY HARVESTING AND CONVERSION

Mario Carpentieri, Chair
Politecnico di Bari, Bari, Italy

GA-01. Nonlinear Spintronics: Unveiling Quantum Rectenna for Sensing and Energy Applications. (Invited) *D. Kumar^{1,2}, R. Sharma^{3,2} and H. Yang² 1. Physics, Netaji Subhas University of Technology, New Delhi, India; 2. Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore; 3. Electrical Engineering, Indian Institute of Technology Ropar, Rupnagar, India*

Now
VP13-09

8:30

- GA-02. High-Performance Thermomagnetic Generator Controlled by a Magnetocaloric Switch. (Invited)** *H. Zhang¹, X. Liu¹, H. Chen¹, K. Qiao¹, Z. Yu¹, L. Xie¹, R. Ramanujan², F. Hu³, K. Chu⁴ and Y. Long¹* *1. School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing, China; 2. School of Materials Science and Engineering, Nanyang Technological University, Singapore, Singapore; 3. Institute of Physics, Chinese Academy of Sciences, Beijing, China; 4. School of Materials Science and Engineering, Lanzhou Jiaotong University, Lanzhou, China*

9:06

- GA-03. Design and Optimization of Small Electromagnetic Harvesters for Vibrational Energy Scavenging. (Invited)** *C. Gomez-Polo^{1,2}, I. Royo-Silvestre^{1,2}, D. Gandia^{1,2}, E. Garaio^{1,2} and J. Beato-Lopez^{1,2}* *1. Departamento de Ciencias, Universidad Pública de Navarra, Pamplona, Spain; 2. Institute for Advanced Materials and Mathematics (INAMAT2), Universidad Pública de Navarra, Pamplona, Spain*

9:46

- GA-04. Recent Advances in Enabling Soft Magnetics Technology for WBG and UWBG Power Electronics Applications. (Invited)** *P. Ohodnicki¹, T. Paplham¹, S. Mullurkara¹, L. Wewer¹, Y. Wang¹, B. Bhandari¹, C. Zheng¹, B. Grainger¹ and M. Ghosh¹* *1. University of Pittsburgh, Pittsburgh, PA, United States*

10:18

Break

10:45

- GA-05. Novel functional magnetic materials from high-throughput studies. (Invited)** *H.C. Herper¹, A. Vishina¹, M. Marathe² and O. Eriksson¹* *1. Physics and Astronomy, Uppsala University, Uppsala, Sweden; 2. KTH, Stockholm, Sweden*

11:21

Panel Discussion

FRIDAY
MORNING
8:30

CELESTIN E

Session GB

NEW CHALLENGES IN NANOMAGNETISM FROM TOPOLOGY TO THE THIRD DIMENSION

Riccardo Tomasello, Chair
Politecnico di Bari, Bari, Italy

8:30

- GB-01. Scientific and technological challenge and opportunities with 3-dim nanomagnetism. (Invited)** *P. Fischer^{1,2}* *1. LBNL, Berkeley, CA, United States; 2. UC Santa Cruz, Santa Cruz, CA, United States*

9:06

- GB-02. Tailoring the energy landscape of a Bloch point singularity in a 3D nanostructure. (Invited)** *S. Ruiz Gómez^{1,2}, C. Abert³, P. Morales Fernandez², C. Fernandez Gonzalez^{1,2}, S. Koraltan³, L. Danesi³, D. Suess³, M. Foerster¹, M. Angel¹, A. Mandziak⁴, D. Wilgocka-Slezak^{4,5}, P. Nita^{4,5}, M. Koenig², A. Hierro-Rodriguez⁶, A. Fernandez-Pacheco⁷ and C. Donnelly²* *1. ALBA Synchrotron, Madrid, Spain; 2. Max Planck Institute for Chemical Physics of Solids, Dresden, Germany; 3. Faculty of Physics, University of Vienna, Vienna, Austria; 4. SOLARIS Synchrotron light Sources, Krakow, Poland; 5. Jerzy Haber Institute of Catalysis and Surface Chemistry, Krakow, Poland; 6. Universidad de Oviedo, Oviedo, Spain; 7. Institute of Applied Physics, Vienna, Austria*

9:42

- GB-03. All-Electrical Control of Magnetic Skyrmions via Interlayer Exchange Coupling. (Invited)** *A. Soumyanarayanan^{1,2}*
1. Physics, National University of Singapore, Singapore, Singapore; 2. Institute of Materials Research and Engineering, Agency for Science, Technology and Research, Singapore, Singapore

10:18

Break

10:45

- GB-04. Skyrmions in synthetic antiferromagnets and their fast current induced dynamics. (Invited)** *O. Boulle¹*
1. Spintec, Grenoble, France

11:21

- GB-05. Hopfions in Magnetic Crystals. (Invited)** *N. Kiselev¹ and F. Rybakov²* *1. Peter Grünberg Institute, Forschungszentrum Jülich, Jülich, Germany; 2. Uppsala University, Uppsala, Sweden*

FRIDAY
MORNING
8:30

CELESTIN A

Session GC NEUROMORPHIC AND RESERVOIR COMPUTING

Martina Kiechle, Chair
National Institute of Standards and Technology, Boulder,
CO, United States

8:30

- GC-01. Reliable Edge Neuromorphic Systems Based on Multi-Level SOT Spintronic Devices. (Invited)** *L. Anghel¹*
1. SPINTEC, Grenoble, France

9:06

- GC-02. Analog Magnetic Tunnel Junctions with Antiferromagnet/Ferromagnet Stack Controlled by Spin-Orbit Torque for Neuromorphic Computing.** *A. Lagarrigue¹, K. Vihanga De Zoysa¹, S. Varaganti¹, S. Kanai¹, S. Moriya¹, S. Sato¹, Y. Horio¹, H. Ohno¹ and S. Fukami¹* *1. Tohoku University, Sendai, Japan*

9:18

- GC-04. Demonstration of Leaky-Integrate-Fire Behavior in Domain Wall Magnetic Tunnel Junction Neuromorphic Devices.** N. Zogbi¹, T. Leonard¹, S. Liu¹, V.C. Rogers¹, C.H. Bennett² and J.C. Incorvia¹ *1. Electrical and Computer Engineering, The University of Texas at Austin, Austin, TX, United States; 2. Sandia National Laboratories, Albuquerque, NM, United States*

9:30

- GC-05. Fast Excitation Dynamics in Artificial Spin Ice Made from Magnetic Tunnel Junctions. (Invited)** S. Majetich¹ *1. Physics, Carnegie Mellon University, Pittsburgh, PA, United States*

10:06

- GC-07. Magnonic Resonators as Building Blocks of Scalable Magnonic Logic Circuits and Reservoir Computers.** A. Shytov¹, O. Kyriienko¹, K. Fripp¹ and V. Kruglyak¹ *1. University of Exeter, Exeter, United Kingdom*

10:18

Break

10:45

- GC-06. Nonlinear Magnonic Hardware for Pattern Recognition. (Invited)** C. Heins^{1,2}, L. Körber^{1,2,3}, J. Kim⁴, T. Devolder⁴, S. Thlang⁴, J. Mentink³, A. Kákay¹, J. Fassbender^{1,2}, H. Schultheiss¹ and K. Schultheiss¹ *1. Institut für Ionenstrahlphysik und Materialforschung, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. Fakultät Physik, Technische Universität Dresden, Dresden, Germany; 3. Institute of Molecules and Materials, Radboud University, Nijmegen, Netherlands; 4. Centre de Nanosciences et de Nanotechnologies, CNRS, Université Paris-Saclay, Palaiseau, France*

11:21

- GC-09. 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. Kläui^{1,4} *1. Institut für Physik, Johannes Gutenberg-Universität Mainz, Mainz, 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*

Session GD
MICROSCOPY, IMAGING, AND MAGNETIC
CHARACTERIZATION II

Shawn Pollard, Chair
The University of Memphis, Memphis, TN, United States

8:30

- GD-01. Unraveling stochasticity and fluctuations in magnetic thin films using coherent X-ray scattering. (Invited)** *S. Roy¹, A. Singh², E. Hollingworth³, S.A. Morley¹, A. Us-Saleheen¹, Z. Tumbleson², M. McCarter¹, S. Kevan¹, P. Fischer² and F. Hellman³* *1. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 2. Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 3. Dept. of Physics, University of California Berkeley, Berkeley, CA, United States*

9:06

- GD-02. Direct Imaging of Room Temperature Magnetic Skyrmions in Gradient-DMI Engineered CoPt Single Layers.** *A. Erickson¹, Q. Zhang², H. Vakili¹, S. Lamichhane¹, L. Jia², I. Fescenko³, E. Schwartz¹, S. Liou¹, A. Kovalev¹, J. Chen^{2,4} and A. Laraoui¹* *1. University of Nebraska-Lincoln, Lincoln, NE, United States; 2. National University of Singapore, Singapore, Singapore; 3. University of Latvia, Riga, Latvia; 4. National University of Singapore (Suzhou) Research Institute, Suzhou, China*

9:18

- GD-03. Magnetic domain structures of rare-earth metal surfaces.** *P. Härtl¹, M. Leisegang¹ and M. Bode¹* *1. Experimental Physics 2, University of Würzburg, Würzburg, Germany*

9:30

- GD-04. Scanning SQUID Characterization of Strained Multiferroic Iron Substituted Gadolinium Orthochromite Thin Film.** *J. Bedard¹, J. Pfund¹, M. Jain^{1,2,3} and I. Sochnikov^{1,2,3}* *1. Department of Physics, University of Connecticut, Storrs, CT, United States; 2. Department of Material Science & Engineering, University of Connecticut, Storrs, CT, United States; 3. Institute of Material Science, University of Connecticut, Storrs, CT, United States*

9:42

- GD-05. Visualization of Anomalous Nernst Effect Using Probe-Induced Local Temperature Gradients.** *H. Isshiki¹, N.D. Budai¹, M.R. Ullerithodi¹, A. Kobayashi¹, Z. Zhu¹, R. Uesugi^{1,3}, T. Higo^{1,3}, S. Nakatsuji^{1,3} and Y. Otani^{1,2}* *1. Institute for Solid State Physics, Univ. of Tokyo, Kashiwa, Japan; 2. CEMS, RIKEN, Wako, Japan; 3. Department of Physics, Univ. of Tokyo, Tokyo, Japan*

- GD-06. Synthesis of Magnetic Nanostructures in Porphyrin and Phthalocyanine Matrices.** V. Pena Perez¹, C. Reynaga Gonzales¹, E. Villegas¹, J. Baughman¹, T. Chung¹, F. Iglesias¹, A. Khodagulyan¹, O. Bernal¹ and A.N. Kocharian¹ *1. Department of Physics and Astronomy, California State University Los Angeles, Los Angeles, CA, United States*

10:06

- GD-07. A quantum sensing metrology for magnetic memories.** P. Rickhaus¹, V.J. Borras¹, R. Carpenter², S. Couet², U. Celano³, O. Pylypovskyi⁴, L. Zaper¹, A. Stark¹, M. Munsch¹, M. Nordmann¹, C. Adelmann², P. van der Heide², P. Maletinsky⁵ and D. Makarov⁴ *1. Qnami AG, Muttentz, Switzerland; 2. IMEC, Leuven, Belgium; 3. ASU, Tempe, AZ, United States; 4. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 5. University of Basel, Basel, Switzerland*

10:18

Break

10:45

- GD-08. Control of the Antiferromagnetic Configuration in $\text{La}_{0.55}\text{Sr}_{0.45}\text{MnO}_3$ Ultrathin Films.** C.A. Vaz¹ and G. Panchal¹ *1. Swiss Light Source, Paul Scherrer Institut, Villigen PSI, Switzerland*

10:57

- GD-09. Wide-field MOKE microscopy and magnetometry on $\text{Cr}_2\text{Ge}_2\text{Te}_6$ exfoliated van-der-Waals flakes.** I. Soldatov¹, B. Özer¹, L. Veyrat², B. Buchner¹ and R. Schaefer¹ *1. Leibniz Institute for Solid State and Materials Research Dresden, Dresden, Germany; 2. Nano & semiconductor group, LNCMI-Toulouse, Toulouse, France*

11:09

- GD-10. Magneto-Optical Kerr Effect Characterisation of Static and Dynamic Processes in a Thulium Iron Garnet Film.** P.S. Keatley¹, M.J. Gross², J.J. Bauer³, M.F. Chowdhury⁴, J. Atulasimha⁴, C.A. Ross³ and R. Hicken¹ *1. Department of Physics and Astronomy, University of Exeter, Exeter, United Kingdom; 2. Electrical Engineering and Computer Science Department, Massachusetts Institute of Technology, Cambridge, MA, United States; 3. Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, United States; 4. Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States*

11:21

- GD-11. Strain induced magnetic effects in thin films studied by transmission electron microscopy.** A. Kovács¹, M. Charilaou², D. Kong¹, I. Kézsmárki³, X. Han⁴ and R.E. Dunin-Borkowski¹ *1. Ernst Ruska-Centre, Forschungszentrum Juelich, Juelich, Germany; 2. University of Louisiana at Lafayette, Lafayette, LA, United States; 3. University of Augsburg, Augsburg, Germany; 4. Southern University of Science and Technology, China, China*

11:33

- GD-12. Probing Complex Spin Fluctuations by Megahertz X-ray Photon Correlation Spectroscopy.** *L. Shen*^{1,2}, *Z. Tumbleson*^{3,4}, *R. Plumley*¹, *C. Peng*¹, *S.A. Morley*³, *G. Mercurio*⁵, *A. Scherz*⁵, *S. Roy*³, *E. Blackburn*² and *J.J. Turner*¹ *1. SLAC National Accelerator Laboratory, Menlo Park, CA, United States; 2. Lund University, Lund, Sweden; 3. Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 4. UC Santa Cruz, Santa Cruz, CA, United States; 5. European XFEL GmbH, Hamburg, Germany*

11:45

- GD-13. Domain wall curvature effects on the measurement of the Dzyaloshinskii Moriya interaction strength in the creep regime.** *A. Magni*¹, *A. Di Pietro*¹, *G. Carlotti*², *G. Durin*¹, *M. Madami*², *C. Marrows*³, *S. Pizzini*⁴, *L. Ranno*⁴, *S. Tacchi*⁵, *E. Darwin*⁶, *A. Huxtable*³, *B.J. Hickey*³ and *M. Kuepferling*¹ *1. INRIM, Torino, Italy; 2. Physics and Geology, Università di Perugia, Perugia, Italy; 3. University of Leeds, Leeds, United Kingdom; 4. Institut Néel, Grenoble, France; 5. Consiglio Nazionale delle Ricerche, Perugia, Italy; 6. EMPA, Duebendorf, Switzerland*

FRIDAY
MORNING
8:30

CELESTIN C

Session GE ANALYSIS AND DESIGN FOR HIGH-PERFORMANCE MAGNETIC SYSTEMS

David Lowther, Chair
McGill University, Montreal, QC, Canada

8:30

- GE-01. Overview of Permanent Magnet Wind Power Generators. (Invited)** *M. Jiang*¹, *S. Niu*¹ and *K. Chau*¹ *1. Department of Electrical and Electronic Engineering, The Hong Kong Polytechnic University, Kowloon, Hong Kong*

9:06

- GE-02. Advanced Electric Machines and Drives for Wind Power Generation. (Invited)** *Z. Dong*^{1,2}, *R. Huang*^{1,2}, *Y. Liu*^{1,2} and *C. Liu*^{1,2} *1. School of Energy and Environment, City University of Hong Kong, Hong Kong, China; 2. Shenzhen Research Institute, City University of Hong Kong, Shenzhen, China*

9:42

- GE-03. Magnetic materials as key drivers for a sustainable electrification. (Invited)** *A. Bollero*¹, *L. Powalla*¹, *M. Köhne*¹ and *W. Rammaier*¹ *1. Advanced Technologies and Microsystems, Robert Bosch GmbH, Sector Research and Advance Engineering, 71272 Renningen, Stuttgart, Germany*

10:18

Break

GE-04. High Power Density PM Motor for Electric Aircraft Propulsion Utilizing Litz Wire and Hairpin Winding Technologies. *A.T. Huynh¹, H. Huang¹, J. Jiang¹, T. Zou¹, D. Gerada¹, T. Yang¹ and C. Gerada¹* *1. Power Electronics and Machines Centre, Faculty of Engineering, University of Nottingham, Nottingham, United Kingdom*

10:45

GE-05. Investigation of High Pass-Through-Flux and Sputtering Performance of Ferromagnetic Sputtering Targets. *Q. Zeng¹, D. VanHeerden¹, J. Wagner¹, G. Wiehl¹ and S. Kennedy¹* *1. Materion Corp., Brewster, NY, United States*

10:57

GE-06. Fractional operators for the analytical expressions of the dynamic magnetic power loss. *B. Ducharne^{1,2} and G. Sebald²* *1. INSA Lyon, Villeurbanne, France; 2. Tohoku University, Sendai, Japan*

GE-07. Withdrawn

11:09

GE-08. Coil Design for a Moving-Magnet Planar Motor Using the Stream-Function Method. *B. Kuijpers¹, J. Jansen¹ and E. Lomonova¹* *1. Eindhoven University of Technology, Eindhoven, Netherlands*

11:21

GE-09. Design of an Electromagnetic Reaction Wheel with Halbach Array. *K. Liu¹, S. Lin¹, K. Peng¹ and J. Chang^{1,2}* *1. Department of Power Mechanical Engineering, National Tsing Hua University, Hsinchu, Taiwan; 2. Department of Mechanical and Computer-Aided Engineering, National Formosa University, Yunlin, Taiwan*

FRIDAY
MORNING
8:30

IMPERIAL 5AB

Session GF ULTRAFast MAGNETISATION DYNAMICS AND SWITCHING

Andrei Kirilyuk, Chair
Radboud University, Nijmegen, Netherlands

8:30

GF-01. Ultra-Fast All Optical Switching in Spintronic Devices. (Invited) *J. Gorchon¹, T. Hauet¹, M. Hehn^{1,2}, J. Hohlfeld¹, G. Malinowski¹ and S. Mangin^{1,2}* *1. Institut Jean Lamour, Université de Lorraine, Nancy, France; 2. CSIS, Tohoku University, Sendai, Japan*

- GF-02. Measuring the Intrinsic Timescales of Ultrafast Spin Reorientation with Extreme Ultraviolet Light.** *A. Grafov*¹, S.A. Ryan¹, N. Li¹, H.T. Nembach², J.M. Shaw², H. Bhandari³, T. Kafle¹, R. Sapkota¹, H.C. Kapteyn^{1,4}, N.J. Ghimire³ and M.M. Murnane¹ *1. JILA, University of Colorado Boulder, Boulder, CO, United States; 2. NIST, Boulder, CO, United States; 3. University of Notre Dame, Notre Dame, IN, United States; 4. KMLabs Inc., Boulder, CO, United States*

- GF-03. Ultrafast Spin Dynamics across Metal/Semiconductor Interfaces: All-Optical Injection of Spin Currents in Silicon.** *S. Laterza*¹, *A. Caretta*¹ and *M. Malvestuto*^{1,2} *1. Elettra Sincrotrone Trieste S.C.p.A., Trieste, Italy; 2. Istituto Officina Dei Materiali-CNR, Trieste, Italy*

- GF-04. Withdrawn**

- GF-05. Ultrafast Spin Dynamics in Fe-Gd Ferrimagnetic Alloys Investigated with Near-Fermi Level Probes.** *S. Saha*^{1,2}, *R. Knut*², *N. Alzahrani*^{3,4}, *J.E. Shoup*^{4,5} and *D.A. Arena*⁴ *1. Physics, Ashoka University, Haryana, India; 2. Physics, Uppsala University, Uppsala, Sweden; 3. Physics, University of Jeddah, Jeddah, Saudi Arabia; 4. Physics, University of South Florida, Tampa, FL, United States; 5. Materials Science and Engineering Division, National Institute of Standards and Technology, Gaithersburg, MD, United States*

- GF-07. Probing Ultrafast Spin Excitations in Magnetic Alloys Using Extreme Ultraviolet Spectroscopy.** *N. Li*¹, *A. Grafov*¹, S.A. Ryan¹, M.F. Elhanoty², O. Grånäs², E. Lesne³, C. Felser³, H.C. Kapteyn¹ and M.M. Murnane¹ *1. JILA, University of Colorado, Boulder, CO, United States; 2. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden; 3. Max Planck Institute for Chemical Physics of Solids, Dresden, Germany*

- GF-08. All-optical switching in Pt/Co multilayers: from helicity dependent switching to bubble domains.** *A. Villar*¹, *D. Doménech*¹, *R. Montero*², *A. Devishvili*³, *R. Morales*^{1,4,5}, *P. Vavassori*^{5,6} and *J. Porro*^{1,5} *1. BCMaterials, Basque Centre for Materials, Applications & Nanostructures, Leioa, Spain; 2. Laser Facility, SGiker, Leioa, Spain; 3. Institut Laue-Langevin, Grenoble, France; 4. Chemical-Physics, UPV/EHU, Faculty of Science and Technology, Leioa, Spain; 5. IKERBASQUE, Basque Foundation for Science, Bilbao, Spain; 6. CIC nanoGUNE BRTA, Donostia-San Sebastián, Spain*

10:06

Break

10:45

- GF-10. Light-helicity induced orbital angular momentum transfer torque in ferromagnetic metals.** *K. Nukui*^{1,2}, *S. Iihama*^{3,2}, *K. Ishibashi*^{1,2}, *S. Yamashita*¹, *A. Sakuma*¹, *P. Scheid*⁴, *G. Malinowski*⁴, *M. Hehn*^{4,5}, *S. Mangin*^{4,5} and *S. Mizukami*^{2,5}
1. Department of Applied Physics, Tohoku University, Sendai, Japan; *2. WPI-AIMR, Tohoku University, Sendai, Japan;* *3. FRIS, Tohoku University, Sendai, Japan;* *4. CNRS, Institut Jean Lamour, Université de Lorraine, Nancy, France;* *5. CSIS, Tohoku University Sendai, Japan*

10:57

- GF-11. Substrate-Mediated Phononic Switching of Magnetization Using Transient Polarization Gratings.** *F.G. Fennema*^{1,2}, *A. Tsukamoto*³, *A. Kirilyuk*^{1,2} and *C.S. Davies*^{1,2}
1. HFML-FELIX, Radboud University, Nijmegen, Netherlands; *2. Radboud University, Institute for Molecules and Materials, Nijmegen, Netherlands;* *3. Nihon University, Chiba, Japan*

GF-13. Withdrawn

FRIDAY
MORNING
8:30

IMPERIAL 5CD

Session GG
ELECTRONIC STRUCTURE AND FUNDAMENTAL PROPERTIES

Jinke Tang, Co-Chair
University of Wyoming, Laramie, WY, United States
Durga Paudyal, Co-Chair
University of Iowa, Iowa City, IA, United States

8:30

- GG-01. Magnetic Properties of the Metallic Delafossite Triangular-Lattice Antiferromagnet PdCrO_2 and its Anomalous Hall Effect.** *Y. Tao*¹, *Y. Zhang*¹, *F. Tutt*¹, *A. Paul*², *E. Ritz*¹, *J. Garcia-Barriocanal*³, *T. Birol*¹ and *C. Leighton*¹ *1. Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN, United States;* *2. Indian Institute of Technology Jammu, Jammu and Kashmir, India;* *3. Characterization Facility, University of Minnesota, Minneapolis, MN, United States*

8:42

GG-02. First-principle Calculations of Magnetic Properties of $\text{Dy}_6(\text{Fe,Mn})\text{Bi}_2$ Compounds for Magnetic Refrigeration Applications. A. Garcia-Adeva¹, F. Ramón-García¹, E. Apiñaniz¹, A. Herrero², I. Aseguinolaza² and A. Oleaga²
1. Física Aplicada, Universidad del País Vasco (UPV/EHU), Vitoria-Gasteiz, Spain; 2. Física Aplicada, Universidad del País Vasco (UPV/EHU), Bilbao, Spain

8:54

GG-03. Superconducting diode effect without magnetic field in layered superconductor $\text{FeTe}_{0.6}\text{Se}_{0.4}$. U. Nagata¹, M. Aoki^{1,2}, A. Daido³, R. Ohshima^{1,2}, S. Kasahara⁴, Y. Kasahara³, Y. Ando^{1,2}, Y. Matsuda³, Y. Yanase^{3,2} and M. Shiraishi^{1,2}
1. Electronic Science and Engineering, Kyoto University, Kyoto, Japan; 2. CSRN Kyoto University, Kyoto, Japan; 3. Science, Kyoto University, Kyoto, Japan; 4. Research Institute for Interdisciplinary Science, Okayama University, Okayama, Japan

9:06

GG-04. Non-trivial Spin Structures and Multiferroic Properties of the DMI-Compound $\text{Ba}_2\text{CuGe}_2\text{O}_7$. P. Wild¹, K. Fellner¹, M. Dembski-Villalta¹ and S. Mühlbauer¹
1. TUM/MLZ, Garching, Germany

9:18

GG-05. Transition metals: Matching microscopic quantum dynamics with macroscopic magnetic order. V. Janiš¹ and M. Khanore¹
1. Institute of Physics, Czech Academy of Sciences, Praha, Czechia

9:30

GG-06. Spin fluctuation driven magnetoresistance, domain re-distribution and anomalous Hall effect in helical antiferromagnetic Eu metal thin films. N. Shrestha¹ and J. Tang¹
1. Department of Physics and Astronomy, University of Wyoming, Laramie, WY, United States

9:42

GG-07. Comprehensive Study of GGA+U Approach to Modeling Electronic Structure of $\alpha''\text{-Fe}_{16}\text{N}_2$. P. Stoeckl¹, P. Swatek² and J. Wang^{1,2}
1. Physics, University of Minnesota, Minneapolis, MN, United States; 2. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States

9:54

GG-08. Signatures of Magnetic Glassiness in Zinc Ferrite: Low-Temperature Fast “Rejuvenation” versus Room-Temperature Slow Relaxation and Memory-Effect. A. Ney¹, J. Lumetzberger¹, V. Ney¹, D. Primetzhofer², A. Zakharova³, N. Daffe³, F. Wilhelm⁴ and A. Rogalev⁴
1. Solid State Physics Division, Johannes Kepler Univ, Linz, Austria; 2. Uppsala Univ, Uppsala, Sweden; 3. Swiss Light Source, Villigen, Switzerland; 4. ESRF, Grenoble, France

GG-09. Withdrawn

10:06

Break

10:45

GG-10. Frustration driven low-temperature spin dynamics in magnetically diluted Co-based glassy spinel systems.

M. Roy Chowdhury¹, T. Sarkar², E.S. Choi³ and S. Thota¹

1. Physics, Indian Institute of Technology Guwahati, Guwahati, India; 2. Department of Materials Science and Engineering, Uppsala University, Uppsala, Sweden; 3. National High Magnetic Field Laboratory, Tallahassee, FL, United States

10:57

GG-11. Single Molecule Magnet's (SMM) Effects on Antiferromagnet-based Magnetic Tunnel Junction.

B. Sankhi¹ and P. Tyagi¹ 1. Mechanical engineering, University of the district of Columbia, Washington, DC, United States

11:09

GG-12. Self-consistent magnetic dynamic susceptibility in the itinerant magnets.

M. Auslender¹ and V. Antropov²

1. Ben-Gurion University of the Negev, Be'er Sheva, Israel; 2. Ames National Laboratory, Ames, IA, United States

11:21

GG-13. Enhanced cooperativity in photon magnon hybrid system using nested meta-resonator: insights of coherent and dissipative coupling.

S. Yadav¹, P. Kumar¹, M. Sharma^{1,2} and B.K. Kuanr¹

1. Special Centre for Nanoscience, Jawaharlal Nehru University, South West Delhi, India; 2. Department of Physics, Deshbandhu College, University of Delhi, New Delhi, India

11:33

GG-14. Spin Dynamics in the Floating Phase of a Frustrated Spin-5/2 Chain Magnet.

Q. Huang¹, A.B. Niraula¹,

D. Dahlbom², B. Thipe¹, G. Granroth², B. Winn², A. Aczel²,

J. Chen¹, S. Stadler¹, D. Young¹, K. Barros³, X. Tao^{4,5}, J. Zhang⁶,

S. Calder², C. Batista⁷ and X. Bai¹ 1. Department of Physics and

Astronomy, Louisiana State University, Baton Rouge, LA,

United States; 2. Oak Ridge National Laboratory, Oak Ridge,

TN, United States; 3. Los Alamos National Laboratory, Los

Alamos, NM, United States; 4. State Key Laboratory of Crystal

Material, Jinan, China; 5. Institute of Crystal Materials, Jinan,

China; 6. Shandong University, Jinan, China; 7. Department of

Physics and Astronomy, University of Tennessee, Knoxville, TN,

United States

11:45

GG-15. Reexamination of the Electronic Phase Diagram of Doped NiS₂: Electronic, Magnetic, and Structural Inhomogeneity across the Mott Insulator-Metal Transition.

Y. Tao¹, B. Das¹, S. Calder², E. Day-Roberts¹, M. Maiti¹, Y. Lee¹, C. Komar¹,

T. Biroli¹ and C. Leighton¹ 1. Chemical Engineering and

Materials Science, University of Minnesota, Minneapolis, MN,

United States; 2. Neutron Scattering Division, Oak Ridge

National Laboratory, Oak Ridge, TN, United States

Session GP

**HARD MAGNETS IV & MATERIALS WITH COUPLED
MAGNETIC PHENOMENA II
(Poster Session)**

Christopher Woodgate, Chair
University of Warwick, Coventry, United Kingdom

GP-01. Intrinsic hard magnetic properties and thermal stability of a ThMn₁₂-type permanent magnet. N. Batnyam¹ and D. Odkhuu¹ *1. Physics, Incheon National University, Yeoun-su, The Republic of Korea*

GP-02. Bulk Anisotropic Nanograin Sm_{0.4}Pr_{0.6}Co₅ Magnets with Excellent Energy Product. W. Liu¹, L. Zhang¹, Z. Wang¹, L. Liu¹, Y. Li¹ and M. Yue¹ *1. Beijing University of Technology, Beijing, China*

GP-03. Enhancing intrinsic permanent magnetic properties of ThMn₁₂-type Sm(Fe_{1-x}Co_x)_{11.5}Ti_{0.5} through interstitial B, N, and C elements. S. Dorj^{1,2}, T. Namsrai¹, J. Narmandakh², O. Tumentsereg³, O. Khorgolkhuu⁴ and O. Dorj^{1,3}
1. Department of Physics, National University of Mongolia, Ulaanbaatar, Mongolia; 2. Institute of Physics and Technology, Mongolian Academy of Sciences, Ulaanbaatar, Mongolia; 3. Department of Physics, Incheon National University, Incheon, The Republic of Korea; 4. National Institute for Computational Sciences, Oak Ridge, TN, United States

GP-04. Anisotropic nanocrystalline (Sm_{0.4}Pr_{0.6})Co₅ permanent magnets with controllable magnetic properties. L. Liu¹, W. Liu¹, Y. Li¹, L. Zhang¹, Z. Wang¹ and M. Yue¹
1. Beijing University of Technology, Beijing, China

GP-06. Magnetic properties of Sm₂Fe₁₇N₃ at low temperature. I. Nlebedim¹ and X. Liu¹ *1. Division of Critical Materials, Ames National Laboratory, Ames, IA, United States*

GP-08. Withdrawn

Session GQ

**SPIN-ORBITRONICS II: ANTIFERROMAGNETS,
DMI AND UNCONVENTIONAL TORQUES
(Poster Session)**

Daniel Gopman, Chair

National Institute of Standards and Technology, Gaithersburg,
MD, United States

- GQ-01. Current-induced field-free magnetization switching in the MXene-based Cr₂N/(Co/Pt) multilayer structure.** *P. Kumar¹ and S. Isogami¹ 1. National Institute for Materials Science, Tsukuba, Japan*
- GQ-02. Enhancing Unconventional Spin-Orbit Torque Efficiency: Unraveling the Role of Polycrystalline Effects in Low-Symmetry Materials.** *Y. Yang¹ and J. Wang¹ 1. University of Minnesota, Minneapolis, MN, United States*
- GQ-03. Spin Transport in Antiferromagnetic CoO Thin Films.** *C. Schmitt¹, E. Galindez Ruales¹, H. Meer¹, T. Kikkawa², A. Akashdeep¹, T. Kuschel^{1,3}, E. Saitoh^{2,4} and M. Kläui¹ 1. Johannes Gutenberg University Mainz, Mainz, Germany; 2. The University of Tokyo, Tokyo, Japan; 3. Bielefeld University, Bielefeld, Germany; 4. Tohoku University, Sendai, Japan*
- GQ-04. ST-FMR Investigations of a WSe₂ Spin Sink.** *Y. Chu¹, K. Chiu¹ and M. Lin^{1,2,3} 1. Department of Physics, National Taiwan University, Taipei, Taiwan; 2. Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei, Taiwan; 3. Research Center for Applied Sciences, Academia Sinica, Taipei, Taiwan*
- GQ-05. Study of Dzyaloshinskii Moria Interaction on Magnetic Tunnel Junction-Based Molecular Spintronics Devices (MTJMSD).** *B. Sankhi¹ and P. Tyagi¹ 1. Mechanical engineering, University of the District of Columbia, Washington, DC, United States*
- GQ-06. Median Mishaps between Chirality and Spin-Orbit Torques via Asymmetric Hysteresis.** *M. Kim^{1,2} and D. Kim¹ 1. Korea Institute of Science and Technology, Seoul, The Republic of Korea; 2. Seoul National University, Seoul, The Republic of Korea*
- GQ-07. Spin-Orbit Torques in Permalloy Films with Shape-Induced High-Order Magnetic Anisotropy.** *A. Zaig¹ 1. Physics, Bar-Ilan University, Ramat Gan, Israel*
- GQ-08. Temperature Dependence of Dzyaloshinskii-Moriya Interaction in Pt/Co/Gd Thin Films.** *F. Wei¹, Y. Zhou¹, W. Zhang² and S. Kang¹ 1. Shandong University, Jinan, China; 2. Weifang University, Weifang, China*

Session GR
MAGNETOELECTRIC MATERIALS AND
PHENOMENA III & SPINTRONIC DEVICES III:
STT/SOT MRAMS AND SWITCHING DYNAMICS
(Poster Session)

Xiaoyu (Criss) Zhang, Chair
Northeastern University, Boston, MA, United States

- GR-01. Room Temperature Ferromagnetism in Transition-Metal-Doped ZnO Semiconductors Induced by Tunable Bound Magnetic Polarons.** *A. Alsmadi¹ and B. Salameh¹*
1. Physic Department, Kuwait University, Sabah Al Salem University City, Kuwait, Kuwait
- GR-02. Magnetotransport Properties of NiFe_{1+x}Mn_{1-x}Al Heusler Alloys.** *S. Diallo¹, P. Shand¹, P. Lukashev¹, P. Kharel², G. Baker², J. Wysong² and B. Schmidt¹*
1. Physics, University of Northern Iowa, Cedar Falls, IA, United States; 2. Chemistry, Biochemistry and Physics, South Dakota State University, Brookings, SD, United States
- GR-03. Withdrawn**
- GR-04. Anomalous Hall Effect in a Room Temperature Magnetic High Entropy Alloy.** *R. Roy Chowdhury¹, N. Schulz¹, E. Kasotakis², M. Farle², N. Shkodich², M. Phan¹ and H. Srikanth¹*
1. Department of Physics, University of South Florida, Tampa, FL, United States; 2. Universität Duisburg-Essen, Duisburg, Germany
- GR-05. Role of texture breaking layer on the reference layer stability of STT-MRAM devices.** *J. Chatterjee¹, S. Rao¹, R. Carpenter¹, K. Wostyn¹, A. Palomino Lopez¹ and S. Couet¹*
1. IMEC, Leuven, Belgium
- GR-06. Investigation of the origin of enhanced spin-orbit torque efficiency in strained Py/Pt bilayer.** *A. Chouhan¹, H.A. Mendonca¹, S. Dutta¹, A. Shukla¹, R.R. Pandey¹ and A.A. Tulapurkar¹*
1. Department of Electrical Engineering, Indian Institute of Technology Bombay, Mumbai, India
- GR-07. Tailoring the Structural and Magnetic Properties of LaNiO₃ Perovskite Nanostructure via Mn Doping for Spintronic Applications.** *S. K^{1,2}, M. Swalihu^{3,4} and R. N E¹*
1. Department of Physics, Farook College, Calicut, India; 2. Department of Physics, Providence Women's College, Calicut, India; 3. Department of Physics, Catholicate College, Pathanamthitta, India; 4. International and Interuniversity Center for Nanoscience and Nanotechnology, Mahatma Gandhi University, Kottayam, India

- GR-08. Innovative Trenched Bottom Electrode Molecular Devices with Gate Electrodes: Advances and Applications in Spintronics.** *E. Peigney*¹, H. Brown¹, B. Sankhi¹ and P. Tyagi¹
1. NSF CREST Center for Nanotechnology Research and Education, University of the District of Columbia, Washington, DC, United States

FRIDAY
MORNING
9:00

EXHIBIT HALL

Session GS
EMERGING COMPUTING USING MAGNETIC
AND SPINTRONIC MATERIALS
(Poster Session)

Gregory Stephen, Chair
Laboratory for Physical Sciences, College Park, MD, United States

- GS-02. Using Machine Learning Algorithms to Predict the Magnetic Susceptibility of Rare Earth Ions.** *P. Brungi*¹, N. Carlstedt¹ and P. Andrei¹ *1. Department of Electrical and Computer Engineering, Florida State University, Tallahassee, FL, United States*
- GS-03. Operational window of inverse temperature for accurate probabilistic computing with stochastic magnetic tunnel junctions.** *H. Kaneko*¹, S. Kanai^{1,2,3}, H. Ohno² and S. Fukami^{2,4}
1. Tohoku Univ., Sendai, Japan; 2. National Institutes for Quantum Science and Technology, Takasaki, Japan; 3. Japan Science and Technology Agency, Kawaguchi, Japan; 4. Inamori Research Institute for Science, Kyoto, Japan
- GS-04. Simulation of Error Rate of and Logic Gates Made from Stochastic MTJs.** S. Endo¹ and S. Greaves¹ *1. RIEC, Tohoku University, Sendai, Japan*
- GS-05. Design of a High-Speed Vacuum Pump Motor Applying 6Phase and Harmonic Reduction.** H. Han¹, I. Yang², D. Choi¹, S. Lee¹ and W. Kim³ *1. Next Generation Smart Energy System Convergence, Gachon University, Seongnam-si, The Republic of Korea; 2. Electrical Engineering, Hanyang University, Seoul, The Republic of Korea; 3. Electrical Engineering, Gachon University, Seongnam-si, The Republic of Korea*
- GS-06. Research on Reducing Cogging Torque and Torque Ripple by Changing the Shape of Permanent Magnet in Large Ship Motor.** S. Jeon¹, D. Choi¹, Y. Song¹, S. Lee¹ and W. Kim¹
1. Next Generation Smart Energy System Convergence Major, Gachon University, Seongnam, The Republic of Korea
- GS-07. Performance Prediction of Coaxial Magnetic Gear Based on Ring Specimen Test Result.** S. Lee¹, S. Im¹, B. Bae¹ and M. Lim¹ *1. Automotive Engineering (Automotive-Computer Convergence), Hanyang University, Seoul, The Republic of Korea*

Session GT
MAGNETIZATION DYNAMICS AND
MICROMAGNETICS II
(Poster Session)

Michael Donahue, Co-Chair
National Institute of Standards and Technology,
Gaithersburg, MD, United States
Jonathan Leliaert, Co-Chair
Ghent University, Ghent, Belgium

- GT-01. Temperature-Based Frequency Tunability in Spin-Torque Vortex Nano Oscillators for Neuromorphic Computing System.** S. Soni^{1,2}, S. Shreya¹, Y. Rezaeiyan¹, H. Farkhani¹, B.K. Kaushik² 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*
- GT-02. Effect of Tracer Size Distribution on Magnetic Particle Imaging Resolution.** E. Azizi¹, B. Rezaei¹, S. Mostufa¹, S. Liang², Y.A. Wang³, J. Wang², C. Li¹, J. Gomez-Pastora⁴, R. He¹ and K. Wu¹ *1. Electrical and Computer Engineering, Texas Tech University, Lubbock, TX, United States; 2. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States; 3. Ocean Nano Tech LLC, San Diego, CA, United States; 4. Chemical Engineering, Texas Tech University, Lubbock, TX, United States*
- GT-03. Fast Identification of the Jiles-Atherton-Model Parameters and the Electric Conductivity Based on Gaussian Process Regression.** A. Schaefer¹, Y. Gong¹ and N. Parspour¹ *1. Institute of Electrical Energy Conversion (iew), University of Stuttgart, Stuttgart, Germany*
- GT-04. Kolmogorov-Arnold Network for 2-D Magnetostatic Fields Solving.** Y. Zhu¹, K. Xu¹, B. Wan¹, G. Lei¹ and J. Zhu² *1. School of Electrical and Data Engineering, University of Technology Sydney, Ultimo, NSW, Australia; 2. School of Electrical and Computer Engineering, University of Sydney, Camperdown, NSW, Australia*
- GT-06. Comprehensive Database of Magnetic Materials Using AI-Driven Methodologies.** Y. Zhang^{1,2}, S. Itani¹ and J. Zang¹ *1. Physics, University of New Hampshire, Durham, NH, United States; 2. Chemistry, University of New Hampshire, Durham, NH, United States*
- GT-07. Clustering Vector Fields Using Unsupervised Machine Learning.** S.A. Pathak^{1,2}, S.J. Holt^{1,2}, A. Petrocchi^{1,2}, M. Lang^{1,2} and H. Fangohr^{1,2,3} *1. Max Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany; 2. Center for Free-Electron Laser Science, Hamburg, Germany; 3. Faculty of Engineering and Physical Sciences, University of Southampton, Southampton, United Kingdom*

GT-08. Physics Informed Neural Networks Based on Unsupervised Learning for Multidomain Electromagnetic Analysis.

B. Wan¹, G. Lei¹, Y. Zhu¹, K. Xu¹, Y. Guo¹ and J. Zhu²

1. School of Electrical and Data Engineering, University of Technology Sydney, Ultimo, NSW, Australia; 2. School of Electrical and Information Engineering, University of Sydney, Camperdown, NSW, Australia

FRIDAY
MORNING
9:00

EXHIBIT HALL

Session GU
MICROSCOPY, IMAGING, AND MAGNETIC
CHARACTERIZATION III
(Poster Session)

Sascha Schäfer, Chair

University of Regensburg, Regensburg, Germany

GU-01. Antiferromagnetism in $\text{La}_{0.8}\text{Sr}_{0.2}\text{MnO}_3$ Ultrathin Films Driven by Interfacial Charge Doping.

G. Panchal¹, F. Stramaglia¹ and C.A. Vaz¹ 1. Swiss Light Source, Paul Scherrer Institut, Villigen PSI, Switzerland

GU-02. High-Gradient Magnetic Separation and Phenotypic Characterization of Sick RBCs.

J. Chalmers¹, P.R. Iyer¹, J. Strayer¹, X. Wu¹, H. Choe¹, A. DeBastiani¹, B. Karakuzu^{1,2}, J. Gomez-Pastora³, K. Wu⁴, A. Palmer¹, M. Zborowski⁵ and P. Desai⁶ 1. Chemical and Biomolecular Engineering, Ohio State University, Columbus, OH, United States; 2. Bioengineering, Izmir Institute of Technology, Izmir, Turkey; 3. Chemical Engineering, Texas Tech University, Lubbock, TX, United States; 4. Electrical and Computer Engineering, Texas Tech University, Lubbock, TX, United States; 5. Biomedical Engineering, Cleveland Clinic Lerner Research Institute, Cleveland, OH, United States; 6. Levine Cancer Institute, Charlotte, NC, United States

GU-03. Numerical Analysis of Hybrid Electromagnetic Coil Systems for Efficient Gradient Field Generation in Human-Sized Magnetic Particle Imaging.

S. Mostufa¹, E. Azizi¹, B. Rezaei¹, C. Li¹, J. Gomez-Pastora², R. He¹ and K. Wu¹ 1. Department of Electrical and Computer Engineering, Texas Tech University, Lubbock, TX, United States; 2. Department of Chemical Engineering, Texas Tech University, Lubbock, TX, United States

GU-04. Method to Measure the Mass and Particle Size of Rare Earth Materials in Aqueous Solutions.

A. Igboanugo¹ and P. Andrei¹ 1. Florida State University, Tallahassee, FL, United States

- GU-06. An XPEEM Study of Voltage-induced Magnetic Domain Separation in a $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ Thin Film.** T. Chen¹, D. Sasaki², B. Achinuq³, N. Ghazikhanian⁴, P. Salev⁵, H. Ohldag³, A. Scholl³, I.K. Schuller⁴, Y. Takamura² and A.D. Kent¹ *1. Department of Physics, New York University, New York, NY, United States; 2. Department of Materials Science and Engineering, University of California Davis, Davis, CA, United States; 3. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 4. Department of Physics, University of California San Diego, La Jolla, CA, United States; 5. Department of Physics and Astronomy, University of Denver, Denver, CO, United States*

FRIDAY
MORNING
9:00

EXHIBIT HALL

Session GV

ELECTRICAL MACHINES, POWER ELECTRONICS & ELECTROMECHANICAL CONVERSION (Poster Session)

Abdelmounaim Tounzi, Chair
Université de Lille, Villeneuve d'Ascq, France

- GV-03. Design and Analysis of an Interior Permanent Magnet Synchronous Motor with a Carbon Fiber-Reinforced Plastic Sleeve Based on Electromagnetic-Mechanical Coupled Analysis.** K. Kwak¹, Y. Choi¹, M. Koo², H. Shin³, K. Shin⁴ and J. Choi¹ *1. Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea; 2. Purpose Built Mobility Group, Korea Institute of Industrial Technology, Gwangju, The Republic of Korea; 3. Specialized Machinery and Robotics Group, Korea Institute of Industrial Technology, Gimje, The Republic of Korea; 4. Electrical Engineering, Changwon National University, Changwon, The Republic of Korea*
- GV-07. High Efficiency Rotary Transformer Design Based on Modular Core.** P. Huang¹, T. Chang², I. Lu² and M. Tsai¹ *1. Mechanical Engineering, National Cheng Kung University, Tainan, Taiwan; 2. Electric Motor Technology Research Center, National Cheng Kung University, Tainan, Taiwan*
- GV-08. A Study of Roadside Coil Configuration in Wireless Power Transfer System for EVs Using Repeater Coils.** A. Saito¹, S. Miyahara¹, F. Sato¹ and H. Matsuki² *1. Tohoku Gakuin University, Sendai, Japan; 2. Tohoku University, Sendai, Japan*

Session HA
**CAVITY MAGNONICS AND NON-RECIPROCAL
SPIN WAVE PROPAGATION**

Can-Ming Hu, Chair
University of Manitoba, Winnipeg, MB, Canada

1:30

- HA-01. Anomalous Long-Distance Coherence in Critically Driven Cavity Magnonics. (Invited)** Y. Yang¹, J. Yao¹, Y. Xiao², P. Fong³, H. Lau^{3,4} and C. Hu¹ *1. Physics, University of Manitoba, Winnipeg, MB, Canada; 2. Physics, Nanjing University of Aeronautics and Astronautics, Nanjing, China; 3. Physics, Simon Fraser University, Burnaby, BC, Canada; 4. Quantum Algorithms Institute, Surrey, BC, Canada*

2:06

- HA-02. Spin-Wave Edge and Cavity Modes in a Moiré Magnonic Crystal. (Invited)** G. Gubbiotti¹ *1. IOM, CNR, Perugia, Italy*

2:42

- HA-03. The Toroidal Moment in Nanomagnets and its Connection with Nonreciprocal Magnonics. (Invited)** F. Brevis¹, L. Körber^{2,3}, R. Gallardo^{1,4}, A. Kákay³ and P. Landeros^{1,4} *1. Departamento de Física, Universidad Técnica Federico Santa María, Valparaíso, Chile; 2. Institute of Molecules and Materials, Radboud University, Nijmegen, Netherlands; 3. Institut für Ionenstrahlphysik und Materialforschung, Helmholtz-Zentrum Dresden - Rossendorf, Dresden, Germany; 4. Center for the Development of Nanoscience and Nanotechnology (CEDENNA), Santiago, Chile*

Session HB
INTERDISCIPLINARY AND EMERGING TOPICS

Alpha N'Diaye, Co-Chair
Lawrence Berkeley National Laboratory, Berkeley, CA, United States
Cinthia Piamonteze, Co-Chair
Paul Scherrer Institut, Villigen PSI, Switzerland

- HB-01. Withdrawn**

- HB-02. High-Gradient Magnetic Chromatography of Rare-Earth Elements.** P. Brungi¹, N. Carlstedt¹ and P. Andrei¹
1. Florida State University, Tallahassee, FL, United States

- HB-03. Numerical simulations of magnetic packed columns for biological cell separation.** H. Choe¹, J. Chalmers¹, J. Strayer¹, X. Wu¹, P. Iyer¹, A. DeBastiani¹, B. Karakuzu^{1,2}, J. Gomez-Pastora³, M. Zborowski⁴ and K. Wu⁵ *1. William G. Lowrie Department of Chemical and Biomolecular Engineering, The Ohio State University, Columbus, OH, United States; 2. Department of Bioengineering, Izmir Institute of Technology, Izmir, Turkey; 3. Department of Chemical Engineering, Texas Tech University, Lubbock, TX, United States; 4. Department of Biomedical Engineering, Cleveland Clinic, Cleveland, OH, United States; 5. Department of Electrical and Computer Engineering, Texas Tech University, Lubbock, TX, United States*

- HB-04. Wirelessly Measuring Brain Activity Using Magnetoelectric Nanoparticles as an Amplifier of Neuron Signals.** S. Chen¹, E. Zhang², J. Tian³ and S. Khizroev³ *1. Chemical, Environmental, and Materials Engineering, University of Miami, Coral Gables, FL, United States; 2. MAVT, ETH Zurich, Zurich, Switzerland; 3. Electrical Engineering, University of Miami, Coral Gables, FL, United States*

- HB-05. Characterizing the Physicochemical Properties of Magnetic Nanoparticles by a Surface Plasmon Resonance Approach.** S. Mostufa¹, B. Rezaei¹, E. Azizi¹, Y.A. Wang², C. Li¹, J. Gomez-Pastora³, R. He¹ and K. Wu¹ *1. Department of Electrical and Computer Engineering, Texas Tech University, Lubbock, TX, United States; 2. Ocean Nano Tech LLC, San Diego, CA, United States; 3. Department of Chemical Engineering, Texas Tech University, Lubbock, TX, United States*

- HB-06. Magnetic Force Microscopy Revealing Long-range Room Temperature Stable Molecule Bridge Induced Magnetic Ordering on Magnetic Tunnel Junction (MTJ).** P. Tyagi¹
1. University of the District of Columbia, Washington, DC, United States

- HB-07. Ultrastrongly-coupled magnon-polaritons in magnetochiral meta-molecules.** S. Tomita¹, K. Mita¹, T. Kodama¹, T. Ueda², T. Nakanishi³, K. Sawada⁴ and T. Chiba¹ *1. Tohoku University, Sendai, Japan; 2. Kyoto Institute of Technology, Kyoto, Japan; 3. Kyoto University, Kyoto, Japan; 4. RIKEN SPring-8 Center, Sayo, Japan*

- HB-08. Magnetic Tunnel Junction Testbed Based Molecular Spintronics Devices: A Method of Solving 70-Year-Old Challenge in Making Molecular Devices.** P. Tyagi¹ and C. Riso¹ *1. University of the District of Columbia, Washington, DC, United States*

- HB-09. Electronic and Magnetic Structure Study of Multiwalled Carbon Nanotubes for Spintronics Applications Using X-ray Absorption and Magnetic Circular Dichroism Spectroscopy.** S. Gautam¹, P. Thakur², S. Augustine³, N. Brookes⁴ and K. Chae⁵
1. Dr. SSB Univ Inst Chemical Engg & Tech, Panjab University, Chandigarh, India; 2. Beamline Division, Diamond Light Source, Oxfordshire, United Kingdom; 3. Department of Physics, Deva Matha College, Kottayam, India; 4. ESRF, Grenoble, France; 5. Advanced Analysis & Data Center, Korea Institute of Science & Technology, Seoul, The Republic of Korea

FRIDAY
 AFTERNOON
 1:30

CELESTIN A

Session HC
COMPUTING WITH SPIN DYNAMICS
 Matthew Daniels, Chair
 National Institute of Standards and Technology,
 Gaithersburg, MD, United States

1:30

- HC-01. Neuromorphic Computing with Networks of Interconnected Magnetic Tunnel Junctions. (Invited)** A. López¹, D. Costa², T. Böhnert², P.P. Freitas², R. Ferreira², J. Camarero^{3,4}, C. León¹, J. Grollier⁵ and M. Romera¹
1. Complutense University of Madrid, Madrid, Spain; 2. International Iberian Nanotechnology Laboratory, Braga, Portugal; 3. IMDEA Nanociencia, Madrid, Spain; 4. Universidad Autónoma de Madrid, Madrid, Spain; 5. Unité Mixte de Physique CNRS, Thales, Université Paris-Sud, Université Paris-Saclay, Palaiseau, France

2:06

- HC-02. A Neuromorphic Computational Model for Spintronics-based Hopfield Oscillatory Neural Network.** S. Soni^{1,2}, Y. Rezaeiyan¹, T. Boehnert³, R. Ferreira³, B.K. Kaushik², F. Moradi¹ and S. Shreya¹
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

2:18

- HC-03. Real time machine learning with spintronic enhanced Generative Adversarial Network.** S. Gupta¹, A. Abhinandan², V. Vadde¹, B. Muralidharan¹ and A. Sharma²
1. Electrical Engineering, Indian Institute of Technology Bombay, Mumbai, India; 2. Electrical Engineering, Indian Institute of Technology Ropar, Ropar, India

HC-04. Physical reservoir computing (PRC) utilizing a solid-state magneto-ionic platform. *M. Rajib*¹, D. Bhattacharya², M.F. Chowdhury¹, S. Sarker¹, C. Jensen², G. Chen³, K. Liu² and J. Atulasimha^{1,4} *1. Mechanical and Nuclear Engineering Department, Virginia Commonwealth University, Richmond, VA, United States; 2. Department of Physics, Georgetown University, DC, DC, United States; 3. Nanjing University, Nanjing, China; 4. Electrical and Computer Engineering, Virginia Commonwealth University, Richmond, VA, United States*

HC-06. Implementing a Fault Tolerant Spin Ensemble Qubit with Exchange Coupling. *A. Chakraborty*¹, M.F. Chowdhury¹, M. Niknam^{2,3}, L. Bouchard² and J. Atulasimha¹ *1. Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States; 2. Department of Chemistry and Biochemistry, University of California Los Angeles, Los Angeles, CA, United States; 3. Center for Quantum Science and Engineering, University of California Los Angeles, Los Angeles, CA, United States*

HC-07. Pipelined Voltage-Propagated Skyrmion Logic with High Thermal Stability. *B. Walker*¹, K. Muthukrishnan¹, R. Thapa¹, E. Rivas¹, X. Hu¹, M. Frank², F. García Sánchez³, A.J. Edwards¹ and J.S. Friedman¹ *1. Electrical and Computer Engineering, University of Texas at Dallas, Richardson, TX, United States; 2. Sandia National Laboratories, Albuquerque, AZ, United States; 3. Departamento de Física Aplicada, Universidad de Salamanca, Salamanca, Spain*

Session HD
STATICS AND DYNAMICS OF MAGNETIC TEXTURES

Alejandro Riveros, Chair
Universidad Central de Chile, Santiago, Chile

1:30

- HD-01. Unraveling Optically Induced Ultrafast Modification of Nanoscale Magnetic Textures. (Invited)** *R. Jangid*^{1,2}, N. Zhou Hagström^{1,3}, M. Madhavi¹, K. Rockwell⁴, J.M. Shaw⁵, J. Brock⁶, M. Pancaldi⁷, D. De Angelis⁷, F. Capotondi⁷, E. Pedersoli⁷, H.T. Nembach^{8,9}, M. Keller⁵, S. Bonetti^{3,10}, E. Fullerton⁶, E. Iacocca⁴, R. Kukreja¹ and T. Silva⁵
1. University of California Davis, Davis, CA, United States; 2. Synchrotron Light Source II, Brookhaven National Laboratory, Upton, NY, United States; 3. Department of Physics, Stockholm University, Stockholm, Sweden; 4. Center for Magnetism and Magnetic Nanostructures, University of Colorado Colorado Springs, Colorado Springs, CO, United States; 5. Quantum Electromagnetics Division, National Institute of Standards and Technology, Boulder, CO, United States; 6. Center for Memory and Recording Research, University of California, San Diego, La Jolla, CA, United States; 7. Elettra Sincrotrone Trieste S.C.p.A., Trieste, Italy; 8. Department of Physics, University of Colorado, Boulder, CO, United States; 9. Physical Measurement Laboratory, National Institute of Standards and Technology, Boulder, CO, United States; 10. 'Department of Molecular Sciences and Nanosystems, Ca' Foscari University of Venice, Venezia, Italy

2:06

- HD-02. Co/Gd based nanofilm engineering for the ultrafast field-free optical writing of nanometer-scale skyrmion bubbles.** *M. van der Schans*¹ and B. Koopmans¹ *1. Applied Physics and Science Education, Eindhoven University of Technology, Eindhoven, Netherlands*

2:18

- HD-03. From Ferromagnetic Magnetostatics to Antiferromagnetic Topology: Antiferromagnetic Vortex States in NiO-Fe Nanostructures.** *M. Slezak*¹, *T. Wagner*², *V. Bharadwaj*², *O. Gomonay*², *A. Koziol Rachwal*¹, *T.O. Montes*³, *A. Locatelli*³, *M. Zajac*⁴, *D. Wilgocka-Slezak*⁵, *P. Drozd*⁶ and *T. Slezak*¹
1. Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, Krakow, Poland; 2. Institute of Physics, Johannes Gutenberg University Mainz, Mainz, Germany; 3. Elettra - Sincrotrone Trieste S.C.p.A., 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-Skłodowska University, Lublin, Poland

2:30

- HD-04. Demonstration of the Current-induced Creation and Motion of Magnetic Vortex-Antivortex Pairs.** *J. Yang*¹, *T. Lee*¹, *S. Ko*¹, *K. Moon*², *S. Lee*³, *M. Shin*⁴, *S. Kim*⁵ and *K. Kim*¹
1. Physics, Korea Advanced Institute of Science and Technology, Daejeon, The Republic of Korea; 2. Quantum Spin Team, Korea Research Institute of Standards and Science, Daejeon, The Republic of Korea; 3. Electronic Engineering, Gachon University, Seongnam, The Republic of Korea; 4. Electrical Engineering, Korea Advanced Institute of Science and Technology, Daejeon, The Republic of Korea; 5. Physics, University of Ulsan, Ulsan, The Republic of Korea

2:42

- HD-05. Modulated Effective Exchange in PyGd Alloys Probed through Vortex Annihilation Processes.** *L. Jacob*¹, *H. Han*², *M. Im*³ and *S. Pollard*¹
1. Department of Physics and Materials Science, University of Memphis, Memphis, TN, United States; 2. Department of Materials Science and Engineering, Korea National University of Transportation, Chungju, The Republic of Korea; 3. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA, United States

2:54

- HD-06. Computational studies of novel Dzyaloshinsky-Moriya interactions.** *S.J. Holt*^{1,2}, *S.A. Pathak*^{1,2}, *M. Lang*^{1,2} and *H. Fangohr*^{1,2,3}
1. Max Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany; 2. Center for Free-Electron Laser Science, Hamburg, Germany; 3. University of Southampton, Southampton, United Kingdom

3:06

- HD-07. Finite Element Method Modeling of Magnetoelastic Dynamics.** *E. Savostin*¹ and *V. Lomakin*¹
1. Materials Science, University of California San Diego, La Jolla, CA, United States

FRIDAY
AFTERNOON
1:30

CELESTIN C

Session HE SENSORS AND APPLICATIONS III

Andrea Meo, Chair
Politecnico di Bari, Bari, Italy

1:30

- HE-01. Magnetic Layering for Low Detectability Magnetoelectric Magnetic Sensors. (Invited)** *J. McCord*¹
1. Department of Materials Science, Kiel University, Kiel, Germany

2:06

- HE-02. Utilizing Field Gradient Measurements for Object Tracking in Permanent Magnet Based Manipulation Systems.**
*J. Davy*¹, *M. Brockdorff*¹ and *P. Valdastrì*¹
1. School of Electronic Engineering, University of Leeds, Leeds, United Kingdom

2:18

HE-03. Observation of magnetic nanoparticles-protein aggregates and highly sensitive protein detection. K. Kaneko¹, A. Ban², T. Murayama², L. Tonthat¹, S. Yabukami^{2,1}, M. Tanaka³, Y. Tanaka³ and T. Abe² *1. Graduate School of Engineering, Tohoku University, Sendai, Japan; 2. Graduate School of Biomedical Engineering, Tohoku University, Sendai, Japan; 3. Graduate School of Life Sciences, Tohoku University, Sendai, Japan*

2:30

HE-05. A machine learning powered wearable imaging sensor for cancer detection. Z. Sun¹, R. Hong^{2,3}, Q. Chen⁴, H. Chang³ and J. Hong⁴ *1. Hubei University of Technology, Wuhan, China; 2. Albany High School, Albany, CA, United States; 3. Lawrence Berkeley National Lab, Berkeley, CA, United States; 4. UC Berkeley, Berkeley, CA, United States*

2:42

HE-06. Low Loss Phononic Phase Shifter Mediated by Acoustic Driven Magnetic Resonance. A. Will-Cole¹, A. Franson², A. Wendt³, P. Shah², L. Hackett¹, M. Miller¹, M. Newburger², M. Page² and M. Eichenfield^{1,3} *1. Sandia National Laboratories, Albuquerque, NM, United States; 2. Air Force Research Laboratory, Fairborn, OH, United States; 3. University of Arizona, Tucson, AZ, United States*

2:54

HE-07. Urban Traffic Vehicle Speed Estimation Solutions Using Dual-Axis Magneto-Impedance Sensors. R. Yao¹ and T. Uchiyama¹ *1. Graduate School of Engineering, Nagoya University, Nagoya, Japan*

FRIDAY
AFTERNOON
1:30

IMPERIAL 5AB

Session HF TERAHERZ ANTIFERROMAGNETIC SPINTRONICS

Vito Puliafito, Chair
Politecnico di Bari, Bari, Italy

1:30

HF-01. Terahertz antiferromagnetic dynamics induced by ultrafast spin currents. (Invited) J. Chauleau¹ *1. SPEC, CEA-Saclay, Gif-sur-Yvette, France*

2:06

HF-02. Distortion-free sampling of ultrabroadband terahertz electric fields by spin accumulation. A. Chekhov^{1,2}, Y. Behovits^{1,2}, J. Heitz^{1,2}, M. Syskaki³, S. Jaiswal³, O. Gueckstock^{1,2}, B. Serrano^{1,2}, A. Ruge^{1,2}, J. Kredl⁴, M. Wolf², M. Münzenberg⁴, G. Jakob³, M. Kläui³, T. Seifert^{1,2} and T. Kampfrath^{1,2} *1. Freie Universität Berlin, Berlin, Germany; 2. Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin, Germany; 3. Institute of Physics, Johannes Gutenberg University, Mainz, Germany; 4. Institute of Physics, Greifswald University, Greifswald, Germany*

- HF-03. Ultrafast collapse of octupole order in chiral antiferromagnetic Mn_3Sn films with perpendicular magnetic anisotropy.** Z. Jin^{1,2}, K. Nukui^{1,2}, K. Ishibashi^{1,2}, S. Iihama³, M. Ishibashi² and S. Mizukami^{2,4} 1. *Department of Applied Physics, Tohoku University, Sendai, Japan*; 2. *WPI-AIMR, Tohoku University, Sendai, Japan*; 3. *Department of Materials Physics, Nagoya University, Nagoya, Japan*; 4. *CSIS, Tohoku University, Sendai, Japan*

- HF-04. Ultrafast spin-transport dynamics revealed by broadband terahertz spectroscopy.** L. Nadvornik¹, J. Jechumtal¹, R. Rouzegar^{2,3}, O. Gueckstock^{2,3}, C. Denker⁴, W. Hoppe⁵, Q. Remy², T. Seifert^{2,3}, P. Kubascik¹, G. Woltersdorf⁵, P. Brouwer², M. Münzenberg⁴ and T. Kampfrath^{2,3} 1. *Faculty of Mathematics and Physics, Charles University, Prague, Czechia*; 2. *Department of Physics, Freie Universität Berlin, Berlin, Germany*; 3. *Department of Physical Chemistry, Fritz Haber Institute of the Max Planck Society, Berlin, Germany*; 4. *Institut für Physik, Universität Greifswald, Greifswald, Germany*; 5. *Institut für Physik, Martin-Luther-Universität, Halle, Germany*

- HF-05. Antiferromagnetic Quantum Spin and Anomalous Hall Insulator: Dissipationless Neel Spin-orbit Torque.** J. Tang¹, H. Zhang² and R. Cheng^{1,2,3} 1. *Department of Physics and Astronomy, University of California, Riverside, CA, United States*; 2. *Department of Electrical and Computer Engineering, University of California, Riverside, CA, United States*; 3. *Department of Materials Science and Engineering, University of California, Riverside, CA, United States*

- HF-06. Helicity-dependent THz emission induced by circularly-polarized light in platinum-thin films.** K. Ishibashi^{1,2}, K. Nukui^{1,2}, S. Iihama³, H. Morishita^{4,2} and S. Mizukami^{2,4} 1. *Dept. of Appl. Phys., Tohoku University, Sendai, Japan*; 2. *WPI-AIMR, Tohoku University, Sendai, Japan*; 3. *Dept. of Mater. Phys., Nagoya University, Nagoya, Japan*; 4. *CSIS, Tohoku University, Sendai, Japan*

- HF-07. Magnon-mediated terahertz spin transport in metallic Gd|Pt thin-films.** O. Gueckstock¹, T. Amrhein¹, B. Andres¹, P. Jimenez Caverio², C. Gahl¹, T. Seifert¹, M. Rouzegar¹, I. Radu¹, I. Lucas², L. Morellon², M. Weinelt¹, T. Kampfrath¹ and N. Thielemann-Kühn¹ 1. *Freie Universität Berlin, Berlin, Germany*; 2. *Universidad de Zaragoza, Zaragoza, Spain*

Session HG
ENERGY AND POWER APPLICATIONS

Mariappan Paranthaman, Chair
Oak Ridge National Laboratory, Oak Ridge, TN, United States

1:30

- HG-01. Enhancing Thermoelectric Effects with Magnetism and Topology. (Invited)** *S. Watzman*¹, E.F. Scott¹ and K.A. Schlaak¹
1. Department of Mechanical and Materials Engineering, University of Cincinnati, Cincinnati, OH, United States

2:06

- HG-03. High-bandwidth Current Shunt with Extremely Low Stray Magnetic Field for Accurate Magnetic Loss Measurement in Non-sinusoidal Power Converters.** L. Yi¹, W. Lee² and J. Moon¹
1. Florida State University, Tallahassee, FL, United States;
2. Michigan State University, East Lansing, MI, United States

2:18

- HG-04. Additional Degree of Freedom in the Design of Shifted Inductances Axes Synchronous Motors.** H.N. Nasser¹, Y. Amara¹, F. Chabour¹, J.J. Paulides² and M. Ghandour³
1. GREAH, Université Le Havre Normandie, Le Havre, France;
2. Advanced Electromagnetics Group, Waalwijk, Netherlands;
3. Faculty of Engineering, Lebanese University, Beirut, Lebanon

2:30

- HG-05. Force Wave and Vibration Analysis of Different Rotor Slot Combinations in Induction Motors.** D. Kong¹, B. Jia¹ and Y. Xiang¹ *1. Guangdong Ocean University, Zhanjiang, China*

2:42

- HG-06. Dynamic Analysis and Validation of Superconducting Rotor with a Spoke Suspension Torque Tube.** J. Xiao¹, S. Sirimanna², H. Rautela¹, T. Balachandran² and K. Haran¹ *1. University of Illinois Urbana Champaign, Champaign, IL, United States;*
2. Hinetics LLC, Champaign, IL, United States

2:54

- HG-07. Optically Excited Brushless High-Speed Wound Field Synchronous Generator.** K. Lee¹, G. Gardner², R. Atkinson² and W. Lee¹ *1. Purdue University, West Lafayette, IN, United States;*
2. Michigan State University, East Lansing, MI, United States

Session VP1
BIOMAGNETICS AND MICROFLUIDICS
(Poster Virtual Session)

Jenifer Gomez-Pastora, Co-Chair
 Texas Tech University, Lubbock, TX, United States
 Cristina González Fernández, Co-Chair
 Universidad de Cantabria, Santander, Spain

- VP1-03. Unlocking Preclinical Drug Screening Application with Magnetoimpedance Sensor.** *J. Ma¹, N. Ohta¹, T. Ozaki¹, S. Moribe¹, H. Kikuta¹, Y. Hirata¹ and M. Hirano¹*
1. Toyota Central R&D Labs., Inc., Nagakute, Japan
- VP1-04. Magnetic analysis of magnetically controlled capsule endoscopes in curved intestines under a rotating magnetic field drive strategy.** *Z. Teng^{1,2}, J. Ren^{3,4}, H. Sun^{3,4}, J. Liu^{3,4} and Q. Wang^{3,4}*
1. Department of Automation, University of Science and Technology of China, Hefei, China; 2. The Ganjiang Innovation Academy, Chinese Academy of Sciences, Ganzhou, China; 3. Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China; 4. The University of Chinese Academy of Sciences, Beijing, China
- VP1-05. Assessing the resolution of transcranial magnetic stimulation by measuring the magnetic flux density at the cortical surface.** *A. Sato¹ and T. Torii^{1,2}*
1. Department of Human Information Engineering, Tokai University, Kumamoto, Japan; 2. Graduate School of Science and Technology / Course of Science and Technology, Tokai University, Kumamoto, Japan
- VP1-06. Investigating the inclusion of anatomical variations in computer-assisted exploration of the induced electric field in transcranial magnetic stimulation.** *X. Zhong¹, D. Jiles² and H. Jiang^{1,3}*
1. Research Institute of Tsinghua University in Shenzhen, Shenzhen, China; 2. Department of Electrical and Computer Engineering, Iowa State University, Ames, IA, United States; 3. School of Integrated Circuits, Tsinghua University, Beijing, China
- VP1-07. Investigation of transmitting coil with rotating magnetic field in real-time monitoring system for laboratory animals.** *T. Omori¹, F. Sato¹, Y. Furuya² and S. Sasaki²*
1. Graduate School of Engineering, Tohoku Gakuin University, Sendai, Japan; 2. Hikaridenshi Co., Ltd., Osaki, Japan
- VP1-08. A Study on Optimization of Power Receiving Coil for Real-Time Vital Signs Measurement in Small Laboratory Animals.** *K. Hase¹, T. Omori¹, F. Sato¹, Y. Furuya², K. Sagara², S. Sasaki² and T. Yoshikawa³*
1. Tohoku Gakuin Univ., Sendai, Japan; 2. Hikaridenshi Co., Ltd., Osaki, Japan; 3. Hokkaido Univ., Sapporo, Japan
- VP1-09. The behavior of magnetic emulsions in microchannels under the influence of an inhomogeneous magnetic field.** *D. Kalyuzhnaya¹, E. Sokolov¹ and P. Ryapolov¹*
1. Southwest State University, Kursk, Russian Federation

- VP1-10. EMI Shielding Effectiveness of Ferrofluid Layer in the Presence of Oscillating Magnetic Field.** H. Hsieh¹, H. Kuan¹, Y. Li¹ and Y. Cheng¹ *1. Mechanical and Aerospace, Chung-Cheng Institute of Technology, National Defense University, Taoyuan, Taiwan*
- VP1-11. Rheological properties of magnetorheological fluids using magnetic spherical nickel particles with different surface roughness.** G. Stoian¹, G. Balusescu¹, M. Grigoras¹, H. Chiriac¹ and N. Lupu¹ *1. National Institute of Research and Development for Technical Physics, Iasi, Romania*
- VP1-12. Machine learning-based prediction model for magnetic hyperthermia.** D. Chu¹ and A. Tomitaka¹ *1. University of Houston-Victoria, Victoria, TX, United States*

CONFERENCE RESOURCE CENTER

Session VP2 ELECTRICAL MACHINES AND POWER ELECTRONICS I (Poster Virtual Session)

Amanda de Oliveira Barros, Co-Chair
University of Texas at El Paso, El Paso, TX, United States

Ahmed Hemeida, Co-Chair
Aalto University, Helsinki, Finland

Anh Huynh, Co-Chair
University of Nottingham, Nottingham, United Kingdom

- VP2-01. An Improved Equivalent Magnetic Network for Performance Prediction of Yokeless and Segmented Armature Axial Flux Permanent Magnet Motor.** C. Wang¹ and B. Peng¹ *1. Shenyang University of Technology, Shenyang, China*
- VP2-02. Analysis of Air-Gap Field Modulation Effect in Multi-Unit Distributed Permanent Magnet Arc Motor.** Z. Pan¹, J. Zhao¹, S. Fang² and Z. Yu¹ *1. School of Electrical Engineering and Automation, Hefei University of Technology, Hefei, China; 2. School of Electrical Engineering, Southeast University, Nanjing, China*
- VP2-09. AC Loss Analysis of Flat Wire Motor based on Hybrid Winding Structure of Litz Wire and Flat Wire.** Y. Li¹, J. Li¹, Y. Li¹, S. Wang¹, L. Zhang¹, L. Zeng² and R. Pei^{1,2} *1. Shenyang University of Technology, Shenyang, China; 2. Suzhou Inn-Mag New Energy Ltd, Suzhou, China*

- VP2-10. Advanced Study of Lateral Inter-Laminar Faults in Laminated Magnetic Cores with Homogenization Method.** S. Gao^{1,2}, Y. Gao², X. Zhao¹, H. Hamzeshbahmani³, W. Guan⁴ and K. Muramatsu⁵ 1. North China Electric Power University, Baoding, China; 2. Oita University, Oita, Japan; 3. Durham University, Durham, United Kingdom; 4. Wuhan University, Wuhan, China; 5. Saga University, Saga, Japan

CONFERENCE RESOURCE CENTER

Session VP3 ELECTRICAL MACHINES AND POWER ELECTRONICS II (Poster Virtual Session)

Amanda de Oliveira Barros, Chair
University of Texas at El Paso, El Paso, TX, United States

- VP3-01. A Novel Optimization Method of Topology for Improving Torque Quality in Permanent Magnet Synchronous Machine.** X. Liang¹, M. Wang¹, Y. Liu¹, P. Zheng¹ and W. Li¹ 1. Harbin Institute of Technology, Harbin, China
- VP3-02. Generalized Newton-Raphson Iteration Algorithm for Solving Nonlinear Magnetic Field Problems Considering Vector Hysteresis Models.** J. Yin¹, Y. Li¹, S. Yue¹, Y. Dou² and Z. Li³ 1. Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China; 2. Zhejiang University–University of Illinois at Urbana-Champaign Institute, Zhejiang University, Haining, China; 3. Key Laboratory of Smart Grid of Ministry of Education, Tianjin University, Tianjin, China
- VP3-03. Torque Performance Improvement of CP-PMSM Based on Decision Tree and Bayesian Optimization Algorithm.** Z. Pan¹, J. Zhao¹ and K. Wei¹ 1. School of Electrical Engineering and Automation, Hefei University of Technology, Hefei, China
- VP3-04. The Structure Improvement Method and Analysis Based on the Characteristics of Motor Magnetic Field.** X. Liang¹, M. Wang¹, Y. Liu¹, P. Zheng¹ and J. Gao¹ 1. Harbin Institute of Technology, Harbin, China
- VP3-05. Analysis of Stator Iron Loss in Permanent Magnet Synchronous Motor Under Rotating Magnetization Based on Field-Oriented Control.** H. Shi^{1,2}, Y. Li^{1,2}, J. Yin^{1,2} and S. Yue^{1,2} 1. Hebei University of Technology, State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Tianjin, China; 2. Hebei University of Technology, Hebei Key Laboratory of Equipment and Technology Demonstration of Flexible DC Transmission, Tianjin, China
- VP3-06. Optimization of the Magnetic Field of the Main and Auxiliary Poles of a Disc Motor by Analytical Method.** J. Wang¹, Z. Xu¹, Y. Liu¹, Z. Xing¹ and W. Ji¹ 1. School of Electrical Engineering, Shenyang University of Technology, Shenyang, China

- VP3-07. Fast Quasi-Three-Dimensional Modeling of Double-Sided Axial Flux Permanent Magnet Machines Considering End Effect.** L. Dai¹, S. Niu¹, J. Wen¹, L. Xiao¹ and M. Hu¹
1. Department of Electrical and Electronic Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong
- VP3-08. Advanced Harmonic Interaction Modeling for Fast and Accurate Cogging Torque Calculation in Permanent Magnet Machines.** L. Dai¹, S. Niu¹, J. Gao² and S. Huang²
1. Department of Electrical and Electronic Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong;
2. Hunan University, Changsha, China
- VP3-09. Three phase transmitting coil for leakage magnetic field reduction in wireless power transfer.** D. Kim¹, J. Cheon¹, H. Park¹ and D. Kim¹ *1. Yeungnam University, Gyeongsan-si, The Republic of Korea*
- VP3-10. Magnetic Field and Torque Analysis of Coaxial Magnetic Gear Considering Permeability Nonlinear in Harmonic Modeling Method.** M. Nguyen¹, D. Hoang¹, K. Shin², Y. Kim³, A. Phung⁴ and J. Choi¹ *1. Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea;*
2. Electrical Engineering, Changwon National University, Changwon, The Republic of Korea; *3. Biosystem Machinery Engineering, Chungnam National University, Daejeon, The Republic of Korea;* *4. Electrical Engineering, Hanoi University of Science and Technology, Hanoi, Vietnam*

CONFERENCE RESOURCE CENTER

Session VP4 **ELECTRICAL MACHINES AND POWER ELECTRONICS III (Poster Virtual Session)**

Ahmed Hemeida, Chair
 Aalto University, Helsinki, Finland

- VP4-01. Core Loss Separation Model Based on Static Hysteresis Loops.** J. Li¹, L. Zeng² and R. Pei^{1,2} *1. School of Electrical Engineering, Shenyang University of Technology, Shenyang, China;* *2. Suzhou Inn-Mag New Energy Ltd., Suzhou 215000, China, Suzhou, China*
- VP4-02. A Multi-Topology and Multi-Objective Optimization System for PMSM Using AutoML-Based Surrogate Models.** J. Luo¹, X. Zhu¹ and J. Wu¹ *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang 212013, Zhenjiang, China*

- VP4-03. Effect of Different Winding Layers and Connection Method on the Electromagnetic Performance of Dual Three-Phase HSPMSG.** *Q. Fan¹, X. Zhang¹, L. Zeng² and R. Pei^{1,2}*
1. School of Electrical Engineering, Shenyang University of Technology, Shenyang, China; 2. Suzhou Inn-Mag New Energy Ltd, Suzhou, China
- VP4-04. Multi-objective Optimization Design of Built-in High-speed Permanent Magnet Synchronous Motor Based on High Silicon Steel.** *P. Meng¹, D. Ma¹, Q. Fan¹, L. Zeng² and R. Pei^{1,2}*
1. Shenyang University of Technology, Shenyang, China; 2. Suzhou Inn-Mag New Energy Ltd, Suzhou, China
- VP4-06. Air-gap Region Topology Optimization of a Hair-pin PM Motor for Electromagnetic Vibration Reduction.** *P. Zhao¹ and X. Zhu¹* *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*
- VP4-07. A Sensitivity-Region-Extended Robust Optimization Approach for Spoke-type Permanent Magnet Synchronous Motor.** *J. Wu¹, X. Zhu¹ and P. Zhao¹* *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*
- VP4-08. Automatic Design Method for Motor Topology Based on Data-Driven.** *Q. Xu¹, S. Fang¹, X. Lin¹ and Y. Wang¹*
1. Southeast University, Nanjing, China
- VP4-09. A Novel Modular Consequent-Pole PMSM with Low Rotor Losses and High-Power Factor.** *X. Zheng¹, H. Lin¹ and X. Zeng¹* *1. School of Electrical Engineering, Southeast University, Nanjing, China*

CONFERENCE RESOURCE CENTER

Session VP5 ELECTRICAL MACHINES AND POWER ELECTRONICS IV (Poster Virtual Session)

Anh Huynh, Chair
 University of Nottingham, Nottingham, United Kingdom

- VP5-01. Design and Investigation of Combinatorial-Magnetic-Source Topology for a High Torque Performance Field-Modulated Permanent Magnet In-Wheel Motor.** *Y. Xie¹, Z. Xiang¹ and Y. Zhou¹* *1. Jiangsu University, Zhen Jiang, China*
- VP5-02. Field-Collaborative-Modulated Design and Investigation for a High Torque Performance Permanent Magnet Vernier Machine.** *X. Wang¹, Z. Xiang¹, Y. Zhou¹ and Y. Xie¹* *1. Jiangsu University, Zhen Jiang, China*

- VP5-03. Investigation of Flux Barrier Design on Flux Weakening Capability of Consequent Pole Reverse Salient PM Machines.** *Q. Zhou¹, Y. Li¹, S. Ding¹ and J. Hang¹* *1. School of Electrical Engineering and Automation, Anhui University, Hefei, China*
- VP5-04. Design of Winding Connections of Permanent Magnet Synchronous Motor for Widening Speed.** *Y. Du¹, H. Yuan¹ and F. Xiao¹* *1. Jiangsu University, Zhenjiang, China*
- VP5-05. Low Electromagnetic Vibration Design and Investigation of Hair-pin Dual-V-type Motor Considering Winding Magnetomotive Force.** *H. Qu¹, L. Quan¹ and D. Fan¹* *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang 212013, China, Zhenjiang, China*
- VP5-06. An Interior Permanent Magnet Synchronous Machine with Asymmetric Structure for Improving Torque Density.** *X. Liang¹, M. Wang¹, Y. Liu¹, P. Zheng¹ and W. Li¹* *1. Harbin Institute of Technology, Harbin, China*
- VP5-07. A New Hybrid-excited Permanent Magnet Arc Motor with Different Permanent Magnet Arrays Exhibiting Flux-reversal Effect in Dual Stators.** *N. Chen¹, S. Fang¹, X. Lin¹ and Z. Chen¹* *1. School of Electrical Engineering, Southeast University, Nanjing, China*
- VP5-08. High-Order-Harmonic Suppression Design Method with Halbach Magnetic Field Based on Multi-Objective Genetic Algorithm.** *L. Yin¹, Y. Wang¹, R. Sun¹, L. Wu¹ and X. Xu²* *1. State Grid Lianyungang Power Supply Company, Lianyungang, China; 2. College of Automation Nanjing University of Posts and Telecommunications, Nanjing, China*
- VP5-09. Motor Performance Analysis Considering the Effects of Carbon Fiber Preload Force and Rotor Centrifugal Force on Silicon Steel Characteristics.** *B. Yang¹, Y. Li¹, C. Yan¹, L. Zeng² and R. Pei^{1,2}* *1. Shenyang University of Technology, Shenyang, China; 2. Suzhou Inn-Mag New Energy Ltd, Suzhou, China*
- VP5-10. Investigation of Different Pole Configurations in New Asymmetric Permanent Magnet Synchronous Reluctance Machines.** *A. Mohammadi Ajamloo^{1,2}, A. Ghaheri³, M. Ibrahim^{1,2,4} and P. Sergeant^{1,2}* *1. Electromechanical, Systems and Metal Engineering, Ghent University, Gent, Belgium; 2. Core Lab MIRO, FlandersMake@UGent, Leuven, Belgium; 3. Department of Electrical Engineering, Shahid Beheshti University, Tehran, The Islamic Republic of Iran; 4. Department of Electrical Engineering, Kafrelshiekh University, Kafr el-Sheikh, Egypt*
- VP5-11. Comparative study of electromagnetic and mechanical characteristics of permanent magnet synchronous generator according to magnet mounting method.** *J. Park¹, W. Jung¹, H. Ban¹, K. Shin², K. Kim³, K. Kim³ and J. Choi¹* *1. Chungnam National University, Daejeon, The Republic of Korea; 2. Changwon National University, Changwon, The Republic of Korea; 3. Korea Research Institute of Ships and Ocean Engineering, Daejeon, The Republic of Korea*

- VP5-12. Electromagnetic Field Analysis for Axial Flux Permanent Magnet Motor Based on 3-D Analytical Method.** *M. Koo¹ and H. Shin² 1. Purpose Built Mobility Group, Korea Institute of Industrial Technology, Gwangju, The Republic of Korea; 2. Specialized Machinery and Robotics Group, Korea Institute of Industrial Technology, Gimje, The Republic of Korea*

CONFERENCE RESOURCE CENTER

Session VP6
ELECTRICAL MACHINES AND POWER
ELECTRONICS V
(Poster Virtual Session)

Duc-Kien Ngo, Chair
University of Technology and Education - The University of
Danang, Vinh, Vietnam

- VP6-01. A Phase-Decoupled Dual Three-phase Permanent Magnet Synchronous Motor Using Auxiliary Teeth.** *Q. Wu¹, W. Li¹, L. Wang¹, L. Li¹, F. Xu² and J. Zhu¹ 1. Nanjing University of Science and Technology, Nanjing, China; 2. Nanjing Chenguang Group Co., Ltd., Nanjing, China*
- VP6-02. Flux Regulation Capability and Torque Performance Enhancement Design of a New Hybrid-Rotor-Pole Controllable Flux PM Motor.** *W. Fan¹, X. Zhu², L. Xu² and L. Quan² 1. Nantong University, Nantong, China; 2. Jiangsu University, Zhenjiang, China*
- VP6-03. Withdrawn**
- VP6-04. Open-Phase Fault-Tolerant Control for Dual Three-Phase PMSMs Using PIR Controller.** *Q. Wu¹, W. Li¹, H. Li¹ and B. Ji¹ 1. Nanjing University of Science and Technology, Nanjing, China*
- VP6-05. Inter-Turn Short-Circuit Fault Detection Method for DTTPMSM Based on Voltages Demodulation.** *S. Li¹ and C. Liu¹ 1. Harbin Institute of Technology, Harbin, China*
- VP6-06. Analysis of a New Consequent-Pole Hybrid Excited Machine with Drum Winding.** *G. Qu¹, J. Yu¹, Z. Li¹, Y. Liu¹ and Y. Jiang² 1. College of Nuclear Technology and Automation Engineering, Chengdu University of Technology, Chengdu, China; 2. College of Automation & College of Artificial Intelligence, Nanjing University of Posts and Telecommunications, Nanjing, China*

- VP6-07. A High-power Density Permanent Magnet Machine Featuring a Novel Lightweight Rotor with A Fin Reuse Structure.** *J. Yu¹, J. Yang¹, Y. Jiang¹ and S. Huang¹*
1. Hunan University, Changsha, China
- VP6-08. Analytical analysis and experimental verification of electromagnetic performance of slotless permanent magnet brushless motor.** *H. Li¹, J. Yang¹, Y. Jiang¹ and S. Huang¹*
1. College of Electrical and Information Engineering, Hunan University, Changsha, China
- VP6-09. Design of Pole-changing Flux Reversal PM Motor Based on PM Magnetomotive-Force Period.** *H. Chen¹, Y. Du¹, F. Xiao¹, X. Zhu¹, Z. He¹ and Z. Chen¹* *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*
- VP6-10. Experimental Verification of Electromagnetic Characteristic Analysis of Outer-Rotor-Type BLDC Motor Using Subdomain Method and Optimal Design Using Genetic Algorithm.** *T. Kim¹, J. Yang¹, K. Shin² and J. Choi¹* *1. Chungnam National University, Daejeon, The Republic of Korea; 2. Changwon National University, Changwon, The Republic of Korea*

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Session VP7 ELECTRICAL MACHINES AND POWER ELECTRONICS VI (Poster Virtual Session)

Christopher H. T. Lee, Chair
Nanyang Technological University, Singapore, Singapore

- VP7-01. Mechanical Flux-Weakening Design of the Bidirectional Flux-Modulated Radial Permanent Magnet Generator for Wind Power Generation.** *Z. Dong¹, M. Jiang¹ and S. Niu¹*
1. Department of Electrical and Electronic Engineering, The Hong Kong Polytechnic University, Hung Hom, Hong Kong
- VP7-02. Withdrawn**
- VP7-03. High-Efficiency-Region Broadening Design and Analysis of A Variable-Leakage-Flux Permanent Magnet Motor from the Perspective of Losses Replacement.** *M. Jiang¹, X. Zhu² and Z. Xiang²* *1. Jiangsu Ocean University, Lianyungang, China; 2. Jiangsu University, Zhenjiang, China*

- VP7-04. Investigation on Influence of Varying Design Dimensions of AFSRM on Output Performance.** *Q. Guo¹ and W. Zhang¹*
1. College of Electrical Engineering, Zhejiang University, Hangzhou, China
- VP7-05. Torque Ripple Reduction Design Approach of Permanent Magnet Machines Based on Circumferential Pole Pair Shift.** *L. Dai¹, S. Niu¹, J. Gao² and S. Huang²* *1. Department of Electrical and Electronic Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong; 2. Hunan University, Changsha, China*
- VP7-06. Design and Optimization of Torque and Loss Characteristics for a Permanent Magnet In-Wheel Motor Considering Dominant Airgap Harmonic.** *J. Ren¹, L. Quan¹ and Z. Xiang¹*
1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China
- VP7-07. A Flywheel Energy Storage System with Double High-Strength Steel Rotors.** *P. Zhang¹, J. Yang¹, Y. Jiang¹ and S. Huang¹* *1. College of Electrical and Information Engineering, Hunan university, Changsha, China*
- VP7-08. Study on AC Copper Loss Suppression of Permanent Magnet Flat Wire Motor Based on Flux Density Harmonic Suppression.** *X. Wang¹, L. Quan¹ and Z. Xiang¹* *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang 212013, Zhenjiang, China*
- VP7-09. A Pole-Changing Double-sided Permanent Magnet Vernier Motor.** *H. Chen¹, Y. Du¹, F. Xiao¹, X. Zhu¹ and Z. He¹*
1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China

Session VP8
EMERGING COMPUTING SYSTEMS &
MAGNETIC RECORDING
(Poster Virtual Session)

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

- VP8-01. Exploring the energy efficiency of MRAM-based Computing-in-Memory for DNN training.** *S. Zhou¹ and Y. Jiang¹ 1. Jiangnan University, Wuxi, China*
- VP8-03. Experimental Demonstration of Reliable Probabilistic Switching in SOT-MRAM.** *C. Fu¹, Z. Liu¹, J. Liu¹, S. Lu¹, H. Zhang¹, W. Li¹, J. Lu¹ and S. Peng¹ 1. Fert Beijing Institute School of Integrated Circuit Science and Engineering, Beihang University, Beijing, China*
- VP8-04. Magnetization Transition in Dual-Layer Heat-Assisted Magnetic Recording.** *Y. Jian¹, V. Lomakin², K. Luo¹ and J. Chen¹ 1. Huazhong University of Science and Technology, Wuhan, China; 2. University of California San Diego, La Jolla, CA, United States*
- VP8-05. A Study on Applying GA for Performance Improvement of SP Decoder in SMR.** *M. Nishikawa¹, Y. Nakamura¹, Y. Kanai² and Y. Okamoto¹ 1. Matsuyama, Japan; 2. Niigata Institute of Technology, Kashiwazaki, Japan*
- VP8-06. Time dependence of signal-to-noise ratio for recording media designed for microwave-assisted magnetic recording.** *T. Tanaka¹, S. Onaka¹, S. Kashiwagi¹, X. Ya² and Y. Kanai³ 1. ISEE, Kyushu University, Fukuoka, Japan; 2. Artificial Intelligence and Big Data College, Chongqing College of Electronic Engineering, Chongqing, China; 3. Department of Engineering, Niigata Institute of Technology, Kashiwazaki, Japan*
- VP8-07. Reynolds Number in Electrodynamics.** *Y. Lunin¹ 1. retired, retired, Kherson, Ukraine*
- VP8-08. Binary neural networks with giant conductance changes in Co₂MnSi/MgO/Co₂MnSi magnetic tunnel junctions.** *R. Kusunose¹, T. Marukame¹ and T. Uemura¹ 1. Hokkaido University, Sapporo, Japan*
- VP8-09. Transient Magnetic Field Optimization for Stable Entanglement in Spin Dimers.** *J. Wang¹ and J. Krause² 1. University of Michigan, Northville, MI, United States; 2. Northville High School, Northville, MI, United States*

Session VP9
HARD MAGNETS
(Poster Virtual Session)

H. Sepehri-Amin, Chair
National Institute for Materials Science (NIMS), Tsukuba, Japan

- VP9-01. Composition Design of Sintered $\text{Sm}_2\text{Co}_{17}$ -type Magnets with High Magnetic Properties and Remanence Temperature Stability.** Z. Long¹, C. Zhang², Y. Teng³, C. Ling¹, Y. Kang¹, B. Zhang², H. Zhang¹, Y. Li¹ and M. Yue¹ *1. College of Materials Science and Engineering, Beijing University of Technology, Beijing, China; 2. Hangzhou Kede Magnetic Components Co., Ltd, Hangzhou, China; 3. Guangdong Ocean University, Yangjiang, China*
- VP9-02. Adjusting initial mixing and calcination processes to prepare high-performance strontium ferrite magnets.** H. Muhammad¹, Y. Li¹, H. Zhang¹, L. Rongming² and M. Yue¹ *1. Beijing University of Technology, Beijing, China; 2. BGRIMM Technology Group Co Ltd, Beijing, China*
- VP9-03. Magnetic properties, interaction and magnetic hardening of nanocrystalline $\text{PrCo}_5/\text{NdFeB}$ hybrid magnets.** J. Zuo¹, W. Lu¹, Y. Bo¹, C. Li¹, M. Zhang¹, Y. Liu¹, S. Bai¹, F. Liu¹ and Y. Li² *1. School of Science, Inner Mongolia University of Science and Technology, Baotou, China; 2. Instrumental Analysis Center, Inner Mongolia University of Science and Technology, Baotou, China*
- VP9-04. Magnetic properties in bulk nanocrystalline $\text{Nd}_{1.8}\text{Fe}_{14}\text{B}/\text{PrCo}_5$ magnet prepared by hot deformation.** J. Zuo¹, W. Lu¹, Y. Bo¹, C. Li¹, M. Zhang¹ and Y. Li¹ *1. School of Science, Inner Mongolia University of Science and Technology, Baotou, China*
- VP9-05. Magnetic properties of Fe-Pt/Pr-Fe-B/Fe-Pt tri-layered thin sheet magnets.** K. Okamura¹, A. Yamashita¹, T. Yanai¹, C. Qi², K. Nagai², T. Shinshi², H. Fukunaga¹ and M. Nakano¹ *1. Nagasaki university, Nagasaki, Japan; 2. Tokyo Institute of Technology, Yokohama, Japan*
- VP9-06. Ba-substituted Sr hexaferrites for microwave absorber application: Structural & magnetic properties.** S. Kaushik¹, M. Dabla¹, M. Sharma^{1,2} and B.K. Kuanr¹ *1. Special Centre for Nanoscience, Jawaharlal Nehru University, New Delhi, India; 2. Department of Physics, Deshbandhu College, New Delhi, India*
- VP9-07. Fe-Pt films prepared from plating baths containing glycine as a complexing agent.** Y. Yamaguchi¹, N. Ogushi¹, A. Hamakawa¹, D. Fukushima¹, T. Yanai¹, A. Yamashita¹, M. Nakano¹ and H. Fukunaga¹ *1. Nagasaki University, Nagasaki, Japan*
- VP9-08. Magnetic properties of $\text{Sm}(\text{Fe,Ga})_7\text{C}$ melt-spun ribbons.** T. Saito¹ and D. Nishio-Hamane² *1. Chiba Institute of Technology, Narashino, Japan; 2. The University of Tokyo, Kashiwa, Japan*

Session VP10
HIGH SPEED MACHINES
(Poster Virtual Session)

Kenji Nakamura, Chair
Tohoku University, Sendai, Japan

- VP10-01. Hybrid Surrogate Model-Based Multidisciplinary Optimization on High Speed Permanent Magnet Synchronous Motor Facilitating Rotor Design.** *Y. Liu¹, F. Zhang¹ and X. Luo¹ 1. School of Electrical Engineering, Shenyang University of Technology, Shenyang, China*
- VP10-02. Electromagnetic Heat Flow Coupling Optimization of High Speed Permanent Magnet Motor Based on Deep Neural Network.** *X. Luo¹ and F. Zhang¹ 1. Shenyang University of Technology, ShenYang, China*
- VP10-03. Rotor Stress Analysis of High-Speed Permanent Magnet Machines Considering Adhesive Debonding.** *Y. Pan¹, J. Yang¹, Y. Jiang¹ and S. Huang¹ 1. College of Electrical and Information Engineering, Hunan University, Changsha, China*
- VP10-04. Analysis and Verification of Motor Performance Based on Local Carburizing of Rotor.** *Y. Li¹, C. Sun², C. Yan¹, W. Li¹, L. Zeng³ and R. Pei^{1,3} 1. Shenyang University of Technology, Shenyang, China; 2. Technology Center of Angang Steel Company Limited, Anshan, China; 3. Suzhou Inn-Mag New Energy Ltd., Suzhou, China*
- VP10-05. Performance Study of High-Speed Motors Based on the Forming Transposition Winding Method.** *S. Wang¹, L. Zhang¹, J. Li¹, Y. Li¹, Z. Li¹, R. Pei^{1,2} and L. Zeng² 1. Shenyang University of Technology, Shenyang, China; 2. Suzhou Inn-Mag New Energy Ltd, Suzhou, China*
- VP10-06. Design of a High-Speed Solid-Rotor Induction Motor with Resonant Winding.** *L. Xiao¹, S. Niu¹ and M. Jiang¹ 1. Department of Electrical and Electronic Engineering, The Hong Kong Polytechnic University, Hong Kong, China*
- VP10-07. Exploring the Application of High Conductivity Graphene-copper Composites for High Speed Motors.** *J. Li¹, Y. Li¹, S. Wang¹, R. Pei^{1,2} and Y. An¹ 1. Shenyang University of Technology, Shenyang, China; 2. Suzhou Inn-Mag New Energy Ltd, Suzhou, China*
- VP10-08. Optimal Design of Rotor Bar in Squirrel-Cage Induction Motor according to Rotor Bar Angle.** *H. Ban¹, S. Eom¹, K. Yu¹, J. Park¹, J. Jang¹, K. Shin² and J. Choi¹ 1. Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea; 2. Electrical Engineering, Changwon National University, Changwon, The Republic of Korea*

- VP10-11. Quarter Sub-Harmonic-Based Self-Excited Brushless Wound Field Synchronous Machine Using Three-Layer Winding Configuration.** *S. Bukhari*¹ and *P. Rasilo*¹
1. Electrical Engineering, Tampere University, Tampere, Finland
- VP10-12. Quarter Sub-Harmonic-Based Self-Excited Brushless Wound Rotor Synchronous Machine Topology.** *S. Bukhari*¹ and *P. Rasilo*¹
1. Electrical Engineering, Tampere University, Tampere, Finland
- VP10-13. High-Efficient Self-Excited Brushless Wound Rotor Synchronous Machine Topology.** *S. Bukhari*¹ and *P. Rasilo*¹
1. Electrical Engineering, Tampere University, Tampere, Finland

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Session VP11 MAGNETIC ASPECTS RELATED TO ELECTROMECHANICAL CONVERSION, TRANSFORMERS AND INDUCTORS (Poster Virtual Session)

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

- VP11-01. A novel method for eliminating residual flux in transformers using composite voltage.** *Y. Ren*¹, *Y. Wang*¹ and *C. Liu*¹ *1. Hebei University of Technology, Tianjin, China*
- VP11-02. Using Solenoid Coils to Enhance the Anti-offset Capability of the Bipolar Coil in Wireless Power Transfer Systems.** *R. Xie*¹, *W. Pan*¹, *X. Chen*¹, *X. Mao*¹ and *Y. Zhang*¹ *1. Fuzhou University, Fuzhou, China*
- VP11-03. The Analytical Calculation Model for Litz Wire Winding Loss in High-Power High-Frequency Transformers.** *X. Li*^{1,2} and *Y. Li*¹ *1. Hebei University of Technology, Tianjin, China; 2. The State Key Lab of Reliability and Intelligence of Electrical Equipment, Tianjin, China*
- VP11-04. The Influence of Different Slot Permanent Magnet Magnetization Directions on the Power Density Enhancement of Transverse Flux Linear Generator.** *M. Chen*^{1,2}, *L. Huang*², *G. Meng*¹, *T. Xia*¹ and *Y. Li*²
1. Smart Grid Research Institute, Nanjing Institute of Technology, Nanjing, China; 2. School of Electrical Engineering, Southeast University, Nanjing, China
- VP11-05. Design and Analysis of a Dual-PM Excited Permanent Magnet Arc Motor With Staggered Rotor Configuration.** *K. Wei*¹, *Z. Pan*¹, *J. Zhao*¹ and *J. Cai*¹ *1. School of Electrical Engineering and Automation, Hefei University of Technology, Hefei, China*

VP11-06. Analysis of Receiving Coil Turns and Simplified Receiving Coil Configuration Effects on Inductive Angular Position Sensor Performance. *D. Xu¹, Y. Zhao¹, X. Wang¹, F. Zeng² and S. Hwang³* *1. School of Mechatronic Engineering and Automation, Shanghai University, Shanghai, China;*
2. Shanghai Zenidrive Technology Co., Shanghai, China;
3. School of Mechanical Engineering, Pusan National University, Busan, The Republic of Korea

VP11-08. Research on Radial Electromagnetic Force of FESS Hybrid Maglev Bearing. *A. Zhongliang¹, Y. Haoze¹, G. Jun¹, Z. Ting¹ and L. Xiaojie¹* *1. Shenyang University of Technology, Shen Yang, China*

VP11-09. Space-Time Simulation of Fault Current Limiters Involving Cores Exhibiting Hysteresis. *A.A. Adly^{1,2}*
1. Egypt-Japan University of Science and Technology (E-JUST), Alexandria, Egypt; *2. Elect. Power Engineering, Cairo University, Giza, Egypt*

VP11-10. Performance of Oriented Si-steel and Fe-Based Amorphous Alloy Core Transformers under DC Bias. *M. Zou¹, M. Yang¹, T. Tang¹, L. Wu¹ and J. Si¹* *1. Chongqing University of Posts and Telecommunications, Chongqing, China*

VP11-11. A novel composite soft magnetic material based three-phase saturated core fault current limiter. *J.L. Liu^{1,2}, J. Yuan^{1,2} and J. Wu³* *1. School of Electrical Engineering and Automation, Wuhan University, Wuhan City, China;* *2. State Key Laboratory of Power Grid Environmental Protection, Wuhan University, Wuhan City, China;* *3. Central China Branch of State Grid Corporation of China, Wuhan City, China*

VP11-12. Design and Implementation of Fixed-bias Flux 3-Phase Magnetic Bearing. *S. Noh¹, J. Park¹, D. Lee² and H. Cho^{1,2}*
1. Convergence System Engineering, Chungnam National University, Daejeon, The Republic of Korea; *2. Electrical, Electronics, and Communication Engineering Education, Chungnam National University, Daejeon, The Republic of Korea*

VP11-13. Study on the performance regulation characteristics of orthogonal controllable reactors considering different magnetic materials. *J. Yuan^{1,2}, J. Hou^{1,2}, H. Zhou^{1,2}, X. Li^{1,2} and G. Ma^{1,2,3}* *1. State Key Laboratory of Power Grid Environmental Protection, Wuhan University, Wuhan, China;*
2. School of Electrical Engineering and Automation, Wuhan University, Wuhan, China; *3. Department of Electrical and Electronic Engineering, The Hong Kong Polytechnic University, Hong Kong, China*

Session VP12

**MAGNETIC TEXTURES AND DYNAMICS:
EXPERIMENTAL DETECTION AND MODELING
(Poster Virtual Session)**

Jonathan Leliaert, Co-Chair
Ghent University, Ghent, Belgium

Lucas Perez, Co-Chair
Universidad Complutense de Madrid, Madrid, Spain

- VP12-01. In-plane magnetic field dependence of torque exerted on a domain wall in Pd/Co₂MnGa.** *T. Koyama¹, Y. Nishioka¹, T. Uemura¹ and M. Yamanouchi¹* *1. Graduate School of Information Science and Technology, Hokkaido University, Sapporo City, Japan*
- VP12-02. Thermal stability of skyrmions in polycrystalline thin film.** *S. Onaka¹, T. Tanaka¹, S. Kashiwagi¹ and X. Ya²* *1. ISEE, Kyushu University, Fukuoka, Japan; 2. Artificial Intelligence and Big Data College, Chongqing College of Electronic Engineering, Chongqing, China*
- VP12-03. Excitation Modes for Spin Waves in a Two-dimensional Magnetic Vortex Lattice.** *P. Bhattacharjee¹ and S. Barman^{1,2}* *1. Department of Basic Sciences and Humanities, Institute of Engineering & Management, Kolkata, India; 2. University of Engineering & Management, Kolkata, India*
- VP12-04. Constriction Effects on Magnetic Skyrmion Behavior in Magnetic Nanowires.** *W.Z. Al Saidi¹ and R. Sbiaa¹* *1. Physics, Sultan Qaboos University, Muscat, Oman*
- VP12-05. Simulation on Spin-Orbit Torque Switching with Stray Field Assistance.** *J. Chen¹, J. Liu¹, Z. Liu¹, W. Li¹, J. Lu¹ and S. Peng¹* *1. Fert Beijing Institute, School of Integrated Circuit Science and Engineering, Beihang University, Beijing, China*
- VP12-06. Incorporation of Anisotropic Vector Hysteresis Model into FEA Based on TEAM Problem 32.** *R. Chen¹, F. Martin², S. Yue³, Y. Li³ and Y. Li³* *1. Department of Electrical Engineering, Tsinghua University, Beijing, China; 2. Department of Electrical Engineering and Automation, Aalto University, Espoo, Finland; 3. Hebei University of Technology, Tianjin, China*
- VP12-07. Data-Driven Neural Network Prediction of Hysteresis Behavior of Soft Magnetic Materials under Physical Constraints.** *Y. Qin¹, Z. Li¹, Y. Li¹, R. Pei^{1,2} and L. Zeng²* *1. Department of Electric Engineering, Shenyang University of Technology, Shenyang, China; 2. Suzhou Inn-Mag New Energy Ltd., Suzhou, China*

- VP12-08. Simulation of ultrafast magnetization dynamics in ferromagnetic nanoparticles.** P. Steblinski¹, T. Blachowicz^{1,2} and A. Ehrmann^{1,3} 1. *Virtual Institute of Applied Research on Advanced Materials (VIARAM), Bobolin, Poland*; 2. *Institute of Physics—Center for Science and Education, Silesian University of Technology, Gliwice, Poland*; 3. *Faculty of Engineering and Mathematics, Bielefeld University of Applied Sciences and Arts, Bielefeld, Germany*

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Session VP13 MAGNETOELECTRIC MATERIALS AND PHENOMENA & ENERGY HARVESTING AND VIBRATION ANALYSIS (Poster Virtual Session)

Raghav Sharma, Chair
Indian Institute of Technology Ropar, Delhi, India

- VP13-01. Voltage-controlled magnetic anisotropy gradient-driven skyrmion-based half-adder and full-adder.** S. Sara¹, C. Murapaka¹ and A. Haldar² 1. *Physics, IITH, Hyderabad, India*; 2. *MSME, IITH, Hyderabad, India*
- VP13-02. Strain induced multiferroicity in $\text{Co}_{3-x}\text{Sb}_x\text{O}_4$ ($x=0, 0.1$ and 0.2) thin films.** J. Rahman¹, V. Gowtham², S. Murugan², N. Rajeevan¹ and R. Ramadurai² 1. *Department of Physics, Farook Autonomous College, University of Calicut, Calicut, India*; 2. *Material Science and Metallurgical Engineering, IIT, Hyderabad, Hyderabad, India*
- VP13-03. Investigation of structural and magnetic properties of MnTa_2O_6 .** M. Anas¹ and P. Kharel¹ 1. *Chemistry, Biochemistry and Physics, South Dakota State University, Brookings, SD, United States*
- VP13-04. Calculation of Vibration in Transformer Laminated Cores under DC Bias Based on Electric-magnetic-mechanical Coupling Model.** H. Li¹, X. Zhao¹, Y. Yu¹, R. Li¹, L. Liu² and Z. Du² 1. *Department of Electrical Engineering, North China Electric Power University, Baoding, China*; 2. *Hebei Provincial Key Laboratory of Electromagnetic and Structural Performance of Power Transmission and Transformation Equipment, Baoding, China*
- VP13-05. Vibration and Noise Measurement of High-frequency Transformer Cores with Different Shapes Under Non-Sinusoidal Excitation.** Y. Li¹, X. Liu¹, Y. Dou², T. Chen¹ and Z. Dong¹ 1. *State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Tianjin, China*; 2. *Zhejiang University—University of Illinois at Urbana-Champaign Institute, Zhejiang University, Haining, China*

- VP13-06. Optimizing Wave-Driven Electromagnetic Energy Harvesters: An Evaluation of Magnetic Configurations.** *J. Park*¹, *T. Martinez*¹, *S. Jordon*¹, *Y. Choi*¹, *N. Wereley*¹ and *A. Flatau*¹ *1. University of Maryland, College Park, MD, United States*
- VP13-07. Analyzing Electrical Transport Phenomena in $\text{NdMn}_{0.3}\text{Co}_{0.7}\text{O}_3$.** *F.H. Bhat*¹, *G. Anjum*² and *A. Jan*¹ *1. Physics, IUST, Kashmir, Awantipora, India; 2. Physics, SAM Degree College, Budgam, J&K, Budgam, India*
- VP13-08. Magneto-elastic Properties of Samarium Doped Cobalt-Nickel Ferrite Ceramics Obtained by Spark Plasma Sintering.** *M. Ibuado*¹, *C. Santillan*¹, *J. Saenz*¹, *M. Grijalva-Castillo*¹ and *J. Matutes*¹ *1. Materials physics, CIMAV, Chihuahua, Mexico*

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Session VP14 MATERIALS FOR SPINTRONICS & MAGNETIZATION DYNAMICS (Poster Virtual Session)

Kevin Garello, Chair
SPINTEC, Grenoble, France

- VP14-01. Li_0 FeAu perpendicular magnetic tunnel junction: A DFT + NEGF study.** *R.R. Sheikh*¹ and *R.K. Ghosh*^{1,2} *1. Electronics and Communication Engineering, Indraprastha Institute of Information Technology Delhi, New Delhi, India; 2. Center for Quantum Technologies, Indraprastha Institute of Information Technology Delhi, New Delhi, India*
- VP14-02. Electric Field Control of Spin in Monolayer WS_2/WTe_2 Field Effect Transistors:- A DFT+NEGF Study.** *A. Shah*¹ and *A. Kashyap*² *1. SCEE, IIT Mandi, Mandi, India; 2. SPS, IIT Mandi, Mandi, India*
- VP14-03. Magnetic and electrical transport properties of a prospective altermagnet NdB_2C_2 .** *M. Anas*¹ and *P. Kharel*¹ *1. Chemistry, Biochemistry and Physics, South Dakota State University, Brookings, SD, United States*
- VP14-04. High temperature ferrimagnetic semiconductors by spin-dependent doping in high temperature antiferromagnets.** *J. Li*¹, *G. Su*¹ and *B. Gu*¹ *1. University of Chinese Academy of Sciences, Beijing, China*
- VP14-05. Néel-order spin-orbit torques in CuMnAs from first principles ballistic transport.** *M.T. Stamenova*¹ and *A. Droghetti*² *1. School of Physics and CRANN, Trinity College Dublin, Dublin, Ireland; 2. CNR-SPIN Research unit, d'Annunzio University, Chieti, Chieti, Italy*

- VP14-06. Tailoring $\text{LaMn}_{1-x}\text{Co}_x\text{O}_3$ Thin Film Properties Using Swift Heavy Ion Irradiation.** *A. Jan*¹ 1. *Physics, Islamic University of Science and Technology, Kashmir, Pulwama, India*
- VP14-07. Spin dynamics of room temperature van der Waals (vdW) ferromagnets $\text{Fe}_{4.8}\text{Ni}_{0.2}\text{GeTe}_2$.** *P. Kumar*^{1,2}, *S. Patnaik*¹ and *B.K. Kuanr*² 1. *School of Physical Sciences, Jawaharlal Nehru University, New Delhi, India*; 2. *Special Centre for Nanoscience, Jawaharlal Nehru University, New Delhi, India*
- VP14-08. A study of spin wave properties of YIG based microstrip coupled line geometry.** *S. Kumar*¹ and *B.K. Kuanr*¹
1. *SCNS JNU, Jawaharlal Nehru University, New Delhi, India*
- VP14-09. Reversible Sign Change in the Anomalous Hall Effect Induced by Strain.** *T. Morita*¹, *T. Koyama*^{1,2,4} and *D. Chiba*^{1,2,3}
1. *SANKEN, Osaka University, Ibaraki, Japan*; 2. *CSRN, Osaka University, Toyonaka, Japan*; 3. *SRIS, Tohoku University, Sendai, Japan*; 4. *PRESTO, JST, Kawaguchi, Japan*

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Session VP15 MICROSCOPY, IMAGING, AND MAGNETIC CHARACTERIZATION & STRUCTURED MATERIALS (Poster Virtual Session)

Robert Hicken, Chair
University of Exeter, Exeter, United Kingdom

- VP15-01. Shortening of Pre-data Acquisition Time in Magnetic Particle Imaging Using AC Susceptometry.** *T. Sasayama*¹, *N. Futagawa*¹ and *T. Yoshida*¹ 1. *Kyushu University, Fukuoka, Japan*
- VP15-03. Direct Magnetic Field Compensation with Multichannel Digital-to-Analog (D/A) Converter in Magnetic Particle Imaging.** *T. Matsushita*¹, *T. Sasayama*¹ and *T. Yoshida*¹
1. *Department of Electrical and Electronic Engineering, Kyushu University, Fukuoka, Japan*
- VP15-04. A novel EUV x-ray polarimeter for single-pulse experiments at MagneDyn@FERMI.** *A. Caretta*¹, *S. Laterza*¹ and *M. Malvestuto*¹ 1. *elettra-sincrotrone trieste, Trieste, Italy*

- VP15-05. Magnetic structure of rare earth intermetallic compound Er_6MnTe_2 : neutron diffraction and magnetization study.** R. Nirmala¹, G. Jangam², T. A², A.V. Knotko^{3,4}, V. Yapaskurt⁵ and A. Morozkin³ 1. *Physics, Indian Institute of Technology Madras, Chennai, India*; 2. *Tata Institute of Fundamental Research, Mumbai, India*; 3. *Department of Chemistry, Moscow State University, Moscow, Russian Federation*; 4. *Faculty of Materials Science, Moscow State University, Moscow, Russian Federation*; 5. *Department of Petrology, Moscow State University, Moscow, Russian Federation*
- VP15-06. Improving Reciprocating SQUID Magnetometry by Explicit Response Linearization.** P.S. Stamenov¹ 1. *School of Physics and CRANN, Trinity College, Dublin, Ireland*
- VP15-07. Wide temperature range magnetocaloric effect with $\text{Gd}_{1-x}\text{Pr}_x\text{Ni}_{2-y}\text{Co}_y$ alloys.** R. Duarte de Melo¹, C.L. Rodrigues¹, D.M. Garcia¹ and A. Gomes¹ 1. *Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil*
- VP15-08. Magnetocaloric effect for pyramid and flower-shaped CoO nanoparticles.** Y. Hotta¹, T. Tachibana¹ and S. Kobayashi¹ 1. *Iwate University, Morioka, Japan*
- VP15-09. Enhanced High-Energy Products in Core@Shell Nanoparticles of Hard@Soft Magnetic Materials.** I.F. Silva¹, L.L. Oliveira¹, M.S. Nunes², A.L. Dantas^{1,2} 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*
- VP15-10. Experimental Investigation of Core-Shell Tungsten Nanoclusters for Radiation Protection.** X. Tao^{1,2}, X. Sun¹, F. Liu², B. Wang¹ and S. Peng¹ 1. *Fert Beijing Institute, School of Integrated Circuit Science and Engineering, Beihang University, Beijing, China*; 2. *Hefei Innovation Research Institute of Beihang University, Anhui Hefei, China*
- VP15-11. Size Dependence of Magneto-Optical Scattering by Superparamagnetic Nanoparticles and its Connection to Aggregation.** M. Syed¹, S. Reza¹, H. Lu¹ and W. Amory¹ 1. *Physics & Optical Engineering, Rose-Hulman Institute of Technology, Terre Haute, IN, United States*

Session VP16
SENSORS AND APPLICATIONS
(Poster Virtual Session)

Prasanth Velvaluri, Chair
 Northeastern University, Boston, MA, United States

- VP16-01. Magnetotransport Properties of Tunneling Magnetoresistance Devices with CoFeBSi, CoFeB/CoFeBSi and CoFeB/Ru/CoFeBSi Free Layers.** *P. Las¹, F. Matos², R. Macedo², S. Cardoso de Freitas², P. Freitas² and P. Wisniowski¹*
1. Institute of Electronics, AGH University of Krakow, Krakow, Poland; 2. INESC-MN, Lisbon, Portugal
- VP16-02. Analysis of Inductive Angular Position Sensor with the Characteristic of Annular Sector Coils.** *D. Xu¹, S. Fang¹, F. Zeng² and S. Hwang³*
1. School of Mechatronic Engineering and Automation, Shanghai University, Shanghai, China; 2. Shanghai Zenidrive Technology Co., Shanghai, China; 3. School of Mechanical Engineering, Pusan National University, Busan, The Republic of Korea
- VP16-03. Research on magnetic interference compensation based on improved ellipsoidal fitting method.** *B. Fan¹, J. Qiu¹, C. Cao¹, S. Huang¹ and X. Zeng¹*
1. College of Optoelectronic Engineering, Chongqing University, Chongqing, China
- VP16-04. Analysis of Radial Eccentricity and Axial Misalignment Effects on Inductive Angular Position Sensor Performance.** *D. Xu¹, Y. Zhao¹, X. Wang¹, F. Zeng² and S. Hwang³*
1. School of Mechatronic Engineering and Automation, Shanghai University, Shanghai, China; 2. Shanghai Zenidrive Technology Co., Shanghai, China; 3. School of Mechanical Engineering, Pusan National University, Busan, The Republic of Korea
- VP16-05. Implementation of ENG Metasurfaces for 5G Antenna Systems.** *A. Eroglu¹ and T. Islam²*
1. ECE, University of Massachusetts Boston, Boston, MA, United States; 2. ECE, North Carolina A&T State U, Greensboro, NC, United States
- VP16-06. Modeling Non-Linear and Non-Stationary Magnetic Signals: An Enhanced Signal Processing Strategy for Wind Time Series Analysis.** *A. Swain¹, I. Hossain¹, C. Liu² and P. Pong¹*
1. Electrical and Computer Engineering, New Jersey Institute of Technology, Newark, NJ, United States; 2. School of Energy and Environment, City University of Hong Kong, Kowloon Tong, Hong Kong
- VP16-07. Magnetic Anomaly Target Motion State Detection Based on 3D Convolutional Neural Network.** *H. Sun¹, J. Qiu¹, S. Huang¹, C. Cao¹ and X. Zeng¹*
1. Chongqing University, Chongqing, China

- VP16-08. Multi-Axial Magnetic Sensing Using Co/Pt Double-Hall Superlattice SOT Structure: Experimental and Simulation.** Y. Huang¹, A. Fathy¹, L. Chang² and Y. Tseng¹
1. National Yang Ming Chiao Tung University, Hsinchu, Taiwan; 2. Industrial Technology Research Institute, Hsinchu, Taiwan
- VP16-09. High-Sensitivity Magnetoresistive Sensor with Optimized Orthogonal Exchange Bias for Low-Field Measurement.** Y. Yang¹, S. Lamichhane¹, C. Chen², A. Sokolov³, X. Yin^{1,3}, Y. Liu^{1,3}, J. Hong⁴, L. Chang⁵ and S. Liou^{1,3} *1. Department of Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE, United States; 2. Department of Physics, National Central University, Taoyuan City, Taiwan; 3. Nebraska Center for Materials and Nanoscience, University of Nebraska-Lincoln, Lincoln, NE, United States; 4. Department of Physics, Tamkang University, New Taipei City, Taiwan; 5. Industrial Technology Research Institute, Hsinchu County, Taiwan*
- VP16-10. Temperature-Dependent Performance of Magnetic Tunnel Junction Sensors with Linear Response Across a Wide Field Range.** S. Lamichhane¹, C. Chen², A. Sokolov³, X. Yin¹, Y. Liu¹, J. Hong⁴, L. Chang⁵ and S. Liou^{1,3} *1. Physics & Astronomy, University of Nebraska-Lincoln, Lincoln, NE, United States; 2. Physics & Astronomy, National Central University, Taoyuan City, Taiwan; 3. Nebraska Center for Materials and Nanoscience, University of Nebraska-Lincoln, Lincoln, NE, United States; 4. Department of Physics, Tamkang University, New Taipei City, Taiwan; 5. Department Mechanical and Mechatronics Systems Research Labs, Industrial Technology Research Institute (ITRI), Hsinchu County, Taiwan*
- VP16-11. Microstructural Considerations on the Magnetostriction Enhancement in Dy Doped Fe₈₁Al₁₉ Alloys.** J. Uribe-Chavira¹, C. Santillan¹, J. Saenz¹, M. Ibaño¹, J. Matutes¹ and M. Grijalva-Castillo² *1. Centro de Investigación en Materiales Avanzados, S.C., Chihuahua, Mexico; 2. Conahcyt-Centro de Investigación en Materiales Avanzados, S.C., Chihuahua, Mexico*
- VP16-12. Indirect Current Feedback of Low-Frequency Signals in Rectangular Wave Eddy Current Testing of a Tunnel Magnetoresistive Sensor.** Z. Guo¹ and T. Sasayama¹
1. Department of Electrical and Electronic Engineering, Kyushu University, Fukuoka, Japan
- VP16-13. Dynamic Magnetization Measurement System for Soft Magnetic Materials.** Y. Chang¹, V. Doan², L. Bui^{1,3}, T. Nguyen¹ and J. Jeng¹ *1. Department of Mechanical Engineering, National Kaohsiung University of Science and Technology, Kaohsiung City, Taiwan; 2. Faculty of Electrical and Electronic Engineering, University of Technology and Education, The University of Da Nang, Da Nang, Vietnam; 3. Faculty of Mechanical Engineering, Hung Yen University of Technology and Education, Hung Yen, Vietnam*

Session VP17
SOFT MAGNETIC MATERIALS I
(Poster Virtual Session)

Vinay Sharma, Chair
 University of Maryland, College Park, MD, United States

- VP17-01. Influence of Crushing Process on the Magnetic Properties of Configurable Nanocrystalline Flake Ribbons.** *Y. Wang¹, C. Jiang¹, J. Xiang¹, L. Mo¹, X. Wang¹ and W. Guo¹*
 1. City University of Hong Kong, Kowloon, Hong Kong
- VP17-02. Effects of compressive stress in thickness direction on the magnetic properties of grain-oriented electrical steel sheet.** *S. Yue¹, C. Zhang¹, R. Chen², X. Li¹ and Y. Li¹* 1. Hebei University of Technology, Tianjin, China; 2. Tsinghua University, Beijing, China
- VP17-04. Structure Design and Magnetic-Vibration Characteristics Analysis of Hybrid Core for High Efficiency Distribution Transformer.** *Y. Li¹, G. Han¹, S. Yue¹, Z. Wan¹ and J. Yin¹*
 1. State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China
- VP17-05. Analysis of Magnetic Domains Motion and Magnetic Properties of the Amorphous Sheet under the Uniaxial Stress.** *Y. Li¹, J. Li¹, Y. Dou², S. Yue¹ and J. Zhou¹* 1. State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China; 2. Zhejiang University–University of Illinois at Urbana-Champaign Institute, Zhejiang University, Haining 314400, Haining, China
- VP17-06. Comprehensive investigation on high-frequency rotational magnetic properties of core materials for high-speed motors.** *M. Yang^{1,2}, Y. Li^{3,4}, Z. Hu^{1,2}, S. Yue^{3,4}, J. Li^{1,2}, Q. Yang⁵ and M. Ouyang^{1,2}* 1. State Key Laboratory of Automotive Safety and Energy, Tsinghua University, Beijing, China; 2. School of Vehicle and Mobility, Tsinghua University, Beijing, China; 3. State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China; 4. Hebei Key Laboratory of Equipment and Technology Demonstration of Flexible DC Transmission, Hebei University of Technology, Tianjin, China; 5. School of Electrical Engineering and Automation, Tianjin University of Technology, Tianjin, China
- VP17-07. Research on the characteristics and suppression techniques for vibration and noise in amorphous three-dimensional wound core transformer.** *Z. Dong¹, Y. Li¹, S. Yue¹ and X. Liu¹* 1. State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China

- VP17-08. Phase transition and magnetic properties of $\text{LaMnO}_3\text{-Mn}_3\text{O}_4$ composites.** *A. Dhakal*¹, *S. Mishra*¹, *J. Mohapatra*² and *P. Joshi*² *1. Physics and Materials Science, The University of Memphis, Memphis, TN, United States; 2. The University of Texas at Arlington, Arlington, TX, United States*

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Session VP18 SOFT MAGNETIC MATERIALS II (Poster Virtual Session)

Ju-Young Yoon, Chair
Tohoku University, Sendai, Japan

- VP18-01. Modelling of loss in amorphous ribbons with longitudinal-induced anisotropy: theory and experiments.** *O. de la Barrière*¹, *C. Ragusa*², *E. Ferrara*³, *A. Magni*³, *F. Mazaleyra*¹ and *F. Fiorillo*³ *1. CNRS, Gif-sur-Yvette, France; 2. Politecnico di Torino, Torino, Italy; 3. INRIM, Torino, Italy*
- VP18-02. Investigation of magnetic properties of high permeability materials at 77.15K temperature.** *J. Ge*¹, *J. Li*¹ and *R. Pei*¹ *1. Shenyang University of Technology, Shenyang, China*
- VP18-03. Magnetic Anisotropy Investigation of Grain-Oriented Electrical Steels for a Wide Range of Temperatures.** *Z. Li*¹, *Y. Qin*¹, *X. Liu*¹, *Y. Li*¹, *R. Pei*^{1,2} and *L. Zeng*² *1. Department of Electric Engineering, Shenyang University of Technology, Shenyang, China; 2. Suzhou Inn-Mag New Energy Ltd., Suzhou, China*
- VP18-04. Magnetic Characteristics and Losses of High-Silicon Steel Core for High-Speed Motors in Ultra-low Temperature Environment.** *D. Ma*¹, *J. Ge*¹ and *R. Pei*¹ *1. Shenyang University of Technology, Shenyang, China*
- VP18-05. Giant Magnetoimpedance and Susceptibility by Magneto-optical Kerr Effect in Amorphous CoFeSiB Ribbons.** *F.A. Albuquerque*¹, *V. Bellintani*¹, *J.H. Severo*², *A.D. Santos*² and *C.S. MARTINS*¹ *1. Physics Laboratory, Faculty of Technology of São Paulo, São Paulo, Brazil; 2. Institute of Physics, University of São Paulo, São Paulo, Brazil*
- VP18-06. Temperature dependent structural, magnetic and microwave properties of hexagonal $\text{BaFe}_{12}\text{O}_{19}/\text{Ba}_2\text{Co}_2\text{Fe}_{12}\text{O}_{22}$ composite.** *S. Singh*¹, *P. Sharma*² and *B. Chudasama*^{1,3} *1. Department of Physics & Material Sciences, Thapar Institute of Engineering & Technology, Patiala, India; 2. IILM University, Greater Noida, India; 3. TIET-VT Centre for Excellence in Emerging Materials, Thapar Institute of Engineering & Technology, Patiala, India*

VP18-07. Studies of The Magnetic Properties of FeSiBCCr Amorphous Alloys Fabricated by Spark Plasma Sintering. *X. Wang¹, Z. Lin^{1,2}, S. Yue¹, Q. Chi², X. Guo² and Y. Li¹* *1. State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China; 2. Ningbo Magnetic Materials Application Technology Innovation Center Co., Ltd, Ningbo, China*

VP18-08. Crystallographic and Magnetic Properties of Manganese Ferrites Prepared by Liquid-Nitrogen Quenching. *S. Yoon¹* *1. Department of Physics, Gunsan National University, Gunsan, The Republic of Korea*

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Session VP19 SOFT MAGNETIC MATERIALS III (Poster Virtual Session) Keita Nakagawara, Chair Tohoku University, Sendai, Japan

VP19-01. Room temperature magnetodielectric studies of $\text{Sr}_{3-x}\text{La}_x\text{Co}_2\text{Fe}_{24}\text{O}_{41}$ hexaferrite. *A. Choudhary¹, P. Sharma² and B. Chudasama^{1,3}* *1. DPMS, Thapar Institute of Engineering & Technology, Patiala, India; 2. IILM University, Greater Noida, India; 3. TIET-VT Centre for Excellence in Emerging Materials, Thapar Institute of Engineering & Technology, Patiala, India*

VP19-04. Magnetic Properties of High Permeability Alloys Considering Stress Factors. *J. Li¹, J. Ge¹ and R. Pei¹* *1. Shenyang University of Technology, Shenyang, China*

VP19-05. Loss analysis of amorphous high-speed PMSMs considering the effect of cutting damage. *X. Lu¹, L. Zhang¹ and R. Pei¹* *1. Shenyang University of Technology, Shenyang, China*

VP19-06. Microwave absorption properties of graphene oxide/Zn-substituted Cobalt ferrites composites. *M. Dabla¹, S. Kaushik¹, M. Sharma^{1,2} and B.K. Kuanr¹* *1. Special Centre for Nanoscience, Jawaharlal Nehru University, New Delhi, India; 2. Department of Physics, Deshbandhu College, New Delhi, India*

VP19-07. First-principles calculations of electronic and magnetic properties of Co-Ni-Fe ternary alloy. *G.D. Demin¹, R.D. Tikhonov² and N.A. Djuzhev¹* *1. R&D Center "MEMSEC", National Research University of Electronic Technology (MIET), Moscow, Russian Federation; 2. Scientific-Manufacturing Complex "Technological Centre", Moscow, Russian Federation*

VP19-08. Effect of Swift Heavy Ion (SHI) Irradiation on Magnetic Properties of Soft Magnetic FeGaB Thin Film. *B. Arun¹, J. Rahman² and K. James Raju¹ 1. School of Physics, University of Hyderabad, Hyderabad, India; 2. Department of Physics, Farook Autonomous College, University of Calicut, Calicut, India*

VP19-09. Improvement in magnetic properties of soft magnetic films prepared from gel electrolyte. *K. Shiraki¹, Y. Matsumoto¹, M. Tashiro¹, T. Yanai¹, A. Yamashita¹, M. Nakano¹ and H. Fukunaga¹ 1. Nagasaki University, Nagasaki, Japan*

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Session VP20

SPECIAL MACHINES AND GEARED MACHINES I (Poster Virtual Session)

Doğa Ceylan, Chair

Eindhoven University of Technology, Eindhoven, Netherlands

VP20-01. Investigation of Dual-stator Flux Modulated Machines With Multiple-PM Excitation. *Y. Meng¹, X. Yang¹, H. Chen¹ and S. Fang² 1. College of Electrical Engineering and Automation, Shandong University of Science and Technology, Qingdao, China; 2. School of Electrical Engineering, Southeast University, Nanjing, China*

VP20-02. Investigation of Vernier Arc Machines with IPM Rotor Structures. *Y. Meng¹, M. Yang¹, S. Fang², H. Chen¹ and N. Wu¹ 1. College of Electrical Engineering and Automation, Shandong University of Science and Technology, Qingdao, China; 2. School of Electrical Engineering, Southeast University, Nanjing, China*

VP20-03. A New Asymmetric Permanent Magnet Variable Flux Memory Machine with Magnetic-Field-Shifting Effect. *W. Liu¹, C. Zhang¹, J. Chen¹, Y. Fu¹ and J. Zhang¹ 1. Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Science, Ningbo, China*

VP20-04. Power Factor Improvement Mechanism of Dual-PM Excited Vernier Machines. *H. Chen¹, Y. Meng¹, D. Li², R. Qu² and X. Yang¹ 1. Shandong University of Science and Technology, Qingdao, China; 2. Huazhong University of Science and Technology, Wuhan, China*

VP20-05. Topology Design and Performance Analysis of a New Arch-shaped Magnet Variable Flux Memory Machine. *W. Liu¹, C. Zhang¹, J. Chen¹ and Y. Fu¹ 1. Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, Ningbo, China*

- VP20-06. A Novel Dual Magnetically Geared Halbach Array Based Tubular Linear Permanent Magnet Generator for Wave Energy Conversion.** *N. Shrivastava*¹, *S. Sampathirao*¹ and *B. Subudhi*¹ *1. School of Electrical Sciences, Indian Institute of Technology Goa, Ponda, India*
- VP20-07. Design of a Novel Carbon Nanotube Based Coreless Axial Flux Motor with Heat Pipes.** *V. Basam*¹ and *S. Sampathirao*¹ *1. School of Electrical Sciences, Indian Institute of Technology Goa, Ponda, India*
- VP20-08. A High Torque Density Axial-Flux Permanent Magnet Machine with Yokeless and Segmented Armature.** *L. Dai*¹, *S. Niu*¹, *M. Jiang*¹ and *W. Wenjie*¹ *1. Department of Electrical and Electronic Engineering, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*
- VP20-09. Design and Analysis of a Brushless Power Feedback PM Adjustable Speed Drive with Bilayer Wound Rotor.** *X. Zheng*¹, *H. Lin*¹ and *Y. Li*^{2,3} *1. School of Electrical Engineering, Southeast University, Nanjing, China; 2. Industrial Center, Nanjing Institute of Technology, Nanjing, China; 3. Jiangsu Provincial Engineering Research Center for Bionics Control Technology and Equipment, Nanjing, China*
- VP20-10. Experimental Verification of Eddy Current Loss Reduction in Magnets of Flux-Modulated-type Magnetic Gears.** *E. Asahina*¹ and *K. Nakamura*¹ *1. Tohoku University, Sendai, Japan*

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Session VP21 SPECIAL MACHINES AND GEARED MACHINES II (Poster Virtual Session)

Chuanbing Rong, Chair
Ford Motor Company, Dearborn, MI, United States

- VP21-01. A Novel Double-sided PM Flux Modulated Machine with Hybrid Magnet Arrangement.** *H. Chen*¹, *Y. Meng*¹, *D. Li*², *R. Qu*² and *Y. Zhang*¹ *1. Shandong University of Science and Technology, Qingdao, China; 2. Huazhong University of Science and Technology, Wuhan, China*
- VP21-02. Bagging-GA-Driven Multi-Objective Optimization of MR Fluid Brake-Integrated PMSM Considering Brake Torque Constraint.** *Y. Hu*¹, *H. Lu*¹ and *W. Xu*¹ *1. School of Electrical Engineering, Southeast University, Nanjing, China*

- VP21-03. A New Asymmetric Consequent Pole Flux-Reversal Permanent Magnet Machine With DC-biased Sinusoidal Current.** Y. Meng¹, M. Yang¹, H. Chen¹, X. Bai¹ and S. Fang²
1. College of Electrical Engineering and Automation, Shandong University of Science and Technology, Qingdao, China; 2. School of Electrical Engineering, Southeast University, Nanjing, China
- VP21-04. A New Double-Sided Flux Modulated Permanent Magnet Arc Motor Having Parallel Complementary Effect.** J. Cai¹, Z. Pan¹, J. Zhao¹, K. Wei¹ and Z. Yu¹ 1. School of Electrical Engineering and Automation, Hefei University of Technology, Hefei, China
- VP21-05. Research of Asymmetric Interior Permanent Magnet Synchronous Machine Considering the Characteristics of Different Excitation Sources.** X. Liang¹, M. Wang¹, P. Zheng¹, Y. Liu¹ and J. Gao¹ 1. Harbin Institute of Technology, Harbin, China
- VP21-06. Integration Design of MR Fluid Brake-Based External Rotor PMSM For Robotic Arm Application.** Y. Hu¹, W. Xu¹ and W. Zhang¹ 1. School of Electrical Engineering, Southeast University, Nanjing, China
- VP21-07. A Novel Twelve-Phase Variable Magnetic Circuit Memory Machine for Rim Thrusters.** Y. Fu^{1,2}, W. Liu¹, C. Zhang¹ and J. Chen¹ 1. Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Science, Ningbo, China; 2. University of the Chinese Academy of Sciences, Beijing, China
- VP21-08. Design and Analysis of a Pole-changing Machine with Multi-auxiliary-teeth Structure.** W. Wenjie¹, S. Niu¹ and M. Jiang¹ 1. EEE, Hong Kong Polytechnic University, Hong Kong, Hong Kong
- VP21-09. Improved Flux Observer Sensorless Control of Permanent Magnet Assisted Synchronous Reluctance Motor.** T. Tang¹, X. Liu¹, M. Lu¹, D. Lu² and P. Lin¹ 1. College of Electrical and Information Engineering, Hunan University, Changsha, China; 2. Nanjing Nari-Relays Electric Co., Ltd, Nanjing, China

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Session VP22
SPECIAL MACHINES AND GEARED MACHINES III
(Poster Virtual Session)
Kinjal Gandha, Chair
MP Materials, Fort worth, TX, United States

- VP22-01. A High-Performance Flux Modulated Arc Motors with Dual-PM Excitation.** X. Yang¹, S. Fang¹, X. Lin¹ and Q. Xu¹
1. Southeast University, Nanjing, China

- VP22-02. Performance Analysis and Optimization of a New Torque Enhanced Permanent Magnet Arc Machine.** *X. Lin¹, S. Fang¹ and Q. Xu¹ 1. School of Electrical Engineering, Southeast University, Nanjing, China*
- VP22-03. Modeling and Suppression of Torque Ripple of Direct-Drive V-Shape Permanent Magnet Motor Considering Effects of Stator Teeth and PM Shape.** *D. Fan¹ and X. Chen¹ 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*
- VP22-05. Low-Torque-Ripple Bi-Directional Magnetic Field Modulation PM Motor considering Magnetic Motive Force Distribution Perspective.** *D. Fan¹, H. Tian¹ and W. Shan¹ 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*
- VP22-06. A Novel Cylindrical Laminated Rotor for High-Speed Homopolar Inductor Machine.** *Q. Li¹, J. Yang¹, Y. Jiang¹ and S. Huang¹ 1. College of Electrical and Information Engineering, Hunan University, Changsha, China*
- VP22-07. An Axial Parallel Memory Machine with DC Bias Adjustment Flux Capability.** *L. Qin¹, H. Yang² and S. Fang² 1. Tongji University, Shanghai, China; 2. Southeast University, Nanjing, China*
- VP22-08. Design and Optimization of a High Torque Density Dual Permanent Magnet Excited Vernier Machine with Non-Uniformly Distributed Stator Tooth.** *A. Chen¹, L. Quan¹, Z. Xiang¹ and D. Fan¹ 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*
- VP22-09. Power Factor Enhancement Design and Optimization of Variable Leakage Flux Permanent Magnet Motor Considering Driving Cycles.** *X. Zhou¹ and Z. Xiang¹ 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*

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Session VP23 SPIN-ORBITRONICS: DMI, SOT MRAM AND ENERGY EFFICIENT SWITCHING (Poster Virtual Session)

Yufan Li, Chair
The Chinese University of Hong Kong, Sha Tin, Hong Kong

- VP23-01. Orbitronics for Energy-Efficient Magnetization Switching.** *Y. Yao¹, D. Zhu¹ and W. Zhao¹ 1. School of Integrated Circuit Science and Engineering, Beihang University, Beijing, China*
- VP23-03. Design of memory compiler for non-volatile embedded SOT-MRAM.** *H. Lin¹ and Y. Jiang¹ 1. Jiangnan University, Wuxi, China*

- VP23-04. 3-D MRAM memory compiler for high density memory design with TSVs interconnection.** H. Lin¹ and Y. Jiang¹
1. Jiangnan University, Wuxi, China
- VP23-05. Research and Design of Hierarchical Cache with Mixed SOT- and STT-MRAM in Multi-core CPU Environments.** Y. Dai¹ and Y. Jiang¹ *1. Jiangnan University, Wuxi, China*
- VP23-06. Stable Data Store Operation in Magnetic Nanowire Memory with Stepped Structures Observed by Magneto-optical Kerr Effect Microscopy.** D. Kato¹, K. Ogura¹, N. Kinoshita¹ and Y. Miyamoto¹ *1. Science & Technology Research Labs., NHK, Setagaya, Japan*
- VP23-07. Monte Carlo Simulation on Spinterface's Atomic Migration in SOT-MTJ Device.** Y. Yuan¹ and Y. Jiang¹
1. Jiangnan University, Wuxi, China
- VP23-08. Electronic and Magnetic Properties of a New Pnictide (EuMn₂Bi₂).** D. Sagar¹, Y. Khatri¹ and A. Kashyap¹ *1. School of Physical Science, Indian Institute of Technology Mandi, Mandi, India*
- VP23-09. Magnetic Control of Electromagnetically Induced Transparency in Slow Light Experiments.** J. Wang¹ and J. Krause² *1. University of Michigan, Dearborn, MI, United States; 2. Northville High School, Northville, MI, United States*

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Chen, J. (VP20-03)	178	Choi, D. (EV-04)	108
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Chen, R. (VP12-06).....	168	Choi, J. (DV-05).....	85
Chen, R. (VP17-02).....	175	Choi, J. (DV-06).....	85
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Chen, T. (DP-05)	78	Choi, J. (VP6-10)	161
Chen, T. (GU-06)	144	Choi, J. (BV-02)	161
Chen, T. (VP13-05)	169	Choi, J. (BV-03)	162
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Chen, X. (VP11-02).....	166	Choi, W. (BE-07)	29
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Chen, Y. (AT-03)	20	Choi, Y. (GV-03)	144
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Chen, Y. (ER-04)	103	Choi, Y. (VP13-06)	170
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Cheng, R. (EB-01).....	87	Chshiev, M. (CG-01)	55
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Cheng, R. (HF-05).....	152	Chu, K. (GA-02)	127
Cheng, S. (CC-07)	46	Chu, Y. (CC-10)	47
Cheng, T. (CT-01)	61	Chu, Y. (GQ-04).....	139
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Cheng, Y. (BE-06)	29	Chuang, T. (CC-07)	46
Cheng, Y. (DQ-08).....	80	Chubykalo-Fesenko, O. (AD-09).....	7
Cheng, Y. (VP1-10)	155	Chubykalo-Fesenko, O. (AF-04).....	11
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Chiba, D. (VP14-09).....	171	Ciannella, S. (BR-04).....	38
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Coisson, M. (BG-09)	34
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Coleman, J. (FE-11)	123
Collin, S. (BC-07)	25
Collins, S. (ET-01)	105
Combs, N. (AE-06)	8
Compton, L. (CD-03)	47
Comstock, A.H. (EC-07)	90
Connell, S. (EC-13)	90
Continentino, M.A. (BG-12)	34
Corodeanu, S. (DP-07)	79
Corodeanu, S. (FF-08)	124
Corrielli, G. (CD-10)	49
Corte-Leon, P. (CP-08)	58
Corte-Leon, P. (EG-08)	99
Cortes-Santamaria, R. (BU-07)	41
Costa, D. (HC-01)	147
Costilla, J.I. (ED-07)	92
Cottam, M.G. (DQ-01)	79
Cottam, M.G. (FD-02)	119
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Couet, S. (GD-07)	131
Couet, S. (GR-05)	140
Cresswell, Z. (AC-08)	4
Crisan, A. (BP-03)	35
Crisan, O. (BP-03)	35
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Crooker, S. (FG-02)	125
Cros, V. (AD-13)	7
Cros, V. (BC-07)	25
Cui, B. (BF-08)	31
Cui, C. (CT-03)	62
Cui, J. (BF-08)	31
Cunningham, C.J. (AS-03)	19
Cunningham, C.J. (AS-04)	19
Cunningham, C.J. (CQ-06)	58
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Das, D. (EF-04)	96
Das, P. (CC-02)	45
Das, P. (CC-11)	47
Das, P.T. (CE-04)	50
Das, S. (AE-10)	9

Das, S. (CA-05)	44
Das, S. (DE-03)	71
Das, S.S. (DS-08)	82
Dasary M, R. (FP-02)	109
Dash, S.P. (AC-06)	4
Dash, S.P. (DE-12)	72
Datt, G. (BT-04)	40
Davaji, B. (EQ-05)	102
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Davis, E. (EB-04)	88
Davy, J. (HE-02)	150
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De Lima Correa, E. (EU-02)	106
de Loubens, G. (CD-09)	49
de Vicente, J. (XA-05)	86
de Wergifosse, S. (EE-12)	95
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DeBastiani, A. (HB-03)	146
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Decker, F. (DD-10)	70
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DeFeo, J.R. (BU-04)	41
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DeFeo, J.R. (DR-08)	81
Del Conte, C. (DG-09)	76
Del Giacco, A. (CD-10)	49
Deleg, S. (CF-14)	54
Deleg, S. (EP-08)	101
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Delodovici, F. (DE-02)	71
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Demirci, Ç. (CR-05)	60
Demler, E. (AA-03)	2
Demler, E. (EB-04)	88
Deng, K. (FD-10)	120
Deng, Y. (EQ-02)	101
Denker, C. (HF-04)	152
Denlinger, J. (BS-07)	39
Denneulin, T. (BC-07)	25
Denneulin, T. (CC-04)	46
Denneulin, T. (DG-11)	77
Dennis, C. (AD-08)	6
Dennis, C. (EU-02)	106
Derksen, N. (AT-04)	20
DeRuijter, A. (EP-07)	101
Desai, P. (GU-02)	143
DeTellem, D. (BT-04)	40
DeTellem, D. (DS-03)	81
DeTellem, D. (EU-07)	107
Detisch, M. (ET-02)	105
Dev, J. (DT-04)	82
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Devolder, T. (GC-06)	129

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Fagiani, F. (DE-02)	71
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Fan, D. (VP22-03)	181
Fan, D. (VP22-05)	181
Fan, D. (VP22-08)	181
Fan, Q. (VP4-03)	158
Fan, Q. (VP4-04)	158
Fan, W. (VP6-02)	160
Fan, X. (BE-09)	30
Fan, Y. (AC-08)	4
Fan, Y. (BC-04)	25
Fang, B. (DE-11)	72
Fang, B. (ED-03)	91
Fang, B. (FC-04)	118
Fang, H. (CT-06)	62
Fang, M. (DC-08)	67
Fang, S. (VP2-02)	155
Fang, S. (VP4-08)	158
Fang, S. (VP5-07)	159
Fang, S. (VP16-02)	173
Fang, S. (VP20-01)	178
Fang, S. (VP20-02)	178
Fang, S. (VP21-03)	180
Fang, S. (VP22-01)	180
Fang, S. (VP22-02)	181
Fang, S. (VP22-07)	181
Fangohr, H. (AD-03)	5
Fangohr, H. (AD-07)	6
Fangohr, H. (DQ-02)	79
Fangohr, H. (GT-07)	142
Fangohr, H. (HD-06)	150
Farago, O. (ED-05)	92
Farago, O. (ED-09)	92
Farchy, T. (BD-08)	27
Farias, M. (CP-01)	57
Farkhani, H. (GT-01)	142
Farle, M. (BF-05)	31
Farle, M. (DR-06)	80
Farle, M. (GR-04)	140
Fas, T. (AE-12)	10
Fassatoui, A. (CG-01)	55
Fassatoui, A. (DE-07)	71
Fassbender, J. (GC-06)	129
Fathy, A. (VP16-08)	174
Faure-Vincent, J. (CG-01)	55
Favieres, C. (CF-15)	55
Fedchenko, O. (AE-05)	8
Feggeler, T. (DR-06)	80
Fellner, K. (GG-04)	136
Felser, C. (BG-02)	32
Felser, C. (CA-01)	43
Felser, C. (CA-04)	44
Felser, C. (GF-07)	134
Feng, K. (AR-05)	17
Feng, L. (XA-05)	86
Fennema, F.G. (GF-11)	135
Fereydoonian, M. (EV-06)	108
Ferguson, C. (AR-03)	17
Fermon, C. (FE-06)	122
Fernandes, J.R. (DC-09)	68
Fernandes, T. (AT-05)	20
Fernandez Gonzalez, C. (DD-04)	69
Fernandez Gonzalez, C. (GB-02)	128
Fernández, C. (CF-12)	54

Fernández-Pacheco, A. (DD-06)	69
Fernandez-Pacheco, A. (GB-02)	128
Ferrara, E. (DB-05)	66
Ferrara, E. (VP18-01)	176
Ferreira, R. (CE-01)	50
Ferreira, R. (FC-06)	118
Ferreira, R. (HC-01)	147
Ferreira, R. (HC-02)	147
Fert, A. (BC-07)	25
Fescenko, I. (ES-06)	104
Fescenko, I. (GD-02)	130
Feutmba, A. (FR-06)	112
Fiebig, M. (DE-02)	71
Fields, S. (AE-06)	8
Fiete, G.A. (DC-08)	67
Figuiera Da Silva, M. (BU-07)	41
Fillies, C. (AD-03)	5
Fillies, C. (CF-11)	54
Fillion, C. (CG-01)	55
Finkel, P. (CE-06)	51
Finney, B. (BF-08)	31
Finocchio, G. (CE-02)	50
Finocchio, G. (DE-06)	71
Finocchio, G. (DE-11)	72
Finocchio, G. (DG-06)	76
Finocchio, G. (DT-07)	83
Finocchio, G. (ED-03)	91
Finocchio, G. (ER-03)	102
Finocchio, G. (ES-02)	104
Finocchio, G. (FC-09)	118
Finocchio, G. (FC-10)	119
Fiorillo, F. (DB-05)	66
Fiorillo, F. (VP18-01)	176
Fischer, J. (CG-01)	55
Fischer, P. (AF-03)	11
Fischer, P. (DD-10)	70
Fischer, P. (GB-01)	127
Fischer, P. (GD-01)	130
Flajsman, L. (CD-02)	47
Flajsman, L. (CD-12)	49
Flajsman, L. (CD-13)	49
Flament, C. (EF-01)	95
Flatau, A. (VP13-06)	170
Flauger, P. (FR-01)	111
Florica, C. (FP-03)	109
Florio, P. (CD-10)	49
Flucksman, A. (FE-01)	121
Foerster, M. (AF-04)	11
Foerster, M. (BE-02)	28
Foerster, M. (GB-02)	128
Fokkens, N. (BC-02)	25
Fokkens, N. (EE-15)	95
Fong, P. (HA-01)	145
Fonseca, J.M. (ED-07)	92
Fontchastagner, J. (BB-02)	24
Forró, L. (AE-06)	8
Fournier, P. (DF-05)	73
Fraile Rodríguez, A. (AF-04)	11
Frame, M. (AF-15)	12
Franco Peñaloza, R. (BU-07)	41
Franco, V. (DF-01)	73
Franco, V. (DF-08)	74
Frank, C.E. (EF-02)	95
Frank, M. (HC-07)	148
Franklin, J.D. (FU-01)	114
Franklin, R. (FU-03)	114
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Franson, A. (HE-06)	151
Franz, Z. (EQ-04)	101
Fratesi, G. (DG-09)	76
Freitas, D.C. (BG-12)	34
Freitas, P. (VP16-01)	173
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Friedman, J.S. (CT-03)	62
Friedman, J.S. (EE-01)	93
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Frripp, K. (FS-02)	112	Garcia de Herreros, A. (FU-05)	115
Frripp, K. (GC-07)	129	García Sánchez, F. (CT-03)	62
Fröhlich, S.M. (ED-05)	92	García Sánchez, F. (EE-01)	93
Fruchart, O. (DD-04)	69	García Sánchez, F. (HC-07)	148
Fruhling, K. (DC-01)	66	Garcia, D.M. (VP15-07)	172
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Fu, H. (DS-02)	81	Garcia-Adeva, A. (DF-03)	73
Fu, S. (CC-04)	46	Garcia-Adeva, A. (GG-02)	136
Fu, S. (DG-11)	77	Garcia-Barriocanal, J. (AC-08)	4
Fu, Y. (AV-04)	22	Garcia-Barriocanal, J. (GG-01)	135
Fu, Y. (VP20-03)	178	García-Martín, J. (EF-13)	97
Fu, Y. (VP20-05)	178	Gardner, G. (HG-07)	153
Fu, Y. (VP21-07)	180	Garello, K. (DE-07)	71
Fuchs, G. (CB-03)	44	Garesci, F. (CE-02)	50
Fuhrmann, F. (AE-10)	9	Garg, S. (EC-05)	89
Fujimoto, S. (EC-14)	91	Garijo, C. (CF-12)	54
Fukami, S. (AC-02)	3	Garland, J. (CC-03)	45
Fukami, S. (BE-08)	30	Garrido-Segovia, M. (EF-13)	97
Fukami, S. (BG-07)	33	Garshev, A. (DF-03)	73
Fukami, S. (BP-02)	35	Gartside, J. (BD-08)	27
Fukami, S. (FC-01)	117	Garzón, E. (FC-10)	119
Fukami, S. (GC-02)	128	Gas, K. (AE-12)	10
Fukami, S. (GS-03)	141	Gas, K. (BG-07)	33
Fukui, T. (CE-13)	52	Gas, K. (CG-11)	56
Fukunaga, H. (VP9-05)	164	Gas, K. (DP-06)	78
Fukunaga, H. (VP9-07)	164	Gattaceca, J. (FP-05)	109
Fukunaga, H. (VP19-09)	178	Gaudin, G. (AE-07)	9
Fukushima, D. (VP9-07)	164	Gaudin, G. (CG-01)	55
Fullerton, E. (DE-03)	71	Gaudin, G. (DE-07)	71
Fullerton, E. (DT-02)	82	Gautam, R. (DB-04)	66
Fullerton, E. (ED-10)	92	Gautam, R. (FF-01)	123
Fullerton, E. (HD-01)	149	Gautam, S. (EC-05)	89
Fullerton, J. (AF-01)	10	Gautam, S. (HB-09)	147
Fullerton, J. (CC-03)	45	Gayles, J.D. (AE-11)	10
Fuochi, N. (EF-10)	97	Gayles, J.D. (BS-01)	38
Furdyna, J. (DP-06)	78	Gayles, J.D. (CC-04)	46
Furdyna, J. (EG-13)	99	Gayles, J.D. (DR-02)	80
Furuya, Y. (VP1-07)	154	Gayles, J.D. (EG-15)	100
Furuya, Y. (VP1-08)	154	Ge, J. (VP18-02)	176
Fushimi, M. (EQ-08)	102	Ge, J. (VP18-04)	176
Futagawa, N. (VP15-01)	171	Ge, J. (VP19-04)	177
Fuzer, J. (CP-05)	57	Gebreyesus, G. (BS-07)	39
Fuzer, J. (EG-04)	98	Geerts, W. (DF-11)	74

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G. Suresh, K. (BG-08)	33	Geng, W. (AV-04)	22
G. Suresh, K. (BG-11)	34	George, J. (BC-07)	25
Gabay, A. (BF-02)	31	George, J. (FG-04)	125
Gabbani, A. (DF-12)	75	Geppi, M. (DF-12)	75
Gabbani, A. (FE-03)	121	Gerada, C. (GE-04)	133
Gagnon, N. (EQ-04)	101	Gerada, D. (GE-04)	133
Gahl, C. (HF-07)	152	Gerhards, P. (GC-09)	129
Galceran, R. (CC-01)	45	Getman, R. (AF-11)	12
Galindez Ruales, E. (AE-10)	9	Geuchies, J. (CC-04)	46
Galindez Ruales, E. (AP-03)	15	Ghaheiri, A. (VP5-10)	159
Galindez Ruales, E. (BC-10)	26	Ghandour, M. (HG-04)	153
Galindez Ruales, E. (GQ-03)	139	Ghazikhanian, N. (GU-06)	144
Gallais, C. (FQ-02)	110	Ghiasi, T. (EB-05)	88
Gallardo, R. (HA-03)	145	Ghimire, N.J. (GF-02)	134
Gambardella, P. (AC-04)	3	Ghivelder, L. (BG-12)	34
Gam-Derouich, S. (CF-09)	53	Ghosal, A. (ES-08)	104
Gandia, D. (GA-03)	127	Ghosh, M. (GA-04)	127
Gandini, G. (CG-10)	56	Ghosh, R.K. (VP14-01)	170
Gandini, G. (DE-02)	71	Ghosh, S. (DG-04)	76
Gannon, W. (ET-02)	105	Gibbons, J. (DE-10)	72
Ganss, F. (EC-11)	90	Gilbert, D.A. (ED-06)	92
Gao, H. (EC-06)	89	Gilbert, D.A. (ED-10)	92
Gao, J. (VP3-04)	156	Giordano, A. (DE-11)	72
Gao, J. (VP3-08)	157	Giordano, A. (ES-02)	104
Gao, J. (VP7-05)	162	Giraldo, O.H. (DU-08)	84
Gao, J. (VP21-05)	180	Girardi, D. (CD-10)	49
Gao, S. (VP2-10)	156	Giri, B. (FD-03)	119
Gao, Y. (AQ-04)	16	Girt, E. (CS-01)	60
Gao, Y. (VP2-10)	156	Girt, E. (DF-10)	74
Garaio, E. (GA-03)	127	Girt, E. (FR-01)	111
		Girt, E. (FR-02)	111
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Goennenwein, S. (AE-07)	9	Grimaldi, A. (ES-02)	104
Goennenwein, S. (BP-06)	36	Grimaldi, A. (FC-10)	119
Gokce-Polat, E. (EP-07)	101	Grobis, M.K. (DE-10)	72
Golias, E. (AP-03)	15	Grochot, K. (FR-08)	112
Gomes, A. (VP15-07)	172	Grollier, J. (HC-01)	147
Gómez Roca, A. (FE-01)	121	Gross, M.J. (DG-04)	76
Gomez, M.M. (DU-08)	84	Gross, M.J. (FD-08)	120
Gómez-Cordoba, H. (GP-08)	138	Gross, M.J. (GD-10)	131
Gómez-Cruz, L. (CF-12)	54	Grossmark, T.P. (BE-10)	30
Gómez-Cruz, L. (DD-04)	69	Grossmark, T.P. (DG-08)	76
Gomez-Pastora, J. (AD-05)	6	Grosz, A. (BQ-04)	37
Gomez-Pastora, J. (AR-04)	17	Grosz, A. (CE-05)	50
Gomez-Pastora, J. (BR-01)	37	Gruber, R. (ED-09)	92
Gomez-Pastora, J. (BR-03)	37	Gruettner, C. (EU-02)	106
Gomez-Pastora, J. (BR-04)	38	Grutter, A.J. (CF-10)	54
Gomez-Pastora, J. (CR-04)	60	Grutter, A.J. (DC-03)	67
Gomez-Pastora, J. (FE-04)	121	Grutter, A.J. (DG-04)	76
Gomez-Pastora, J. (FU-06)	115	Grutter, A.J. (EQ-02)	101
Gomez-Pastora, J. (GT-02)	142	Gruverman, A. (ES-06)	104
Gomez-Pastora, J. (GU-02)	143	Gryglas-Borysiewicz, M. (AE-12) . . .	10
Gomez-Pastora, J. (GU-03)	143	Grzybowski, M.J. (AE-12)	10
Gomez-Pastora, J. (HB-03)	146	Gu, B. (VP14-04)	170
Gomez-Pastora, J. (HB-05)	146	Gu, Y. (AV-04)	22
Gomez-Polo, C. (GA-03)	127	Guan, W. (VP2-10)	156
Gomonay, O. (AE-03)	8	Guarochico Moreira, V. (FG-06) . . .	125
Gomonay, O. (AE-07)	9	Gubbiotti, G. (HA-02)	145
Gomonay, O. (AP-03)	15	Gueckstock, O. (HF-02)	151
Gomonay, O. (EE-07)	94	Gueckstock, O. (HF-04)	152
Gomonay, O. (HD-03)	149	Gueckstock, O. (HF-07)	152
Gong, E. (BP-05)	35	Gueneau, C. (CG-01)	55
Gong, Y. (AU-06)	21	Guerenneur, A. (CG-05)	55
Gong, Y. (GT-03)	142	Guerrero, J. (CP-01)	57
Gonzalez Ballesteros, C. (CD-07)	48	Guha, S. (EE-04)	93
Gonzalez Villegas, A. (EG-08)	99	Gui, G. (CT-06)	62
Gonzalez, C.R. (VP15-02)	171	Guillet, T. (CC-01)	45
González-Hernández, R. (AE-10)	9	Guillet, T. (DC-11)	68
González-Hernández, R. (AP-03)	15	Gulec, M. (AG-07)	13
Gopman, D.B. (EQ-02)	101	Guo, Q. (VP7-04)	162
Gopman, D.B. (FD-08)	120	Guo, W. (VP17-01)	175
Gorchon, J. (GF-01)	133	Guo, X. (VP18-07)	177
Goto, T. (EF-09)	96	Guo, Y. (DV-01)	84
Gotoh, Y. (AQ-02)	16	Guo, Y. (GT-08)	143
Gotoh, Y. (AQ-04)	16	Guo, Z. (VP16-12)	174
Gottardi, E. (GE-07)	133	Gupta, R. (BC-10)	26
Gottwald, M.G. (FB-01)	117	Gupta, S. (HC-03)	147
Gottwald, M.G. (FB-03)	117	Gupta, V. (BA-03)	23
Gould, C. (CG-11)	56	Gurieva, T. (CG-10)	56
Gowtham, V. (VP13-02)	169	Gusakova, D. (DD-04)	69
Goyal, H. (EF-12)	97	Gushi, T. (DE-13)	72
Goyal, N. (EC-05)	89	Gusliyenkov, K. (DD-05)	69
Grafov, A. (GF-02)	134	Gutfleisch, O. (BF-05)	31
Grafov, A. (GF-07)	134	Guzowska, U. (FR-08)	112
Grainger, B. (GA-04)	127		
Granados Miralles, C. (CF-12)	54		
Grånäs, O. (GF-07)	134		
Granroth, G. (DQ-08)	80		
Granroth, G. (GG-14)	137		
Granville, S. (AC-03)	3		
Granville, S. (BG-13)	34		
Granville, S. (CG-08)	56		
Granville, S. (DG-02)	75		
Grassi, M.P. (BG-03)	33		
Grassi, M.P. (ET-05)	105		
Grasza, K. (AE-12)	10		
Gray, B.A. (AT-06)	20		
Greaves, S. (BD-05)	27		
Greaves, S. (FQ-06)	111		
Greaves, S. (GS-04)	141		
Greening, R.W. (BE-09)	30		
Griffin, S. (DC-04)	67		
Griffin, S. (DD-10)	70		
Griggs, W. (FS-04)	113		
Grigorios, M. (VP1-11)	155		
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Habiboglu, A.T. (BE-06)	29
Hackett, L. (EQ-02)	101
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Hadimani, R.L. (AR-05)	17
Hadimani, R.L. (AR-06)	18
Hadimani, R.L. (AR-07)	18
Hadimani, R.L. (BU-03)	41
Hadimani, R.L. (CR-01)	59
Hadimani, R.L. (CR-06)	60
Hadimani, R.L. (DA-01)	64
Hadimani, R.L. (DS-02)	81
Hadimani, R.L. (FE-11)	123
Hadjipanayis, G. (BF-02)	31
Hadjipanayis, G. (EU-08)	107
Hadjipanayis, G. (XA-01)	85
Haensch, W. (EE-04)	93
Haga, Y. (FE-06)	122
Hai, N. (BP-08)	36
Hai, N. (DT-05)	82

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Hakam, A. (FC-06)	118	Heitz, J. (HF-02)	151
Haldar, A. (CQ-03)	58	Hellman, F. (DD-10)	70
Haldar, A. (FP-02)	109	Hellman, F. (GD-01)	130
Haldar, A. (VP13-01)	169	Hellwig, O. (EC-11)	90
Hamakawa, A. (VP9-07)	164	Hemesath, C. (AS-04)	19
Hamasaki, H. (CP-06)	57	Henderson, M. (ED-01)	91
Hamaya, K. (ER-07)	103	Henry, P. (CF-01)	52
Hamdi, M. (FS-05)	113	Henry, Y. (CD-08)	48
Hamzehbahmani, H. (VP2-10)	156	Heremans, J.J. (BE-03)	29
Han, C. (BF-02)	31	Heremans, J.P. (CA-04)	44
Han, C. (XA-01)	85	Herling, F. (CC-01)	45
Han, G. (VP17-04)	175	Hernandez, J.E. (EF-11)	97
Han, H. (EV-04)	108	Hernandez, J.E. (FR-06)	112
Han, H. (GS-05)	141	Hernandez, J.E. (FR-07)	112
Han, H. (HD-05)	150	Hernandez, L. (BE-09)	30
Han, J. (AC-02)	3	Hernandez, L.A. (DC-09)	68
Han, J. (BE-08)	30	Herper, H.C. (GA-05)	127
Han, K. (AC-13)	5	Herrera Diez, L. (EA-01)	86
Han, X. (GD-11)	131	Herrero, A. (DF-03)	73
Hanawa, H. (BQ-02)	36	Herrero, A. (GG-02)	136
Hanein, T. (DP-02)	78	Herrero-Martín, J. (DG-04)	76
Haney, P. (BC-05)	25	Herrero-Martín, J. (DG-13)	77
Hang, J. (VP5-03)	159	Hertel, J. (CG-10)	56
Hanna, F. (BU-03)	41	Heyroth, F. (CD-11)	49
Hao, R. (BD-09)	28	Hicken, R. (FA-03)	116
Haoze, Y. (VP11-08)	167	Hicken, R. (GD-10)	131
Hara, Y. (BR-05)	38	Hickey, B.J. (CQ-08)	59
Haran, K. (HG-06)	153	Hickey, B.J. (GD-13)	132
Harms, H. (AS-03)	19	Hierro-Rodriguez, A. (DD-06)	69
Harms, H.A. (AS-04)	19	Hierro-Rodriguez, A. (GB-02)	128
Harms, J.S. (EE-03)	93	Hight Walker, A.R. (BP-04)	35
Harpel, A. (EU-01)	106	Higo, T. (GD-05)	130
Harpel, A. (FU-03)	114	Hindenberg, M. (EE-05)	94
Harris, C.M. (AR-06)	18	Hintermayr, J. (DG-05)	76
Harris, C.M. (AR-07)	18	Hirai, T. (EC-12)	90
Harris, C.M. (FE-11)	123	Hiramoto, S. (DB-04)	66
Hart, J.L. (DC-03)	67	Hiramoto, S. (FF-01)	123
Härtl, P. (GD-03)	130	Hirano, M. (VP1-03)	154
Hasan, M. (CP-07)	58	Hirano, T. (BQ-02)	36
Hasan, M. (EE-06)	94	Hirata, Y. (VP1-03)	154
Hase, K. (VP1-08)	154	Hirayama, Y. (BF-07)	31
Hashemi, P. (DE-08)	72	Hirayama, Y. (BF-09)	31
Hashemi, P. (FB-01)	117	Hirayama, Y. (BF-10)	32
Hashemi, P. (FB-03)	117	Hirayama, Y. (EE-14)	95
Hashimoto, C. (DT-06)	82	Hirayama, Y. (TU-02)	1
Hashimoto, S. (CT-02)	61	Hirohata, A. (BG-02)	32
Hassan, N. (CT-03)	62	Hirschmann, E. (BG-10)	34
Hassan, N. (EE-01)	93	Hisatomi, R. (AE-08)	9
Hastings, T. (ET-02)	105	Hisatomi, R. (BE-04)	29
Hata, S. (EU-03)	106	Hlova, I.Z. (BF-11)	32
Hauet, T. (GF-01)	133	Hlova, I.Z. (CF-08)	53
Haugstad, G. (AC-08)	4	Hlova, I.Z. (XA-04)	86
Hauser, A. (AT-04)	20	Ho, H. (EE-14)	95
Hayashi, K. (AF-07)	11	Ho, K. (AD-13)	7
Hayashi, K. (FD-08)	120	Hoang, D. (DV-05)	85
He, C. (AE-04)	8	Hoang, D. (VP3-10)	157
He, C. (EC-02)	89	Hoefer, M.A. (AD-04)	6
He, C. (FQ-07)	111	Hoffmann, A. (AT-01)	19
He, K. (FG-02)	125	Hoffmann, A. (BC-11)	26
He, R. (BR-03)	37	Hoffmann, A. (BP-05)	35
He, R. (CQ-06)	58	Hoffmann, A. (CD-05)	48
He, R. (CR-04)	60	Hoffmann, A. (CS-06)	61
He, R. (DC-08)	67	Hoffmann, A. (DD-02)	68
He, R. (FU-06)	115	Hoffmann, A. (EC-07)	90
He, R. (GT-02)	142	Hohlfeld, J. (GF-01)	133
He, R. (GU-03)	143	Hojo, T. (CP-06)	57
He, R. (HB-05)	146	Holder, H. (BD-08)	27
He, Z. (CB-05)	45	Hollingworth, E. (DD-10)	70
He, Z. (VP6-09)	161	Hollingworth, E. (GD-01)	130
He, Z. (VP7-09)	162	Holt, S.J. (AD-03)	5
Hedlund, D. (BV-08)	42	Holt, S.J. (AD-07)	6
Hedlund, D. (EQ-04)	101	Holt, S.J. (DQ-02)	79
Hehn, M. (GF-01)	133	Holt, S.J. (GT-07)	142
Hehn, M. (GF-10)	135	Holt, S.J. (HD-06)	150
Heiman, D. (DC-03)	67	Homrocky, N. (FD-05)	120
Heins, C. (GC-06)	129	Hong, B. (BE-06)	29

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Hong, J. (ES-05)	104	Huang, S. (VP10-03)	165
Hong, J. (HE-05)	151	Huang, S. (VP16-03)	173
Hong, J. (VP16-09)	174	Huang, S. (VP16-07)	173
Hong, J. (VP16-10)	174	Huang, S. (VP22-06)	181
Hong, M. (CV-02)	63	Huang, T. (DP-01)	78
Hong, M. (CV-03)	63	Huang, X. (DG-15)	77
Hong, M. (CV-06)	64	Huang, X. (EE-10)	94
Hong, M. (EV-05)	108	Huang, Y. (AC-08)	4
Hong, R. (HE-05)	151	Huang, Y. (AC-09)	4
Hong, S. (AC-13)	5	Huang, Y. (AT-03)	20
Honjo, H. (DE-09)	72	Huang, Y. (DE-04)	71
Honkura, S. (BQ-01)	36	Huang, Y. (VP16-08)	174
Honkura, Y. (BQ-01)	36	Hübner, R. (DF-10)	74
Hono, K. (BF-01)	30	Hübner, R. (EC-11)	90
Hono, K. (BF-03)	31	Hug, H.J. (DG-06)	76
Hoppe, W. (HF-04)	152	Hug, H.J. (ED-02)	91
Horie, A. (AS-02)	18	Humphrey, L. (CT-03)	62
Horikawa, T. (BF-04)	31	Hunt, C. (BR-02)	37
Horio, Y. (GC-02)	128	Hunt, R.G. (BG-03)	33
Horizumi, K. (EE-09)	94	Hunter, A. (DA-04)	65
Horn, C. (BE-03)	29	Husain, S. (ES-08)	104
Hosokawa, A. (BF-09)	31	Hussain, B. (DQ-01)	79
Hosokawa, A. (BF-10)	32	Hussain, B. (FD-02)	119
Hosono, Y. (AQ-02)	16	Hussein, H. (CU-01)	62
Hosono, Y. (AQ-04)	16	Hussein, H. (CU-02)	62
Hossain, I. (VP16-06)	173	Hutin, L. (EE-12)	95
Hotta, Y. (VP15-08)	172	Hutin, L. (FC-06)	118
Hou, J. (CB-05)	45	Huxtable, A. (CQ-08)	59
Hou, J. (VP11-13)	167	Huxtable, A. (GD-13)	132
Hou, T. (ER-04)	103	Huynh, A.T. (AV-07)	22
Hou, Y. (FC-11)	119	Huynh, A.T. (GE-04)	133
House, S. (FF-09)	124	Huynh, R. (AF-08)	11
Howe, B.M. (AT-06)	20	Hwang, C. (DG-15)	77
Hsieh, H. (VP1-10)	155	Hwang, J. (BV-01)	42
Hsieh, M. (AV-07)	22	Hwang, K. (AQ-07)	16
Hsieh, M. (AV-08)	22	Hwang, S. (EV-08)	108
Hsin, C. (ER-04)	103	Hwang, S. (FV-02)	115
Hsin, Y. (EE-10)	94	Hwang, S. (VP11-06)	167
Hsu, C. (ER-04)	103	Hwang, S. (VP16-02)	173
Hsu, J. (AC-09)	4	Hwang, S. (VP16-04)	173
		Hyeokjin, K. (EC-01)	88
Hsu, Y. (CC-07)	46	Hyun, J. (CD-13)	49
Hu, C. (HA-01)	145		
Hu, F. (DF-08)	74		
Hu, F. (GA-02)	127		
Hu, G. (DE-08)	72		
Hu, G. (FB-01)	117		
Hu, G. (FB-03)	117		
Hu, M. (AD-04)	6		
Hu, M. (VP3-07)	157		
Hu, X. (HC-07)	148		
Hu, Y. (VP21-02)	179		
Hu, Y. (VP21-06)	180		
Hu, Z. (CB-05)	45		
Hu, Z. (VP17-06)	175		
Hua, Z. (EC-06)	89		
Huai, C. (FG-02)	125		
Huang, B. (BA-03)	23		
Huang, H. (CE-11)	51		
Huang, H. (GE-04)	133		
Huang, K. (BB-01)	24		
Huang, L. (CG-09)	56		
Huang, L. (DP-02)	78		
Huang, L. (EC-13)	90		
Huang, L. (VP11-04)	166		
Huang, P. (CP-04)	57		
Huang, P. (GV-07)	144		
Huang, Q. (DQ-08)	80		
Huang, Q. (GG-14)	137		
Huang, R. (GE-02)	132		
Huang, S. (AE-09)	9		
Huang, S. (EE-06)	94		
Huang, S. (VP3-08)	157		
Huang, S. (VP6-07)	161		
Huang, S. (VP6-08)	161		
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Iacocca, E. (AD-04)	6
Iacocca, E. (FD-07)	120
Iacocca, E. (HD-01)	149
Ibarra Gomez, M. (EE-12)	95
Ibrahim, F. (CG-01)	55
Ibrahim, M. (AG-04)	13
Ibrahim, M. (VP5-10)	159
Ibudo, M. (VP13-08)	170
Ibudo, M. (VP16-11)	174
Ichianagi, Y. (AR-02)	17
Ichianagi, Y. (EG-13)	99
Ieda, J. (AC-02)	3
Ieda, J. (BE-08)	30
Ieda, J. (BP-02)	35
Ievlev, A. (AE-06)	8
Igboanugo, A. (GU-04)	143
Iglesias, F. (GD-06)	131
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Ignatova, K. (DG-10)	76
Iguchi, R. (AA-02)	1
Iida, Y. (BF-09)	31
Iihama, S. (GF-10)	135
Iihama, S. (HF-03)	152
Iihama, S. (HF-06)	152
Ikedo, S. (DE-09)	72
Ikusada, H. (AQ-04)	16
Im, M. (HD-05)	150
Im, S. (GS-07)	141
Imamura, K. (EG-02)	98
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Joshi, P. (FF-07)	124
Joshi, P. (FP-06)	110
Joshi, P. (VP17-08)	176
Joshy, E. (AC-03)	3
Joumard, I. (CG-01)	55
Joy, A. (ER-05)	103
Joy, A. (FS-08)	113
Jun, G. (VP11-08)	167
Jung, D. (EV-05)	108
Jung, W. (AV-06)	22
Jung, W. (BV-06)	42
Jung, W. (VP5-11)	159
Jung, W. (BV-03)	162
Jung, W. (CU-05)	166
Jung, Y. (EV-08)	108
Jung, Y. (FV-02)	115
Jungfleisch, B. (CD-06)	48
Jungfleisch, B. (CD-08)	48
Jungfleisch, B. (ET-02)	105
Jungwirth, T. (AE-05)	8
Jungwirth, T. (AE-07)	9
Jurj, M. (FE-05)	122

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Kaczmarek, A. (BE-10)*	30
Kaczmarek, A. (DG-04)	76
Kaczmarek, A.C. (DG-08)	76
Kado, M. (CT-02)	61
Kaffash, M.T. (CD-08)	48
Kafle, T. (GF-02)	134
Kagami, T. (CR-03)	59
Kaiju, H. (DT-06)	82
Kaiju, H. (ER-01)	102
Kailas, L. (EC-13)	90
Kainuma, R. (BF-04)	31
Kaiser, B. (DE-05)	71
Kákay, A. (GC-06)	129
Kákay, A. (HA-03)	145
Kakinuma, B. (FU-04)	115
Kalappattil, V. (DC-02)	66
Kallaste, A. (DB-01)	65
Kalyuzhnaya, D. (VP1-09)	154
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Kanai, S. (AC-02)	3
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Kanai, S. (GC-02)	128
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Kandazoglou, A. (DE-07)	71
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Karki, A. (AT-04)	20
Karki, T. (CF-04)	52
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Karki, T. (FF-07)	124
Karki, T. (FP-06)	110
Karki, U. (AT-04)	20
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Kataoka, N. (AR-02)	17
Katine, J. (FC-10)	119
Kato, A. (CF-11)	54
Kato, D. (VP23-06)	182
Kato, T. (AQ-06)	16
Kato, T. (CE-12)	51
Kato, T. (ER-02)	102
Kato, Y. (EE-14)	95
Katoch, J. (FG-07)	125
Kaur, G. (FD-04)	120
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Kennedy, S. (GE-05)	133
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Kent, A.D. (FC-07)	118
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Kharel, P. (DS-05)	81	Kim, T. (VP6-10)	161
Kharel, P. (EG-14)	100	Kim, T. (BV-02)	161
Kharel, P. (GR-02)	140	Kim, W. (CV-01)	63
Kharel, P. (VP13-03)	169	Kim, W. (CV-02)	63
Kharel, P. (VP14-03)	170	Kim, W. (CV-03)	63
Khatiwada, R. (BE-03)	29	Kim, W. (CV-06)	64
Khattri, Y. (VP23-08)	182	Kim, W. (CV-07)	64
Khizroev, S. (DA-02)	64	Kim, W. (EV-04)	108
Khizroev, S. (ES-03)	104	Kim, W. (EV-05)	108
Khizroev, S. (HB-04)	146	Kim, W. (GS-05)	141
Khodagulyan, A. (GD-06)	131	Kim, W. (GS-06)	141
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Khomenkova, L. (EG-13)	99	Kim, Y. (DV-05)	85
Khorgolkhuu, O. (CF-14)	54	Kim, Y. (DV-06)	85
Khorgolkhuu, O. (EP-08)	101	Kim, Y. (EC-05)	89
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Kiechle, M. (EE-03)	93	Kirilyuk, A. (AB-01)	2
Kiefe, R. (CS-07)	61	Kirilyuk, A. (GF-11)	135
Kiefe, R. (DF-04)	73	Kirkland, O. (EE-13)	95
Kijima-Aoki, H. (BU-06)	41	Kirstein, E. (FG-02)	125
Kikkawa, T. (GQ-03)	139	Kiselev, N. (GB-05)	128
Kikuchi, H. (EQ-06)	102	Kitagawa, R. (AA-03)	2
Kikuchi, J. (AS-02)	18	Kitcher, M.D. (CT-03)	62
Kikuta, H. (VP1-03)	154	Kitcher, M.D. (DR-04)	80
Kikuta, T. (ES-07)	104	Kläui, M. (AE-05)	8
Kim, C. (BD-10)	28	Kläui, M. (AE-10)	9
Kim, C. (FE-09)	122	Kläui, M. (AP-03)	15
Kim, C. (FE-10)	122	Kläui, M. (BC-10)	26
Kim, D. (AC-10)	4	Kläui, M. (BE-02)	28
Kim, D. (CU-08)	63	Kläui, M. (CC-04)	46
Kim, D. (GQ-06)	139	Kläui, M. (DG-11)	77
Kim, D. (VP3-09)	157	Kläui, M. (ED-05)	92
Kim, G. (FB-03)	117	Kläui, M. (ED-09)	92
Kim, H. (BE-07)	29	Kläui, M. (GC-09)	129
Kim, H. (CV-03)	63	Kläui, M. (GQ-03)	139
Kim, H. (EP-07)	101	Kläui, M. (HF-02)	151
Kim, H. (EV-04)	108	Klause, R. (BC-11)	26
Kim, H. (EV-05)	108	Klause, R. (CD-05)	48
Kim, H. (FE-10)	122	Klein, C. (CT-06)	62
Kim, J. (AU-08)	21	Klein, D. (AA-03)	2
Kim, J. (BD-10)	28	Klein, L. (BQ-04)	37
Kim, J. (BV-05)	42	Klein, L. (CE-05)	50
Kim, J. (CD-09)	49	Kleinlein, J. (CG-11)	56
Kim, J. (CU-08)	63	Klewe, C. (AC-11)	4
Kim, J. (CV-02)	63	Klewe, C. (AT-06)	20
Kim, J. (CV-03)	63	Klewe, C. (BE-03)	29
Kim, J. (CV-07)	64	Klewe, C. (ES-08)	104
Kim, J. (GC-06)	129	Kluczyk, K. (AE-12)	10
Kim, K. (AC-10)	4	Knauer, S. (CD-07)	48
Kim, K. (BE-07)	29	Knight, A. (BB-04)	24
Kim, K. (BV-05)	42	Knobloch, K. (GC-09)	129
Kim, K. (BV-06)	42	Knotko, A.V. (VP15-05)	172
Kim, K. (EC-02)	89	Knut, R. (AT-06)	20
Kim, K. (HD-04)	150	Knut, R. (GF-05)	134
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Kim, K.W. (CG-07)	56	Ko, S. (CV-02)	63
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Kim, M. (GQ-06)	139	Ko, S. (HD-04)	150
Kim, N. (AF-10)	12	Kobayashi, A. (GD-05)	130
Kim, S. (AG-09)	14	Kobayashi, K. (FU-04)	115
Kim, S. (AU-02)	21	Kobayashi, S. (VP15-08)	172
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Kodama, Y. (FV-03)	115	Kret, S. (CG-11)	56
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Koguchi, T. (EF-09)	96	Kriegner, D. (BP-06)	36
Koh, G. (FB-02)	117	Krishnia, S. (BC-07)	25
Kohl, F. (CD-04)	47	Krishnia, S. (BC-10)	26
Köhne, M. (GE-03)	132	Krishnia, S. (GC-09)	129
Koike, M. (FR-05)	112	Krohling, A.C. (FT-05)	114
Koizumi, H. (BG-02)	32	Krop, D. (AG-05)	13
Koizumi, H. (FQ-07)	111	Krop, D. (GE-07)	133
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Kollár, P. (EG-04)	98	Kruglyak, V. (GC-07)	129
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Komineas, S. (ED-11)	93	Kuanr, B.K. (GG-13)	137
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Komori, S. (FT-07)	114	Kuanr, B.K. (VP14-07)	171
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Koo, M. (GV-03)	144	Kukreja, R. (HD-01)	149
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Koraltan, S. (FR-02)	111	Kumar, A. (FT-02)	113
Koraltan, S. (GB-02)	128	Kumar, D. (EC-01)	88
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Kosaka, D. (BQ-02)	36	Kumar, P. (GQ-01)	139
Kosaka, D. (BQ-06)	37	Kumar, P. (VP14-07)	171
Kossak, A. (DG-04)	76	Kumar, R. (CG-01)	55
Kounta, I. (AE-07)	9	Kumar, R. (DR-07)	81
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Liu, W. (VP20-05)	178	Lu, S. (EE-11)	94
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Meng, P. (VP4-04)	158	Mohapatra, J. (FF-07)	124
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Meng, Y. (VP20-02)	178	Mohapatra, J. (VP17-08)	176
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Meng, Y. (VP21-01)	179	Mokrousov, Y. (BC-10)	26
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Molteni, E. (DG-09)	76
Monalisha, P. (BG-01)	32
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Mondal, R. (GF-13)	135
Monson, T.C. (DC-03)	67
Montebianco, E. (BG-10)	34
Montero, C.M. (EF-02)	95
Montero, R. (GF-08)	134
Montoncello, F. (FD-07)	120
Montoya, E. (BC-13)	26
Montoya, S. (ED-10)	92
Moon, J. (BV-01)	42
Moon, J. (HG-03)	153
Moon, K. (HD-04)	150
Moore, J. (DP-08)	79
Moore, J. (DU-03)	83
Moore, J. (EF-05)	96
Moradi, F. (GT-01)	142
Moradi, F. (HC-02)	147
Morales Fernandez, P. (DD-06)	69
Morales Fernandez, P. (GB-02)	128
Morales, R. (GF-08)	134
Morata, A. (BG-04)	33
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Morley, S.A. (DD-10)	70
Morley, S.A. (ED-02)	91
Morley, S.A. (GD-01)	130
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Mostufa, S. (CR-04)	60
Mostufa, S. (FE-04)	121
Mostufa, S. (FU-06)	115
Mostufa, S. (GT-02)	142
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Muñoz Rodriguez, C. (XA-05)	86
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Nahar, R. (AT-04)	20
Nair, S. (BC-04)	25
Nakagawa, Y. (BD-01)	26
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Nakamura, K. (VP20-10)	179
Nakamura, Y. (AG-03)	13
Nakamura, Y. (BU-01)	41
Nakamura, Y. (VP8-05)	163
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Nara, T. (BQ-05)	37
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Narantogtokh, O. (CF-14)	54
Narantogtokh, O. (EP-08)	101
Narita, H. (AE-08)	9
Narita, H. (BE-04)	29
Narmandakh, J. (CF-14)	54
Narmandakh, J. (EP-08)	101
Narmandakh, J. (GP-03)	138
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Okamoto, H. (CR-07)	60
Okamoto, S. (DB-04)	66
Okamoto, S. (FF-01)	123
Okamoto, Y. (VP8-05)	163
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Ono, T. (AE-08)	9
Ono, T. (BE-04)	29
Onoda, H. (CG-02)	55
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Osellame, R. (CD-10)	49
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Palma, J.L. (AF-06)	11
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Park, B. (BE-07)	29
Park, C. (AG-09)	14
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Park, J. (VP5-11)	159
Park, J. (VP10-08)	165
Park, J. (VP11-12)	167
Park, J. (VP13-06)	170
Park, K. (EV-08)	108
Park, K. (FV-02)	115
Park, S. (AC-10)	4
Park, S. (AU-08)	21
Park, S.J. (EC-12)	90
Parkin, S. (BA-02)	23
Parmeggiani, C. (EF-10)	97
Parspour, N. (AU-06)	21
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Pathak, A. (FP-03)	109
Pathak, A.K. (BU-04)	41
Pathak, A.K. (CS-08)	61
Pathak, A.K. (DR-08)	81
Pathak, R. (CT-08)	62
Pathak, S. (FF-04)	123
Pathak, S.A. (AD-03)	5
Pathak, S.A. (AD-07)	6
Pathak, S.A. (DQ-02)	79
Pathak, S.A. (GT-07)	142
Pathak, S.A. (HD-06)	150
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Paul, S. (GR-03)	140
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Pei, R. (VP10-05)	165	Pirro, P. (CD-04)	47
Pei, R. (VP10-07)	165	Pirro, P. (CD-10)	49
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Pei, R. (VP18-04)	176	Piza, P. (CP-01)	57
Pei, R. (VP19-04)	177	Pizzini, S. (CG-01)	55
Pei, R. (VP19-05)	177	Pizzini, S. (GD-13)	132
Peigney, E. (AP-07)	15	Plouff, D.T. (BP-04)	35
Peigney, E. (GR-08)	141	Plouff, D.T. (FQ-01)	110
Peirsol, A. (BF-11)	32	Plumley, R. (GD-12)	132
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Pellet-Mary, C. (CC-04)	46	Pokhrel, K. (BT-01)	39
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Pellizzi, N. (CD-10)	49	Ponce, R. (CP-01)	57
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Peña, F. (FG-09)	126	Popy, R.B. (FS-05)	113
Peng, B. (AG-11)	14	Porro, J. (GF-08)	134
Peng, B. (VP2-01)	155	Poulo, A.S. (DU-03)	83
Peng, C. (GD-12)	132	Poulo, A.S. (EF-05)	96
Peng, K. (GE-09)	133	Pourovskii, L. (EF-03)	96
Peng, S. (EE-11)	94	Powalla, L. (GE-03)	132
Peng, S. (ES-01)	103	Pradhan, G. (BG-09)	34
Peng, S. (VP8-03)	163	Primetzhofer, D. (AF-09)	12
Peng, S. (VP12-05)	168	Primetzhofer, D. (BG-03)	33
Peng, S. (VP15-10)	172	Primetzhofer, D. (GG-08)	136
Pereira, A. (AF-06)	11	Privizzini, F. (CG-05)	55
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Petryshynets, I. (EG-04)	98		
Petti, D. (CD-10)	49		
Peytchev, V.S. (FQ-03)	110		
Pezo, A. (FG-04)	125		
Pfund, J. (GD-04)	130		
Pham, H.N. (EE-14)	95		
Pham, M. (EU-07)	107		
Phan, M. (AQ-07)	16		
Phan, M. (BG-08)	33		
Phan, M. (BS-01)	38		
Phan, M. (BT-04)	40		
Phan, M. (CR-05)	60		
Phan, M. (DC-06)	67		
Phan, M. (DS-03)	81		
Phan, M. (EG-15)	100		
Phan, M. (EU-05)	107		
Phan, M. (EU-07)	107		
Phan, M. (GR-04)	140		
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Phatak, C. (CC-03)	45		

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Qi, J. (BC-04)	25
Qi, J. (EE-08)	94
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Rajeevan, N. (VP13-02).	169
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Ramdas, A. (BS-03)	39
Ramesh, M. (ES-08)	104
Ramesh, R. (DG-15)	77
Ramesh, R. (ES-08)	104
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Roy Chowdhury, R. (BS-01)	38
Roy Chowdhury, R. (BT-04)	40
Roy Chowdhury, R. (DC-06)	67
Roy Chowdhury, R. (GR-04)	140
Roy, K. (BU-05)	153
Roy, S. (DD-10)	70
Roy, S. (GD-01)	130
Roy, S. (GD-12)	132
Roy, S. (BU-05)	153
Roy, T. (DE-09)	72
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Rubano, A. (DE-02)	71
Rueangnetr, N. (FQ-06)	111
Ruge, A. (HF-02)	151
Ruiz Gómez, S. (DD-04)	69
Ruiz Gómez, S. (FU-05)	115
Ruiz Gómez, S. (GB-02)	128
Ruiz-Gomez, S. (DD-06)	69
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Sahoo, B. (DE-08)	72
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Saito, Y. (DE-09)	72
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Santos, S.G. (DC-09)	68
Santos, T. (DE-10)	72
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Sapienza, R. (BD-08)	27
Sapkota, R. (GF-02)	134
Sara, S. (VP13-01)	169
Sardar, S. (DT-04)	82
Sarin, S. (FD-03)	119
Sarkar, S. (CT-08)	62
Sarkar, T. (BT-04)	40
Sarkar, T. (GG-10)	137
Sarker, S. (CF-06)	53
Sarker, S. (HC-04)	148
Sasaki, D. (AF-15)	12
Sasaki, D. (EF-12)	97
Sasaki, D. (GU-06)	144
Sasaki, S. (BR-05)	38
Sasaki, S. (FV-08)	116
Sasaki, S. (VP1-07)	154
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Sasayama, T. (VP15-01)	171
Sasayama, T. (VP15-03)	171
Sasayama, T. (VP16-12)	174
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Sato, F. (BR-05)	38
Sato, F. (FV-08)	116
Sato, F. (GV-08)	144
Sato, F. (VP1-07)	154
Sato, F. (VP1-08)	154
Sato, S. (GC-02)	128
Sato, T. (AG-01)	13
Sato, T. (AU-05)	21
Sato, T. (EG-02)	98
Sato, Y. (BG-07)	33
Sato, Y. (BP-02)	35
Satone, R. (CT-01)	61
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Scheid, A. (DG-01)	75	Serpico, C. (AD-12)	7
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Schlegel, J. (FD-01)	119	Shah, S. (ES-06)	104
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Schmidt, B. (GR-02)	140	Shand, P. (DS-05)	81
Schmidt, G. (CD-11)	49	Shand, P. (EG-14)	100
Schmidt, H. (EQ-05)	102	Shand, P. (GR-02)	140
Schmidt, P.E. (CD-07)	48	Shao, Q. (FC-11)	119
Schmidtpeter, J. (CE-04)	50	Shao, Y. (FC-03)	118
Schmitt, C. (AE-10)	9	Shao, Y. (FC-10)	119
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Schmitt, C. (GQ-03)	139	Sharma, A. (FS-07)	113
Schmoll, D. (CD-07)	48	Sharma, A. (HC-03)	147
Schmoranzarová, E. (AE-07)	9	Sharma, D. (EP-01)	100
Schmoranzarová, E. (BP-06)	36	Sharma, M. (AP-05)	15
Scholl, A. (AF-15)	12	Sharma, M. (GG-13)	137
Scholl, A. (DG-15)	77	Sharma, M. (VP9-06)	164
Scholl, A. (GU-06)	144	Sharma, M. (VP19-06)	177
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Scholz, T. (DG-11)	77	Sharma, P. (FP-01)	109
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Schrefl, T. (CF-11)	54	Sharma, R. (GA-01)	126
Schubert, C. (CE-04)	50	Sharma, S. (CP-01)	57
Schuller, I.K. (GU-06)	144	Sharma, V. (BP-04)	35
Schultheiss, H. (GC-06)	129	Sharma, V. (DF-07)	74
Schultheiss, K. (GC-06)	129	Sharma, V. (DR-07)	81
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Schultz, M. (CE-05)	50	Shaw, J.M. (CQ-07)	59
Schulz, N. (BG-08)	33	Shaw, J.M. (EE-03)	93
Schulz, N. (BT-04)	40	Shaw, J.M. (GF-02)	134
Schulz, N. (EU-05)	107	Shaw, J.M. (HD-01)	149
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Schwartz, E. (GD-02)	130	Shen, B. (DF-08)	74
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Scott-Vandusen, A. (DA-02)	64	Shen, L. (GD-12)	132
Sebal, G. (GE-06)	133	Shen, X. (EC-09)	90
Sebe, N. (BC-07)	25	Sheu, S. (EE-10)	94
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Shi, Z. (AD-05)	6	Singh, A. (FF-04)	123
Shi, Z. (FE-04)	121	Singh, A. (GD-01)	130
Shibata, T. (DE-13)	72	Singh, H. (DT-03)	82
Shibuya, T. (CE-13)	52	Singh, M. (EP-01)	100
Shieh, J. (ER-04)	103	Singh, P. (AS-05)	19
Shield, J. (FD-03)	119	Singh, R. (DC-06)	67
Shih, C. (EE-10)	94	Singh, R. (DQ-06)	79
Shiku, K. (BQ-05)	37	Singh, R. (DQ-07)	80
Shimakawa, Y. (AE-08)	9	Singh, S. (DT-04)	82
Shimbo, R. (BF-04)	31	Singh, S. (FG-07)	125
Shin, H. (AU-02)	21	Singh, S. (FP-02)	109
Shin, H. (GV-03)	144	Singh, S. (VP18-06)	176
Shin, H. (VP5-12)	160	Singhal, V. (AP-02)	15
Shin, K. (AU-02)	21	Sinha, J. (CT-04)	62
Shin, K. (AV-06)	22	Sinova, J. (AE-01)	7
Shin, K. (BV-06)	42	Sinova, J. (AE-03)	8
Shin, K. (DV-03)	84	Sinova, J. (AE-05)	8
Shin, K. (DV-05)	85	Sinova, J. (AE-07)	9
Shin, K. (DV-06)	85	Sinova, J. (AE-10)	9
Shin, K. (GV-03)	144	Sinova, J. (AE-11)	10
Shin, K. (VP3-10)	157	Sinova, J. (BP-06)	36
Shin, K. (CU-03)	157	Sirimanna, S. (HG-06)	153
Shin, K. (VP5-11)	159	Skinner, B. (CA-04)	44
Shin, K. (VP6-10)	161	Skobjin, G. (AE-07)	9
Shin, K. (BV-02)	161	Skokov, K. (BF-05)	31
Shin, K. (BV-03)	162	Skowronski, W. (BC-08)	26
Shin, K. (BV-04)	162	Skowronski, W. (FR-08)	112
Shin, K. (VP10-08)	165	Skupinski, P. (AE-12)	10
Shin, K. (CU-05)	166	Slavin, A.N. (EF-08)	96
Shin, K. (CU-04)	166	Slavin, A.N. (FD-05)	120
Shin, M. (HD-04)	150	Slavin, A.N. (FD-09)	120
Shindo, D. (DD-03)	69	Slezak, M. (BP-07)	36
Shinshi, T. (VP9-05)	164	Slezak, M. (HD-03)	149
Shinto, I. (DE-13)	72	Slezak, T. (BP-07)	36
Shiojima, T. (EU-03)	106	Slezak, T. (HD-03)	149
Shiota, Y. (AE-08)	9	Slimani, S. (AF-05)	11
Shiota, Y. (BE-04)	29	Smaha, R.W. (CF-07)	53
Shirai, M. (DE-09)	72	Smaha, R.W. (CF-08)	53
Shiraishi, M. (DC-11)	68	Smaha, R.W. (CF-13)	54
Shiraishi, M. (GG-03)	136	Smaha, R.W. (EP-06)	101
Shiraki, K. (VP19-09)	178	Smaha, R.W. (ET-03)	105
Shiu, H. (CC-07)	46	Smejkal, L. (AE-05)	8
Shkodich, N. (GR-04)	140	Smejkal, L. (AE-07)	9
Shoji, T. (CF-11)	54	Šmejkal, L. (AE-10)	9
Shotbolt, M. (DA-02)		Smejkal, L. (AE-11)	10
64 Shotbolt, M. (ES-03)		Smejkal, L. (BP-06)	36
104 Shoup, J. (AT-06)	20	Smirnov, D. (DC-08)	67
Shoup, J.E. (EQ-02)	101	Smith, B.P. (CE-06)	51
Shoup, J.E. (FD-08)	120	Smith, B.P. (EQ-02)	101
Shoup, J.E. (GF-05)	134	Smith, C.S. (AQ-01)	15
Shrestha, N. (GG-06)	136	Smith, I.M. (CF-06)	53
Shreya, S. (GT-01)	142	Smith, I.M. (DS-06)	82
Shreya, S. (HC-02)		Smith, S. (AR-05)	17
147 Shrivastava, N. (VP20-06)		Smith, S. (CR-06)	60
179 Shu, G. (ED-06)		Smith, S. (DS-05)	81
92 Shu, H. (BG-13)		Smoliarova, T. (BF-05)	31
34 Shukla, A. (GR-06)		Snowden, I. (AF-15)	12
140 Shukla, D.K. (DT-03)	82	Snyder, K. (CF-06)	53
Shuvo, N. (BR-08)	38	Soares, G. (CD-09)	49
Shytov, A. (FS-02)	112	Soban, Z. (BP-06)	36
Shytov, A. (CG-07) (CC-10)	129	Sochnikov, I. (FU-01)	114
Si, A. (FC-02)	117	Sochnikov, I. (GD-04)	130
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