

70th Annual Conference on Magnetism and Magnetic Materials

October 27-31, 2025
www.magnetism.org



MMM2025

Palm Beach, Florida
PALM BEACH CONVENTION CENTER

PROGRAM BOOK

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and the IEEE Magnetics Society*



SCOPE OF THE CONFERENCE



The 70th Annual Conference on Magnetism and Magnetic Materials (MMM 2025) is sponsored jointly by AIP Publishing and the IEEE Magnetics Society. 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: [Palm Beach County Convention Center](#)

HOTELS: [Hilton West Palm Beach](#) and [West Palm Beach Marriott](#)

MOBILE APP:

The **MyItinerary by ScholarOne** mobile app and online desktop planner provide 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:

- [Program Overview](#)
- [Symposia and Invited Speakers](#)
- Program Book: [Desktop Optimized](#) / [Mobile Optimized](#)
- Abstracts Book will be posted once available.
- [Special Events & Sessions](#)



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PROGRAM COMMITTEE

(Name in blue indicates Team Lead)

Category	Name	Institution
I. Fundamental Properties and Cooperative Phenomena	Paulo Eduardo de Faria Junior	University of Central Florida, USA
	Denis Candido	University of Iowa, USA
	Roland Kawakami	Ohio State University, USA
II. Magnetoelectronic Materials and Phenomena	Sajid Husain	University of California, Berkeley, USA
	Amr Abdelsamie	Laboratory Albert Fert, CNRS, France
	Christian Tzschaschel	University of Zurich, Switzerland
III. Spintronics - Fundamentals and Devices	Dario Arena	University of South Florida, USA
	Simranjeet Singh	Carnegie Mellon University, USA
	Javier Villegas	CNRS, France
	Saroj Dash	Chalmers University of Technology, Sweden
	Alex Jenkins	International Iberian Nanotechnology Laboratory, Portugal
	Paul Keatley	University of Exeter, United Kingdom
	Luqiao Liu	Massachusetts Institute of Technology, USA
	Susmita Saha	Ashoka University, India
	Guoqiang Yu	Chinese Academy of Sciences, China
	IV. Magnetization Dynamics and Micromagnetics	Enrique Cobas
Anjan Soumyanarayanan		National University of Singapore, Singapore
Philipp Pirro		RPTU Kaiserslautern-Landau, Germany
Mark Stiles		National Institute of Standards and Technology (NIST), USA
Olaf van 't Erve		US Naval Research Laboratory (NRL), USA
Wei Zhang		UNC Chapel Hill, USA
V. Magnetic Recording, Storage and Computing	Stephanie Hernandez	Seagate, USA
	Byong-Guk Park	KAIST, Korea
	Damien Querlioz	Univ Paris-Saclay, CNRS, France
	Flavio Abreu Araujo	Université Catholique de Louvain, Belgium
	Jayasimha Atulasimha	Virginia Commonwealth University, USA
	Tobias Maletzky	Headway Technologies, USA
	Niranjan Natekar	Western Digital, USA
	Chi-Feng Pai	National Taiwan University, Taiwan
	Chris Safranski	IBM, USA
VI. Soft Magnetic Materials	Piotr Kulik	University of Central Florida, USA
	Chins Chinnasamy	ORNL, USA
	Sara Mills	NRL, USA
VII. Hard Magnetic Materials	Yukiko Takahashi	NIMS, Japan
	Perumal Alagarsamy	Indian Institute of Technology, India
	Pelin Tozman	Technische Universität Darmstadt, Germany

Category	Name	Institution
VIII. Structured Materials	Jamileh Beik Mohammadi	University of Alabama, USA
	Arantxa Fraile Rodriguez	University of Barcelona, Spain
	Anish Rai	Western Digital, USA
IX. Multi-Functional Magnetic Materials and Applications	Ssu-Yen Huang	National Taiwan University, Taiwan
	Xin Fan	University of Denver, USA
	Tino Gottschall	Dresden High Magnetic Field Laboratory, Germany
X. Sensors, High Frequency Devices, and Power Devices	Tianxiang Nan	Tsinghua University, China
	Jianhua Liu	Chinese Academy of Science, China
	Masahiro Yamaguchi	Tohoku University, Japan
XI. Interdisciplinary and Emerging Topics	Ravi Hadimani	Virginia Commonwealth University, USA
	Shawn Pollard	University of Memphis, USA
	John Fullerton	Argonne National Laboratory, USA
	Alejandro Gómez Roca	ICN2, Barcelona, Spain
	Michael Vogel	University of Kiel, Germany
	Kai Wu	Texas Tech University, USA
XII. Magnetic Characterization	Shawn Pollard	University of Memphis, USA
	John Fullerton	Argonne National Laboratory, USA
	Michael Vogel	University of Kiel, Germany

SESSION CHAIRS

Session		First Name	Last Name	Institution
AA	Spin-optoelectronics Towards Real World Applications	Yuan	Lu	Institut Jean Lamour
AB	Quantum Sensing of Novel Magnetism	Gregory D.	Fuchs	Cornell University
AC	Skyrmions and Magnetic Textures Related Phenomena	Chung-Tao	Chou	Massachusetts Institute of Technology
AD	Magnetoelectric and Multiferroics I	Paul	Stevenson	Northeastern University
		Yayoi	Takamura	University of California, Davis
AE	New Applications and Other Emerging Topics I	Shawn	Pollard	The University of Memphis
AF	Spin-orbit Torque and Related Phenomena	Raghvendra	Posti	Carnegie Mellon University
AG	Electronic Structure and Magnetic Excitations	Christianne	Beekman	Florida State University
AP	Biomagnetism and Biomedical Applications I	Javier	Alonso Masa	University of Cantabria
AQ	Instrumentation and Measurement Techniques	Kazi Zahirul	Islam	The University of Memphis
AR	Magnetization Dynamics	Amir	Capua	The Hebrew University of Jerusalem
BA	Recent Advances and Future Challenges with Non-Collinear Antiferromagnets	Satoru	Nakatsuji	University of Tokyo
BB	Biomagnetic Sensors: From Bench to Bedside	Ravi	Hadimani	Virginia Commonwealth University
BC	Thermoelectric, Magnetic, and Superconducting Effects in Hybrid Heterostructures and Spin Textures	Yingying	Wu	University of Florida
BD	Soft Magnetic Materials I	Chins	Chinnasamy	Oak Ridge National Laboratory
		Piotr	Kulik	University of Central Florida
BE	Magneto-Optic and Magneto-Caloric Materials and Devices	Anis	Biswas	Ames National Laboratory
		Mahmud	Khan	Miami University
BF	STT-MRAM and SOT-MRAM and Related Devices	Dong-Jun	Kim	KAIST
BG	Hard Magnetic Materials I: Sm-based and Rare Earth Free Magnets	Harshida	Parmar	Ames National Laboratory
BP	Magnonics I: Spin Waves & Spin Dynamics	Jing	Zhou	Institute of Materials Research and Engineering, A*STAR
BQ	Transformers and Power Electronics I	Hiroaki	Matsumori	Nagoya Institute of Technology
BR	Energy Assisted Magnetic Recording & Magnetic Sensors	Takahide	Kubota	Tohoku University
		Niranjan	Natekar	Western Digital

Session		First Name	Last Name	Institution
CA	Beyond Polycrystalline Films: Textured Materials for High-Performance Spintronic Devices	Pedram	Khalili Amiri	Northwestern University
CB	Future Read Head Technologies	Stephanie	Hernandez	Seagate Technology
CC	Magneto-transport and Magneto-optics of Higher Orders in Magnetization	Timo	Kuschel	Bielefeld University
CD	Magnetoelectric and Multiferroics II	Sajid	Husain	University of California, Berkeley
CE	Altermagnetism & Antiferromagnetism - Thin Films and Other Systems	Rahul	Gupta	University of Gothenburg
CF	Low-Dimensional Systems, Molecular and Organic Magnets	Jacob	Hanson-Flores	University of Central Florida
CG	Magnetic Microscopy and Imaging	John	Fullerton	Argonne National Laboratory
CH	Fast and Efficient Switching	Xin	Fan	University of Denver
		Peter	Finkel	Naval Research Laboratory
CQ	Biomagnetism and Biomedical Applications II	Dario	Arena	University of South Florida
		Prashant	Kumar	IMS RIKEN Center for Integrative Medical Sciences
CR	Soft Magnetic Materials II	Emmanuel	Rowe	Air Force Research Laboratory
DA	Perspective of Probabilistic Computing with Magnetic Tunnel Junctions	Giovanni	Finocchio	University of Messina
DB	Advancing Magnonics: Unlocking the Potential of the Third Dimension	Gianluca	Gubbiotti	IOM-CNR
DC	Nanoparticles, 3D, and Other Structured Materials	Michalis	Charilaou	University of Louisiana at Lafayette
DD	Nd ₂ Fe ₁₄ B and Measurement Techniques	Yusuke	Hirayama	National Institute of Advanced Industrial Science and Technology (AIST)
		Abdellah	Lisfi	Morgan State University
DE	Magnetic Ground States, Phase Transitions and Magneto-Elastic Phenomena	Hang	Chi	University of Ottawa
		Nicholas	Jones	Naval Surface Warfare Center, Carderock Division
DF	Spin Injection, Pumping and Transfer Torques	Danru	Qu	National Taiwan University
DG	Magnetic Sensors, High Frequency Devices, and Power Electronics I	Natheer	Alatawneh	Sacred Heart University
		Noah	Schulz	Naval Surface Warfare Center, Panama City Division
DQ	Magneto-Caloric, Magnetoelectric, and Multiferroic Materials and Devices	Karthik	Srinivasan	Boise State University
DR	Magnetoresistance, Spin Torque, and Spin Injection in Heterostructures and Films	Avinash Kumar	Chaurasiya	University of Gothenburg
		Guoqiang	Yu	Chinese Academy of Sciences

Session		First Name	Last Name	Institution
EA	Compact EUV Sources: Exceptional New Tools for Ultrafast Spin Dynamics	Dario	Arena	University of South Florida
EB	Altermagnetic Materials	Qihang	Liu	Southern University of Science and Technology
EC	Modeling and Machine Learning	Frank	Abel	United States Naval Academy
ED	Spin-charge Interconversion and Magnetotransport	Marcos	Guimaraes	University of Groningen
EE	Magnonics II: Crystals & Devices	Riccardo	Hertel	Centre National de la Recherche Scientifique
EF	Spin and Magnetism in van der Waals Layered Materials	Paulo Eduardo	de Faria Junior	University of Central Florida
EG	Advanced Magnetic Recording Technologies	Aneesh	Venugopal	Seagate Technology
EP	Spin and Orbital Dynamics	Gyung-Min	Choi	Sungkyunkwan University College of Natural Science
EQ	Transformers and Power Electronics II	Chins	Chinnasamy	Oak Ridge National Laboratory
ER	Hard Magnetic Materials II	Shusuke	Okada	National Institute of Advanced Industrial Science and Technology (AIST)
FA	All-Orbitronic Concepts and Devices	Akash	Kumar	University of Gothenburg
FB	Coherent X-ray for Probing the Interplay of Heterogeneity and Spin-electronic Correlations	Sujoy	Roy	Lawrence Berkeley National Laboratory
FC	Biomagnetism and Biomedical Applications III	Jenifer	Gomez-Pastora	Texas Tech University
		Ravi	Hadimani	Virginia Commonwealth University
FD	Low Damping and Topological Systems	Ayomipo	Ojo	University of South Florida
		Eklavya	Thareja	University of South Florida
FE	Magnetism and Spintronics: Low-dimensional Systems	Yunqiu Kelly	Luo	University of Southern California
FF	Unconventional Computing	Philippe	Talatchian	SPINTEC
FG	Thin Film and Interfaces	Paola	Tiberto	INRIM
FP	Shielding and Levitation / Structured Materials, Nanoparticles, and Nanocomposites	Yiming	Shen	Nanyang Technological University
FQ	Antiferromagnets, Ferrimagnets & Ultrafast Spin Dynamics	Sudip	Majumder	University of South Florida
FR	Skyrmions and Spin-orbit Torque	Biplab	Sanyal	Uppsala University
GA	Unconventional and Nonreciprocal Superconductivity	Denys	Makarov	Helmholtz-Zentrum Dresden-Rossendorf

Session		First Name	Last Name	Institution
GB	Probing and Manipulating Magnetic Order in 2D Systems	Simranjeet	Singh	Carnegie Mellon University
GC	Quantum Materials and Cooperative States	Juan	Sierra	Catalan Institute of Nanoscience and Nanotechnology (ICN2)
GD	Magnetoelectric and Multiferroics III	Sajid	Husain	University of California, Berkeley
GE	Magnonics III: Materials & Spin Texture Dynamics	Benjamin	Jungfleisch	University of Delaware
GF	Alter- / Anti-ferromagnetism in RuO ₂ and Other Materials	Oliver	Amin	University of Nottingham
GG	Magnetoresistance in Heterostructures (GMR, TMR, TAMR)	Hai	Li	Analog Devices
		Guoqiang	Yu	Chinese Academy of Sciences
GP	Antiferromagnets and 2D Materials	Zhe	Yuan	Fudan University
GQ	Multi-Functional Magnetic Materials and Other Emerging Topics	Hanu	Arava	Argonne National Laboratory
		Yingying	Wu	University of Florida
GR	Fundamental Properties and Cooperative Phenomena	Debajit	Chakraborty	University of Nebraska
VP1	Computational Methods	Riccardo	Hertel	Centre National de la Recherche Scientifique
VP2	Fundamental Properties and Cooperative Phenomena	Yingying	Wu	University of Florida
VP3	Hard Magnets and Functional Magnetic Materials	Tino	Gottschall	Dresden High Magnetic Field Laboratory
VP4	Magnetic Sensors, High Frequency Devices, and Power Electronics II	Saijian	Ajia	Tohoku University
		Karthik	Srinivasan	Boise State University
VP5	New Applications and Other Emerging Topics II	K	Sriram	IIT Guwahatti
VP6	Soft Magnetic Materials III	Daniel	Hedlund	University of Central Florida
		Sara	Mills	US Naval Research Laboratory
VP7	Spintronic Materials and Devices	Sajid	Husain	University of California, Berkeley

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FUTURE CONFERENCES

[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

23rd International Conference on Magnetism (ICM)

June 14 - 18, 2027, San Juan, Puerto Rico

MMM 2025 PROGRAM BOOK

TU: TUTORIAL: 2D MAGNETS – FUNDAMENTALS AND EMERGING FRONTIERS

Chair(s): T. Santos, Western Digital, San Jose, California, United States

Monday, October 27, 2025

02:30 PM-05:00 PM

Grand Ballroom

02:30 PM-02:35 PM

Welcome and Introduction

02:35 PM-03:20 PM

TU-01. 2D Magnetic Heterostructures – Skyrmions and Their Applications

Y. Wu

Electrical and Computer Engineering, University of Florida, Gainesville, Florida, United States

03:20 PM-03:20 PM

TU-02. Epitaxial Growth, Spin-Orbit Torque, and Magnetization Dynamics in 2D Magnets

R. Kawakami

Department of Physics, The Ohio State University, Columbus, Ohio, United States

03:20 PM-04:05 PM

TU-03. 2D van der Waals Magnets: From Fundamental Physics to Applications

J. Park

Seoul National University, Seoul, Korea (the Republic of)

WELCOME RECEPTION

Monday, October 27, 2025

05:00 PM-06:30 PM

Convention Center Courtyard

SESSION AA: SPIN-OPTOELECTRONICS TOWARDS REAL WORLD APPLICATIONS

Chair(s): Y. Lu, Institut Jean Lamour, Nancy, France

Tuesday, October 28, 2025

08:30 AM-12:00 PM

Grand Ballroom

08:30 AM-09:06 AM

AA-01. Controlling the helicity of light by electrical magnetization switching in Spin Light Emitting Diodes

P. Renucci^{1,7}, A. Dainone², N. Figueiredo-Prestes³, M. Morassi⁴, X. Devaux², M. Lindemann⁵, J. George³, H. Jaffrès³, A. Lemaitre⁴, B. Xu^{6,7}, M. Stoffel², L. Lombez¹, D. Lagarde¹, G. Cong¹⁰, T. Ma¹¹, M. Vergnat², X. Marie¹, X. Han⁸, S. Mangin², J. Rojas-Sanchez², J. Wang⁹, M. C. Beard¹², N. Gerhardt⁵, I. Zutic¹³, Y. Lu²

¹Université de Toulouse, INSA-CNRS-UPS, LPCNO, Toulouse, France, ²Institut Jean Lamour, Université de Lorraine, CNRS, UMR 7198, Nancy, France, ³Laboratoire Albert Fert, CNRS, Thales, Université Paris-Saclay, Palaiseau, France, ⁴Université Paris-Saclay, CNRS, Centre de Nanosciences et de Nanotechnologies, Palaiseau, France, ⁵Photonics and Terahertz Technology, Ruhr-Universität Bochum, Bochum, France, ⁶Key Laboratory of Semiconductor Materials Science, Institute of Semiconductors, Chinese Academy of Sciences, Beijing, China, ⁷College of Materials Science and Opto-Electronic Technology, University of Chinese Academy of Sciences, Beijing, China, ⁸Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, University of Chinese Academy of Sciences, Chinese Academy of Sciences, Beijing, China, ⁹Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, Minnesota, United States, ¹⁰Platform Photonics Research Center, National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan, ¹¹Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, University of Chinese Academy of Sciences, Chinese Academy of Sciences, Beijing, China, ¹²Chemistry and Nanoscience Center, National Renewable Energy Laboratory, Golden, Colorado, United States, ¹³Department of Physics, University at Buffalo, State University of New York, Buffalo, New York, New York, United States

09:06 AM-09:42 AM

AA-02. Efficient generation of spin-polarized light emission with 2D magnetic heterostructure

X. Zhang

Physics, University of Florida, Gainesville, Florida, United States

09:42 AM-10:18 AM

AA-03. Room-temperature spin-optoelectronics based on defect-enabled spin amplification

S. Hiura

Hokkaido University, Sapporo, Japan

10:18 AM-10:45 AM

Break

10:45 AM-11:21 AM

AA-04. Chiral Induced Spin Selectivity in Lead-Halide Hybrid Semiconductors

M. C. Beard

Chemical and Nanoscience Center, National Renewable Energy, Golden, Colorado, United States

11:21 AM-11:57 AM

AA-05. Recent Progress in Understanding Polarization Modulation in Spin Lasers

N. Yokota

Research Institute of Electronics, Shizuoka University, Hamamatsu, Shizuoka, Japan

**SESSION AB: QUANTUM SENSING OF NOVEL
MAGNETISM**

Chair(s): G. Fuchs, *Cornell University, Ithaca, New York, United States*

Tuesday, October 28, 2025

08:30 AM-12:00 PM

Ballroom A

08:30 AM-09:06 AM

AB-01. Imaging and Control of 2D Magnets Revealed by Quantum Sensors

B. Zhou

Physics, Boston College, Chestnut Hill, Massachusetts, United States

09:06 AM-09:42 AM

AB-02. Quantum Sensing with Single Spin Defects in 2D and 1D Materials

T. Li

Purdue University, West Lafayette, Indiana, United States

09:42 AM-10:18 AM

AB-03. Quantum Sensing of Nonlinear Magnonic Dynamics

L. Liu, Z. Hu, Q. Wang

MIT, Cambridge, Massachusetts, United States

10:18 AM-10:45 AM

Break

10:45 AM-11:21 AM

AB-04. Quantum Sensing with Spin Defects: From Spin-Wave Spectroscopy to Symmetry Detection

B. Flebus

Boston College, Chestnut Hill, Massachusetts, United States

11:21 AM-11:57 AM

Panel Discussion

**SESSION AC: SKYRMIONS AND MAGNETIC TEXTURES
RELATED PHENOMENA**

Chair(s): C. Chou, *Physics, Massachusetts Institute of Technology, Cambridge, Massachusetts, United States*

Tuesday, October 28, 2025

08:30 AM-12:00 PM

Ballroom C

08:30 AM-08:42 AM

AC-02. Controlled Formation of Skyrmion Bags

L. Kern

Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts, United States

08:42 AM-08:54 AM

AC-03. Stabilization of Non-collinear Magnetic Textures in Epitaxial $\text{Fe}_3\text{GeTe}_2/\text{Bi}_2\text{Te}_3$ Heterostructures from Interfacial Strain and Dzyaloshinskii–Moriya Interaction

D. Le¹, E. Thareja¹, Y. K. Luo², M. Phan¹, J. D. Gayles¹

¹*Department of Physics, University of South Florida, Tampa, Florida, United States*, ²*Department of Physics and Astronomy, University of Southern California, Tampa, California, United States*

08:54 AM-09:06 AM

AC-04. Efficient Manipulation of Topological Objects in B20 Multilayer Structures

G. M. Pantano, E. Thareja, D. Le, J. D. Gayles

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

09:06 AM-09:18 AM

AC-05. Tunable magnetic skyrmions in self-formed 3D wrinkles in freestanding membranes*

Z. Yin^{1,2*}, K. Gu¹, P. Wang¹, H. Meyerheim¹, T. Jiang¹, A. Srivastava¹, S. Parkin^{1,2}

¹NISE, Max Planck Institute of Microstructure Physics, Halle, Germany, ²Department of Physics, Martin-Luther-Universität Halle-Wittenberg, Halle, Germany

09:18 AM-09:30 AM

AC-07. Interlayer Dzyaloshinskii – Moriya interactions in epitaxial Co/Ir/Co/Pt multilayers

A. Koziol Rachwal, E. Oles, P. Drozd, A. Kwiatkowski, M. Slezak, T. Slezak

AGH University of Krakow, Krakow, Poland

09:30 AM-09:42 AM

AC-08. *Ab-initio* Study of the Topological Hall Effect Caused by Magnetic Skyrmions in Pd/Fe/Ir(111)

A. Kosma¹, P. Rüßmann^{1,5}, Y. Mokrousov^{1,2}, S. Blügel^{1,3}, P. Mavropoulos⁴

¹Peter Grünberg Institut, Forschungszentrum Jülich and JARA, Juelich, Germany, ²Institute of Physics, Johannes Gutenberg-University Mainz, Mainz, Germany, ³Physics Department, RWTH-Aachen University, Aachen, Germany, ⁴Department of Physics, National and Kapodistrian University of Athens, Athens, Greece, ⁵Institute for Theoretical Physics and Astrophysics, University of Würzburg, Würzburg, Germany

09:42 AM-09:54 AM

AC-09. Control on the motion of magnetic skyrmions by the interfacial improvement

H. Koizumi¹, W. Zeng², H. Ma², R. Ishikawa³, Y. Suzuki⁴, A. Hirohata^{1,5}

¹Center for Science and Innovation in Spintronics, Tohoku University, Sendai, Japan, ²College of Engineering, City University of Hong Kong, Hong Kong, Hong Kong, ³ULVAC, Osaka, Japan, ⁴Osaka University, Osaka, Japan, ⁵Max Planck Institute for Chemical Physics of Solids, Dresden, Germany

09:54 AM-10:06 AM

AC-11. Voltage-Controlled Magnetic Anisotropy Effects in Skyrmionic Magnetic Tunnel Junctions

A. Kumar¹, S. Chen², A. Chaturvedi¹, B. Xie¹, J. Lourembam², A. Soumyanarayanan^{1,2}, J. Zhou²

¹Physics, National University of Singapore, Singapore,

²Institute of Materials Research & Engineering (IMRE), Agency for Science, Technology and Research (A*STAR), Singapore

10:06 AM-10:18 AM

AC-12. A study on room temperature ferromagnetic Fe₃GaTe₂

R. Jain¹, L. Tsai¹, N. Hai¹, H. Chang¹, R. Sankar¹, Y. Liou², Y. Chen², J. Liang³, S. Lee¹

¹Institute of Physics, Academia Sinica Taiwan, Taipei,

Nangang, Taiwan, ²Department of Physics, National Cheng Kung University, Tainan, Taiwan, ³Department of Physics, Fu-Jen Catholic University, Taipei, Taiwan

10:18 AM-10:45 AM

Break

10:45 AM-10:57 AM

AC-13. Effect of the Dzyaloshinskii-Moriya interaction on the energy dispersion of spin spirals

D. Huang, A. Manchon

Aix-Marseille Université, CNRS, CINaM, Marseille, France

10:57 AM-11:09 AM

AC-14. Localized Skyrmion Formation in Amorphous Fe_{0.56}Ge_{0.44} Thin Films Driven by Intrinsic Magnetic Disorder

S. Satapathy³, R. Yalisove^{2,5}, T. Bayaraa³, S. M. Griffin³, S. Roy¹, P. Fischer³, M. Scott^{2,5}, F. Hellman⁴

¹ALS, Lawrence Berkeley National Laboratory, Berkeley,

California, United States, ²Department of Materials

Science and Engineering, University of California,

Berkeley, Berkeley, California, United States, ³Material

Science, Lawrence Berkeley National Laboratory,

Berkeley, California, United States, ⁴Department of

Physics, University of California, Berkeley, Berkeley,

California, United States, ⁵National Center for Electron

Microscopy, Lawrence Berkeley National Laboratory,

Berkeley, California, United States

SESSION AD: MAGNETOELECTRIC AND MULTIFERROICS I

Co-Chair(s): P. Stevenson, *Physics, Northeastern University, Boston, Massachusetts, United States* and Y. Takamura, *Materials Science and Engineering, University of California, Davis, Davis, California, United States*

Tuesday, October 28, 2025

08:30 AM-12:00 PM

Ballroom B

08:30 AM-09:06 AM

AD-01. Colossal enhancement of spin transmission through magnon confinement in an antiferromagnet

S. Husain

Department of Materials Science and Engineering, University of California Berkeley, Berkeley, California, United States

09:06 AM-09:18 AM

AD-03. Multiphysics and Multiscale FEM Modeling of Ni-LNO-Ni Magnetoelectric Composites with Self-Bias Behavior

D. Bidouba-Sanvany^{1,2}, T. Huang^{1,2}, A. Gensbittel^{1,2}, Y. Zheng³, E. Dandeu³, H. Talleb^{1,2}, M. Marangolo³

¹*Sorbonne Université, CNRS, Laboratoire de Génie Electrique et Electronique de Paris, Paris, France,*

²*Université Paris-Saclay, Centrale Supélec, CNRS, Laboratoire de Génie Electrique et Electronique de Paris, Paris, France,* ³*Sorbonne Université, CNRS, Institut des NanoSciences de Paris, INSP, UMR7588, Paris, France*

09:18 AM-09:30 AM

AD-04. Achieving Large and Tunable VCMA in CoFeB/MgO through Electron Depletion with Work-Function-Engineered Pt_xW_{1-x} Underlayer

Y. Chen¹, T. Peterson², Q. Jia¹, Y. Yang¹, S. Liang³, B. Zink¹, Y. Huang^{4,1}, D. Lyu¹, B. Dixit¹, J. Wang^{1,2,3}

¹*ECE, University of Minnesota, Minneapolis, Minnesota, United States,* ²*School of Physics and Astronomy, University of Minnesota, Minneapolis, Minnesota, United States,* ³*Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, Minnesota, United States,* ⁴*National Yang Ming Chiao Tung University, Materials Science and Engineering, Hsinchu, Taiwan*

09:30 AM-09:42 AM

AD-05. Interfacial multiferroics of super-orbital-splitting type with colossal interfacial response at room temperature

H. Naganuma¹, K. Nawa², T. Ichinose², K. Amemiya⁴, Y. Sato³, T. Shiraishi³, T. Fukushima²

¹Nagoya University, Nagoya, Aichi, Japan, ²AIST, Tsukuba, Japan, ³Kumamoto University, Kumamoto, Japan, ⁴KEK, Tsukuba, Japan

09:42 AM-09:54 AM

AD-06. Double-leaf Riemann surface topological converse magnetoelectricity

Y. Zhou, S. Dong

Southeast University, Nanjing, Jiangsu, China

09:54 AM-10:06 AM

AD-07. Optimizing the Preparation Process and Magnetic Properties of Pure CrO₂ Powders and Films

J. Lyu¹, Z. Zhang¹, X. Zheng², J. Park², P. Si^{1,2}, Y. Song², B. Zhang², Q. Wu¹, C. Choi²

¹China Jiliang University, Hangzhou, China, ²Korea Institute of Materials Science, Changwon, Gyongnam, Korea (the Republic of)

10:06 AM-10:45 AM

Break

10:45 AM-11:21 AM

AD-08. Seeing is Believing: Imaging Magnetic Order in Multiferroics

P. Stevenson

Physics, Northeastern University, Boston, Massachusetts, United States

11:21 AM-11:33 AM

AD-09. Direct Evidence of Non-oxidative Mechanism in Oxygen Based Magnetoionics

T. Bhatnagar-Schöffmann^{2,3}, P. Schöffmann⁴, A. Resta⁴, A. Lamperti¹, G. Bernard^{2,3}, A. Kovács⁵, L. Largeau^{2,3}, A. Durnez^{2,3}, A. Harouri^{2,3}, X. Lafosse^{2,3}, D. Ourdani⁷, M. Syskaki⁶, Y. Roussigné⁷, S. Ono⁸, R. E. Dunin-Borkowski⁵, J. Langer⁶, D. Ravelosona^{2,3}, M. Belmeguenai⁹, A. Solignac^{9,3}, L. Herrera Diez^{2,3}

¹CNR-IMM, Agrate Brianza, MB, Italy, ²C2N, CNRS, Palaiseau, France, ³Université Paris-Saclay, Palaiseau, France, ⁴Synchrotron SOLEIL, Saint-Aubin, France, ⁵Forschungszentrum Jülich GmbH, Jülich, Germany, ⁶Singulus Technology AG, Kahl Am Main, Germany, ⁷CNRS-UPR 3407 Université Sorbonne Paris Nord,

Villetaneuse, France, ⁸Central Research Institute of Electric Power Industry, Yokosuka, Japan, ⁹CEA, CNRS, SPEC, Gif-sur-Yvette, France

SESSION AE: NEW APPLICATIONS AND OTHER EMERGING TOPICS I

Chair(s): S. Pollard, *Physics and Materials Science, The University of Memphis, Memphis, Tennessee, United States*

Tuesday, October 28, 2025

08:30 AM-12:00 PM

Room 2DE

08:30 AM-08:42 AM

AE-02. High-Gradient Magnetic Separation of Lithium Iron Phosphate in Lithium Ion Batteries

D. Rogers, P. Andrei, P. Wang

Florida State University, Tallahassee, Florida, United States

08:42 AM-08:54 AM

AE-03. Orbital hybridization induced changes to oscillatory dynamics in epitaxial $\text{La}_{0.67}\text{Sr}_{0.33}\text{MnO}_3$ films

H. Chhabra, A. Jaman, I. Garcia, T. Banerjee

University of Groningen, Groningen, Netherlands

08:54 AM-09:06 AM

AE-05. A Workflow for Magnetic Material Discovery: Experimental Database meets Graph Neural Networks

B. Schoener¹, Y. Hu², H. Hui¹, Y. Liu¹, T. Wojnar¹, J.

Xiong², I. Zutic¹, H. Zeng¹

¹*Physics, University at Buffalo, Buffalo, New York, United States*, ²*Computer Science and Engineering, University at Buffalo, Buffalo, New York, United States*

09:06 AM-09:18 AM

AE-06. Magnetic Tag Recognition via High-Order Projection of Far-Field Measurements

S. Ben Mbarek, S. Amara, G. Setti

CEMSE, KAUST, Jeddah, Thuwal, Saudi Arabia

09:18 AM-09:54 AM

AE-07. Integrating spins and ions for spiontronics

G. Miao^{1,2}

¹*Electrical and Computer Engineering, University of Waterloo, Waterloo, Ontario, Canada*, ²*Institute for Quantum Computing, Waterloo, Ontario, Canada*

09:54 AM-10:06 AM

AE-08. Magnetic Image Recognition Under Environmental Noise: A Machine Learning Approach

S. Amara, D. Divyanshu, S. Ben Mbarek, G. Setti
CEMSE, KAUST, Jeddah, Thuwal, Saudi Arabia

10:06 AM-10:18 AM

AE-09. Phase Separation and Magnetic Properties of FeCoNiCrAl-Based High-Entropy Alloys

S. Na, J. Yoo, N. J. Jones
Physical Metallurgy and Fire Performance Branch, Naval Surface Warfare Center Carderock Division, West Bethesda, Maryland, United States

10:18 AM-10:45 AM

Break

10:45 AM-10:57 AM

AE-10. Exfoliation of Hematene: An Air-Stable Non-van der Waals 2D Material Exhibiting Room-Temperature Ferromagnetism

A. Puthirath Balan^{1,2,4}, S. Radhakrishnan^{1,3}, M R Anantharaman^{1,4}, C. Tiwary^{1,5}, A. Pulickel M.¹
¹Rice University, Houston, Texas, United States, ²Johannes Gutenberg University Mainz, Mainz, Germany, ³Intel Corporation, Rio Rancho, New Mexico, United States, ⁴Cochin University of Science and Technology, Kochi, India, ⁵Indian Institute of Technology Khargpur, Kharagpur, India

10:57 AM-11:09 AM

AE-11. Characterization of Current-Flux and Current-Force Relationships in Reluctance Actuators for High-Precision Applications

M. Al Saaideh¹, N. Alatawneh^{2,3}, M. Al Janaideh³
¹Memorial University of Newfoundland, St. John's, Newfoundland, Canada, ²Sacred Heart University, Fairfield, Connecticut, United States, ³University of Guelph, Guelph, Ontario, Canada

11:09 AM-11:21 AM

AE-12. Magnetocaloric properties and magnetic structures in Tb₂CoGe₂

A. Herrero¹, A. Morozkin², E. Apiñaniz³, I. Puente-Orench⁴, A. Garshev^{5,2}, V. Yapaskurt⁶, A. Oleaga¹
¹University of the Basque Country UPV/EHU, Bilbao, Spain, ²Department of Chemistry, Moscow State University, Moscow, Russian Federation, ³Universidad del País Vasco UPV/EHU, Vitoria-Gazteiz, Spain, ⁴Institute Laue Langevin, Grenoble, France, ⁵Faculty of Materials

Science, Moscow State University, Moscow, Russian Federation, ⁶Department of Petrology, Moscow State University, Moscow, Russian Federation

11:21 AM-11:33 AM

AE-13. Magnetic demonstrations to establish a sense of wonder

N. J. Jones¹, S. Wolff²

¹*Physical Metallurgy and Fire Performance Branch, Naval Surface Warfare Center, Carderock Division, Bethesda, Maryland, United States, ²Mechanical Engineering, The Ohio State University, Columbus, Ohio, United States*

SESSION AF: SPIN-ORBIT TORQUE AND RELATED PHENOMENA

Chair(s): R. Posti, *Physics, Carnegie Mellon University, Pittsburgh, Pennsylvania, United States*

Tuesday, October 28, 2025

08:30 AM-12:00 PM

Room 2BC

08:30 AM-09:06 AM

AF-01. Symmetry-based Classification of Spin Current Origin

B. Miao

Nanjing University, Nanjing, China

09:06 AM-09:18 AM

AF-02. Observation of Field-Free Orbital Hall Torque Switching in In-Plane Magnetized NiFe/Cr Devices

A. Kumar¹, A. Ashokan.K¹, C. Kalouni¹, K. Varshney¹, V. K. Malik², D. Roy¹

¹*Physics, Indian Institute of Technology Ropar, Rupnagar, Punjab, India, ²Physics, Indian Institute of Technology Roorkee, Roorkee, Uttarakhand, India*

09:18 AM-09:30 AM

AF-03. Orbital Torque and Field-Free Magnetization Switching in a Light-Element-Based SOT Device

G. K. Shukla, S. Isogami

Research Centre for Magnetic and Spintronics Material, National Institute For Materials Science, Tsukuba, Ibaraki, Japan

09:30 AM-09:42 AM

AF-04. Spin-orbit torque efficiency in IrPt alloy/ferromagnet bilayers

G. Jung¹, S. Lee², S. Ko³, S. Yoon¹, W. Kim¹, H. Jeon¹, H. Cho¹, D. Woo¹, K. Kim³, B. Park⁴, J. Hong², K. Eom¹, S. Lee¹

¹*Semiconductor Engineering, Gachon University, Seongnam, Korea (the Republic of)*, ²*Materials Science and Engineering, Yonsei university, Seoul, Korea (the Republic of)*, ³*Physics, Korea Advanced Institute of Science and Technology, Daejeon, Korea (the Republic of)*, ⁴*Materials Science and Engineering, Korea Advanced Institute of Science and Technology, Daejeon, Korea (the Republic of)*

09:42 AM-09:54 AM

AF-05. Spin-orbit torque switching of both magnetization and exchange bias in Pt/IrMn/CoFeB Hall cross devices

Y. Fan, L. Wan, G. Mihajlović, J. Gibbons, J. Katine, T. Santos

Western Digital, San Jose, California, United States

09:54 AM-10:06 AM

AF-06. Spin-Orbital Conversion in Resonantly Excited Magnetization

O. A. Bakare¹, G. T. Street¹, R. E. Maizel¹, C. Klewe², S. Emori¹

¹*Physics, Virginia Tech, Blacksburg, Virginia, United States*, ²*Lawrence Berkeley National lab, Berkeley, California, United States*

10:06 AM-10:18 AM

AF-07. Harnessing Spin Reorientation for Energy-efficient Field-free Switching by Orbital Torque

S. Das, B. Jamshed, M. Ramu, S. Piramanayagam
School of Physical & Mathematical Sciences, Nanyang Technological University, Singapore

10:18 AM-10:45 AM

Break

10:45 AM-11:21 AM

AF-08. Orbital-Spin Hall nano oscillator

R. Gupta^{1,2}, N. Behera¹, U. Shashank¹, A. Kumar^{1,3,4}, S. Ghosh¹, J. Choi¹, J. Akerman^{1,3,4}

¹Physics, University of Gothenburg, Gothenburg, Sweden,

²Physics, University of South Florida, Tampa, Florida,

United States, ³Research Institute of Electrical

Communication, Tohoku University, Sendai, Japan,

⁴Center for Science and Innovation in Spintronics, Tohoku University, Sendai, Japan

11:21 AM-11:33 AM

AF-09. Spin-Orbit Torque and Nernst Effects in a Bulk Rashba Channel

J. Ahn^{1,2}, J. Jeon³, S. Cho², S. Lee², O. Lee², H. Koo^{1,2}

¹KU-KIST Graduate School of Converging Science and Technology, Korea University, Seoul, Korea (the Republic of),

²Center for Semiconductor Technology, Korea

Institute of Science and Technology, Seoul, Korea (the

Republic of), ³Package Manufacturing Technology Group, Samsung Electro-Mechanics, Busan, Korea (the Republic of)

11:33 AM-11:45 AM

AF-10. Enhancement of damping-like spin-orbit torque efficiency in RuO₂/αW-Ta and RuO₂/Pt systems

Y. Saito¹, S. Ikeda^{1,2}, S. Karube³, T. Endoh^{1,4}

¹Center for Innovative Integrated Electronic Systems,

Tohoku University, Sendai, Japan, ²Center for Science and

Innovation in Spintronics, Tohoku University, Sendai,

Japan, ³Institute for Chemical Research, Kyoto University,

Kyoto, Japan, ⁴Department of Electrical Engineering,

Graduate School of Engineering, Tohoku University,

Sendai, Japan

SESSION AG: ELECTRONIC STRUCTURE AND MAGNETIC EXCITATIONS

Chair(s): C. Beekman, Florida State University, Tallahassee, Florida, United States

Tuesday, October 28, 2025

08:30 AM-12:00 PM

Room 2A

08:30 AM-09:06 AM

AG-01. Coupling between magnetons and excitons in magnetic insulators

M. van Schilfhaarde¹, S. Acharya¹, D. Pashov²

¹National Renewable Energy Labs, Golden, Colorado,

United States, ²Physics, King's College London, London,

United Kingdom

09:06 AM-09:18 AM

AG-02. Realistic modeling of transport properties at finite temperature in magnetic materials by local quantization of a Heisenberg model

F. Engelke^{1,2}, C. Heiliger^{1,2}

¹*Institute for theoretical Physics, Justus Liebig University Giessen, Giessen, Hesse, Germany,* ²*Center for Materials Research, Justus Liebig University Giessen, Giessen, Hesse, Germany*

09:18 AM-09:30 AM

AG-03. Observation of multiple flat bands and van-Hove singularities in the distorted kagome metal NdTi₃Bi₄

M. Mondal¹, A. Sakhya¹, M. Sprague¹, B. Ortiz², M. Matzelle³, A. Kumay¹, A. Seal¹, B. Ghosh³, A. Bansil³, M. Neupane¹

¹*Physics, University of Central Florida, Orlando, Florida, United States,* ²*Oak Ridge National lab, Oak Ridge, Tennessee, United States,* ³*Physics, Northeastern University, Boston, Massachusetts, United States*

09:30 AM-09:42 AM

AG-04. Gapless Topological Behaviors in a Long-Range Quantum Spin Chain

S. Yang¹, H. Lin¹, X. Yu^{2,3}

¹*Institute for Advanced Study in Physics and School of Physics, Zhejiang University, Hangzhou, Zhejiang, China,* ²*Department of Physics, Fuzhou University, Fuzhou, Fujian, China,* ³*Fujian Key Laboratory of Quantum Information and Quantum Optics, College of Physics and Information Engineering, Fuzhou University, Fuzhou, Fujian, China*

09:42 AM-10:18 AM

AG-05. Altermagnetism: What can we believe?

P. S. Stamenov, M. T. Stamenova

School of Physics and CRANN, Trinity College, Dublin, Dublin, Ireland

10:18 AM-10:45 AM

Break

10:45 AM-10:57 AM

AG-06. Electronic and Magnetic Properties of Hole Doped Topological Kagome Metal Thin Films

R. Dutta¹, P. M. Laxmeesha¹, T. Tandon¹, T. D. Tucker¹, S. Sheikh², U. M. Jayathilake², W. Tian³, A. Aczel³, T. Lee⁴, A. X. Gray², S. May¹

¹Department of Materials Science and Engineering, College of Engineering, Drexel University, Philadelphia, Pennsylvania, United States, ²Department of Physics, Temple University, Philadelphia, Pennsylvania, United States, ³Neutron Scattering Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee, United States, ⁴Diamond Light Source Ltd., Didcot, United Kingdom

10:57 AM-11:09 AM

AG-07. Observation of Spin-Splitting in an Intercalated Transition Metal Dichalcogenide Altermagnet

M. X. Sprague

Department of Physics, University of Central Florida, Orlando, Florida, United States

11:09 AM-11:45 AM

AG-08. Beyond Altermagnetism: Unconventional Magnetism

O. Liu

Southern University of Science and Technology, Shenzhen, Guangdong, China

SESSION AP: BIOMAGNETISM AND BIOMEDICAL APPLICATIONS I (POSTER SESSION)

Chair(s): J. Alonso Masa, CITIMAC, University of Cantabria, Santander, Cantabria, Spain

Tuesday, October 28, 2025

09:00 AM-12:00 PM

Exhibit Hall Posters

AP-01. Temperature Measurement of Magnetic Nanoparticles using Diamond Quantum Sensor for Magnetic Hyperthermia

Y. Arakawa, M. Inoue, S. Yabukami, A. Kuwahata
Tohoku University, Sendai, Miyagi, Japan

AP-02. Gradiometer using single bulk diamond quantum sensor for magnetic field sensing

M. Inoue, Y. Arakawa, S. Yabukami, A. Kuwahata
Tohoku University, Sendai, Japan

AP-03. Highly sensitive detection of GDF15 in Urine using magnetic nanoparticle aggregation

S. Yabukami^{1,2}, T. Murayama¹, L. Tonthat¹, K. Okita², T. Abe¹

¹Tohoku University, Sendai, Japan, ²Tohoku-TMIT, Sendai, Japan

AP-04. Hydrophilic Magnetite Nanoparticles for Biomedical Applications

E. Jaberolansar¹, S. Jan¹, R. Roy Chowdhury¹, D. A. Arena¹, S. Mohapatra², H. Srikanth¹

¹*Department of Physics, University of South Florida, Tampa, Florida, United States*, ²*Morsani College of Medicine, University of South Florida, Tampa, Florida, United States*

AP-06. Investigation of the Impact of Individualized Neuroanatomy and Functional Connectivity on Primary Motor Cortex Excitability During Transcranial Magnetic Stimulation

M. Paslar¹, T. J. Taylor¹, B. Embree², W. Lohr¹, T. Atalugama², C. L. Peterson¹, R. L. Hadimani^{1,2}

¹*Biomedical Engineering, Virginia Commonwealth University, Richmond, Virginia, United States*,

²*Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, Virginia, United States*

AP-07. Tuning Size, Shape, and Phase Composition for Enhanced Magnetic Hyperthermia in FeO/Fe₃O₄ Nanoparticles and Superclusters

W. Manuel^{1,2}, D. Luu¹, M. Gili^{1,2}, D. Brown¹, S. Jan¹, M. Nguyen³, M. Vega², T. Lee³, H. Srikanth¹, M. Phan¹

¹*Department of Physics, University of South Florida, Tampa, Florida, United States*, ²*Materials Science and Engineering Program, College of Science, University of the Philippines Diliman, Diliman, Philippines*,

³*Department of Chemistry and the Texas Center for Superconductivity, University of Houston, Houston, Texas, United States*

AP-08. Development of a novel Ferromagnetic Suppression Coil to Increase Focality in TMS Procedures on Small Animals

T. V. Atalugama, W. Lohr, R. L. Hadimani

Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, Virginia, United States

AP-09-LB. Simulation of Adaptive Magnetic Coils for Directionally Adjustable Targeted Neuromodulation

P. Chan¹, J. Pothuganti², G. Licwinko², W. Yu², V. Chen²

¹*Indiana University, Bloomington, Indiana, United States*,

²*Loyola University Chicago, Chicago, Illinois, United States*

AP-10-LB. Bio-resorbable magnetic tunnel junctions

D. Kim¹, B. Kim², B. Park¹, J. Ahn², H. Yang³

¹*Department of Materials Science and Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea (the Republic of),* ²*School of Electrical and Electronic Engineering, Yonsei University, Seoul, Korea (the Republic of),* ³*Department of Electrical and Computer Engineering, National University of Singapore (NUS), Singapore*

SESSION AQ: INSTRUMENTATION AND MEASUREMENT TECHNIQUES (POSTER SESSION)

Chair(s): K. Islam, *Physics and Materials Science, The University of Memphis, Memphis, Tennessee, United States*

Tuesday, October 28, 2025

09:00 AM-12:00 PM

Exhibit Hall Posters

AQ-01. Emergence of Anomalous and Topological Hall Effects in Magnetic Topological Insulator $Mn_2BiSbTe_5$

A. Saxena^{1,2}

¹*Program on Key Materials, National Cheng Kung University, Tainan, Tainan, Taiwan,* ²*Physics, National Sun Yat-sen University, Gushan, Kaohsiung, Taiwan*

AQ-02. High-Precision Iron Loss Evaluation with Reduced Signal Averaging via Bayesian Inference

T. Suwa¹, N. Ono^{1,2}, S. Okamoto^{1,3,4}

¹*Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan,* ²*Department of Applied Physics, Tohoku University, Sendai, Japan,* ³*Center for Science and Innovation in Spintronics, Tohoku University, Sendai, Japan,* ⁴*National Institute for Materials Science, Tsukuba, Japan*

AQ-03. A Scalable Implementation of a 3D Magnetic Hall Sensor Card for Mapping and Monitoring Applications

L. Messner^{1,2}

¹*EP-DT, CERN, Meyrin, Switzerland,* ²*Biomedical Engineering Group, Department of Mechatronics, University of Innsbruck, Innsbruck, Austria*

AQ-04. Magnetic Orientation of Rod-shaped Diamagnetic Crystals in Rotating Magnetic Fields Based on Real-time Observation and the Analysis of Orientation Conditions

Y. Takeuchi¹, R. Kimoto¹, A. Hamasaki²

¹*Muroran Institute of Technology, Muroran, Japan,*

²*Faculty of science, Shinshu University, Matsumoto, Japan*

AQ-05. Red Blood Cell Magnetic Property Monitoring Using Cell Tracking Velocimetry: Applications to Blood Banking and Sickle Cell Disease

L. Nguyen T. Tran¹, K. Paz Gonzalez¹, H. Choe², X. Wu², P. Iyer², K. Wu³, J. Chalmers², J. Gomez-Pastora¹

¹*Chemical Engineering, Texas Tech University, Lubbock, Texas, United States,*

²*Chemical and Biomolecular Engineering, The Ohio State University, Columbus, Ohio, United States,*

³*Electrical and Computer Engineering, Texas Tech University, Lubbock, Texas, United States*

AQ-06. Computational Design of a Magnetic Particle Imaging (MPI) Prototype: Effects of Gradient Fields and Nanoparticle Properties on Imaging Performance

S. Mostufa, B. Rezaei, K. Wu

Department of Electrical and Computer Engineering,

Texas Tech University, Lubbock, Texas, United States

AQ-07. Design of a Mechanical-part-free Rotational Magnetic Field with Minimal Poles

A. Hamasaki¹, K. Sato², H. Kawaguchi², Y. Takeuchi²

¹*Faculty of science, Shinshu University, Matsumoto,*

Japan, ²*Muroran Institute of Technology, Muroran, Japan*

AQ-08. Optimization Method of Interface Exchange-Coupled Magnetic Moment in Iron-Based Dual-Phase Magnetic Materials Based on First-Principles

J. Yuan^{1,2}, D. Zhang^{1,2}, X. Chen^{1,2}, H. Zhou^{1,2}, F. Xiao^{1,2}, F. Yang^{3,4}, Y. Liu^{3,4}, C. Wang^{3,4}, T. Ma⁵, X. Guo⁵, X. Ma⁵

¹*School of Electrical Engineering and Automation, Wuhan university, Wuhan, Hubei, China,*

²*State Key Laboratory of Power Grid Environmental Protection, School of Electrical Engineering and Automation, Wuhan University, Wuhan, Hubei, China,*

³*China Electric Power Research Institute, Beijing, China,*

⁴*State Key Laboratory of Advanced Power Transmission Technology, Beijing, China,*

⁵*State Grid Anhui Electric Power Co., Ltd. Huaibei Power Supply*

Company, Huaibei, Anhui, China

AQ-09. Structural Health Monitoring in Austenitic Steels by Means of Determining Martensitic Phases

T. Damatopoulou, X. Vourna, E. V. Hristoforou
National TU of Athens, Athens, Greece

AQ-10. Probing the Antiferromagnetic–Ferromagnetic Phase Transition in FeRh using Ultrafast Extreme Ultraviolet High Harmonic Spectroscopy

N. Li, A. Grafov, E. Sawruk, M. Lebrat, H. C. Kapteyn, M. M. Murnane
JILA, University of Colorado, Boulder, Colorado, United States

SESSION AR: MAGNETIZATION DYNAMICS (POSTER SESSION)

Chair(s): A. Capua, *Electrical Engineering and Applied Physics, The Hebrew University of Jerusalem, Jerusalem, Jerusalem, Israel*

Tuesday, October 28, 2025

09:00 AM-12:00 PM

Exhibit Hall Posters

AR-01. Effect of oxygen ion implantation on the interfacial properties of the Pt/Co/Pt multilayer with perpendicular magnetic anisotropy

A. Sharma¹, P. Karmakar², R. Brajpuriya¹, V. Reddy³, A. Gupta¹, M. Gupta³, S. Pathak¹

¹*Physics, UPES Dehradun, Dehradun, Uttarakhand, India,*

²*Variable Energy Cyclotron Centre, Kolkata, West Bengal, India,*

³*UGC DAE CSR, Indore, Madhya Pradesh, India*

AR-02. Depinning of Domain Walls in a Notched Ferromagnetic Nanostrip: Role of Inertial and Nonlinear Damping Effects

S. Dolui¹, S. Maity¹, S. Dwivedi¹, G. Consolo²

¹*School of sciences, National Institute of Technology*

Andhra Pradesh, Tadepalligudem, Andhra Pradesh, India,

²*Department of Mathematical and Computer Sciences,*

Physical Sciences and Earth Sciences, University of Messina, Messina, Italy

AR-03. Modulation of switching dynamics in magnetic tunnel junctions for low-error-rate computational random-access memory

Y. Lv, B. Dixit, J. Wang

Electrical and Computer Engineering, University of

Minnesota - Twin Cities, Minneapolis, Minnesota, United

States

AR-04. Nonlinear dynamics of spin waves in L-shaped ferromagnetic nanowires and nanoplatelets under high-power microwave pumping

B. Hussain¹, M. G. Cottam²

¹University of Michigan, Dearborn, Michigan, United States, ²University of Western Ontario, London, Ontario, Canada

AR-05. Data-Driven Estimation of Magnetic Nanoparticle Properties via Stochastic Langevin Model

E. Azizi¹, H. Zuo², V. K. Chugh³, R. He¹, K. Wu¹

¹Department of Electrical and Computer Engineering, Texas Tech University, Lubbock, Texas, United States, ²Lubbock High School, Lubbock, Texas, United States, ³Seagate Technology LLC, Bloomington, Minnesota, United States

AR-06. Development of High-sensitive ST-FMR with Amplitude Modulated Magnetic Field

A. Kamiryo¹, T. Horaguchi², T. Manago²

¹Osaka Metropolitan Univ., Sakai, Osaka, Japan, ²Fukuoka Univ., Fukuoka, Fukuoka, Japan

AR-07. Dynamic Control and Amplification of Spin Waves via Temporally Modulated Magnetic Fields

K. W. Sobucki, P. Gruszecki

Adam Mickiewicz University, Poznan, Poland

AR-08. Broadband Magnetization Dynamics and Multiphase Switching in Cobalt Ferrite Nanoparticles Embedded in Activated Carbon

S. Jan¹, R. Roy Chowdhury¹, N. Schulz⁴, A. I. Ojo¹, M. González de la Vega², J. Á. Blanco Rodríguez², P. Gorria^{2,3}, D. A. Arena¹, H. Srikanth¹

¹University of South Florida, Tampa, Florida, United States, ²Universidad de Oviedo, Oviedo, Spain, ³IUTA, Universidad de Oviedo, Gijón, Spain, ⁴Naval Surface Warfare Center, Panama City, Florida, United States

AR-09. Investigation of the magnetic behavior of 11 nm diameter magnetite (Fe₃O₄) nanoparticles encased in a 2 nm coating

T. M. Pekarek¹, K. O'Shea²

¹Physics, Univ. of N. Florida, Jacksonville, Florida, United States, ²Department of Chemistry and Biochemistry, Florida International Univ., Miami, Florida, United States

AR-10. PETASPIN 2.0: a high-performance CUDA™-native numerical solver for micromagnetic and ferroelectrics calculations

A. Giordano¹, A. Hasan², E. Piccolo³, D. Rodrigues³, M. Carpentieri³, G. Finocchio²

¹*Department of Engineering, University of Messina, MESSINA, ME, Italy*, ²*MIFT, University of Messina, Messina, Italy*, ³*Department of Electrical and Information Engineering, Politecnico di Bari, Bari, Italy*

AR-11-LB. Chip-Scale Band Engineering in Doped MoS₂ Heterostructure for Spintronic Integration

N. Do¹, H. Ko², U. Palanivel³, S. Kim⁴, J. Kim⁵, H. Kim³, T. Kim¹

¹*Department of Physics, Ewha Womans University, Seoul, Korea (the Republic of)*, ²*SKKU Advanced Institute of Nanotechnology, SKKU, Suwon, Korea (the Republic of)*, ³*Center for Ultrafast Phase Transformation, Sogang University, Seoul, Korea (the Republic of)*, ⁴*Department of Chemistry, Sookmyung Woman's University, Seoul, Korea (the Republic of)*, ⁵*Department of Physics, Pusan National University, Pusan, Korea (the Republic of)*

AR-12. Prediction of Magnetocrystalline Anisotropy Constants in FeCoNi Thin Films Using Density of States Features

R. Sudo¹, T. Ueno¹, S. Yamashita^{1,2}, M. Oogane¹

¹*Tohoku University, Sendai, Japan*, ²*The Max Planck Institute for Chemical Physics of Solids, Dresden, Germany*

AR-13. Interpretable Machine Learning for Designing Atomic-Scale Magnets

J. Navratil¹, R. Topolnicki^{2,4}, M. Otyepka^{1,3}, P. S. Blonski^{1,3}

¹*Palacky University Olomouc, Olomouc, Czechia*, ²*University of Wroclaw, Wroclaw, Poland*, ³*VSB-Technical University of Ostrava, Ostrava, Czechia*, ⁴*Polish Academy of Sciences, Warsaw, Poland*

AR-14. Automated Experimental Platform for AI Driven Magnetic Materials Discovery

A. Huang

MTI Corporation, Richmond, California, United States

MMM MARIOKART

Tuesday, October 28, 2025

12:15 PM-01:45 PM

Room 1DE

SESSION BA: RECENT ADVANCES AND FUTURE CHALLENGES WITH NON-COLLINEAR ANTIFERROMAGNETS

Chair(s): S. Nakatsuji, *Department of Physics, University of Tokyo, Tokyo, Tokyo, Japan*

Tuesday, October 28, 2025

02:00 PM-05:30 PM

Grand Ballroom

02:00 PM-02:36 PM

BA-01. Spin Polarization of Noncollinear Antiferromagnets

E. Y. Tsymbal

University of Nebraska-Lincoln, Lincoln, Nebraska, United States

02:36 PM-03:12 PM

BA-02. Sub-nanosecond electrical switching of non-collinear antiferromagnetic Mn₃Sn through chiral-spin rotation

Y. Takeuchi^{1,2}, Y. Sato^{3,4}, Y. Yamane^{3,5}, J. Yoon^{3,4}, Y. Kanno^{3,4}, T. Uchimura^{3,4}, K. De Zoysa^{3,4}, J. Han¹, S. Kanai^{3,6}, J. Ieda⁷, H. Ohno^{3,8}, S. Fukami^{3,6,9}

¹*WPI-Advanced Institute for Materials Research (WPI-AIMR), Tohoku University, Sendai, Miyagi, Japan,*

²*Research Center for Magnetic and Spintronic Materials (CMSM), National Institute for Materials Science (NIMS), Tsukuba, Ibaraki, Japan,*

³*Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication (RIEC), Tohoku University, Sendai, Miyagi, Japan,*

⁴*Graduate School of Engineering, Tohoku University, Sendai, Miyagi, Japan,*

⁵*Frontier Research Institute for Interdisciplinary Sciences (FRIS), Tohoku University, Sendai, Miyagi, Japan,*

⁶*Center for Science and Innovation in Spintronics (CSIS), Tohoku University, Sendai, Miyagi, Japan,*

⁷*Advanced Science Research Center, Japan Atomic Energy Agency (JAEA), Tokai, Ibaraki, Japan,*

⁸*Center for Innovative Integrated Electronic Systems (CIES), Tohoku University, Sendai, Miyagi, Japan,*

⁹*Inamori Research Institute for Science (InaRIS), Kyoto, Kyoto, Japan*

03:12 PM-03:48 PM

BA-03. Spin-torque-driven GHz magnetization dynamics in the noncollinear antiferromagnet Mn₃Sn

W. Lee¹, S. Hwang¹, H. Ko¹, B. Park¹, K. Lee¹, G. Choi²

¹*KAIST, Daejeon, Korea (the Republic of),* ²*Sungkyunkwan University, Suwon, Korea (the Republic of)*

03:48 PM-04:15 PM

Break

04:15 PM-04:51 PM

BA-04. Observation of antiferromagnetic spin torque diode effect

S. Sakamoto^{1,2}, T. Nomoto^{3,4}, T. Higo^{1,5}, Y. Hibino⁶, T. Yamamoto⁶, S. Tamaru⁶, Y. Kotani⁷, H. Kosaki¹, M. Shiga¹, D. Nishio-Hamane¹, T. Nakamura^{7,8}, T. Nozaki⁶, K. Yakushiji⁶, R. Arita^{3,9}, S. Nakatsuji^{1,5,10}, S. Miwa¹

¹*The Institute for Solid State Physics, The University of Tokyo, Kashiwa, Japan,* ²*Institute for Materials Research, Tohoku University, Sendai, Japan,* ³*Research Center for Advanced Science and Technology, The University of Tokyo, Meguro, Japan,* ⁴*Department of Physics, Tokyo Metropolitan University, Hachioji, Japan,* ⁵*Department of Physics, The University of Tokyo, Bunkyo, Japan,* ⁶*National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan,* ⁷*Japan Synchrotron Radiation Research Institute (JASRI), Sayo, Japan,* ⁸*International Center for Synchrotron Radiation Innovation Smart, Tohoku University, Sendai, Japan,* ⁹*Center for Emergent Matter Science, RIKEN, Wako, Japan,* ¹⁰*Institute for Quantum Matter and Department of Physics and Astronomy, Johns Hopkins University, Baltimore, Maryland, United States*

04:51 PM-05:27 PM

BA-05. Optically induced renormalization of coherent magnons in antiferromagnets.

D. Bossini

University of Konstanz, Konstanz, Germany

SESSION BB: BIOMAGNETIC SENSORS: FROM BENCH TO BEDSIDE

Chair(s): R. L. Hadimani, *Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, Virginia, United States*

Tuesday, October 28, 2025

02:00 PM-05:30 PM

Ballroom A

02:00 PM-02:36 PM

BB-01. Structure-property relationships in core-shell magnetoelectric nanowires –towards minimally invasive neural stimulation

N. Ferson, J. Andrew

Dept. of Materials Sci. & Eng., University of Florida, Gainesville, Florida, United States

02:36 PM-03:12 PM

BB-02. Magneto-LC Resonance Biosensing Technology for Advanced Biodetection and Diagnostics

M. Phan^{1,2}

¹University of South Florida, Tampa, Florida, United States, ²VinUniversity, Hanoi, Viet Nam

03:12 PM-03:48 PM

BB-03. Wireless Brain-Machine Interface with MagnetoElectric NanoParticles

E. Zhang², P. Liang¹, M. Abdel-Mottaleb³, S. Chen³, M. Shotbolt³, V. Andre³, J. Tian³, A. Scott-Vandusen³, E. Zhu³, S. Pané², S. Khizroev³

¹Cellular Nanomed, Irvine, California, United States,

²Institute of Robotics and Intelligent Systems, Swiss Federal Institute of Technology, Zurich, Switzerland,

³University of Miami, Coral Gables, Florida, United States

03:48 PM-04:15 PM

Break

04:15 PM-04:51 PM

BB-04. Magnetic Nanoparticles and Sensors for Antigen Tests

M. Rivas, M. Salvador, V. Pilati, J. L. Marques, J. C. Martinez-Garcia

Department of Physics, University of Oviedo, Gijón, Spain

04:51 PM-05:27 PM

BB-05. NV Centers as Quantum Sensors for Biomagnetic Signal Measurement

M. Sekino¹, M. Fushimi¹, A. Kuwahata², M. Hatano³

¹The University of Tokyo, Tokyo, Japan, ²Tohoku

University, Sendai, Japan, ³Institute of Science Tokyo, Tokyo, Japan

SESSION BC: THERMOELECTRIC, MAGNETIC, AND SUPERCONDUCTING EFFECTS IN HYBRID HETEROSTRUCTURES AND SPIN TEXTURES

Chair(s): Y. Wu, *Electrical and Computer Engineering, University of Florida, Gainesville, Florida, United States*

Tuesday, October 28, 2025

02:00 PM-05:30 PM

Ballroom C

02:00 PM-02:12 PM

BC-01. Single-Molecule Magnets (SMM) Transport Channel Formation Along the Liftoff Produced Exposed Sides of Metal-Insulator-Semiconductor (MIS) Diodes

P. Suh

Mechanical Engineering, University of the District of Columbia, Washington DC, District of Columbia, United States

02:12 PM-02:24 PM

BC-02. Enhanced Interfacial Magnetism Driven by Magnetic Proximity Effects in LSMO/YBCO Superlattices

H. T. Salazar^{1,2}, Y. Tsai¹, S. Sun^{1,3}, L. Chen¹, A. J. Grutter⁴, T. Charlton⁵, J. Lynn⁴, H. Chou^{1,3}

¹National Sun Yat-sen University, Kaohsiung, Kaohsiung, Taiwan, ²Adamson University, Manila, Metro Manila, Philippines, ³National University of Kaohsiung, Kaohsiung, Kaohsiung, Taiwan, ⁴National Institute of Standards and Technology, Washington DC, District of Columbia, United States, ⁵Oak Ridge National Laboratory, Oak Ridge, Tennessee, United States

02:24 PM-02:36 PM

BC-03. Observation of nonlinear thermoelectric effect at room temperature

Y. Hirata¹, T. Kikkawa^{1,2}, H. Arisawa^{1,3}, E. Saitoh^{1,3,4}

¹Department of Applied Physics, University of Tokyo, Bunkyo-ku, Tokyo, Japan, ²ASRC, JAEA, Tokai-mura, Japan, ³CEMS, RIKEN, Wako-shi, Saitama, Japan, ⁴Beyond AI, University of Tokyo, Bunkyo-ku, Tokyo, Japan

02:36 PM-02:48 PM

BC-07. Thermally induced spin transport in in situ post-annealed NiFe₂O₄ thin films with varying lattice parameters and saturation magnetization

F. Meier¹, J. Straßburger¹, J. Biedinger¹, M. Gaerner¹, F. Peters¹, T. Samanta¹, L. Caron¹, O. Gomonay², I. Kuschel^{1,2}

¹Bielefeld University, Bielefeld, Germany, ²Johannes Gutenberg University Mainz, Mainz, Germany

02:48 PM-03:00 PM

BC-08. Sources Affecting Decision-making in Nanomagnetic Junctions

H. Arava¹, D. Sanz Hernandez², J. Woods¹, J. Grollier², A. Petford-Long¹

¹Argonne National Laboratory, Lemont, Illinois, United States, ²Laboratoire Albert Fert, Palaiseau, France

03:00 PM-03:12 PM

BC-09. Distinct element-specific nanoscale magnetization dynamics following ultrafast laser excitation

E. Bernard¹, R. Jangid^{1,2}, N. Zhou Hagström¹, F. Meera¹, J. A. Brock³, M. Pancaldi⁴, D. De Angelis⁴, F. Capotondi⁴, E. Pedersoli⁴, K. Rockwell⁵, M. Keller⁶, S. Bonetti⁷, E. Fullerton³, T. Silva⁶, R. Kukreja¹

¹Materials Science and Engineering, University of California Davis, Davis, California, United States, ²NSLS-II, Brookhaven National Laboratory, Upton, New York, United States, ³Center for Memory and Recording Research, University of California San Diego, San Diego, California, United States, ⁴Elettra Sincrotrone, Trieste, Italy, ⁵Center for Magnetism and Magnetic Nanostructures, University of Colorado Colorado Springs, Colorado Springs, Colorado, United States, ⁶Quantum Electromagnetics Division, NIST, Boulder, Colorado, United States, ⁷Molecular Sciences and Nanosystems, a' Foscari University of Venice, Venice, Italy

03:12 PM-03:24 PM

BC-11. Néel Domain Walls with Bistable Chirality in a Perpendicularly Magnetized Ferrimagnetic Insulator

Y. Song¹, S. Huang¹, D. Bono¹, J. Sadowski², C. A. Ross¹, G. Beach¹

¹Massachusetts Institute of Technology, Cambridge, Massachusetts, United States, ²Brookhaven National Laboratory, Upton, New York, United States

03:24 PM-03:36 PM

BC-12. Meron chirality selection by transverse magnetic fields at reconfigurable domain wall racetrack

V. V. Fernandez^{1,2}, A. Herguedas^{1,2}, C. Quirós^{1,2}, P. Suarez-Blanco¹, C. Fernandez-Gonzalez³, A. Sorrentino³, S. Ferrer³, A. Hierro-Rodriguez^{1,2}, M. Velez^{1,2}

¹Universidad de Oviedo, OVIEDO, Spain, ²CINN (CSIC-UO), El Entrego, Spain, ³Alba Synchrotron, Cerdanyola del Vallès, Spain

03:36 PM-03:48 PM

BC-13. Vortex Nernst effect in ferrimagnetic insulator/high-temperature superconductor heterostructures

M. Yang, J. Li

Department of Physics, Southern University of Science and Technology, Shengzheng, Guangdong, China

03:48 PM-04:00 PM

BC-14. Chirally Coupled Magnetic Tunnel Junctions resulting from the Dzyaloshinskii-Moriya interaction *

B. Vermeulen^{1,2*}, J. Chatterjee¹, G. Talmelli¹, Y. Canvel¹, Y. Li¹, S. Rao¹, B. Sorée^{1,3,4}, K. Temst^{2,1}, V. Nguyen¹

¹IMEC, Leuven, Belgium, ²Department of Physics and Astronomy, Quantum Solid-State Physics Division, KU Leuven, Leuven, Belgium, ³Department of Electrical Engineering, ESAT-INSYS Division, KU Leuven, Leuven, Belgium, ⁴Department of Physics, Universiteit Antwerpen, Antwerpen, Belgium

SESSION BD: SOFT MAGNETIC MATERIALS I

Co-Chair(s): C. Chinnasamy, *Manufacturing Science Division, Oak Ridge National Laboratory, Knoxville, Tennessee, United States* and P. Kulik, *University of Central Florida, Orlando, Florida, United States*

Tuesday, October 28, 2025

02:00 PM-05:30 PM

Ballroom B

02:00 PM-02:36 PM

BD-01. Iron Nitride Based Nanocomposite Magnet and its Prototype Motor Application

T. Ogawa^{1,2}, S. Yamamoto³, N. Kobayashi², H.

Yamamoto², K. Nakamura¹

¹Graduate School of Engineering, Tohoku University, Sendai, Japan, ²Future Materialz Co. Ltd., Tokyo, Japan, ³Sankei Giken Kogyo Co. Ltd., Tokyo, Japan

02:36 PM-02:48 PM

BD-02. Theoretical Investigation of Magnetic Moment Enhancement in $(\text{Fe}_{1-x}\text{Co}_x)_{16}\text{N}_2$ Compared to $\text{Fe}_{1-x}\text{Co}_x$ Alloy

Y. Asari¹, T. Tabata¹, M. Noujima¹, S. Terada¹, M. Enoki², T. Ogawa³

¹Hitachi, Ltd, Hitachi, Japan, ²Shimane university, Matsue, Japan, ³Tohoku university, Sendai, Japan

02:48 PM-03:00 PM

BD-03. Microstructure and permeability of Fe-deficient Ni-Cu-Zn ferrites sintered under reduced oxygen partial pressure

C. Priese, J. Töpfer

Ernst-Abbe-Hochschule Jena, Jena, Germany

03:00 PM-03:12 PM

BD-04. Nd₂Fe₁₇N₃ with planar magnetocrystalline anisotropy for sub-terahertz broadband absorbers

S. Abe¹, J. Akamatsu¹, N. Mitsui¹, N. Imaoka¹, S. Okada², K. Ozaki²

¹*Nichia Corporation, Anan, Japan*, ²*National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan*

03:12 PM-03:24 PM

BD-05. Role of Dipolar Interactions on the Determination of Effective Magnetic Anisotropy in Biopolymer coated Eu doped Magnetite Nanoparticles

K. Hazarika, D. P. Borah

Department of Science and Humanities, National Institute of Technology, DIMAPUR, Nagaland, India

03:24 PM-03:36 PM

BD-06. Advanced In-Situ Friction Stir Forging of Soft Magnetic Composites for Axial-Flux Electric Motor Applications

R. Kalsar¹, H. Das¹, S. Shukla¹, L. Li¹, T. Ajantiwalay¹, J. Haag¹, T. P. Chhetri¹, B. Gwalani², V. Joshi¹, C. Chinnasamy³

¹*Pacific Northwest National Laboratory, Richland, Washington, United States*, ²*North Carolina State University, Raleigh, North Carolina, United States*, ³*Manufacturing Science Division, Oak Ridge National Laboratory, Knoxville, Tennessee, United States*

03:36 PM-03:48 PM

BD-07. Minnealloy Fabrication for High Power Transformers

A. S. Padgett¹, S. R. Bishop¹, J. D. Boissiere¹, C. R. Riley¹, P. F. Weck¹, S. Percival¹, D. Bosomtwi¹, A. R. Marotta¹, D. Richards¹, W. Echtenkamp², J. Wang²

¹*Sandia National Laboratories, Albuquerque, New Mexico, United States*, ²*University of Minnesota, Minneapolis, Minnesota, United States*

03:48 PM-04:15 PM

Break

04:15 PM-04:27 PM

BD-08. Co-sputtered FeCo-AlN Thin Films with Ultra-high Resistivity for High-Frequency Integrated Magnetics

R. Anjum, G. Wei, A. Masood, R. Sai

Integrated Power and Energy Systems, Tyndall National Institute, Cork, Ireland

04:27 PM-04:39 PM

BD-09. Bipolar Faraday Rotation Garnets for Integrated Magnet-free Isolators on Si

P. Liu¹, B. Moghal², B. Stadler^{2,1}

¹*Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, Minnesota, United States,*

²*Electrical and Computer Engineering, University of Minnesota, Minneapolis, Minnesota, United States*

04:39 PM-04:51 PM

BD-10. Micromagnetic Modeling of Gap-Controlled Permeability in Realistically Structured Soft Magnetic Materials

J. Duan, V. Lomakin

University of California San Diego, San Diego, California, United States

04:51 PM-05:03 PM

BD-11. Engineering High Thermal Stability in Zr/Nb-doped CoFeB for High Power Conditioning in Extreme Environments

M. F. Mancias¹, N. M. Bruno², V. Keylin², A. Leary², K. Chinnathambi³, R. D. Noebe², K. Srinivasan¹

¹*Electrical and Computer Engineering, Boise State University, Boise, Idaho, United States,* ²*Materials and Structures Division, NASA Glenn Research Center, Cleveland, Ohio, United States,* ³*Boise State Center for Materials Characterization, Boise State University, Boise, Idaho, United States*

05:03 PM-05:15 PM

BD-12. Soft magnetic properties of Fe-Co-B-Si-Cu nanocrystalline alloys at high temperatures

I. Skorvanek¹, J. Marcin¹, B. Kunca¹, P. Svec jr.², P. Svec²

¹*Institute of Experimental Physics, SAS, Kosice, Slovakia,*

²*Institute of Physics, SAS, Bratislava, Slovakia*

05:15 PM-05:27 PM

BD-13. Fabrication of soft magnetic cores composed of amorphous Fe-B particles for next-generation magnetic passive components

S. Ajia¹, C. Masumoto¹, Y. Kodama¹, T. Miyazaki², S. Muroga¹, Y. Endo^{1,3}

¹Department of Electrical Engineering, Tohoku University, Sendai, Japan, ²School of Engineering, Tohoku University, Sendai, Japan, ³CSIS, Tohoku University, Sendai, Japan

SESSION BE: MAGNETO-OPTIC AND MAGNETO-CALORIC MATERIALS AND DEVICES

Co-Chair(s): A. Biswas, Ames National Laboratory, Ames, Iowa, United States and M. Khan, Physics, Miami University, Oxford, Ohio, United States

Tuesday, October 28, 2025

02:00 PM-05:30 PM

Room 2DE

02:00 PM-02:36 PM

BE-01. High-efficiency Optical Training of Spin Textures in 2D Magnets

C. Gong

University of Maryland, College Park, Maryland, United States

02:36 PM-02:48 PM

BE-02. Photon-Magnon Coupling in Asymmetric Meander Microstrip Line for Frequency Tunable and Controllable Nonreciprocal Microwave Transmission

E. Kwao², Y. Xiong^{1,2}, S. Zhou¹, S. Desai², W. Zhang¹, B. Yang²

¹Department of Physics and Astronomy, University of North Carolina Chapel Hill, Chapel Hill, North Carolina, United States, ²Department of Electrical and Computer Engineering, North Carolina A&T State University, Greensboro, North Carolina, United States

02:48 PM-03:00 PM

BE-03. Stochastic magnetic tunnel junction arrays for infrared sensing

A. Deka², U. Singh¹, L. Bauer¹, M. Mousa¹, B. Prasad³, Z. Jacob¹

¹ECE, Purdue University, West Lafayette, Indiana, United States, ²Birck Nanotechnology Center, Purdue University, West Lafayette, Indiana, United States, ³Indian Institute of Science, Bangalore, India

03:00 PM-03:12 PM

BE-04. Multi-Lanthanide Metal-Organic Frameworks: From Multifunctional Magnetic Materials to Quantum Applications

E. Bartolomé¹, X. Liu¹, A. Arauzo³, Z. Li², J. Giner-Planas¹

¹*Institut de Ciència de Materials de Barcelona (ICMAB), Barcelona, Spain*, ²*Shandong Provincial Key Laboratory of Monocrystalline Silicon Semiconductor Materials and Technology, Dezhou University, Dezhou, China*, ³*Condensed Matter Physics, Instituto de Nanociencia y Materiales de Aragón (INMA)-Universidad de Zaragoza, Zaragoza, Spain*

03:12 PM-03:24 PM

BE-06. Enhanced Ferromagnetism and Magnetocaloric Effect in Al-Substituted Antiperovskite $Mn_{4-x}Al_xC$ Compounds

B. Zhang, P. Si, X. Zheng, Y. Song, J. Park, C. Choi
Korea Institute of Materials Science, Changwon, Busan, Korea (the Republic of)

03:24 PM-03:36 PM

BE-07. Theoretical Modeling of Magnetocaloric Effect During Hexagonal-Orthorhombic Phase Transition

A. Kosogor^{1,2,3}, D. Böhm¹, T. Schrefl¹

¹*University for Continuing Education Krems, Krems, Austria*, ²*Faculty of Physics, University of Vienna, Vienna, Austria*, ³*V.G. Baryakhtar Institute of Magnetism of the NAS of Ukraine, Kyiv, Ukraine*

03:36 PM-03:48 PM

BE-08. From Concept to Operation: Design Strategies, Experimental Evaluation, and Engineering Challenges across Three Generations of a Magnetocaloric Air Conditioner *

G. Fidelis Peixer^{2*}, A. Lorenzoni², P. Vitor de Faria², D. D. Reif³, A. T. Dias Nakashima², C. Silva Teixeira³, J. A. Lozano², J. Riso Barbosa Jr.^{1,2}

¹*Craft & Hawkins Department of Petroleum Engineering, Louisiana State University, Baton Rouge, Louisiana, United States*, ²*POLO - Research Laboratories for Emerging Technologies in Cooling and Thermophysics,, Federal University of Santa Catarina, Florianópolis, Santa Catarina, Brazil*, ³*Lab3M - Laboratory of Magnetism and Magnetic Materials, Federal University of Santa Catarina, Blumenau, Santa Catarina, Brazil*

03:48 PM-04:15 PM

Break

04:15 PM-04:27 PM

BE-10. Magnetic and magnetocaloric properties of the new $Gd_3Co_{1+x}Ni_{1-x}$ solid solution

A. Herrero¹, A. Provino^{2,3}, I. Aseguinolaza¹, S. De Negri², D. Peddis^{2,4}, P. Manfrinetti^{2,3}, A. Oleaga¹

¹University of the Basque Country, Bilbao, Spain,

²Department of Chemistry, University of Genova, Genova, Italy, ³CNR, Institute SPIN, Genova, Italy, ⁴CNR, Institute of Structure of Matter, Genova, Italy

04:27 PM-04:39 PM

BE-13. Magnetocaloric Properties of $Gd_{1-x}Er_xNiAl$ Alloys near Hydrogen Liquefaction Temperatures

P. Chaitanya¹, A. Kumar², L. Patra^{3,4}, J. P. Nunez¹, E. R. Canavan⁵, B. Liao⁴, M. J. Dipirro⁵, Y. Mudryk², R. L. Hadimani¹

¹Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, Virginia, United States, ²Ames Laboratory, Iowa State University, Ames, Iowa, United States, ³Department of Mechanical Engineering, Georgia Institute of Technology, Atlanta, Georgia, United States, ⁴Department of Mechanical Engineering, University of California, Santa Barbara, Santa Barbara, California, United States, ⁵Cryogenics and Fluids Branch, Code 552, NASA Goddard Space Flight Center, Greenbelt, Maryland, United States

SESSION BF: STT-MRAM AND SOT-MRAM AND RELATED DEVICES

Chair(s): D. Kim, *Department of Materials Science and Engineering, KAIST, Daejeon, Korea (the Republic of)*

Tuesday, October 28, 2025

02:00 PM-05:30 PM

Room 2BC

02:00 PM-02:36 PM

BF-01. Energy Efficient Spintronic Devices for Memory and Computing by New Materials, New Physics and Voltage Control

J. Wang^{1,2,3}, Y. Yang¹, Y. Chen¹, Q. Jia¹, S. Lee¹, T. Low¹, O. Benally¹, B. Dixit¹, D. Sousa¹, T. Peterson³, D. Lyu¹, M. Odlyzko⁴, J. Garcia-Barriocanal⁴, G. Yu⁴, G. Haugstad⁴, Y. Fan¹, Y. Huang¹, Y. Lv¹, S. Liang², B. Zink¹, Z. Cresswell²

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

²Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, Minnesota, United States,

³Physics, University of Minnesota, Minneapolis, Minnesota, United States, ⁴Characterization Facility, University of Minnesota, Minneapolis, Minnesota, United States

02:36 PM-02:48 PM

BF-02. Large Voltage-Controlled Magnetic Anisotropy in 3X-nm Perpendicular Magnetic Tunnel Junctions

J. G. Athas¹, C. Duffee¹, T. Neuner¹, N. Davila², J. Katine², P. Khalili Amiri¹

¹Electrical and Computer Engineering, Northwestern University, Evanston, Illinois, United States, ²Western Digital Corporation, San Jose, California, United States

02:48 PM-03:00 PM

BF-03. Improved VCMA Coefficients in Perpendicular MRAM Measured With Device-Level Spin-Torque Ferromagnetic Resonance

R. V. Chopdekar, H. J. Richter, J. Li, T. Santos
Western Digital Research Center, Western Digital Corporation, San Jose, California, United States

03:00 PM-03:12 PM

BF-04. Spin transfer torque switching in double magnetic tunnel junctions based on dual MgO layers

W. Jung, G. Mihajlović, R. V. Chopdekar, J. Lille, M. Grobis, T. Santos

Western Digital, San Jose, California, United States

03:12 PM-03:24 PM

BF-05. Perpendicular Magnetic Tunnel Junction with Co-Ni-based Synthetic Antiferromagnet

W. Skowronski¹, M. Cierpial¹, D. Maslanka¹, K. Gubala¹, J. Mojsiejuk¹, K. Grochot¹, J. Wrona², J. Langer², T. Nan³

¹Institute of Electronics, AGH University of Krakow, Krakow, Poland, ²Singulus Technologies, Kahl am Main, Germany, ³School of Integrated Circuit, Tsinghua University, Beijing, China

03:24 PM-03:36 PM

BF-06. Electrical Detection of Synthetic Antiferromagnet States via Tunnel Magnetoresistance

D. Giuliano^{1,2}, B. Vermeulen^{1,2}, V. Kateel¹, G. Talmelli¹, M. Gama Monteiro¹, S. Rao¹, C. Fleischmann^{1,2}, K. Temst^{2,1}, V. Nguyen¹

¹Imec, Leuven, Belgium, ²Physics and Astronomy, KU Leuven, Leuven, Belgium

03:36 PM-03:48 PM

BF-07. Multi-level spin-orbit torque magnetic nanoarray for process-in-memory applications

D. Koh, M. Kang, D. Kim, B. Park

Materials Science and Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea (the Republic of)

03:48 PM-04:15 PM

Break

04:15 PM-04:27 PM

BF-08. Domain Wall Leaky-Integrate-Fire Dendrites with Spatiotemporally Varied Inputs for Event-Based Sensing

H. Jin¹, F. Chance², C. H. Bennett², S. G. Cardwell², J. Incorvia¹

¹*Chandra Family Department of Electrical and Computer Engineering, University of Texas at Austin, Austin, Texas, United States*, ²*Sandia National Laboratories, Albuquerque, New Mexico, United States*

04:27 PM-04:39 PM

BF-09. Standby Magnetic Immunity Calculator

A. Talapatra¹, F. Schlaphof¹, P. Scharf¹, M. Mansueto¹, D. Sanchez Hazen¹, J. Müller¹, S. Soss², A. Zaka¹

¹*GlobalFoundries, Dresden, Germany*, ²*GlobalFoundries, Malta, New York, United States*

04:39 PM-04:51 PM

BF-10. Harnessing GHz Frequency Spin-Orbit Torque for Spin-Wave Amplification in Cobalt Nanomagnets

P. Pal¹, R. Fabiha², A. Mondal¹, S. Bandyopadhyay², A. Barman¹

¹*Department of Condensed Matter and Materials Physics, S. N. Bose National Centre for Basic Sciences, Kolkata, West Bengal, India*, ²*Department of Electrical and Computer Engineering, Virginia Commonwealth University, Richmond, Virginia, United States*

SESSION BG: HARD MAGNETIC MATERIALS I: SM-BASED AND RARE EARTH FREE MAGNETS

Chair(s): H. Parmar, *Critical Materials Institute Hub, Ames National Laboratory, Ames, Iowa, United States*

Tuesday, October 28, 2025

02:00 PM-05:30 PM

Room 2A

02:00 PM-02:36 PM

BG-01. High Entropy Thin Films with High Magnetic Anisotropy and Tunable Magnetic Order

W. Beeson¹, D. Bista¹, D. Bhattacharya¹, H. Zhang^{2,3}, S. Krylyuk², N. Naushin⁴, A. T. N'Diaye⁵, R. Kukreja⁴, A. Davydov², G. Yin¹, K. Liu¹

¹*Physics Department, Georgetown University, Washington, District of Columbia, United States,*

²*National Institute of Standards and Technology,*

Gaithersburg, Maryland, United States, ³*Theiss Research,*

Inc, La Jolla, California, United States, ⁴*University of*

California, Davis, Davis, California, United States,

⁵*Lawrence Berkeley National Lab, Berkeley, California, United States*

02:36 PM-02:48 PM

BG-02. Investigation of the phase formation and thermal stability of the L1₀ phase in the MnAlCu system

H. Baldino¹, N. Schnitzer^{2,3}, Z. Monem⁴, S. Rego⁵, D. Hedlund⁵, D. Heiman^{6,7}, B. Cui⁸, L. Li⁴, D. Muller^{3,9}, P. Kulik^{1,5}

¹*Material Science and Engineering, University of central Florida, Orlando, Florida, United States,* ²*Material Science and Engineering, Cornell University, Ithaca, New York,*

United States, ³*Kavli Institute at Cornell for Nanoscale Science, Cornell University, Ithaca, New York, United*

States, ⁴*Mechanical and Aerospace Engineering,*

University of Central Florida, Orlando, Florida, United

States, ⁵*Electrical and Computer Engineering, University*

of Central Florida, Orlando, Florida, United States,

⁶*Physics, Northeastern University, Boston, Massachusetts,*

United States, ⁷*Plasma science and Fusion center,*

Massachusetts Institute of Technology, Cambridge,

Massachusetts, United States, ⁸*Division of Critical*

Materials, Ames National Laboratory, Ames, Iowa, United

States, ⁹*School of Applied and Engineering Physics,*

Cornell University, Ithaca, New York, United States

02:48 PM-03:00 PM

BG-03. A New Approach in Sintered Mn-Bi Magnets via Silane Coupling Agent

Y. Song^{1,2}, B. Zhang^{1,3}, X. Zheng^{1,3}, C. Choi¹, K. Jong-Woo¹, K. Lee², J. Park¹

¹Nano Materials Research Division, Korea Institute of Materials Science, Changwon, Gyeongsangnam-do, Korea (the Republic of), ²School of Materials Science and Engineering, Ulsan National Institute of Science and Technology (UNIST), Ulsan, Korea (the Republic of), ³Division of Materials Science and Engineering, Pusan National University, Busan, Korea (the Republic of)

03:00 PM-03:12 PM

BG-04. A Material Processing Perspective on Exchange-Spring Permanent Magnets

T. Lamichhane

Engineering & Physics, University of Central Oklahoma, Edmond, Oklahoma, United States

03:12 PM-03:24 PM

BG-05. Enhancing Magnetic Performance of AlNiCo Permanent Magnets via Magnetic Field-Assisted Directed Energy Deposition

O. Bishop^{1,2}, A. R. Duong¹, I. M. Smith³, E. E. Carpenter³, K. Snyder², R. Barua¹

¹Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, Virginia, United States, ²Commonwealth Center for Advanced Manufacturing, Disputanta, Virginia, United States, ³Chemistry, Virginia Commonwealth University, Richmond, Virginia, United States

03:24 PM-03:36 PM

BG-06. Magnetic Behavior of Co(Mo) Nanoparticles

S. Dhapola^{1,2}, D. Sagar³, A. Kashyap³, J. Shield^{1,2}

¹Mechanical and Materials Engineering, University of Nebraska-Lincoln, Lincoln, Nebraska, United States, ²Nebraska Center for Materials and Nanoscience, University of Nebraska-Lincoln, Lincoln, Nebraska, United States, ³School of Physical Sciences, Indian Institute of Technology, Mandi, Himanchal Pradesh, India

03:36 PM-03:48 PM

BG-07. The Possibility of New Complex Magnet Materials

J. Snyder

northwestern, EVANSTON, Illinois, United States

03:48 PM-04:15 PM

Break

04:15 PM-04:27 PM

BG-08. Investigation on magnetic properties of anisotropic nanocrystalline Sm-Co-Cu magnets

K. Park¹, Y. Hirayama¹, Y. Akita²

¹Multi-Material Research Institute, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan, ²AISIN CORPORATION, Kariya, Japan

04:27 PM-04:39 PM

BG-09. Exploring stable sites and compositional ranges in $\text{Sm}_2\text{Fe}_{17}\text{M}_x$ ($M = \text{H}, \text{C}, \text{N}$) using neural network potentials

Y. Tatetsu

Health Informatics, Meio University, Nago, Okinawa, Japan

04:39 PM-04:51 PM

BG-10. Microstructure–Magnetism Correlation in SmCo_5 -Based Materials via Solid-State Design Strategies

F. Ishrak, M. Lastovich, M. Uddin, F. Tsai, B. Gwalani
Materials Science and Engineering, North Carolina State University, Raleigh, North Carolina, United States

04:51 PM-05:03 PM

BG-11. Improvement of Thermal Stability of TbCu_7 Sm-Fe phase by Addition of Zr and Y in Synthesis of the Fine Powder with Low-temperature Reduction-Diffusion

S. Okada

Multi-Material Research Institute, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Aichi, Japan

05:03 PM-05:15 PM

BG-12. High coercivity TbCu_7 -type Sm-Fe-N powder prepared by induction thermal plasma process

Y. Hirayama, Z. Liu, W. Yamaguchi

National Institute of Advanced Industrial Science and Technology, Nagoya, Japan

05:15 PM-05:27 PM

BG-13. First-Principles Prediction of Permanent Magnetism in SmFe₁₁Ti

B. Narangerel¹, M. Adiya¹, D. Odkhuu^{1,2}

¹*Department of Physics, Incheon National University, Incheon, Korea (the Republic of),* ²*Institute of Physics and Technology, Mongolian Academy of Sciences, Ulaanbaatar, Mongolia*

SESSION BP: MAGNONICS I: SPIN WAVES & SPIN DYNAMICS (POSTER SESSION)

Chair(s): J. Zhou, *Institute of Materials Research and Engineering, A*STAR, Singapore*

Tuesday, October 28, 2025

02:30 PM-05:30 PM

Exhibit Hall Posters

BP-01. Magnetic field dependence of dipole-exchange spin waves in square ferromagnetic nanorings

A. Frost¹, B. Hussain¹, M. G. Cottam²

¹*University of Michigan, Dearborn, Michigan, United States,* ²*University of Western Ontario, London, Ontario, Canada*

BP-02. Nanoscale Quantum Imaging of Caustic Spin-Wave in YIG Film

T. Zheng, E. Zhang, B. Yang, J. Zhu

Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, United States

BP-03. Dynamic Spin-Wave Characterization in Ferrimagnetic Insulators: Time-Resolved Imaging and Frequency Domain Analysis

V. Ganepola Arachchige¹, Z. Ishraque¹, S. Alaei², S. Wintz³, Y. Suzuki², R. Knut⁴, D. A. Arena¹

¹*Department of Physics, University of South Florida, Tampa, Florida, United States,* ²*Department of Physics, Stanford University, Stanford, California, United States,* ³*Helmholtz-Zentrum Berlin, Berlin, Germany,* ⁴*Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden*

BP-04-LB. Ultra-small fine particle inspection system for LIB cathode by HTS SQUIDS

S. Tanaka¹, P. Polkotuwa², T. Ohtani²

¹*Institute for Research on Next-generation Semiconductor and Sensing Science (IRES2), Toyohashi University of Technology, Toyohashi, Aichi, Japan,* ²*R & D Division, Nikka Densok Limited, Kawagoe, Saitama, Japan*

BP-05-LB. Tunable Coupling, Topology, and Chirality by Antimagnons in Magnetic Multilayer

Y. Liu¹, Z. Chen², Q. Shao¹

¹*Electronic Engineering, The Hong Kong University of Science and Technology, Hong Kong, Hong Kong,*

²*Physics, The Hong Kong University of Science and Technology, Hong Kong, Hong Kong*

BP-06. Magnon Superlattices around Skyrmions in Frustrated Magnets

A. Hullahalli^{1,2}, C. Panagopoulos¹, C. Psaroudaki²

¹*Nanyang Technological University, Singapore,* ²*École Normale Supérieure, Paris, France*

BP-07. Role of interfacial Dzyaloshinskii-Moriya interactions on dipole-exchange spin waves in ferromagnetic nanoribbons

S. Hussain¹, B. Hussain², M. G. Cottam³

¹*Orange Coast College, Costa Mesa, California, United States,* ²*University of Michigan, Dearborn, California, United States,* ³*University of Western Ontario, London, Ontario, Canada*

BP-09. Simulating Magnon Dispersion of Layered Antiferromagnets

T. Jeffrey, E. Stimpson, J. Sklenar

Physics & Astronomy, Wayne State University, Detroit, Michigan, United States

BP-10. Observation of breathing magnetic domain wall at ferromagnetic nanowires

S. Ahn

Postech, Pohang, Korea (the Republic of)

SESSION BQ: TRANSFORMERS AND POWER ELECTRONICS I (POSTER SESSION)

Chair(s): H. Matsumori, *Nagoya Institute of Technology,
Nagoya, Japan*

Tuesday, October 28, 2025

02:30 PM-05:30 PM

Exhibit Hall Posters

BQ-01. Structural Design of a Common-Mode Inductor with Metal Casing for Improved High-Frequency Performance

Y. Ueda¹, H. Matsumori¹, K. Nagayoshi²

¹*Electrical and Mechanical Eng., Nagoya Institute of Technology, Nagoya, Aichi, Japan,* ²*Toyota industries corporation, Nagoya, Aichi, Japan*

BQ-02. A Study on volume reduction and power density improvement of motor using PCB stator

Y. Lim, D. Choi, Y. Lee, J. Lee, W. Kim

Electrical Engineering, GACHON UNIVERSITY, Seongnam-si, Gyeonggi-do, Korea (the Republic of)

BQ-03. Thin-film YIG-based Tunable Inductors at Microwave Frequencies

S. Sultana, D. Hedlund, P. Kulik

University of Central Florida, ORLANDO, Florida, United States

BQ-04. New Slim Microspeaker Design for Smartwatches with Halbach Array Magnetic Circuit

Y. Jeong¹, J. Park¹, D. Xu², S. Hwang¹

¹*Department of Mechanical Engineering, Pusan National University, Busan, Korea (the Republic of),* ²*School of Mechatronic Engineering and Automation, Shanghai University, Shanghai, China*

BQ-05. A Heating Power Optimization Method for Electro-Thermal Multi-Energy Flexible Generator Based on Composite Anisotropic Materials

J. Yuan^{1,3}, H. Wang^{1,3}, B. Peng^{1,3}, H. Zhou^{1,3}, X. Chen², Q. Wang²

¹*School of Electrical Engineering and Automation, Wuhan University, Wuhan, Hubei, China,* ²*Electric Power Research Institute China Southern Power Grid, Guangzhou, China,* ³*State Key Laboratory of Power Grid Environmental Protection, School of Electrical Engineering and Automation, Wuhan University, Wuhan, Hubei, China*

BQ-06. Configuration of Transmitter and Receiver of Wireless Power Transfer System while Driving for Electric Vehicles (EVs)

K. Hidaka¹, F. Sato¹, O. Ito¹, S. Miyahara¹, S. Sasaki²

¹Tohoku Gakuin University, Sendai, Miyagi, Japan,

²Hikaridenshi .CO.,LTD., Osaki, Miyagi, Japan

BQ-07. Research on a Nanocrystalline Amorphous-Based Magnetically Saturated Bridge Arm Coupled Reactor Applied in MMC-HVDC Systems

J. Yuan, W. Zhang, H. Zhou, J. L. Liu, Y. Sun, J. Liu, D. Zhang

Wuhan University, Wuhan, China

BQ-08. A Study on the Shape of Axial Flux Motor for Collaborative Robot Joints to Improve Output

M. Hong¹, D. Choi², H. Kim², Y. Lee², W. Kim²

¹Hanyang University, Seoul, Korea (the Republic of),

²Gachon University, Seongnam, Korea (the Republic of)

BQ-09. Design and Analysis of Nanocrystalline Core for Low-Temperature-Rise Anode Saturation Reactor

X. Li^{2,1}, J. Yuan^{2,1}, H. Zhou^{2,1}, Z. Mo¹, Y. Wang¹, J. Hou^{2,1}

¹School of Electrical Engineering and Automation, Wuhan University, Wuhan, China, ²State Key Laboratory of Power Grid Environmental Protection, School of Electrical

Engineering and Automation, Wuhan University, Wuhan, China

BQ-10. Research on Adjustment Range Expansion of Orthogonal Controllable Reactors Based on Low-Saturation-Point Core Materials

J. Hou^{1,2}, J. Yuan^{1,2}, H. He^{1,2}, G. Ma^{1,2}, X. Li^{1,2}, H. Liu^{1,2}, H. Zhou^{1,2}

¹State Key Laboratory of Power Grid Environmental Protection, Wuhan University, Wuhan, China, ²School of Electrical Engineering and Automation, Wuhan

University, Wuhan, China

SESSION BR: ENERGY ASSISTED MAGNETIC RECORDING & MAGNETIC SENSORS (POSTER SESSION)

Co-Chair(s): N. A. Natekar, *Western Digital, San Jose, California, United States* and T. Kubota, *Advanced Spintronics Medical Engineering, Tohoku University, Sendai, Miyagi, Japan*

Tuesday, October 28, 2025

02:30 PM-05:30 PM

Exhibit Hall Posters

BR-01. Magnetization dynamics: maxwell equation based approach

K. Rivkin

RKMAG Corporation, Pacific Grove, California, United States

BR-02. Cubic Anisotropy Media for Microwave Assisted Magnetic Recording

S. Greaves¹, Y. Kanai²

¹*RIEC, Tohoku University, Sendai, Japan*, ²*Niigata Institute of Technology, Kashiwazaki, Japan*

BR-03. Plasmonic Nanoantennas for Helicity-Dependent All-Optical Switching

T. E. McCormack, J. Scott, W. R. Hendren, N. Kuninski, R. M. Bowman

Centre for Quantum Materials and Technologies, Queen's University Belfast, Belfast, Antrim, United Kingdom

BR-04. Effect of rare earth metal substitution in FePt-C granular films on magnetic properties and nanostructure

K. Tham¹, D. Miyazaki¹, S. Saito²

¹*Tanaka Precious Metal Technologies, Tsukuba, Japan*,

²*Tohoku University, Sendai, Japan*

BR-05. FePt granular films with rare earth metal oxides as ferromagnetic grain boundary materials

D. Miyazaki¹, K. Tham¹, S. Saito²

¹*TANAKA PRECIOUS METAL TECHNOLOGIES, Tsukuba,*

Ibaraki, Japan, ²*Tohoku University, Sendai, Miyagi, Japan*

BR-06. Thermally Activated Magnetic Switching in Films with Perpendicular and Random Anisotropies

D. Alharbi^{1,2}, M. Guy¹, M. Davis¹, F. Bakhshizadeh¹, F. Efe¹, A. Lisfi¹

¹Physics, Morgan State University, Baltimore, Maryland, United States, ²Physics, The Catholic University of America, Washington DC, District of Columbia, United States

BR-07. A Frequency-Tunable Copper Coil-Based Microfluidic Sensor for High-Throughput Screening and Magnetic Biomarker Detection

D. Brown¹, W. Manuel^{1,2}, D. Luu¹, M. Gili^{1,2}, M. Vega², M. Phan¹

¹Department of Physics, University of South Florida, Tampa, Florida, United States, ²Materials Science and Engineering Program, College of Science, University of the Philippines, Diliman, Philippines

BR-08. Highly Sensitive Magnetic Sensor Using Superparamagnetic Tunnel Junctions with Stochastic Magnetization Reversal

R. Hirama¹, T. Kubota², M. Endo², K. Fujiwara³, S. Sasaki⁴, H. Yutaka⁴, L. Sakai⁴, M. Hosomi⁴, M. Oogane¹

¹Department of Applied Physics, Graduate School of Engineering, Tohoku University, Sendai, Miyagi Prefecture, Japan, ²Department of Advanced Spintronics Medical Engineering, Graduate School of Engineering, Tohoku University, Sendai, Miyagi Prefecture, Japan, ³Spin Sensing Factory Corporation, Sendai, Miyagi Prefecture, Japan, ⁴Sony Semiconductor Solutions, Minato ku, Tokyo, Japan

BR-09. Methods for Quantifying Parameter Estimation Uncertainty in Eddy Current Testing of Coated Steel Sheets

M. Koll¹, D. Wöckinger¹, G. Bramerdorfer¹, N. Gstöttenbauer², S. Scheiblhofer², S. Schuster², J. Reisinger²

¹Institute of Electric Drives and Power Electronics, Johannes Kepler University, Linz, Austria, ²voestalpine Stahl GmbH, Linz, Austria

BR-10. Electromagnetic Material Characteristics of Steels Used for Hot-dip Galvanization and their Impact on the Coating Thickness Estimation Bias in Eddy Current Testing

M. Koll¹, D. Wöckinger¹, M. Peer¹, C. Dobler¹, G. Bramerdorfer¹, N. Gstöttenbauer², S. Scheiblhofer², S. Schuster², J. Reisinger²

¹*Institute of Electric Drives and Power Electronics, Johannes Kepler University, Linz, Austria,* ²*voestalpine Stahl GmbH, Linz, Austria*

BR-11. Variable Exploration of Micromagnetic Simulations of Concentration Detection Range of Large Area Low Aspect Ratio GMR Sensors in Biomedical Diagnostics

R. A. Mendonsa, S. Liang, J. Wang

University of Minnesota, Minneapolis, Minnesota, United States

BR-12. Tuning TMR magnetic sensors using ion irradiation

E. Montebianco, Y. Sassi, M. Deroo, M. Grelier, M. Drouhin, D. Gouéré, D. Ravelosona

R&D, Spin-Ion Technologies, Ile de France, Palaiseau, France

BR-13. Noise-Robust Method Using Sparsity for Locating a Crack in a Steel Rod Based on the Fourier Coefficients of the Leakage Magnetic Flux

K. Shiku¹, N. Shigematsu², Y. Kuwahara², Y. Gotoh³, T. Nara¹

¹*The University of Tokyo, Bunkyo-ku, Japan,* ²*Neturen Co., Ltd., Hiratsuka Kanagawa, Japan,* ³*Oita University, Oita-shi, Japan*

BIERSTUBE

Tuesday, October 28, 2025

05:00 PM-06:30 PM

Exhibit Hall Events

WOMEN IN MAGNETISM NETWORKING & WINE TASTING EVENT

Tuesday, October 28, 2025

05:00 PM-06:30 PM

Hilton Mezze Patio

XA: COMMEMORATING 50 YEARS OF THE MAGNETIC TUNNEL JUNCTION

Tuesday, October 28, 2025

06:30 PM-08:00 PM

Grand Ballroom

06:30 PM-07:00 PM

XA-01. A Perspective on Magnetic Tunnel Junctions and Tunnel Magnetoresistance – The Journey

J. S. Moodera

Physics, Plasma Science and Fusion Center, MIT, Cambridge, Massachusetts, United States

07:00 PM-07:30 PM

XA-02. Advances in magnetic tunnel junctions for giant tunnel magnetoresistance: Interface engineering and novel materials toward future applications

H. Sukegawa

Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science (NIMS), Tsukuba, Japan

07:30 PM-08:00 PM

XA-03. Perpendicularly magnetized magnetic tunnel junctions for Spin-Transfer-Torque MRAM applications

G. Hu, M. G. Gottwald, C. Safranski, P. L. Trouilloud, L. Rehm, S. Brown, J. Bruley, C. Heinsohn, G. Kim, J. Kim, J. Liang, M. Robbins, P. Hashemi, D. Worledge

IBM T J Watson Research Center, Yorktown Heights, New York, United States

SESSION CA: BEYOND POLYCRYSTALLINE FILMS: TEXTURED MATERIALS FOR HIGH-PERFORMANCE SPINTRONIC DEVICES

Chair(s): P. Khalili Amiri, *Northwestern University, Evanston, Illinois, United States*

Wednesday, October 29, 2025

08:30 AM-12:00 PM

Grand Ballroom

08:30 AM-09:06 AM

CA-01. Integration of highly textured, and epitaxial, materials into 300 mm MRAM manufacturing

S. Mertens¹, M. Ben Chroud¹, X. Piao², K. Sankaran¹, T. Tran¹, N. Jossart¹, A. Palomino Lopez¹, N. Franchina Vergel¹, M. Gama Monteiro¹, S. Rao¹, R. Carpenter¹

¹imec, Leuven, Belgium, ²The Institute for Solid State Physics, University of Tokyo, Kashiwa, Japan

09:06 AM-09:42 AM

CA-02. Epitaxial magnetic Weyl semimetals for efficient magnetic reading and writing

C. Chou, Z. He, L. Liu

MIT, Cambridge, Massachusetts, United States

09:42 AM-10:18 AM

CA-03. Ultrafast and Chiral Spin Dynamics in Engineered Heusler Architectures: From Synthetic Antiferromagnets to Monolayer Tunnel Junctions

P. C. Filippou

Research, IBM, San Jose, California, United States

10:18 AM-10:45 AM

Break

10:45 AM-11:21 AM

CA-04. High-Performance L1₀-FePd Materials for Next-Generation Extreme-Environment Magnetic Memory

D. B. Gopman

Materials Science and Engineering Division, NIST, Gaithersburg, Maryland, United States

11:21 AM-11:57 AM

CA-05. Epitaxial Noncollinear Antiferromagnetic Devices for Microwave Spintronics

S. Nakatsuji

Department of Physics and Astronomy, Johns Hopkins University, Baltimore, Maryland, United States

SESSION CB: FUTURE READ HEAD TECHNOLOGIES

Chair(s): S. Hernandez, *Seagate Technology, Bloomington, Minnesota, United States*

Wednesday, October 29, 2025

08:30 AM-12:00 PM

Ballroom A

08:30 AM-09:06 AM

CB-01. Reader Technology for Ultra-High Capacity HDDs

A. Grier

Seagate Technology, Derry, United Kingdom

09:06 AM-09:42 AM

CB-02. Ultra Narrow Readers – Challenges and Outlook

H. G. Zolla, G. Baiao De Albuquerque, J. L. Grab, J. Liu, C. Yu, J. M. Freitag, I. Andoni, X. Liu, Y. Hong
Western Digital, San Jose, California, United States

09:42 AM-10:18 AM

CB-03. Sub-10 nm Reader Design Using Lateral Spin Valve Structure

R. H. Victora^{1,2}, R. Hao¹
¹*ECE, U. Minnesota, Minneapolis, Minnesota, United States*, ²*Physics, U. Minnesota, Minneapolis, Minnesota, United States*

10:18 AM-10:45 AM

Break

10:45 AM-11:21 AM

CB-04. Tailoring MTJs for future applications: Barrier interfaces engineering and new spinel barrier materials

T. Scheike^{1,2}, H. Sukegawa¹
¹*NIMS, Tsukuba, Ibaraki, Japan*, ²*AIST, Tsukuba, Ibaraki, Japan*

11:21 AM-11:57 AM

CB-05. Potential and challenges of anomalous Hall sensors for future read head technology

T. Nakatani, P. D. Kulkarni, M. Manikketh, R. Toyama, H. Suto, K. Masuda, N. Suwannaharn, T. Sasaki, H. Iwasaki, Y. Sakuraba
National Institute for Materials Science, Tsukuba, Japan

SESSION CC: MAGNETO-TRANSPORT AND MAGNETO-OPTICS OF HIGHER ORDERS IN MAGNETIZATION

Chair(s): T. Kuschel, *Bielefeld University, Bielefeld, Germany*

Wednesday, October 29, 2025

08:30 AM-12:00 PM

Ballroom C

08:30 AM-09:06 AM

CC-01. Angle-dependent magneto-transport of higher order in magnetization

M. Althammer^{1,2}
¹*Walther-Meißner-Institut, Garching, Germany*, ²*TUM School of Natural Sciences, Physics Department, Technical University of Munich, Garching, Germany*

09:06 AM-09:42 AM

CC-02. Quadratic and Cubic Magneto-optic Kerr Effect in Thin Films Depending on Structural Domain Twinning and Crystal Orientation

J. Hamrle^{1,2}, M. Gaerner⁴, R. Silber³, M. Schäffer⁴, M. Veis¹, T. Kuschet⁴

¹*Faculty of Mathematics and Physics, Charles University, Prague, Czechia,* ²*Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University, Prague, Czechia,* ³*Department of Materials Engineering and Recycling, VSB - Technical University of Ostrava, Ostrava, Czechia,* ⁴*Faculty of Physics, Bielefeld University, Bielefeld, Germany*

09:42 AM-10:18 AM

CC-03. Magneto-optical-Kerr-effect measurement of spin-orbit torques with two magnetic layers

X. Fan

University of Denver, Denver, Colorado, United States

10:18 AM-10:45 AM

Break

10:45 AM-11:21 AM

CC-04. Application of Q-MOKE in Magnetometry

E. Schmoranzarová, Z. Sadeghi, V. Wohlrath, J. Kimák, P. Kubascik, L. Nadvornik, P. Nemeč, T. Ostatnický
Department of Chemical Physics and Optics, Charles University, Prague, Czechia

11:21 AM-11:57 AM

CC-05. Multipolar Anisotropy in Anomalous Hall Effect from Spin-Group Symmetry Breaking

Z. Liu¹, M. Wei¹, D. Hou², Y. Gao¹, Q. Niu¹

¹*Department of Physics, University of Science and Technology of China, Hefei, Anhui, China,* ²*University of Science and Technology of China, Hefei, Anhui, China*

SESSION CD: MAGNETOELECTRIC AND MULTIFERROICS II

Chair(s): S. Husain, *Material Science and Engineering,
University of California, Berkeley, Berkeley, California,
United States*

Wednesday, October 29, 2025

08:30 AM-12:00 PM

Ballroom B

08:30 AM-09:06 AM

CD-01. Magneto-Ionic Vortices: Paving the Way for Secure, Reconfigurable and Energy-Efficient Devices

I. Spasojević¹, Z. Ma¹, A. Barrera², F. Celegato³, A.
Magni³, S. Ruiz Gómez⁴, M. Foerster⁴, A. Palau², P.
Tiberto³, K. Buchanan⁵, J. Sort¹

¹*Physics Department, Autonomous University of
Barcelona, Bellaterra, Barcelona, Spain,* ²*Instituto de
Ciencia de Materiales de Barcelona (ICMAB), Bellaterra,
Spain,* ³*Advanced Materials and Life Science Division,
Istituto Nazionale di Ricerca Metrologica, Torino, Italy,*
⁴*ALBA Synchrotron, Cerdanyola del Vallès, Spain,* ⁵*Physics
Department, Colorado State University, Fort Collins,
Colorado, United States*

09:06 AM-09:18 AM

CD-02. Superior Magnetolectric Coupling via Magnetic Anisotropy Control in Ferromagnetic- Piezoelectric Heterostructure

P. Finkel, T. R. Mion, M. Staruch

*US Naval Research Laboratory, Washington, District of
Columbia, United States*

09:18 AM-09:30 AM

CD-03. Boosting magneto-ionics in Ta/CoFeB/Pt/MgO/HfO₂ by interfacial atomic intermixing through Ne⁺ irradiation

S. Chen^{1,2}, E. Montebancho², M. Deroo², Z. Ma³, A.
Cataldo⁴, A. Lamperti⁴, A. Solignac⁵, S. Ono⁶, E.
Menéndez³, J. Sort³, D. Ravelosona²

¹*Centre de Nanosciences et de Nanotechnologies,
Palaiseau, France,* ²*Spin-Ion Technologies, Palaiseau,
France,* ³*Departament de Física, Universitat Autònoma de
Barcelona, Cerdanyola del Vallés, Spain,* ⁴*IMM-CNR,
Agrate Brianza, Italy,* ⁵*Institut Rayonnement-Matière de
Saclay, CEA-Saclay, Gif-sur-Yvette, France,* ⁶*International
Center for Synchrotron Radiation Innovation Smart,
Tohoku University, Sendai, Japan*

09:30 AM-09:42 AM

CD-04. Exploring the Full Magneto-ionic Oxidation Spectrum in Pt/CoFeB/HfO₂

I. Benguettat- El Mokhtari¹, R. Pachat¹, V. Poree², A. Lamperti³, Y. Roussigné⁴, M. Syskaki⁵, J. Wrona⁵, G. Bernard¹, A. Cataldo^{3,6}, A. Resta², A. Nicolau², S. Ono⁷, S. Cherif⁴, J. Langer⁵, D. Ravelosona¹, M. Belmeguenai⁴, A. Solignac⁸, L. H. Diez¹

¹Centre de Nanosciences et de Nanotechnologies, CNRS, Université Paris-Saclay, Palaiseau, France, ²Synchrotron SOLEIL, Saint-Aubin, France, ³CNR-IMM, Agrate Brianza, Italy, ⁴Laboratoire des Sciences des Procédés et des Matériaux, CNRS-UPR, Villetaneuse, France, ⁵Singulus Technologies AG, Kahl am Main, Germany, ⁶Department of Chemistry, Materials and Nanotechnology, Politecnico di Milano, Milan, Italy, ⁷Central Research Institute of Electric Power Industry, Kanagawa, Japan, ⁸SPEC, CEA, CNRS, Gif-sur-Yvette Cedex, France

09:42 AM-09:54 AM

CD-05. Theoretical and experimental investigation of magnetic order in Mn₂PtIn

C. Sadler¹, M. Pulse², A. Venner², M. Anas², P. Kharel², P. Shand¹, P. Lukashev¹

¹Physics, University of Northern Iowa, Cedar Falls, Iowa, United States, ²South Dakota State University, Brookings, South Dakota, United States

09:54 AM-10:06 AM

CD-06. Scale-dependent thermodynamic control of metal-insulator transition in La_{0.67}Sr_{0.33}MnO₃

I. Bhaduri^{1,2}, S. Snijder¹, T. Banerjee^{1,2}

¹Zernike Institute for Advanced Materials, University of Groningen, Groningen, Netherlands, ²Groningen Cognitive Systems and Materials Center, University of Groningen, Groningen, Netherlands

10:06 AM-10:18 AM

CD-07. Investigation of Compensation Temperature in TmIG Thin Film with Perpendicular Magnetic Anisotropy

C. C. Soares^{1,2,3}, T. J. Mori², F. Béron³, J. S. Moodera^{4,5}, J. Criginski Cezar², J. Brandao², G. Vilela^{1,5}

¹Física de Materiais, Universidade de Pernambuco, Recife, Pernambuco, Brazil, ²Laboratório Nacional de Luz Síncrotron, Centro Nacional de Pesquisa em Energia e Materiais, Campinas, São Paulo, Brazil, ³Instituto de Física Gleb Wataghin, Universidade Estadual de Campinas, Campinas, São Paulo, Brazil, ⁴Physics Department, MIT, Cambridge, Massachusetts, United States

States, ⁵Plasma Science and Fusion Center, and Francis Bitter Magnet Laboratory, MIT, Cambridge, Massachusetts, United States

10:18 AM-10:45 AM

Break

10:45 AM-11:21 AM

CD-08. Tailoring Magnetic Spin Textures in

La_{0.7}Sr_{0.3}MnO₃-based Micromagnets

D. Sasaki^{2,1}, B. Achinuq², T. Sahoo¹, I. Nihal¹, E. Teano¹, M. Frame¹, I. Snowden¹, S. Retterer³, Y. Takamura¹

¹*Materials Science and Engineering, University of California, Davis, Davis, California, United States,*

²*Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, California, United States,* ³*Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, Tennessee, United States*

11:21 AM-11:33 AM

CD-09. Voltage-driven fluorine motion for novel organic spintronic memristor

Y. Lu¹, A. Nachawaty¹, T. Chen¹, F. Ibrahim², Y. Wang³, Y. Hao¹, K. Francesca⁴, P. Tyagi¹, A. Da Costa⁴, A. Ferri⁴, C. Liu³, X. Li³, M. Chshiev², S. Migot¹, L. Badie¹, W. Jahjah⁵, R. Desfeux⁴, J. Le Breton⁵, P. Schieffer⁵, A. Le Pottier⁵, T. Gries¹, X. Devaux¹

¹*Institut Jean Lamour, Nancy, France,* ²*SPINTEC, Grenoble, France,* ³*University of Science and Technology of China, Hefei, China,* ⁴*Univ. Artois, Lens, France,* ⁵*Univ. Rennes, Rennes, France*

11:33 AM-11:45 AM

CD-10. Energy-Efficient Control of Probabilistic Switching in sMTJs via Voltage-Controlled Exchange Coupling: Experiment and Simulation *

Q. Jia¹, O. Benally¹, B. Zink¹, D. Zhang¹, Y. Lv¹, S. Liang¹, D. Lyu¹, Y. Chen¹, Y. Yang¹, Y. Huang², J. Wang¹

¹*University of Minnesota, Minneapolis, Minnesota, United States,* ²*National Yang Ming Chiao Tung University, Hsinchu, Taiwan*

11:45 AM-11:57 AM

CD-11. Mutual Suppression of Polar and Magnetic Orders in Charge-Compensated Fe-Substituted $\text{Bi}_{0.5}\text{Na}_{0.5}\text{TiO}_3$: Evidence of inverse Magnetoelectric Coupling

M. Kumari^{1,2}, R. Chatterjee¹

¹Physics, Indian Institute of Technology, New Delhi, New Delhi, India, ²HDD, Western Digital Corporation, San Jose, California, United States

SESSION CE: ALTERMAGNETISM & ANTIFERROMAGNETISM - THIN FILMS AND OTHER SYSTEMS

Chair(s): R. Gupta, *Institute of Physics, University of Gothenburg, Gothenburg, Sweden*

Wednesday, October 29, 2025

08:30 AM-12:00 PM

Room 2DE

08:30 AM-09:06 AM

CE-01. Collective excitations in altermagnetic α -MnTe
A. De la Torre Duran

Northeastern University, Burlington, Massachusetts, United States

09:18 AM-09:30 AM

CE-03. Magnetoelastic stabilization of 180° domain walls in a collinear antiferromagnet

A. Koziol Rachwal¹, M. Szpytma¹, P. Drozd¹, E. Madej², D. Wilgocka-Slezak², A. Kwiatkowski¹, E. Oles¹, M. Slezak¹, T. Slezak¹

¹AGH University of Krakow, Krakow, Poland, ²Jerzy Haber Institute of Catalysis and Surface Chemistry Polish Academy of Sciences, Krakow, Poland

09:30 AM-09:42 AM

CE-04. Two-dimensional antiferromagnets with non-relativistic spin splitting switchable by electric polarization

H. Mavani, K. Huang, K. Samanta, E. Y. Tsymbal
Department of Physics and Astronomy, University of Nebraska, Lincoln, Lincoln, Nebraska, United States

09:42 AM-10:18 AM

CE-05. Structure and Magnetotransport in Altermagnetic MnTe Thin Films

S. Bey¹, M. Zhukovskiy³, T. Orlova³, S. Fields², V. Lauter⁴, H. Ambaye⁴, A. Ievlev⁵, S. P. Bennett², X. Liu¹, B. A. Assaf¹

¹Physics and Astronomy, The University of Notre Dame, Notre Dame, Indiana, United States, ²Materials Science and Technology Division, U.S. Naval Research Laboratory, Washington, District of Columbia, United States, ³Integrated Imaging Facility, The University of Notre Dame, Notre Dame, Indiana, United States, ⁴Neutron Sciences Directorate, Oak Ridge National Laboratory, Oak Ridge, Tennessee, United States, ⁵Center for Nanophase Materials Science, Oak Ridge National Laboratory, Oak Ridge, Tennessee, United States

10:18 AM-10:45 AM
Break

10:45 AM-11:21 AM

CE-06. Probing altermagnetic band splitting and magnetic order in epitaxial CrSb thin films

N. Samarth^{1,2}

¹Dept. of Physics and Dept. of Materials Science and Engineering, The Pennsylvania State University, University Park, Pennsylvania, United States, ²Argonne National Lab, Lemont, Illinois, United States

11:21 AM-11:33 AM

CE-07. Robust Biaxial Anisotropy and Electrical Switching of LaFeO₃ Epitaxial Thin Films

J. Lanier, J. Michel, D. Russell, J. Flores, B. Liu, J. Hwang, F. Yang

The Ohio State University, Columbus, Ohio, United States

11:33 AM-11:45 AM

CE-08. High-temperature anomalous Hall and magnetoresistance effects driven by frustrated spin fluctuations in the antiferromagnetic metallic delafossite PdCrO₂

Y. Tao¹, P. Jain¹, Y. Zhang¹, F. Tutt¹, D. Phelan², C. Balz³, S. Hatt⁴, E. Zappala⁴, J. Neufeind³, S. Rosenkranz², B. Frandsen⁴, C. Leighton¹

¹University of Minnesota, Minneapolis, Minnesota, United States, ²Argonne National Lab, Argonne, Illinois, United States, ³Oak Ridge National Lab, Oak Ridge, Tennessee, United States, ⁴Brigham Young University, Provo, Utah, United States

11:45 AM-11:57 AM

CE-09. Nanoscale Magnetic Structure Imaging of an Atomically Thin 2D Antiferromagnet

J. Katoch¹, A. Tiwari¹, A. Smekhova², S. Patil², R. Bandapelli¹, Z. Cui¹, I. Kao¹, R. Posti¹, F. Kronast², S. Singh¹

¹Physics, Carnegie Mellon University, Pittsburgh, Pennsylvania, United States, ²Helmholtz-Zentrum Berlin für Materialien und Energie, Albert-Einstein-Straße, Berlin, Germany

SESSION CF: LOW-DIMENSIONAL SYSTEMS, MOLECULAR AND ORGANIC MAGNETS

Chair(s): J. Hanson-Flores, *Physics, University of Central Florida, Orlando, Florida, United States*
Wednesday, October 29, 2025
08:30 AM-12:00 PM
Room 2BC

08:30 AM-09:06 AM

CF-01. Quantum and Nonlinear Magnonics

G. Fuchs

Applied and Engineering Physics, Cornell University, Ithaca, New York, United States

09:06 AM-09:18 AM

CF-02. Low-Lying Excitations, Magnetic Irreversibilities and Griffith's Phase in Quasi-two-dimensional Manganite

M. Verma, Y. Bitla

Physics, Central University of Rajasthan, Ajmer, Rajasthan, India

09:18 AM-09:30 AM

CF-03. Enhanced Coercivity and Spin-Glass Behavior in SiO₂-Coated Fe₅C₂ Nanorods

P. Joshi¹, H. Abbas¹, T. Karki¹, J. Mohapatra¹, X. Liu², P. Liu¹

¹Physics, The University of Texas at Arlington, Arlington, Texas, United States, ²Ames Laboratory, Critical Materials Institute, Ames, Iowa, United States

09:30 AM-09:42 AM

CF-04. Field-induced breathing magnetic domain wall at ferromagnetic nanowires

S. Ahn

Postech, Pohang, Korea (the Republic of)

09:42 AM-10:18 AM

CF-05. Electron Spin Resonance Measurement of a Single Molecule Magnet Terbium Phthalocyanine (TbPc₂) Using Scanning Tunneling Microscopy

T. Komeda

Tohoku University, Sendai, Japan

10:18 AM-10:45 AM

Break

10:45 AM-10:57 AM

CF-06. Development and Characterization of Magnetite Reinforced Nanocomposites for Electromagnetic Responsiveness and Smart Material Applications

D. Di Napoli, S. Vattathurvalappil

Aerospace Engineering, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia

10:57 AM-11:09 AM

CF-07. Integrated Numerical and SAXS Investigation of Ultra-Small SPIONs Magnetophoresis and Separation in High Field and Gradient Fields

X. Wu¹, H. Choe¹, P. Iyer¹, B. Yunker¹, I. H. Karampelas², K. Wu³, J. Chalmers¹, J. Gomez-Pastora³

¹*The Ohio State University, Columbus, Ohio, United States*, ²*Nemak, Sheboygan, Wisconsin, United States*,

³*Texas Tech University, Lubbock, Texas, United States*

11:09 AM-11:21 AM

CF-08. Characterization of Magnetic Core-shell Nanoparticles in Different Carbon Matrices under Annealing by Oxygen and Nitrogen

V. Pena Perez, S. Figueroa, F. Iglesias, A. Khodagulyan, O. Bernal, A. N. Kocharian

Physics and Astronomy, California State University Los Angeles, Los Angeles, California, United States

11:21 AM-11:33 AM

CF-09. Efficient Fe₃O₄@CuS nanocomposites for enhanced removal of organic dyes from wastewater

J. Gupta^{2,1}, K. C. Barick¹

¹*Chemistry Division, Bhabha Atomic Research Centre, Navi Mumbai, Maharashtra, India*, ²*School of Advanced Sciences and Languages, VIT Bhopal University Bhopal, Sehore, Madhya Pradesh, India*

11:33 AM-11:45 AM

CF-10. Emergence of the Verwey Transition in Fe₅C₂@Fe₃O₄ Core-Shell Nanocrystals Below 5 nm Thickness

H. Abbas, J. Mohapatra, P. Joshi, T. Karki, P. Liu

Physics, The University of Texas at Arlington, Arlington, Texas, United States

11:45 AM-11:57 AM

CF-11. Magnetic Properties of Fe₃O₄ Membranes Transferred from a SrTiO₃ substrate by Etching a BaO Sacrificial Layer

D. Matsubara¹, T. Takeda², M. Tanaka^{1,3,4}, S. Ohya^{1,3,4}

¹*Department of Electrical Engineering and Information Systems, The University of Tokyo, Bunkyo-ku, Tokyo, Japan,* ²*Department of Chemical System Engineering, The University of Tokyo, Bunkyo-ku, Tokyo, Japan,* ³*Center for Spintronics Research Network (CSRN), The University of Tokyo, Bunkyo-ku, Tokyo, Japan,* ⁴*Institute for Nano Quantum Information Electronics, The University of Tokyo, Bunkyo-ku, Tokyo, Japan*

SESSION CG: MAGNETIC MICROSCOPY AND IMAGING

Chair(s): J. Fullerton, Argonne National Laboratory,
Lemont, Illinois, United States

Wednesday, October 29, 2025

08:30 AM-12:00 PM

Room 2A

08:30 AM-08:42 AM

CG-01. Scanning NV magnetometry in a closed-cycle cryostat

M. Bacani¹, C. Schäfermeier¹, G. Puebla-Hellmann², J. Rhensius², K. Karrai¹, A. Morales²

¹*attocube systems GmbH, Haar by Munich, Germany,*

²*QZabre AG, Zurich, Switzerland*

08:42 AM-08:54 AM

CG-02. Spin structure imaging with ptychography in antiferromagnetic CuMnAs

D. M. Burn¹, K. Edmonds², P. Wadley², C. Parmenter³, R. Campion², B. Daurer¹, S. S. Dhesi¹

¹*Diamond Light Source, Didcot, Oxfordshire, United Kingdom,* ²*School of Physics and Astronomy, University of Nottingham, Nottingham, United Kingdom,* ³*Nanoscale and Microscale Research Centre, University of Nottingham, Nottingham, United Kingdom*

08:54 AM-09:06 AM

CG-03. Magnetic Patterning By Light He⁺ Ion Irradiation For New Generation Reference Samples

Y. Sassi¹, K. Bouzehouane², A. Finco³, S. Collin², F. Godel², N. Reyren², V. Cros², E. Montebianco¹, D. Ravelosona¹

¹*Spin-Ion Technologies, Centre de Nanosciences et Nanotechnologies (C2N), Palaiseau, France,* ²*Laboratoire Albert Fert, CNRS, Thales, Université Paris-Saclay, 1 avenue Augustin-Fresnel, Palaiseau, France,* ³*Laboratoire Charles Coulomb, Université de Montpellier, CNRS, Montpellier, France*

09:06 AM-09:18 AM

CG-04. A Sensitive MOKE and Optical Hall Effect Technique at Visible Wavelengths: Insights Into The Gilbert Damping

N. Am-Shalom, N. Bernstein, B. J. Assouline, A. Capua
Institution of Electrical Engineering and Applied Physics, The Hebrew University of Jerusalem, Jerusalem, Israel

09:18 AM-09:30 AM

CG-05. 3D Vector Ptycho-Tomographic Imaging of Topological Structures in FeGd Multilayer

I. Binnie¹, H. Fang¹, B. Shearer¹, T. Feggeler^{5,4}, A. Oh^{6,7}, S. Yazdi¹, E. Cating-Subramanian¹, S. Montoya², E. Fullerton², D. Shapiro⁴, J. Miao³, H. C. Kapteyn¹, M. M. Murnane¹

¹*University of Colorado Boulder, Boulder, Colorado, United States,* ²*University of California San Diego, San Diego, California, United States,* ³*University of California, Los Angeles, Los Angeles, California, United States,* ⁴*Lawrence Berkeley National Lab, Berkeley, California, United States,* ⁵*Brookhaven National Lab, Upton, New York, United States,* ⁶*Vanderbilt University, Nashville, Tennessee, United States,* ⁷*Columbia University, New York, New York, United States*

09:30 AM-09:42 AM

CG-06. Unveiling Hidden Spatio-Magnetic Phases in Quantum Materials through Quantitative Magnetic Imaging and Transport*

M. Sim¹, G. Krishnaswamy¹, G. Ji Omar¹, M. Pardo-Almanza², Y. Fujisawa², X. Chen³, H. Tan³, Y. Okada², A. Ariando¹, A. Soumyanarayanan^{1,3}

¹*Department of Physics, National University of Singapore (NUS), Singapore,* ²*Quantum Materials Science Unit, Okinawa Institute of Science and Technology (OIST), Okinawa, Japan,* ³*Institute of Materials Research and Engineering (IMRE), A*STAR, Singapore*

09:42 AM-10:18 AM

CG-07. Probing Magnon Dynamics with Microwave-Based Ultrafast Electron Microscopy

C. Liu, S. Reisbick, Y. Zhu

Condensed Matter Physics, Brookhaven National Lab, Upton, New York, United States

10:18 AM-10:45 AM

Break

10:45 AM-10:57 AM

CG-08. Curvature engineered unconventional 3D spin textures in amorphous Fe_{0.58}Ge_{0.42} thin films

S. Satapathy¹, D. W. Raftrey¹, O. Bezsmertna², J. Sands³, T. Bayaraa¹, S. Virasawmy⁴, A. Gashi⁴, S. Dhuey⁴, C. Fernandez-Gonzalez⁵, A. Sorrentino⁵, D. Makarov², S. M. Griffin¹, F. Hellman⁶, P. Fischer^{1, 3}

¹*Material Science, Lawrence Berkeley National Laboratory, Berkeley, California, United States,*

²*Intelligent Materials and Systems, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, 01328, Germany, Dresden, Germany,* ³*Department of Physics, University of California Santa Cruz, Santa Cruz, California, United States,*

⁴*Molecular Foundry, Lawrence Berkeley National laboratory, Berkeley, California, United States,* ⁵*ALBA Synchrotron, Cerdanyola del Vallès, Cerdanyola del Vallès, Spain,* ⁶*Department of Physics, University of California, Berkeley, California, United States*

10:57 AM-11:09 AM

CG-09. 3D spin wave microscopy

K. Rivkin

RKMAG Corporation, Pacific Grove, California, United States

11:09 AM-11:21 AM

CG-10. Mechanochemical Synthesis of Strontium Hexaferrite Magnets from Mill Scale Waste

N. Gunduz Akdogan^{1, 3}, D. Kalkavan¹, D. Celebi^{1, 2}, O. Akdogan^{1, 2}

¹*NANOTerial Technology Co., Istanbul, Turkey,*

²*Bahcesehir University, Istanbul, Turkey,* ³*Piri Reis University, Istanbul, Turkey*

11:21 AM-11:57 AM

CG-11. Nanoscale imaging and control of altermagnetism in MnTe

O. Amin¹, A. Dal Din¹, E. Golias², Y. Niu², A. Zakharov², S. Fromage¹, C. Fields^{1, 3}, S. Heywood¹, R. Cousins⁴, F.

Maccherozzi³, J. Krempaský⁵, H. Dil^{6,5}, D. Kriegner⁷, B. Kiraly¹, R. Champion¹, A. Rushforth¹, K. Edmonds¹, S. S. Dhesi³, L. Šmejkal^{8,9,10}, T. Jungwirth^{7,1}, P. Wadley¹
¹University of Nottingham, Nottingham, United Kingdom, ²MAX IV Laboratory, Lund, Sweden, ³Diamond Light Source, Didcot, United Kingdom, ⁴Nanoscale and Microscale Research Centre, Nottingham, United Kingdom, ⁵Photon Science Division, Paul Scherrer Institut, Villigen, Switzerland, ⁶Institut de Physique, École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland, ⁷Institute of Physics, Czech Academy of Sciences, Prague, Czechia, ⁸Max Planck Institute for the Physics of Complex Systems, Dresden, Germany, ⁹Max Planck Institute for Chemical Physics of Solids, Dresden, Germany, ¹⁰Institute of Physics, Johannes Gutenberg University, Mainz, Germany

SESSION CH: FAST AND EFFICIENT SWITCHING

Co-Chair(s): X. Fan, *Division of Natural Sciences and Mathematics, University of Denver, Denver, Colorado, United States* and P. Finkel, *Materials Science Division, Naval Research Laboratory, Washington, District of Columbia, United States*

Wednesday, October 29, 2025

08:30 AM-12:00 PM

Room 1BC

08:30 AM-09:06 AM

CH-01. Ultrafast Creation of Magnetization Through the Targeted Excitation of Circularly-polarized Phonons

T. Zalewski^{1,2}, A. V. Boris³, A. Kirilyuk^{1,2}, C. S. Davies^{1,2}
¹HFML-FELIX, Radboud University, Nijmegen, Netherlands, ²Institute for Molecules and Materials, Radboud University, Nijmegen, Netherlands, ³Max Planck Institute for Solid State Research, Stuttgart, Germany

09:06 AM-09:18 AM

CH-03. Strain-Assisted Magnetization Reversal in Nanomagnets

S. Sarker¹, M. F. Chowdhury¹, M. J. Gross⁵, M. Rajib¹, P. S. Keatley⁶, R. Hicken³, C. A. Ross⁴, J. Atulasimha^{1,2}
¹Mechanical & Nuclear Engineering Department, Virginia Commonwealth University, Richmond, Virginia, United States, ²Electrical & Computer Engineering Department, Virginia Commonwealth University, Richmond, Virginia, United States, ³Department of Physics and Astronomy, University of Exeter, Exeter, United Kingdom, ⁴Department of Materials Science and Engineering, Massachusetts Institute of Technology, Boston,

Massachusetts, United States, ⁵Electrical Engineering and Computer Science Department, Massachusetts Institute of Technology, Boston, Massachusetts, United States, ⁶Electromagnetic and Acoustic Materials Department, University of Exeter, Exeter, United Kingdom

09:18 AM-09:30 AM

CH-04. Origin of Enhanced Switching Efficiency by Increasing Magnetic Anisotropy Field in Accelerated STT-Switching and High-Retention MTJ (AccelHR-MTJ)

S. Itai, K. Koi, H. Maekawa, R. Takashima, M. Toko, Y. Lee, M. Nakayama

Frontier Technology R&D Institute, KIOXIA Corporation, Yokohama, Japan

09:30 AM-09:42 AM

CH-05. Magnetostrictive $\text{Fe}_{(100-x)}\text{Al}_x$ thin films on Flexible Substrates: correlation between microstructural and magneto-dynamic properties

P. Kumar^{1,2}, P. Kumar¹, V. Sharma³, M. K. Khanna⁴, B. K. Kuanr¹

¹Special Centre for Nanoscience, Jawaharlal Nehru University, New Delhi, Delhi, India, ²Department of Physics, Motilal Nehru College, University of Delhi, South Campus, New Delhi, Delhi, India, ³Department of Physics, Northeastern University, Boston, Massachusetts, United States, ⁴Department of Electronic Science, University of Delhi, South Campus, New Delhi, Delhi, India

09:42 AM-09:54 AM

CH-06. Pt-Transition Metal Synthetic Ferrimagnets for All Optical Switching

J. Scott¹, M. Dabrowski², C. Sait², W. R. Hendren¹, N. Kuninski¹, T. E. McCormack¹, D. M. Burn³, D. G. Newman², P. S. Keatley², A. T. N'Diaye⁴, T. Hesjedal⁵, G. van der Laan³, R. Hicken², R. M. Bowman¹

¹Queen's University Belfast, Belfast, United Kingdom, ²University of Exeter, Exeter, United Kingdom, ³Diamond Light Source, Didcot, United Kingdom, ⁴Lawrence Berkeley National Laboratory, Berkeley, California, United States, ⁵University of Oxford, Oxford, United Kingdom

09:54 AM-10:06 AM

CH-07. Tracking and Characterization of Domains in $\text{Nd}_2\text{Fe}_{14}\text{B}$ Micro-Magnets

F. Lasthofer¹, O. Hrushko¹, A. Kosogor¹, T. Schrefl¹, S. Raznjevic², K. Zuzek Rozman², V. Sršan², S. Šturm²

¹University for Continuing Education Krems, Wr. Neustadt, Austria, ²Jozef Stefan Institute, Ljubljana, Slovenia

10:06 AM-10:18 AM

CH-08. Self-modulation instability in high-power ferromagnetic resonance of BiYIG nanodisks

I. N. Yemeli¹, S. Perna², D. Gouéré⁴, A. Kolli¹, M. Muñoz³, A. Anane⁴, M. d'Aquino², H. Merbouche¹, C. Serpico², G. de Loubens¹

¹*SPEC, CEA, CNRS, Université Paris-Saclay, Gif-sur-Yvette, Paris, France*, ²*Department of Electrical Engineering and Information Technology, University of Naples Federico II, Naples, Italy*, ³*Institute de Tecnologías Físicas y de la Información (CSIC), Madrid, Spain*, ⁴*Laboratoire Albert Fert, CNRS, Thales, Université Paris-Saclay, Palaiseau, France*

10:18 AM-10:45 AM

Break

10:45 AM-10:57 AM

CH-09. A Physically Unclonable Function Implemented with Defective Magnetic Tunnel Junctions

J. W. Huber¹, R. Rahman², S. Bandyopadhyay¹

¹*Electrical and Computer Engineering, Virginia Commonwealth University, Richmond, Virginia, United States*, ²*Electrical and Computer Engineering, Virginia Commonwealth University, Richmond, Virginia, United States*

10:57 AM-11:09 AM

CH-10. Exploring Low Sheet Resistance Materials for Enhanced Ferromagnetic Resonance Signals

N. Kuninski, J. N. Scott, W. R. Hendren, T. E. McCormack, R. M. Bowman

CQMT, Queen's University Belfast, Belfast, United Kingdom

11:09 AM-11:21 AM

CH-11. The role of the magnetic part of the optical field in the optical control of the magnetization

B. J. Assouline, A. Capua

Applied Physics, Hebrew University of Jerusalem, Jerusalem, Jerusalem, Israel

SESSION CQ: BIOMAGNETISM AND BIOMEDICAL APPLICATIONS II (POSTER SESSION)

Co-Chair(s): P. Kumar, *IMS RIKEN Center for Integrative Medical Sciences, Yokohama, Japan* and D. A. Arena, *Physics, University of South Florida, Tampa, Florida, United States*

Wednesday, October 29, 2025

09:00 AM-12:00 PM

Exhibit Hall Posters

CQ-01. Application of the FDTD Method to Analysis of Light Scattering in Suspensions of Crystals with Magnetic Anisotropy

Y. Takeuchi¹, T. Yamada¹, H. Kawaguchi¹, A. Hamasaki²

¹*Muroran Institute of Technology, Muroran, Japan,*

²*Faculty of science, Shinshu University, Matsumoto, Japan*

CQ-02. Temperature-Dependent Agglomeration Dynamics of Magnetic Nanoparticles: Implications for Diffusion and Spatial Control in Magnetic Hyperthermia

B. Cheng, J. Sakurai, S. Hata, C. Oka

Micro-Nano Mechanical Science and Engineering, Nagoya University, NAGOYA, AICHIKEN, Japan

CQ-03. Automated TMS E-Field Mapping of Brain Phantom using Collaborative Robot

L. Schorr¹, W. Lohr², R. L. Hadimani¹

¹*Mechanical and Nuclear Engineering, Virginia*

Commonwealth University, Richmond, Virginia, United

States, ²*Biomedical Engineering, Virginia Commonwealth University, Richmond, Virginia, United States*

CQ-04. Shape-Directed Magnetic and Hyperthermic Properties of Hydrothermally Synthesized Mn_{0.5}Zn_{0.5}Fe₂O₄-based Magnetic Fluid

H. H. Patel¹, K. Parekh¹, P. Kopcansky², M. Rajnak²

¹*Dr. K. C. Patel Research and Development Centre,*

Charotar University of Science and Technology,

CHARUSAT Campus, Changa, Gujarat, India, ²*Institute of*

Experimental Physics, SAS, Watsonova 47, 040 01,

Košice, Slovakia

CQ-05. Wireless Temperature Measurement based on Magnetic Harmonic Signal during Magnetic Heating Operation for Hyperthermia

A. Kuwahata, A. Yamazaki, R. Shinohara, S. Yabukami

Tohoku University, Sendai, Japan

CQ-06. Iron Oxide Magnetic Nanoparticles Synthesized by Wet Ball Milling: Evaluation of Hyperthermia Properties

S. Mostufa¹, B. Rezaei¹, I. H. Karampelas², J. Gomez-Pastora³, K. Wu¹

¹*Department of Electrical and Computer Engineering, Texas Tech University, Lubbock, Texas, United States,*

²*Nemak USA, Inc., Sheboygan, Wisconsin, United States,*

³*Department of Chemical Engineering, Texas Tech University, Lubbock, Texas, United States*

CQ-07. PEG-Functionalized Spherical and Cubic Iron Oxide Nanoparticles for Magnetic Hyperthermia in Serum-Based Environments

B. Rezaei¹, S. Mostufa¹, I. H. Karampelas², J. Gomez-Pastora³, K. Wu¹

¹*Department of Electrical and Computer Engineering, Texas Tech University, Lubbock, Texas, United States,*

²*Nemak USA, Inc., Sheboygan, Wisconsin, United States,*

³*Department of Chemical Engineering, Texas Tech University, Lubbock, Texas, United States*

CQ-08. Magnetic Orientation of Monosodium Urate Crystals in Microspaces: Implications for Gout Diagnosis

A. Hamasaki¹, Y. Takeuchi²

¹*Faculty of science, Shinshu University, Matsumoto, Japan,*

²*Muroran Institute of Technology, Muroran, Japan*

CQ-09. Anatomical and Conductive Rhesus Macaque Head Phantom for E-field sensing in Transcranial Magnetic Stimulation.

W. Lohr¹, T. Atalugama², M. Basker², R. L. Hadimani²

¹*Biomedical Engineering, Virginia Commonwealth University, Richmond, Virginia, United States,*

²*Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, Virginia, United States*

SESSION CR: SOFT MAGNETIC MATERIALS II (POSTER SESSION)

Chair(s): E. Rowe, *RXEEG, Air Force Research Laboratory, Wright Patterson AFB, Ohio, United States*

Wednesday, October 29, 2025

09:00 AM-12:00 PM

Exhibit Hall Posters

CR-01. Analysis of Domain Wall Pinning and Anomalous Eddy Current Losses via Multiscale Magnetic Simulations

Y. Shima¹, T. Yamazaki¹, S. Tamaru², C. Mitsumata³, A. L. Foggiatto¹, M. Kotsugi¹

¹*Department of Materials Science and Technology, Tokyo University of Science, Tokyo, Japan,* ²*National Institute of Advanced Industrial Science and Technology, Tsukuba, Ibaraki, Japan,* ³*University of Tsukuba, Tsukuba, Ibaraki, Japan*

CR-02. *Ab initio* study of promising antiferromagnetic aluminides for magnetocaloric applications

H. Aihemaiti¹, E. Dastanpour¹, A. Bergman², L. Vitos^{1,2}

¹*Material Science and Engineering, KTH Royal Institute of Technology, Stockholm, Sweden,* ²*Department of Physics and Astronomy, Uppsala university, Uppsala, Sweden*

CR-03. Influence of Annealing Treatment on Magnetic Properties of Submicron Sized Amorphous Fe-Co-B Particles

K. Sato¹, K. Wakabayashi¹, S. Ajia¹, T. Miyazaki¹, S. Muroga¹, Y. Endo^{1,2}

¹*Graduate School of Engineering, Tohoku University, Sendai, Miyagi, Japan,* ²*Center for Science and Innovation in Spintronics, Tohoku University, Sendai, Miyagi, Japan*

CR-04. 120 °C Si-O insulating shell formation on iron nanoparticles synthesized from micron-size magnetite by gas-solid reaction

A. Nishikura, M. Miyazawa, H. Nakashinden, M. Tobise, S. Saito

Tohoku University, Sendai, Japan

CR-05. Additive manufacturing of soft ferrite components

B. Capraro¹, S. Bachmann², R. Wachs², H. Lauterbach³, O. Horst³

¹Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Hermsdorf, Thuringia, Germany, ²Tridelta Weichferrite GmbH, Hermsdorf, Thuringia, Germany, ³QSIL Metals Hermsdorf GmbH, Hermsdorf, Thuringia, Germany

CR-06. Research on High Thrust Density Permanent Magnet Vernier Linear Electric Machine for Gravity Energy Storage Systems Based on High Saturation Magnetic Flux Density Materials

J. Yuan, Q. Wu, H. Zhou

School of Electrical Engineering and Automation, Wuhan University, Wuhan, China

CR-07. Giant Magnetization and Low Anisotropy in Zn-Doped Cobalt ferrite

F. Bakhshizadeh¹, F. Efe¹, D. Alharbi^{1,2}, M. Guy¹, M. Davis¹, A. Lisfi¹

¹Physics, Morgan State University, Baltimore, Maryland, United States, ²Physics, The Catholic University of America, Washington DC, District of Columbia, United States

CR-08. Magnetostriction of Iron-Based Binary Alloys

T. Fukuzaki, T. Inoue, T. Kanematsu, T. Yoshimoto
Nidec Product Technology R&D Center, NIDEC CORPORATION, Kawasaki, Kanagawa, Japan

CR-09. Magnetometry of Buried Nanolayers by Hard X-ray Photoelectron Spectroscopy

A. Hloskovsky¹, C. Schlueter¹, G. Fecher²

¹Photon Science, DESY, Hamburg, Germany, ²Max Planck Institute for Chemical Physics of Solids, Dresden, Germany

CR-10. Fabrication and Evaluation of Magnetic anisotropy of Co-based Heusler alloy $\text{Co}_2\text{FeAl}_x\text{Si}_{1-x}$ epitaxial thin films

T. Hojo^{1,2}, H. Hamasaki², M. Tsunoda^{3,4}, M. Oogane^{2,5}

¹Department of Advanced Spintronics Medical Engineering, Graduate School of Engineering, Tohoku University, Sendai, Miyagi, Japan, ²Department of Applied Physics, Graduate School of Engineering, Tohoku University, Sendai, Miyagi, Japan, ³Department of Electronic Engineering, Graduate School of Engineering, Tohoku University, Sendai, Miyagi, Japan, ⁴Research

Center for Green X-Tech, Green Goals Initiative, Tohoku University, Sendai, Miyagi, Japan, ⁵Center for Science and Innovation in Spintronics (Core Research Cluster) Organization for Advanced Studies, Tohoku University, Sendai, Miyagi, Japan

CR-11. Enhancement of microwave absorption and resonance linewidth through large specific surface area of magnesium substituted Zn-Ni Ferrites

S. Kaushik¹, M. Dabla¹, P. Kumar¹, M. Sharma^{1,2}, B. K. Kuanr¹

¹*Special Centre for Nanoscience, Jawaharlal Nehru University, New Delhi, Delhi, India, ²Department of Physics, Deshbandhu College, University of Delhi, New Delhi, Delhi, India*

CR-12. Normalized switching field distribution for the thin film of Co

J. Hidalgo Gonzalez¹, S. P. Sánchez¹, A. E. Oropesa¹, J. Matutes²

¹*Universidad Autonoma de San Luis Potosi, San Luis Potosí, Mexico, ²Centro de Investigación en Materiales Avanzados, Chihuahua, Chihuahua, Mexico*

CR-13. Exploring Interfacial Effects in Transition Metal Dichalcogenide / Ferrimagnetic Alloy Heterostructure

L. Ramos, D. A. Arena, A. I. Ojo, H. Rodríguez Gutiérrez, Y. Wadumesthri

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

CR-14. Epitaxial CoFeMnGe Thin Films with Low Gilbert Damping: A Promising Quaternary Heusler Alloy for Spintronics

R. Roy Chowdhury, V. Mishra, A. I. Ojo, R. Huligerepura Shankaregowda, P. Sharma, D. DeTellem, H. Srikanth, D. A. Arena, S. Witanachchi, M. Phan

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

WORKSHOP: WOMEN IN MAGNETISM

Wednesday, October 29, 2025

12:15 PM-01:45 PM

Room 1DE

SESSION DA: PERSPECTIVE OF PROBABILISTIC COMPUTING WITH MAGNETIC TUNNEL JUNCTIONS

Chair(s): G. Finocchio, *University of Messina, Messina, Italy*

Wednesday, October 29, 2025

02:00 PM-05:30 PM

Grand Ballroom

02:00 PM-02:36 PM

DA-01. Advanced Designs of Stochastic Magnetic Tunnel Junctions for Spintronic Probabilistic Computing

S. Kanai^{1,2,3}

¹Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University, Sendai, Miyagi, Japan, ²WPI-Advanced Institute for Materials Research (WPI-AIMR), Tohoku University, Sendai, Miyagi, Japan, ³Graduate School of Engineering, Tohoku University, Sendai, Miyagi, Japan

02:36 PM-03:12 PM

DA-02. Solving Combinatorial Optimization Problems with Stochastic Actuated Magnetic Tunnel Junction

A. D. Kent

Physics, New York University, New York, New York, United States

03:12 PM-03:48 PM

DA-03. Probabilistic Computing with Voltage-controlled Magnetic Tunnel Junctions and Digital CMOS

P. Khalili Amiri

Northwestern University, Evanston, Illinois, United States

03:48 PM-04:15 PM

Break

04:15 PM-04:51 PM

DA-04. Ising machine based on Magnetic Tunnel Junctions

E. Raimondo^{1,3}, A. Grimaldi², R. Tomasello², M. Chiappini¹, A. Giordano³, M. Carpentieri², G. Finocchio³

¹Istituto Nazionale di Geofisica e Vulcanologia, Rome, Italy, ²Politecnico di Bari, Bari, Italy, ³University of Messina, Messina, Italy

04:51 PM-05:27 PM

DA-05. On-chip Training of Stochastic Multilayer Spintronic Neural Networks

P. Talatchian

SPINTEC, Grenoble, France

SESSION DB: ADVANCING MAGNONICS: UNLOCKING THE POTENTIAL OF THE THIRD DIMENSION

Chair(s): G. Gubbiotti, *IOM-CNR, Perugia, Italy*

Wednesday, October 29, 2025

02:00 PM-05:30 PM

Ballroom A

02:00 PM-02:36 PM

DB-01. Magnon control in dipolar 3D multilayered artificial spin-ice hybrid systems

R. Sultana¹, R. Negrello², V. Bhat¹, M. T. Kaffash¹, H. Carfagno³, T. C. Dion⁴, K. D. Stenning⁵, A. Vanstone⁵, H. Holder⁵, G. Alatteili⁶, V. Martinez⁶, T. Kimura⁴, R. Oulton⁵, H. Kurebayashi⁷, W. Branford⁵, E. Iacocca⁶, M. Doty⁸, Y. Ji¹, J. Gartside⁵, F. Montoncello², G. Gubbiotti⁹, B. Jungfleisch¹

¹*Department of Physics and Astronomy, University of Delaware, Newark, Delaware, United States*, ²*Università di Ferrara, Ferrara, Italy*, ³*Department of Materials Science and Engineering, University of Delaware, Newark, Delaware, United States*, ⁴*Solid State Physics Laboratory, Kyushu University, Fukuoka, Japan*, ⁵*Dept of Physics, Blackett Laboratory, Imperial College London, London, United Kingdom*, ⁶*Center for Magnetism and Magnetic Nanostructures, University of Colorado Colorado Springs, Colorado Springs, Colorado, United States*, ⁷*London Centre for Nanotechnology, University College London, London, United Kingdom*, ⁸*Department of Materials Science and Engineering, University of Delaware, Newark, Delaware, United States*, ⁹*Istituto Officina dei Materiali del Consiglio Nazionale delle Ricerche (IOM-CNR), Perugia, Italy*

02:36 PM-03:12 PM

DB-02. Three-dimensional Control and Imaging of Spin Waves in Nanostructured Thin Films

V. Levati¹, M. Vitali¹, D. Girardi¹, S. Finizio², C. Donnelly³, J. Raabe², M. Panzeri¹, R. Silvani⁴, M. Madami⁴, D. Breitbach⁶, P. Pirro⁶, R. Bertacco¹, V. Russo¹, A. Li Bassi¹, G. Corrielli⁷, R. Osellame⁷, F. Maspero¹, A. Del Giacco¹, N. Pellizzi¹, I. Biancardi¹, P. Florio¹, S. Tacchi⁵, D. Petti¹, E. Albisetti¹

¹*Politecnico di Milano, Milano, Italy*, ²*PSI, Villigen, Switzerland*, ³*Max Planck Institute, Dresden, Germany*,

⁴Università di Perugia, Perugia, Italy, ⁵CNR-IOM, Perugia, Italy, ⁶RPTU Kaiserslautern-Landau, Kaiserslautern, Germany, ⁷CNR-IFN, Milano, Italy

03:12 PM-03:48 PM

DB-03. Micromagnetic Simulation of High-Frequency Modes in Interconnected Nanowire Arrays

R. Hertel

Université de Strasbourg, CNRS, Institut de Physique et Chimie des Matériaux de Strasbourg, Strasbourg, France

03:48 PM-04:15 PM

Break

04:15 PM-04:51 PM

DB-04. Nonreciprocal magnonics in 3D nanostructures

F. Brevis¹, L. Körber², B. Mimica-Figari¹, R. Gallardo¹, A. Kákay³, P. Landeros¹

¹Departamento de Física, Universidad Técnica Federico Santa María, Valparaíso, Chile, ²Institute of Molecules and Materials, Radboud University, Nijmegen, Netherlands, ³Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany

04:51 PM-05:27 PM

DB-05. Nonreciprocal Magnons in Programmable 3D Ferromagnetic Screws and Tubular Nanonetworks Created by Atomic Layer Deposition

D. Grundler^{1,2}

¹Institute of Materials (IMX), Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Vaud, Switzerland, ²Institute of Electrical and Micro Engineering (IEM), Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Vaud, Switzerland

SESSION DC: NANOPARTICLES, 3D, AND OTHER STRUCTURED MATERIALS

Chair(s): M. Charilaou, *Physics, University of Louisiana at Lafayette, Lafayette, Louisiana, United States*

Wednesday, October 29, 2025

02:00 PM-05:30 PM

Ballroom C

02:00 PM-02:36 PM

DC-01. Creating Topological Spin and Stray Field Textures with Coupled 3D Magnetic Nanohelices

J. Fullerton¹, N. Leo², J. Jurczyk³, C. Donnelly⁴, D. Sanz Hernandez⁵, L. Skoric⁶, N. Mille⁷, S. Stanescu⁷, D.

MacLaren⁸, R. Belkhou⁷, A. Hierro-Rodriguez⁹, A. Fernández-Pacheco³, C. Phatak^{1,10}

¹Materials Science Division, Argonne National Laboratory, Lemont, Illinois, United States, ²Department of Physics, University of Loughborough, Loughborough, United Kingdom, ³Institute of Applied Physics, TU Wien, Vienna, Austria, ⁴Max Planck Institute for Chemical Physics of Solids, Dresden, Germany, ⁵Laboratoire Albert Fert, CNRS, Thales, Université Paris-Saclay, Palaiseau, France, ⁶University of Cambridge, Cambridge, United Kingdom, ⁷Synchrotron SOLEIL, Saint-Aubin, France, ⁸SUPA, School of Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom, ⁹Depto. Física, Universidad de Oviedo, Oviedo, Spain, ¹⁰Department of Materials Science and Engineering, Northwestern University, Evanston, Illinois, United States

02:36 PM-02:48 PM

DC-02. Unconventional Spin Textures in 3D Magnetic Möbius Bands

C. Langton¹, D. Bhattacharya¹, B. Fugetta¹, Z. Chen¹, O. Bezmertna⁴, D. W. Raftrey^{2,3}, J. Sands^{2,3}, S. Satapathy², C. Fernandez-Gonzalez⁵, A. Sorrentino⁵, D. Makarov⁴, P. Fischer², G. Yin¹, K. Liu¹

¹Department of Physics, Georgetown University, Washington, District of Columbia, United States, ²Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, California, United States, ³Department of Physics, University of California Santa Cruz, Santa Cruz, California, United States, ⁴Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany, ⁵MISTRAL Beamline, ALBA Synchrotron Light Facility, Barcelona, Spain

02:48 PM-03:00 PM

DC-03. Characterizing fragile magnetic textures in three dimensions using Scanning NV magnetometry

P. Rickhaus¹, A. van den Berg², J. Lenz¹, S. Ladak²
¹Qnami AG, Basel, Switzerland, ²School of Physics and Astronomy, Cardiff University, Cardiff, United Kingdom

03:00 PM-03:12 PM

DC-04. Effect of curvature on chirality and magnetic configuration in perpendicular Co/Pd multilayer films

D. Bhattacharya¹, C. Langton¹, D. W. Raftrey², B. Fugetta¹, S. Satapathy², O. Bezmertna³, A. Sorrentino⁴, D. Makarov³, G. Yin¹, K. Liu¹, P. Fischer²

¹Physics, Georgetown University, Washington, District of Columbia, United States, ²Materials Sciences Division,

Lawrence Berkeley National Laboratory, Berkeley, California, United States, ³Helmholtz-Zentrum Dresden-Rossendorf e.V., Institute of Ion Beam Physics and Materials Research, Dresden, Germany, ⁴ALBA light source, Cerdanyola del Vallès, Spain

03:12 PM-03:24 PM

DC-05. Nonlinear Dynamics and Frequency Comb Generation in Macroscopic Artificial Spin Ice

R. Peroor, L. A. Scafuri, E. Iacocca, D. A. Bozhko
Department of Physics and Energy Science, University of Colorado Colorado Springs, Colorado Springs, Colorado, United States

03:24 PM-03:36 PM

DC-06. Perturbing the Pyrochlore Structure: Local structure and Magnetic tuning in doped rare earth titanate compound

R. Sain¹, M. Sahoo³, C. Upadhyay²
¹*School of Materials Science and Technology, IIT (BHU), Varanasi, UTTAR PRADESH, India, ²School of Materials Science and Technology, IIT (BHU), Varanasi, UTTAR PRADESH, India, ³Surface and Sensors Studies Division, Materials Science Group, Indira Gandhi Centre for Atomic Research, Kalpakkam, Kalpakkam, India*

03:36 PM-03:48 PM

DC-07. Complex Evolution of Magnetic Anisotropies in Magnetosomes of Magnetotactic Bacteria

D. Gándia¹, L. Marcano^{2,3}, L. Gandarias^{4,5}, A. G. Gubieda⁴, A. García-Prieto¹², L. Fernández Barquín⁶, J. Espeso⁶, E. M. Jefremovas^{7,8,9}, I. Orue¹⁰, A. Abad⁴, A. García-Arribas¹¹, M. Fernandez Gubieda¹¹, J. Alonso Masa⁶

¹*Ciencias, Universidad Pública de Navarra, Pamplona, Spain, ²Física, Universidad de Oviedo, Oviedo, Spain, ³CIC biomaGUNE, Donostia, Spain, ⁴Inmunología, Microbiología y Parasitología, Universidad del País Vasco (UPV/EHU), Leioa, Spain, ⁵Aix-Marseille Institute of Biosciences and Biotechnologies (BIAM), Aix-Marseille Université, CNRS, Saint-Paul-lez-Durance, France, ⁶CITIMAC, Universidad de Cantabria, Santander, Spain, ⁷Institute of Physics. Johannes Gutenberg University of Mainz, Mainz, Germany, ⁸Physics and Materials Science, University of Luxembourg, Grand Duchy of Luxembourg, Luxembourg, ⁹Institute for Advanced Studies, Luxembourg, Luxembourg, ¹⁰SGIker, Universidad del País Vasco (UPV/EHU), Leioa, Spain, ¹¹Electricidad y Electrónica, Universidad del País Vasco (UPV/EHU), Leioa,*

Spain, ¹²*Física Aplicada, Universidad del País Vasco (UPV/EHU), Bilbao, Spain*

03:48 PM-04:15 PM

Break

04:15 PM-04:27 PM

DC-09. Carbon-Driven Enhancement of Magnetic Response in Pyrolyzed Copper–Porphyrin Nanocomposites

S. Figueroa, V. Pena Perez, F. Iglesias, A. Khodagulyan, O. Bernal, A. N. Kocharian

Physics and Astronomy, California State University Los Angeles, Los Angeles, California, United States

04:27 PM-04:39 PM

DC-10. All-Oxide Hybrid Spinel Core@Shell Nanoparticles: A Seed-Mediated Approach Toward Magneto-Optical Theranostics

S. Jan¹, R. Das², R. Roy Chowdhury¹, A. I. Ojo¹, Y. Wadumesthri¹, H. Rodríguez Gutiérrez¹, H. Srikanth¹, D. A. Arena¹

¹*Department of Physics, University of South Florida, Tampa, Florida, United States*, ²*SEAM Research Centre, South East Technological University, Waterford, Ireland*

04:39 PM-04:51 PM

DC-11. Nanostructuring effects on the Verwey Transition in Fe₃O₄ Nanoparticles

R. Gautam¹, W. Pitt³, R. Harrison², K. Chesnel¹

¹*Physics, Brigham Young University, Provo, Utah, United States*, ²*Chemistry, Brigham Young University, Provo, Utah, United States*, ³*Chemical Engineering, Brigham Young University, Provo, Utah, United States*

04:51 PM-05:03 PM

DC-12. Dynamics of magnetic fluctuations in Fe₃O₄ nanoparticles

K. Chesnel, J. Rackham

BYU, Provo, Utah, United States

SESSION DD: ND2FE14B AND MEASUREMENT TECHNIQUES

Co-Chair(s): A. Lisfi, *Physics, Morgan State University, Baltimore, Maryland, United States* and Y. Hirayama, *National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan*

Wednesday, October 29, 2025

02:00 PM-05:30 PM

Ballroom B

02:00 PM-02:12 PM

DD-01. Unveiling Buried Magnetic Nanodomains: High-Resolution Phase Mapping in Thin Films with Synchrotron Radiation

A. Lengyel¹, D. G. Merkel¹, G. Bazso¹, A. I. Chumakov², D. L. Nagy¹, G. Hegedus¹, Z. E. Horvath³, N. M. Nemes⁴, M. A. Gracheva³, E. O. Szilagyi¹, S. Sajti¹, A. Deak³, L. Illes³, A. Nemeth¹, F. Maccari⁵, I. Radulov⁵, M. Major^{1,5}, Z. Zolnai³, S. Graning⁶, K. Sajerman⁷, T. Vaczi¹, P. Petrik³, D. Mukherjee³, S. Lenk⁷, D. Bessas², G. Z. Radnoczi³

¹*HUN-REN Wigner Research Centre for Physics, Budapest, Budapest, Hungary*, ²*European Synchrotron Radiation Facility, Grenoble, France*, ³*HUN-REN Centre for Energy Research, Budapest, Budapest, Hungary*, ⁴*Universidad Complutense de Madrid, Madrid, Spain*, ⁵*Technische Universität Darmstadt, Darmstadt, Germany*, ⁶*Eotvos Lorand University, Budapest, Budapest, Hungary*, ⁷*Budapest University of Technology and Economics, Budapest, Budapest, Hungary*

02:12 PM-02:24 PM

DD-02. Quantification of Retained Austenite via Magnetic Saturation

A. Jackson, N. J. Jones, J. Yoo

Naval Surface Warfare Center Carderock Division, West Bethesda, Maryland, United States

02:24 PM-02:36 PM

DD-03. Accurate Saturation Magnetization Measurement Method for Fe-based Alloy Foils

T. Tabata, Y. Asari, M. Noujima, S. Terada

Research & Development Group, Hitachi Ltd., Hitachi, Ibaraki, Japan

02:36 PM-02:48 PM

DD-05. New steel coupons hosting residual stresses for steel health monitoring calibration

T. Damatopoulou, E. V. Hristoforou

National TU of Athens, Athens, Greece

02:48 PM-03:00 PM

DD-06. Raman Spectroscopic and Computational Investigation of Gold-Coated CoFe₂O₄ Thin Films

T. Lamichhane

Engineering & Physics, University Of Central Oklahoma, Edmond, Oklahoma, United States

03:00 PM-03:12 PM

DD-07. Measuring Magnetic Exchange using Magnetometry and Atomistic Simulations

C. Swindells^{1,2}, W. K. Peria¹, J. Barker³, J. J. Wisser¹, M. Schneider¹, M. Pufall¹, H. T. Nembach¹

¹NIST, Boulder, Colorado, United States, ²Electrical Engineering, CU Denver, Denver, Colorado, United States, ³School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom

03:12 PM-03:24 PM

DD-08. Mechanical Strengthening of Nd-Fe-B Sintered Magnets via Microstructure Engineering

B. Cui, X. Liu, W. Tang, I. Nlebedim, J. Cui

Ames National Laboratory, Ames, Iowa, United States

03:24 PM-03:36 PM

DD-10. Relationship between Nd-rich phase and oxygen content for additive-free sintering with regenerated powder from magnet sludge waste

D. Kim¹, V. Galkin²

¹Korea Institute of Materials Science, Changwon, Korea (the Republic of), ²Daegu Gyeongbuk Institute of Science and Technology, Daegu, Korea (the Republic of)

03:36 PM-03:48 PM

DD-11. Correlation of Coercivity, Microstructure, and Surface Defects in HDDR-Processed Nd-Fe-B Powders for Bonded Magnet Applications

X. Liu¹, M. K. Kesler², Z. Tener³, M. J. Kramer⁴, I. Nlebedim¹

¹Division of Critical Materials, Ames National Laboratory, Ames, Iowa, United States, ²Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee, United States, ³Savannah River National Laboratory, Aiken, South Carolina, United States, ⁴Division of Materials Science and Engineering, Ames National Laboratory, Ames, Iowa, United States

03:48 PM-04:15 PM

Break

04:15 PM-04:27 PM

DD-12. Critical Rare Earth Lean Nd-Ce-Fe-B

Permanent Magnets Powder via Wet Chemical Process

H. Parmar, M. Broders, C. I. Nlebedim, X. Liu

Division of Critical Materials, Ames National Laboratory, Critical Materials Innovation Hub, Ames, Iowa, United States

04:27 PM-04:39 PM

DD-13. Tailoring Nd-Fe-B Microstructure via LPBF like Cooling in Melt Spinning

A. Paul^{1,2}, J. Shield^{1,2}

¹*Mechanical and Materials engineering, University of Nebraska-Lincoln, Lincoln, Nebraska, United States,*

²*Nebraska Center for Materials and Nanoscience, University of Nebraska-Lincoln, Lincoln, Nebraska, United States*

04:39 PM-04:51 PM

DD-14. Dy-Free Sintered Nd-Fe-B Magnets Enhanced by Pr-Al-Cu Alloy via Different Grain Boundary Engineering Techniques.

W. Tang¹, J. Wang¹, Y. Varma², C. Pan¹, J. Cui^{1,2}

¹*Ames National Laboratory, Ames, Iowa, United States,*

²*Materials Science and Engineering, Iowa State University, Ames, Iowa, United States*

SESSION DE: MAGNETIC GROUND STATES, PHASE TRANSITIONS AND MAGNETO-ELASTIC PHENOMENA

Co-Chair(s): N. J. Jones, *Physical Metallurgy and Fire Performance Branch, Naval Surface Warfare Center, Carderock Division, Bethesda, Maryland, United States* and H. Chi, *University of Ottawa, Ottawa, Ontario, Canada*

Wednesday, October 29, 2025

02:00 PM-05:30 PM

Room 2DE

02:00 PM-02:36 PM

DE-01. Tuning Magnetic Properties of FeGa

Magnetostrictive Thin Films Using Light or Electric Fields

P. Tiberto¹, G. Barrera¹, F. Celegato¹, M. Coisson¹, G. Pradhan¹, D. Martella²

¹*Advance Materials and Life Sciences, INRIM, Torino, Italy,*

²*Department of Chemistry "Ugo Schiff", Università di Firenze, Torino, Italy*

02:36 PM-02:48 PM

DE-03. Ultra-Flexible Magneto-Elastic Diaphragm for Low-Power Actuation Applications

K. Moussi, S. Ben Mbarek, S. Amara, G. Setti
King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia

02:48 PM-03:00 PM

DE-04. Heterogeneously Integrated Lithium Niobate-Yttrium Iron Garnet Heterostructures for Magnetoelectric Devices

A. R. Will-Cole¹, L. Hackett¹, M. Miller¹, T. Friedmann¹, S. Arterburn¹, S. Herrera¹, M. Eichenfield²
¹*Sandia National Laboratories, Albuquerque, New Mexico, United States*, ²*University of Arizona, Tucson, Arizona, United States*

03:00 PM-03:12 PM

DE-05. Multimodal Magnetoactive Elastomers for Magnetic and Touch Sensing with Stylus Functionality

Y. Sekertekin^{1,2}, S. Sonkusale^{1,2}
¹*Electrical and Computer Engineering, Tufts University, Medford, Massachusetts, United States*, ²*Sonkusale Research Laboratory, Medford, Massachusetts, United States*

03:12 PM-03:24 PM

DE-06. Selective readout of isolated superconducting hybrid magnonic circuit

P. Pal^{1,2}, U. Welp¹, R. Divan³, V. Novosad¹, A. Hoffmann², Y. Li¹
¹*Materials Science Division, Argonne National Laboratory, Lemont, Illinois, United States*, ²*Department of Materials Science and Engineering and Materials Research Laboratory, University of Illinois Urbana-Champaign, Champaign, Illinois, United States*, ³*Center for Nanoscale Materials, Argonne National Laboratory, Lemont, Illinois, United States*

03:24 PM-03:36 PM

DE-07. Tailored Ferromagnetic Resonance in Thick Film YIG via Ion-Implantation Technique

H. Baldino¹, D. Hedlund², K. Collins³, P. Ström⁴, D. Heiman^{5,6}, R. Peroor⁷, E. Abels⁷, D. A. Bozhko⁷, M. Page³, M. Newburger³, P. Kulik^{1,2}
¹*Material Science and Engineering, University of Central Florida, Orlando, Florida, United States*, ²*Electrical and Computer Engineering, University of Central Florida, Orlando, Florida, United States*, ³*Materials and Manufacturing Directorate, Air Force Research*

Laboratory, WPAFB, Ohio, United States, ⁴Physics and Astronomy, Uppsala University, Uppsala, Sweden, ⁵Physics Department, Northeastern University, Boston, Massachusetts, United States, ⁶Plasma Science and Fusion Center, Massachusetts Institute of Technology, Cambridge, Massachusetts, United States, ⁷Department of Physics and Energy Science, Center for Magnetism and Magnetic Nanostructures, University of Colorado, Colorado Springs, Colorado, United States

03:36 PM-04:15 PM

Break

04:15 PM-04:51 PM

DE-08. An exploration of field-induced ground states and phase transitions in pyrochlores using torque magnetometry

C. Beekman^{1,2}

¹Physics, Florida State University, Tallahassee, Florida, United States, ²National High Magnetic Field Laboratory, Tallahassee, Florida, United States

04:51 PM-05:03 PM

DE-10. Effect of Si Concentration on the Crystal Structure and Magnetic Ground State of Mn₂FeAl_{1-x}Si_x Heusler Alloys

S. Saha¹, A. K. Khorwal¹, Y. Bitla¹, A. K. Patra^{1,2}

¹Department of Physics, Central University of Rajasthan, Ajmer, Rajasthan, India, ²School of Physics, University of Hyderabad, Hyderabad, Telangana, India

SESSION DF: SPIN INJECTION, PUMPING AND TRANSFER TORQUES

Chair(s): D. Qu, Center for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan

Wednesday, October 29, 2025

02:00 PM-05:30 PM

Room 2BC

02:00 PM-02:36 PM

DF-01. Self-generated Spin-orbit Torques Driven by Magnonic Spin Dissipation in Antiferromagnet/Ferromagnet Bilayer

W. Choi^{1,2}, J. Ha^{1,3}, M. Jung¹, S. Kim¹, H. Koo^{1,4}, O. Lee¹, B. Min¹, H. Jang^{2,5}, A. Shahee⁶, J. Kim⁷, M. Kläui⁶, J. Hong³, K. Kim⁸, D. Han¹

¹Center for Semiconductor Technology, Korea Institute of Science and Technology, Seoul, Korea (the Republic of),

²Department of Materials Science and Engineering, Seoul National University, Seoul, Korea (the Republic of),

³Department of Physics and Chemistry, Daegu Gyeongbuk Institute of Science and Technology, Daegu, Korea (the Republic of), ⁴KU-KIST Graduate School of Converging Science and Technology, Korea University, Seoul, Korea (the Republic of), ⁵Research Institute of Advanced Materials, Seoul National University, Seoul, Korea (the Republic of), ⁶Institute for Physics, Johannes Gutenberg University, Mainz, Germany, ⁷Department of Physics, Kunsan National University, Kunsan, Korea (the Republic of), ⁸Department of Physics, Yonsei University, Seoul, Korea (the Republic of)

02:36 PM-03:12 PM

DF-02. Temperature gradient-driven motion of magnetic domains in a magnetic metal multilayer by entropic forces

L. Huang^{1,2}, J. Barker¹, L. Kailas¹, S. Hait¹, S. Connell¹, G. Burnell¹, C. Marrows¹

¹University of Leeds, Leeds, United Kingdom, ²University of Sheffield, Sheffield, United Kingdom

03:12 PM-03:24 PM

DF-03. Dependence of Current-Induced Switching Threshold on Composition Gradient Width in Si/Al-Integrated Perpendicular Magnetic Films

S. Takagi¹, K. Yamanoi¹, Y. Nozaki^{1,2}

¹Dept. of Phys., Keio Univ., Yokohama, Kanagawa, Japan, ²Center for Spintronics Research Network, Keio Univ., Yokohama, Kanagawa, Japan

03:24 PM-03:36 PM

DF-04. Dissipationless Spin-orbit Torque in Magnetic Insulators

S. Ahmad¹, F. Mahfouzi², P. Haney², F. Xue¹

¹Department of Physics, University of Alabama at Birmingham, Birmingham, Alabama, United States, ²PML, National Institute of Standards and Technology, Gaithersburg, Maryland, United States

03:36 PM-03:48 PM

DF-05. Effect of Interfacial DMI on Write Error Rate Anomalies of STT-MRAM Devices

P. Das¹, M. Rajib¹, J. Atulasimha^{1,2}

¹Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, Virginia, United States, ²Department of Electrical and Computer Engineering, Virginia Commonwealth University, Richmond, Virginia, United States

03:48 PM-04:15 PM

Break

04:15 PM-04:27 PM

DF-06. Influence of Device Structure on RF Oscillation Properties in Spin Hall Nano Oscillators

H. Iida^{1,2}, K. De Zoysa¹, Y. Yoshida^{1,2}, A. Sud³, A. Lagarrigue¹, T. Dohi¹, A. Kumar^{4,5}, A. A. Awad^{1,4}, S. Kanai^{1,6}, J. Akerman^{1,4}, S. Fukami^{1,5}, H. Ohno^{5,7}

¹LNS, RIEC, Tohoku Univ., Sendai, Japan, ²Graduate School of Engineering, Tohoku Univ., Sendai, Japan, ³FRIS, Tohoku Univ., Sendai, Japan, ⁴Physics department, Univ. of Gothenburg, Gothenburg, Sweden, ⁵CSIS, Tohoku Univ., Sendai, Japan, ⁶WPI-AIMR Tohoku Univ., Sendai, Japan, ⁷CIES, Tohoku Univ., Sendai, Japan

04:27 PM-04:39 PM

DF-07. Magnetotransport Signatures of Spin Transfer Beyond the Semiclassical Regime

G. T. Street, S. Emori

Physics, Virginia Tech, Blacksburg, Virginia, United States

04:39 PM-04:51 PM

DF-08. Single-Layer Spin-Orbit-Torque Magnetization Switching Due to Spin Berry Curvature Generated by Minute Spontaneous Atomic Displacement in Weyl Oxide SrRuO₃

H. Horiuchi¹, Y. Araki², Y. K. Wakabayashi³, J. Ieda², M. Yamanouchi⁴, Y. Sato⁵, S. Kaneta-Takada¹, Y. Taniyasu³, H. Yamamoto³, Y. Krockenberger³, M. Tanaka^{1,6,7}, S. Ohya^{1,6,7}

¹Department of Electrical Engineering and Information Systems, The University of Tokyo, Bunkyo-ku, Tokyo, Japan, ²Advanced Science Research Center, Japan Atomic Energy Agency, Tokai-mura, Ibaraki, Japan, ³NTT Basic Research Laboratories, NTT Corporation, Atsugi-shi, Kanagawa, Japan, ⁴Division of Electronics for Informatics, Graduate School of Information Science and Technology, Hokkaido University, Sapporo-shi, Hokkaido, Japan, ⁵Research and Education Institute for Semiconductors and Informatics, Kumamoto University, Chuo-ku, Kumamoto, Japan, ⁶Center for Spintronics Research Network (CSRN), The University of Tokyo, Bunkyo-ku, Tokyo, Japan, ⁷Institute for Nano Quantum Information Electronics, The University of Tokyo, Bunkyo-ku, Tokyo, Japan

04:51 PM-05:03 PM

DF-09. Spin Pumping and Inverse Spin Hall Effect in Chiral Polymers

S. Li, S. Jeon, Y. Chen, M. Yoo, A. Hoffmann, Y. Diao
University of Illinois Urbana Champaign, Urbana, Illinois, United States

05:03 PM-05:15 PM

DF-10. Unconventional spin polarization unleashed by Fermi surface modulation

S. Sugimoto², Y. Araki¹, J. Ieda¹, S. Kasai², Y. K. Takahashi²

¹*Japan Atomic Energy Agency, Tokai, Japan*, ²*National Institute for Materials Science, Tsukuba, Japan*

05:15 PM-05:27 PM

DF-11. Increased Rectified Voltage in Magnetic Tunnel Junction with Pseudo Spin Valve Structure for Wireless Signals Energy Harvesting

K. Kino^{1,2}, H. Chiku^{1,2}, T. Dohi², T. Shinoda^{1,2}, S. Kanai^{1,2,3}, H. Ohno^{1,3,4}, S. Fukami^{1,2,3}

¹*RIEC, Tohoku Univ., Sendai, Japan*, ²*Graduate School of Engineering, Tohoku Univ., Sendai, Japan*, ³*WPI-AIMR, Tohoku Univ., Sendai, Japan*, ⁴*CSIS, Tohoku Univ., Sendai, Japan*

SESSION DG: MAGNETIC SENSORS, HIGH FREQUENCY DEVICES, AND POWER ELECTRONICS I

Co-Chair(s): N. Alatawneh, *Sacred Heart University, Trumbull, Connecticut, United States* and N. Schulz, *Naval Surface Warfare Center, Panama City Division, Panama City Beach, Florida, United States*

Wednesday, October 29, 2025

02:00 PM-05:30 PM

Room 2A

02:00 PM-02:36 PM

DG-01. Magnetic Field Detection from an Ingestible Device using a Tunnel Magnetoresistance Sensor

T. Kubota¹, H. Wagatsuma², K. Fujiwara², M. Endo¹, T. Hojo^{1,3}, M. Ishida¹, N. Nakasato^{1,6}, H. Ono², H.

Fukushima², S. Kumagai², H. Matsuzaki², K. Yokoi⁴, S. Oyagi⁴, R. Otsuka⁴, I. Yamane⁴, D. Canlas⁵, J. Komaili⁵, S. Pathare⁵, J. Withrington⁵, T. Thompson⁵, J. Jinno⁴, K. Onishi⁴, Y. Ando^{1,3}

¹*Advanced Spintronics Medical Engineering, Tohoku University, Sendai, Miyagi, Japan*, ²*Spin Sensing Factory Inc., Sendai, Japan*, ³*Department of Applied Physics, Tohoku University, Sendai, Miyagi, Japan*, ⁴*Otsuka Pharmaceutical Co., Ltd., Tokyo, Japan*, ⁵*Otsuka Precision*

Health Inc., Hayward, California, United States, ⁶Graduate School of Medicine, Tohoku University, Sendai, Japan

02:36 PM-02:48 PM

DG-02. Enhancement of Exchange bias in NiFe-IrMn Planar Hall bilayer thin films for rotary sensing applications

K. S. Narasimhan, P. Anil Kumar

Physics, Indian Institute of Science, Bangalore, Bangalore, Karnataka, Karnataka, India

02:48 PM-03:00 PM

DG-03. Plasmonically-enhanced Digital Spintronic Detector based on Stochastic Magnetic Tunnel Junctions

S. Gupta, Z. Yang, J. Shalabi, A. Deka, L. Bauer, Z. Jacob

Purdue University, West Lafayette, Indiana, United States

03:00 PM-03:12 PM

DG-04. Split-Core Magnetic Harvester for Self-Sustaining IoT Sensor Systems on Power Transmission Lines

R. Lorena, M. García-de-Blas, M. Silva, D. M. Caetano

INESC MN, Lisbon, Lisbon, Portugal

03:12 PM-03:24 PM

DG-05. Area-Efficient Perpendicular Magnetic Tunnel Junction Detectivity Enhancement using Vertical Flux Concentrators

Z. Ali¹, H. Naganuma², P. Wallace³, S. X. Wang¹, A. Poon¹

¹*Electrical Engineering, Stanford University, Stanford, California, United States*, ²*Nagoya University, Nagoya, Japan*, ³*Stanford University, Stanford, California, United States*

03:24 PM-03:36 PM

DG-06. Noise Reduction and Dynamic Range Enhancement of Pulse-Driven GMI Sensors via Optimized Anti-Aliasing Filtering

S. Idachi, T. Uchiyama

Department of Electronics, Nagoya university, Nagoya, Aichi, Japan

03:36 PM-03:48 PM

DG-07. High Frequency Transformer Integrated with SiC MOSFETs for Smart Transformer

J. Lu, W. Yao, N. Subhani, A. Seagar, Y. Zhu

School of EBE, Griffith University, Gold Coast, Queensland, Australia

03:48 PM-04:15 PM

Break

04:15 PM-04:27 PM

DG-08. Influence of heat-treatment on structure and magnetic properties of 10 μm -thick Fe-1,2,3wt.%Si foils

S. Aija¹, T. Takasu¹, S. Muroga¹, Y. Endo^{1,2}

¹*Department of Electrical Engineering, Tohoku University, Sendai, Japan,* ²*CSIS, Tohoku University, Sendai, Japan*

04:27 PM-04:39 PM

DG-09. An Optimized Design of a Dual Rotor Axial Flux Switched Reluctance Electrical Machine

M. Trapanese

Dipartimento di Ingegneria, Palermo University, Palermo, Italy

04:39 PM-04:51 PM

DG-10. Microwave-Driven Magnetic Dynamics in Low-Temperature Synthesized Hexaferrites: A Static-to-Dynamic Perspective

K. Rana^{1,2}, M. Tomar¹, A. Thakur^{3,2}

¹*Department of Physics and Astrophysics, University of Delhi, Delhi, New Delhi, India,* ²*Innovative Science Research Society, Shimla, Himachal Pradesh, India,* ³*Physics, Amity University, Gurugram, Haryana, India*

04:51 PM-05:03 PM

DG-11. Magnetic Bias-Driven Modulation of Graphene for Tunable Gyrotropic and Magnetoplasmon Devices

S. Amanatiadis¹, T. Ohtani², T. Zygiridis³, N. V.

Kantartzis¹, Y. Kanai⁴

¹*Aristotle University of Thessaloniki, Thessaloniki, Greece,* ²*1-17-134, Omachi, Asahikawa, Japan,* ³*University of Western Macedonia, Kozani, Greece,* ⁴*Niigata Institute of Technology, Kashiwazaki, Japan*

05:03 PM-05:15 PM

DG-12. Optimization of Magnetoelastic Ribbons for Mass Sensors and Development of Novel Applications in Hydrogel Gelation Time Control

M. Shaji¹, I. Tapon¹, J. Vilas-Vilela^{1,2}, A. Lasheras¹, L.

Pérez-Álvarez^{1,2}, A. Lopes¹

¹*University of Basque Country, Leioa, Spain,* ²*BCMaterials, Leioa, Spain*

05:15 PM-05:27 PM

DG-13. High-frequency Magnetic Levitation of Macroscopic Masses

V. Sharma¹, M. Simon², R. Candler^{1,3}

¹Department of Electrical and Computer Engineering, University of California, Los Angeles, Los Angeles, California, United States, ²Department of Physics and Astronomy, University of California, Los Angeles, Los Angeles, California, United States, ³California NanoSystems Institute, University of California, Los Angeles, Los Angeles, California, United States

SESSION DQ: MAGNETO-CALORIC, MAGNETOELECTRIC, AND MULTIFERROIC MATERIALS AND DEVICES (POSTER SESSION)

Chair(s): K. Srinivasan, *Electrical and Computer Engineering, Boise State University, Boise, Idaho, United States*

Wednesday, October 29, 2025

02:30 PM-05:30 PM

Exhibit Hall Posters

DQ-01. Structural, Magnetic, and Magnetocaloric Properties of Pseudo-binary $(\text{Er}_{1-x}\text{Yb}_x)_2\text{In}$

A. Kumar, A. Thayer, P. Singh, A. Biswas, Y. Mudryk
Ames National Laboratory, Ames, Iowa, United States

DQ-02. The Effect of Ti Addition on the Magnetic and Magnetocaloric Properties of Drop-casted $\text{Ni}_2\text{Mn}_{0.55}\text{Cu}_{0.35}\text{Fe}_{0.10}\text{Ga}$ Heusler alloy

K. Schaeffer¹, H. A. Adedo¹, J. R. DeFeo², V. Yenugonda², A. Lamichhane¹, A. Pathak², M. Khan¹
¹Physics, Miami University, Oxford, Ohio, United States,
²SUNY Buffalo State University, Buffalo, New York, United States

DQ-03. A study of martensitic phase transitions in the paramagnetic state in Fe doped $\text{Ni}_2\text{Mn}_{0.65-x}\text{Cu}_{0.35}\text{Fe}_x\text{Ga}$ Heusler alloys prepared by drop-casting

A. Lamichhane¹, J. R. DeFeo², H. A. Adedo¹, V. Yenugonda², K. Schaeffer¹, A. Pathak², M. Khan¹
¹Physics, Miami University, Oxford, Ohio, United States,
²Physics, SUNY Buffalo State University, Buffalo, New York, United States

DQ-04. Magnetocaloric Effect in $\text{PrNi}_{2-x}\text{Co}_x$ Alloys: Simulation and Experimental Approaches

R. Duarte de Melo, C. L. Rodrigues, A. Gomes
Instituto de Física, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Rio de Janeiro, Brazil

DQ-05. Colloidal Synthesis and Size-Dependent Magnetic Properties of Discrete MnNiSb Nanoparticles for Thermomagnetic Waste Heat Recovery

F. Amoo², S. Brock², J. Sklenar¹, V. Ostapyuk², T. Jeffrey¹
¹Physics and Astronomy, Wayne State University, Detroit, Michigan, United States, ²Chemistry, Wayne State University, Detroit, Michigan, United States

DQ-06. Topological Magnetic Texture Stabilization in ϵ -Fe₂O₃ Thin Films

D. DeTellem, S. Witanachchi, M. Phan
 Department of Physics, University of South Florida, Tampa, Florida, United States

DQ-07. Assembly of Magnetic Tunnel Junctions with Chiral Nanographenes

C. Fang, W. Niu, J. Deka, S. Parkin
 Max Planck Institute of Microstructure Physics, Halle (Saale), Sachsen-Anhalt, Germany

DQ-08. Magnetic and Transport Properties of ordered LaSrMnRuO₆ double perovskite thin Films

A. Kumar^{1,2}, D. Palai³, D. Samal³, P. Santhosh^{1,2}
¹Department of physics, IIT Madras, Chennai, Tamilnadu, India, ²Functional oxide Research Group, IIT Madras, Chennai, Tamilnadu, India, ³Department of physics, Indian Institute of Physics, Bhubaneswar, Odisha, India

DQ-09. Doped yttrium iron garnet magnetic nanoparticles with high Zn concentration for potential magneto-electric applications

R. Mohammed¹, V. Grynko^{1,2}, J. Rado¹, A. Alexandrov¹, A. Hodgson¹, H. Chumak³, M. Popov³, V. Batarchuk^{1,2}, A. Reznik¹, Y. Shepelytskyi^{1,2}, M. S. Albert^{1,2,4}
¹Lakehead University, Thunder Bay, Ontario, Canada, ²Thunder Bay Regional Health Research Institute, Thunder Bay, Ontario, Canada, ³Taras Shevchenko National University of Kyiv, Kyiv, Ukraine, ⁴Northern Ontario School of Medicine, Thunder Bay, Ontario, Canada

DQ-10. Experimental and computational study of nearly half-metallic V₂CoGa

P. Kharel², C. Sadler¹, C. Brown², M. Anas², P. Shand¹, P. Lukashev¹
¹Physics, University of Northern Iowa, Cedar Falls, Iowa, United States, ²Chemistry, Biochemistry and Physics, South Dakota State University, Brookings, South Dakota, United States

SESSION DR: MAGNETORESISTANCE, SPIN TORQUE, AND SPIN INJECTION IN HETEROSTRUCTURES AND FILMS (POSTER SESSION)

Co-Chair(s): A. Chaurasiya, *Physics, University of Gothenburg, Gothenburg, Sweden* and G. Yu, *Institute of Physics, Chinese Academy of Sciences, Beijing, China*

Wednesday, October 29, 2025

02:30 PM-05:30 PM

Exhibit Hall Posters

DR-01. Magnetization switching by a laser induced thermo-current in a GdFeCo/Pt hetero-structure film

S. Sumi¹, M. Mohammadi¹, K. Tanabe¹, H. Awano¹, Y. Nakatani²

¹*Toyota Technological Institute, Nagoya, Japan,*

²*University of Electro-Communications, Tokyo, Japan*

DR-02. NIST SP 800-90B Compliant Perpendicular Magnetic Tunnel Junction Based True Random Number Generator

Q. Jia¹, S. Egan², Y. Lv¹, J. Wang¹

¹*University of Minnesota, Minneapolis, Minnesota, United States,* ²*Deep Science Ventures, London, United Kingdom*

DR-03. Influence of In-Plane Geometry design on Spin Transport in NiFe Thin Films

D. Han, J. Lee, K. Son

Physics education, Kongju National University, Gongju, Korea (the Republic of)

DR-04. Electrical detection of a minimal spin accumulation in silicon

Y. Koshino¹, M. Goto³, R. Ohshima², M. Shiraishi², Y. Ando¹

¹*Osaka Metropolitan University, Osaka, Japan,* ²*Kyoto University, Kyoto, Japan,* ³*Tokyo University of Science, Tokyo, Japan*

DR-05. Electrochemical Deposition Optimization of Fe-Co-B/Ta Magnetic Multilayers for Spintronics

A. S. Poulou, T. Lamichhane, J. A. Torres, M. Goodman, L. Cosgrove, J. Le Chin, H. Kluck Graham
Engineering and Physics, University of Central Oklahoma, Oklahoma City, Oklahoma, United States

DR-06. Solid-phase epitaxy of $\text{Co}_2\text{Fe}_{0.4}\text{Mn}_{0.6}\text{Si}$ full-Heusler-alloy thin films utilizing (001)-textured MgO barrier

K. Watanabe¹, T. Nakano^{1,2}, M. Oogane^{1,3}

¹Department of Applied Physics, Graduate School of Engineering, Tohoku University, Sendai, Japan, ²Research Center for Green X-Tech, Green Goals Initiative, Tohoku University, Sendai, Japan, ³Center for Science and Innovation in Spintronics, Tohoku University, Sendai, Japan

DR-07. Fabrication of Fcc(111)-Oriented MTJs on Bcc(110)-Oriented FeAlSi Films for TMR Sensors Application

D. Amiie¹, T. Hojo¹, M. Oogane^{1,2}

¹Graduate school of Engineering, Tohoku Univ., Sendai-shi, Miyagi-ken, Japan, ²Tohoku Univ. CSIS, Sendai-shi, Miyagi-ken, Japan

DR-08. Suppression of Electrical 1/f Noise in Magnetic Tunnel Junctions with Mg-Al-O Barriers

S. Nii¹, C. Zhang¹, H. He¹, Y. Wang¹, T. Hojo¹, T. Nakano^{1,2}, M. Oogane^{1,3}

¹Department of Applied Physics, School of Engineering, Tohoku Univ., Sendai, Japan, ²Green X-tech, Tohoku Univ., Sendai, Japan, ³CSIS, Tohoku Univ., Sendai, Japan

DR-09. Thickness-dependence of the anomalous Hall effect in magnetic heterostructures

E. M. Ababneh¹, N. Boyd², X. Fan², V. Amin¹

¹Indiana University Indianapolis, Indianapolis, Indiana, United States, ²University of Denver, Denver, Colorado, United States

DR-10. The effect of argon plasma exposure on in-plane uniaxial anisotropy in WS_2/Py bilayers

K. Islam, H. Pokhrel, S. Pollard

Physics and Materials Science, The University of Memphis, Memphis, Tennessee, United States

DR-11. Large Spin Nernst Effect in $\text{Ni}_{70}\text{Cu}_{30}$ Alloy

W. Li^{1,2}, C. Lin¹, G. Guo^{1,3}, S. Huang^{1,4}, D. Qu^{2,4}

¹Department of Physics, National Taiwan University, Taipei, Taiwan, ²Center for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan, ³Physics Division, National Center for Theoretical Sciences, Taipei, Taiwan, ⁴Center of Atomic Initiatives for New Materials, National Taiwan University, Taipei, Taiwan

DR-12. High-throughput ab initio study of magnetoelastic coupling and magnetostriction in cubic intermetallic compounds

H. Abdelhafiz¹, F. Mahfouzi², N. Kioussis³, K. Belashchenko¹

¹*Department of Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, Nebraska, United States,*

²*Physical Measurement Laboratory, National Institute of Standards and Technology, Gaithersburg, Maryland, United States,*

³*Department of Physics and Astronomy, California State University, Northridge, California, United States*

DR-13. MTJ-Based Neuromorphic Circuit for Analog Machine Learning

S. Louis¹, A. N. Slavin¹, C. Trevillian¹, H. Bradley¹, D. Hanna¹, M. Abramson², I. Krivorotov², V. Tyberkevych¹

¹*Oakland University, Rochester, Michigan, United States,*

²*University of California, Irvine, California, United States*

DR-14. Solution of advanced classification tasks including MNIST dataset using spin wave based multier AI system with nonlinear activation functions

K. Rivkin

RKMAG Corporation, Pacific Grove, California, United States

BIERSTUBE

Wednesday, October 29, 2025

05:00 PM-06:30 PM

Exhibit Hall Events

STUDENTS IN MAGNETISM NETWORKING EVENT

Wednesday, October 29, 2025

05:00 PM-06:30 PM

Hilton Event Lawn 1 & 2 (weather backup is Mezze & Mezze Patio)

AI IN MAGNETISM: THE GOOD, THE BAD, AND THE UGLY

Wednesday, October 29, 2025

06:30 PM-08:00 PM

Grand Ballroom

SESSION EA: COMPACT EUV SOURCES: EXCEPTIONAL NEW TOOLS FOR ULTRAFAST SPIN DYNAMICS

Chair(s): D. A. Arena, *Physics, University of South Florida,
Tampa, Florida, United States*
Thursday, October 30, 2025
08:30 AM-12:00 PM
Grand Ballroom

08:30 AM-09:06 AM

EA-01. Probing Spin Textures and Dynamics using Ultrafast EUV and Soft X-Ray Sources

M. M. Murnane

*JILA and Physics, University of Colorado, Boulder,
Colorado, United States*

09:06 AM-09:42 AM

EA-02. Toward *in Operando* Metrology of Active Devices: Element-Specific, High-Frequency Ferromagnetic Resonance Spectroscopy

M. Tanksalvala¹, A. Kos¹, J. J. Wisser¹, B. McBennett¹, S.
Diddams², H. T. Nembach¹, J. M. Shaw¹

¹*Applied Physics Division, National Institute of Standards
and Technology, Boulder, Colorado, United States,*

²*Electrical, Computer & Energy Engineering, University of
Colorado, Boulder, Colorado, United States*

09:42 AM-10:18 AM

EA-03. Magnetization Dynamics in Transition Metal Films with Low Perpendicular Magnetic Anisotropy

B. Vodungbo¹, E. Jal¹, M. Hennes³, R. Delaunay¹, J.
Milano², F. Fortuna⁵, M. Marangolo³, M. Eddrief³, J.
Dubois^{1,4}, G. Lambert⁴

¹*Laboratoire de Chimie Physique – Matière et
Rayonnement, Sorbonne Université – CNRS, Paris,
France,* ²*Instituto de Nanociencia y Nanotecnologia,
CNEA – CONICET, Bariloche, Argentina,* ³*Institut des
Nanosciences de Paris, Sorbonne Université – CNRS,
Paris, France,* ⁴*Laboratoire d'Optique Appliquée, ENSTA –
CNRS – École Polytechnique, Palaiseau, France,* ⁵*Institut
des Sciences Moléculaires d'Orsay, Université Paris-
Saclay – CNRS, Orsay, France*

10:18 AM-10:45 AM

Break

10:45 AM-11:21 AM

EA-04. Electron dynamics in two-dimensional semiconductors and spinel ferrites at the NSF-NeXUS user facility

R. Kawakami

NSF-NeXUS and Department of Physics, The Ohio State University, Columbus, Ohio, United States

11:21 AM-11:57 AM

EA-05. Revealing domain wall stability during ultrafast demagnetization with subwavelength EUV imaging

H. Chang¹, S. Zayko¹, T. Schmidt², O. Kfir³, M. Sivis^{1,4}, J. H. Mentink⁵, M. Albrecht², C. Ropers^{1,4}

¹Max Planck Institute for Multidisciplinary Sciences, Göttingen, Germany, ²Institute of Physics, University of Augsburg, Augsburg, Germany, ³School of Electrical Engineering, Tel Aviv University, Tel Aviv, Israel, ⁴4th Physical Institute, University of Göttingen, Göttingen, Germany, ⁵Institute for Molecules and Materials, Radboud University, Nijmegen, Netherlands

SESSION EB: ALTERMAGNETIC MATERIALS

Chair(s): Q. Liu, *Physics, Southern University of Science and Technology, Shenzhen, Guangdong, China*

Thursday, October 30, 2025

08:30 AM-12:00 PM

Ballroom A

08:30 AM-09:06 AM

EB-01. Altermagnetic electronic and magnetic structure explored in MnTe

P. Wadley¹, T. Jungwirth^{1,2}, O. Amin¹

¹School of Physics and Astronomy, University of Nottingham, Nottingham, Nottinghamshire, United Kingdom, ²nanospintronics, Institute of Physics ASCR, Praha, Czechia

09:06 AM-09:42 AM

EB-02. Mn₅Si₃: A Case Study in Altermagnetic Materials

L. Michez¹, J. Rial², M. Leiviska³, H. Reichlova³, D. Kriegner³, A. Badura³, I. Kounta¹, M. Petit¹, G. Skobjin⁴, S. Beckert⁶, E. Schmoranzero⁵, O. Gomony⁷, A. Thomas⁶, R. Lopes Seeger², L. Smejkal⁷, J. Sinova⁷, S. Goennenwein⁴, T. Jungwirth³, V. Baltz²

¹CINaM-CNRS, Aix Marseille University, Marseille, France, ²Univ. Grenoble Alpes, CNRS, CEA, Grenoble INP, Spintec, Grenoble, France, ³Institute of Physics, Czech Academy of Science, Prague, Czechia, ⁴Fachbereich Physik, Universität

Konstanz, Konstanz, Germany, ⁵Faculty of Mathematics and Physics, Charles University, Prague, Czechia, ⁶Leibniz-Institut für Festkörper- und Werkstoffforschung, Dresden, Germany, ⁷Institut für Physik, Johannes Gutenberg Universität, Mainz, Germany

09:42 AM-10:18 AM

**EB-03. Three-dimensional mapping of the
altersmagnetic spin splitting in CrSb**

Y. Liu

*Physics, Zhejiang University, Hangzhou, Zhejiang
Province, China*

10:18 AM-10:45 AM

Break

10:45 AM-11:21 AM

**EB-04. Orbitally Resolved Spin Hamiltonians:
Unveiling Additional Splitting in Altermagnets and
Beyond**

G. Moore, O. Ashour, M. Vila Tusell, I. Na, K. Eggestad,
S. M. Griffin

*Lawrence Berkeley National Laboratory, Berkeley,
California, United States*

11:21 AM-11:57 AM

Panel Discussion

SESSION EC: MODELING AND MACHINE LEARNING

Chair(s): F. M. Abel, *Physics, United States Naval
Academy, Annapolis, Maryland, United States*

Thursday, October 30, 2025

08:30 AM-12:00 PM

Ballroom C

08:30 AM-08:42 AM

**EC-01. Theory of Magnetization Dynamics Beyond the
Landau-Lifshitz-Gilbert Equation**

C. M. Webb, S. Zhang

*Physics, University of Arizona, Tucson, Arizona, United
States*

08:42 AM-08:54 AM

EC-02. Reduction of materials criticality in hybrid manufacturing of Halbach arrays using sintered NdFeB magnets and additively manufactured soft magnet frames

L. Cosgrove, T. Lamichhane

Engineering & Physics, University of Central Oklahoma, Edmond, Oklahoma, United States

08:54 AM-09:06 AM

EC-03. Exploration of Novel Fe₃Pt Structures for Application as Magnetic Materials: A Density Functional Theory Study

N. L. Lethole

Physics, University of Fort Hare, Alice, Eastern Cape, South Africa

09:06 AM-09:18 AM

EC-04. Field-assisted thermal fluctuation in non-collinear antiferromagnet Mn₃Sn

S. Qian, A. Shukla, S. Rakheja

Electrical and Computer Engineering, University of Illinois Urbana Champaign, Champaign, Illinois, United States

09:18 AM-09:30 AM

EC-05. Synchronization of spin transfer torque oscillators via magnetoelastic interactions

E. Savostin^{1, 2}, V. Lomakin^{3, 2, 1}

¹Program in Materials Science and Engineering, University of California San Diego, San Diego, California, United States, ²Center for Memory and Recording Research, University of California San Diego, San Diego, California, United States, ³Department of Electrical and Computer Engineering, , University of California San Diego, San Diego, California, United States

09:30 AM-09:42 AM

EC-06. Wave equation formulation for spin wave propagation in thin magnetic films

K. Rivkin

RKMAG Corporation, Pacific Grove, California, United States

09:42 AM-09:54 AM

EC-07. Temperature and Thickness Dependence of Gilbert Damping in CoFe thin films: Atomistic Study

P. Sharma¹, E. Sampson², G. Luepke¹

¹*Applied Science, William and Mary, Williamsburg, Virginia, United States*, ²*Physics, William and Mary, Williamsburg, Virginia, United States*

09:54 AM-10:06 AM

EC-08. Machine Learning Force-Field Models for Large-Scale Dynamical Simulations of Itinerant Electron Magnets

G. Chern¹, S. Zhang¹, Y. Fan¹, K. Shimizu²

¹*Physics, University of Virginia, Charlottesville, Virginia, United States*, ²*RIKEN Center for Emergent Matter Science, Saitama, Japan*

10:06 AM-10:18 AM

EC-10. Machine Learning for Predicting Magnetic Properties from X-ray Diffraction for L₁₀ FePt and Iron Oxide Nanoparticles Using Simple Physics-Based Models

F. M. Abel^{1,2}, D. Wines², B. Donavon¹, M. E. Jamer¹, K. Choudhary²

¹*Physics, United States Naval Academy, Annapolis, Maryland, United States*, ²*Material Science and Engineering, National Institute of Standards and Technology, Gaithersburg, Maryland, United States*

10:18 AM-10:45 AM

Break

10:45 AM-10:57 AM

EC-11. Micromagnetic Simulations of Magnon-Phonon Coupling Dynamics

F. Millo¹, A. Sharma¹, D. Stoeffler², J. Duquesne¹, P. Rovillain¹, M. Marangolo¹

¹*Physics, Sorbonne University, Paris, Ile-de-France, France*, ²*Physics, Strasbourg University, Strasbourg, France*

10:57 AM-11:09 AM

EC-12. Micromagnetic modelling and simulation of inertial spin waves in ferromagnetic nanodots

M. d'Aquino, S. Perna, C. Serpico

Department of Electrical Engineering and Information Technology, University of Naples Federico II, Naples, Italy

11:09 AM-11:21 AM

EC-13. Theory of magnetism and topological spin textures in disordered magnets: a case study of amorphous FeGe

T. Bayaraa^{1,2}, S. M. Griffin^{1,2}

¹Materials Science Division, Lawrence Berkeley National Laboratory, Berkeley, California, United States, ²Molecular Foundry, Lawrence Berkeley National Laboratory, Berkeley, California, United States

11:21 AM-11:33 AM

EC-14. Interlayer and interfacial Dzyaloshinskii-Moriya interaction in magnetic trilayers: First-principles and micromagnetic calculations

E. Y. Vedmedenko

Physics, University of Hamburg, Hamburg, Germany

SESSION ED: SPIN-CHARGE INTERCONVERSION AND MAGNETOTRANSPORT

Chair(s): M. H. Guimaraes, University of Groningen, Groningen, Netherlands

Thursday, October 30, 2025

08:30 AM-12:00 PM

Ballroom B

08:30 AM-09:06 AM

ED-01. Advancing Transistors via Spin-to-Charge Current Conversion in 3D and 2D Ferroelectric Chalcogenides

C. Rinaldi

Physics, Politecnico di Milano, Milano, Italy

09:06 AM-09:18 AM

ED-02. Orbital-to-Spin Conversion Material Exploration for Improving SOT-MTJ Performances

M. Biagi¹, C. C. Capriata¹, L. Hutin², B. Viala², R. Sousa¹, K. Garello¹

¹SPINTEC, CEA, Grenoble, Isere, France, ²Leti, CEA, Grenoble, Isere, France

09:18 AM-09:30 AM

ED-04. Interfacial orbital transmission and mechanical torque in metals

C. Sun, A. Manchon

Aix-Marseille Université, CNRS, CINaM, Marseille, France

09:30 AM-09:42 AM

ED-05. Anisotropic orbital Hall effect in an epitaxial titanium

S. Karube¹, Y. Yahagi², Y. Saito³, R. Hisatomi¹, Y. Shiota¹, T. Ono¹

¹Kyoto University, Uji, Kyoto, Japan, ²NEC corporation, Minato-ku, Tokyo, Japan, ³Tohoku University, Sendai, Miyagi, Japan

09:42 AM-09:54 AM

ED-06. Absence of large spin-charge conversion in Bi_{1-x}Sb_x alloys

R. Zhang, W. Lin

Key Laboratory of Quantum Materials and Devices of Ministry of Education, School of Physics, Southeast University, Nanjing, China

09:54 AM-10:06 AM

ED-07. Antiferromagnetic spin dynamics revealed by effective magnetization increase on exchange-coupled ferromagnet

C. Gonzalez-Fuentes¹, P. Landeros², J. W. Gonzalez³, S. Oyarzún⁴, R. Rodriguez¹, R. Gallardo²

¹Instituto de Física, Pontificia Universidad Católica de Chile, Santiago, RM, Chile, ²Departamento de Física, Universidad Técnica Federico Santa María, Valparaíso, V, Chile, ³Departamento de Física, Universidad de Antofagasta, Antofagasta, Antofagasta, Chile, ⁴Departamento de Física, Universidad de Santiago, Santiago, RM, Chile

10:06 AM-10:18 AM

ED-08. Field-free spin-orbit torque switching via spin-reorientation in synthetic antiferromagnets

B. Jamshed, M. Ramu, D. Kumar, H. Rahaman, S. Das, S. Piramanayagam

School of Mathematics and Physics, Nanyang Technological University, Singapore, Singapore

10:18 AM-10:45 AM

Break

10:45 AM-10:57 AM

ED-09. Distortion-Aware Magnetic Symmetry Groups: A Versatile Framework for Identifying Altermagnets and Predicting their Unconventional Properties

M. D. Kitcher, B. Lee, G. Beach

Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts, United States

10:57 AM-11:09 AM

ED-10. Observation of D'yakonov-Perel'-type Magnon Spin Relaxation in Uniaxial Antiferromagnetic Insulators

Q. Gao^{1,4}, A. Cong², B. Liang³, M. Yang¹, J. Liu¹, S. Wu³, K. Shen², J. Li¹

¹*Southern University of Science and Technology, Shenzhen, China*, ²*Beijing Normal University, Beijing, China*, ³*Fudan University, Shanghai, China*, ⁴*Quantum Science Center of Guangdong-Hong Kong-Macao Greater Bay Area (Guangdong), Shenzhen, China*

11:09 AM-11:21 AM

ED-11. Disentangling thermal contributions to the spin-orbit torque switching of a chiral antiferromagnet

T. Matsuo^{4,1}, T. Higo^{4,2,3}, H. Tsai⁴, D. Nishio-Hamane⁴, T. Matsuda⁵, K. Kondou⁵, S. Miwa⁴, Y. Otani^{4,6}, S. Nakatsuji^{4,1,7}

¹*Johns Hopkins University, Baltimore, Maryland, United States*, ²*JST-PRESTO, Tokyo, Japan*, ³*Keio University, Yokohama, Japan*, ⁴*The University of Tokyo, Tokyo, Japan*, ⁵*Osaka University, Osaka, Japan*, ⁶*RIKEN, Saitama, Japan*, ⁷*CIFAR, Toronto, Ontario, Canada*

11:21 AM-11:33 AM

ED-13. Chiral Magnets

R. Winkler^{1,2}, U. Zülicke³

¹*Physics, Northern Illinois University, DeKalb, Illinois, United States*, ²*Materials Science Division, Argonne National Laboratory, Lemont, Illinois, United States*, ³*School of Chemical and Physical Sciences, Victoria University of Wellington, Wellington, New Zealand*

SESSION EE: MAGNONICS II: CRYSTALS & DEVICES

Chair(s): R. Hertel, *Institut de Physique et Chimie des Matériaux de Strasbourg, Centre National de la Recherche Scientifique, Strasbourg, France*

Thursday, October 30, 2025

08:30 AM-12:00 PM

Room 2DE

08:30 AM-08:42 AM

EE-02. Magnon-magnon interaction stimulated by the vertical dynamic coupling in a hybrid magnonic crystal

R. Sultana¹, M. T. Kaffash¹, G. Gubbiotti², Y. Ji¹, B. Jungfleisch¹, F. Montoncello³

¹*Department of Physics and Astronomy, University of Delaware, Newark, DE 19716, Delaware, United States,*

²*CNR-Istituto Officina dei Materiali (IOM), Unità di Perugia, Perugia I-06123, Italy,* ³*Department of Physics and Earth Sciences, University of Ferrara, Ferrara I-44121, Italy*

08:42 AM-09:18 AM

EE-03. Scalable and Programmable Spin Hall Nano-Oscillator Networks: From Phase-Tunable Synchronization to Networks of 100,000 nano-oscillators

A. Kumar^{1,2}, A. Chaurasiya¹, V. Gonzalez¹, N. Behera¹, R. Khymyn¹, A. A. Awad^{1,2}, J. Akerman^{1,2}

¹*Department of Physics, University of Gothenburg, Gothenburg, Sweden,* ²*RIEC and CSIS, Tohoku University, Japan, Sendai, Japan*

09:18 AM-09:30 AM

EE-04. Strong coupling between spin waves and microwave photons in a superconducting resonator

Y. Li¹, J. Lim², T. Polakovic³, C. Kiehl^{1,4}, R. Divan⁵, U. Welp¹, C. Phatak¹, J. Zuo², A. Hoffmann², V. Novosad¹

¹*Materials Science Division, Argonne National Laboratory, LEMONT, Illinois, United States,* ²*Materials Science Engineering, University of Illinois at Urbana Champaign, Urbana, Illinois, United States,* ³*Physics Division, Argonne National Laboratory, LEMONT, Illinois, United States,* ⁴*Physics Department, Carthage College, Kenosha, Wisconsin, United States,* ⁵*Center for Nanoscale Materials, Argonne National Laboratory, LEMONT, Illinois, United States*

09:30 AM-09:42 AM

EE-05. Experimental Observation of Magnetic Rogue Waves

K. H. McAllister¹, M. Copus¹, C. Abbott¹, M. Elo², J. Netzer², E. Iacocca¹, R. E. Camley¹, D. A. Bozhko¹

¹*Department of Physics and Energy Science, University of Colorado Colorado Springs, Colorado Springs, Colorado, United States*, ²*Tabor Electronics, Inc., Nesher, Israel*

09:42 AM-09:54 AM

EE-06. Monolithic magnetic MEMS integration on a magnonic device

S. Manton¹, R. Lebrun¹, H. Merbouche², I. Boventer¹, P. Che¹, J. Ben Youssef³, P. Bortolotti¹, P. Martins⁴, A. Anane¹

¹*Laboratoire Albert Fert, CNRS, Thales, Université Paris-Saclay, Palaiseau, France*, ²*Service de Physique de l'État Condensé, CEA, CNRS, Université Paris-Saclay, Gif-sur-Yvette, France*, ³*LabSTICC, CNRS, Université de Bretagne Occidentale, Brest, France*, ⁴*Thales Research and Technology, Palaiseau, France*

09:54 AM-10:06 AM

EE-07. Polarization Selective Quantum Sensing of Spin Wave

E. Zhang^{1,3}, T. Zheng^{1,3}, B. Yang^{1,3}, S. Nallan^{1,3}, M. Ku², J. Zhu^{1,3}

¹*Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, United States*, ²*University of Delaware, Newark, Delaware, United States*, ³*Data Storage System Center, Carnegie Mellon University, Pittsburgh, Pennsylvania, United States*

10:06 AM-10:18 AM

EE-08. Sustained Amplification of Coherent Spin-waves by Parametric Pumping with Surface Acoustic Waves

P. Dhagat¹, A. Jander¹, C. Rivard²

¹*Electrical Engineering and Computer Science, Oregon State University, Corvallis, Oregon, United States*, ²*Intel Corp., Hillsboro, Oregon, United States*

10:18 AM-10:45 AM

Break

10:45 AM-10:57 AM

EE-09. Quantum Micromagnetic Theory of Magnons in Finite Nanostructures

C. Serpico, S. Perna, M. d'Aquino

Department of Electrical Engineering and Information technology, University of Naples Federico II, Naples, Italy

10:57 AM-11:09 AM

EE-10. Anisotropy-driven population transfer in magnonic directional nanocouplers with STIRAP protocol

F. Montoncello, P. Micaletti

Department of Physics and Earth Sciences, University of Ferrara, Ferrara I-44121, Italy

11:09 AM-11:21 AM

EE-11. Bringing Light into the Landau-Lifshitz-Gilbert Equation: Consequences of its Fractal Non-Markovian Memory Kernel for Optically Induced Magnetic Inertia and Magnons

F. Reyes-Osorio, B. Nikolić

Physics and Astronomy, University of Delaware, Newark, Delaware, United States

11:21 AM-11:33 AM

EE-12. Spontaneous Emergence of Phase Coherence in a Quasiparticle Bose-Einstein Condensate

M. Koster², M. R. Schweizer², T. B. Noack², V. I.

Vasyuchka², B. Hillebrands², M. Weiler², A. A. Serga², G. von Freymann^{2,3}, D. A. Bozhko¹

¹*Center for Magnetism and Magnetic Nanostructures, University of Colorado Colorado Springs, Colorado Springs, Colorado, United States*, ²*Department of Physics and Research Center OPTIMAS, RPTU Kaiserslautern-Landau, Kaiserslautern, Germany*, ³*Fraunhofer Institute for Industrial Mathematics ITWM, Kaiserslautern, Germany*

11:33 AM-11:45 AM

EE-13. Squeezed Vacuum and Entanglement in Nonperturbative Cavity Magnonics with Soft Magnons

T. Chiba^{1,2}, R. Suzuki², T. Otaki², H. Matsueda^{2,3}

¹*Department of Information Science and Technology, Graduate School of Science and Engineering, Yamagata university, Yonezawa, Japan*, ²*Department of Applied Physics, Graduate School of Engineering, Tohoku university, Sendai, Japan*, ³*Center for Science and Innovation in Spintronics, Tohoku university, Sendai, Japan*

SESSION EF: SPIN AND MAGNETISM IN VAN DER WAALS LAYERED MATERIALS

Chair(s): P. de Faria Junior, *Department of Physics, University of Central Florida, Orlando, Florida, United States*

Thursday, October 30, 2025

08:30 AM-12:00 PM

Room 2BC

08:30 AM-09:06 AM

EF-01. Gate-tunable in-plane spin lifetime anisotropy via proximity-induced spin-orbit coupling in low-symmetry graphene-based heterostructures

J. F. Sierra¹, J. Svetlik^{1,2}, W. Savero-Torres¹, L. Camosi¹, F. Herling¹, T. Guillet¹, K. Xu³, J. Reparaz³, V. Marinova⁴, D. Dimitrov^{4,5}, S. O. Valenzuela^{1,6}

¹*Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and The Barcelona Institute of Science and Technology (BIST), Barcelona, Spain,* ²*Universitat Autònoma de Barcelona, Barcelona, Spain,* ³*Institut de Ciència de Materials de Barcelona, ICMAB-CSIC, Barcelona, Spain,* ⁴*Institute of Optical Materials and Technologies, Bulgarian Academy of Science, Sofia, Bulgaria,* ⁵*Institute of Solid State Physics, Bulgarian Academy of Sciences, Sofia, Bulgaria,* ⁶*Institució Catalana de Recerca i Estudis Avançats (ICREA), Barcelona, Spain*

09:06 AM-09:18 AM

EF-02. Large-Scale Epitaxial Growth of Fe₃GaTe₂/Graphene van der Waals Heterostructures with Above-Room-Temperature Ferromagnetism

T. Shinwari¹, K. Khan¹, H. Lv¹, A. Kassa¹, F. Munnik², S. Josephy³, A. Trampert¹, V. Ukleev⁴, C. Luo⁴, F. Radu⁴, J. Herfort¹, M. Hanke¹, J. J. Lopes¹

¹*Paul-Drude-Institut für Festkörperelektronik, Leibniz-Institut im Forschungsverbund Berlin e.V, Berlin, Germany,* ²*Helmholtz-Zentrum Dresden-Rossendorf, Institute of Ion Beam Physics and Materials Research e.V, Dresden, Germany,* ³*QZabre AG, Neunbrunnenstrasse 50, 8050, Zürich, Switzerland,* ⁴*Helmholtz Zentrum Berlin for Materialien und Energie, Albert-Einstein Straße 15, 12489, Berlin, Germany*

09:18 AM-09:30 AM

EF-03. Control of magnetic order in quasi-2D magnets by external perturbations: microscopic understanding

K. Carva, K. Pokhrel, S. Ray, P. Qureshi
DCMP, Charles University, Prague, Czechia

09:30 AM-09:42 AM

EF-05. Nitrogen-Vacancy Magnetometry of Edge Magnetism in Pristine and Fe Implanted WS₂ Flakes

I. Fescenko¹, R. Kumar², T. Gas-osoith^{5,3,4}, Y. Wang^{5,3}, S. Lamichhane⁵, T. Li⁵, A. Erickson⁵, T. Delord², C. Cress⁶, N. Proscia⁶, S. LaGasse^{6,7}, S. Liou⁵, X. Hong⁵, J. Fonesca⁶, T. An³, C. Meriles², A. Laraoui⁵

¹University of Latvia, Riga, Latvia, ²CUNY-City College of New York, New York, New York, United States, ³Japan Advanced Institute of Science and Technology, Nomi, Japan, ⁴University of Phayao, Mae Ka, Thailand, ⁵University of Nebraska-Lincoln, Lincoln, Nebraska, United States, ⁶US Naval Research Laboratory, Washington, District of Columbia, United States, ⁷Laboratory for Physical Sciences, College Park, Maryland, United States

09:42 AM-09:54 AM

EF-06. Impacts of alloying and finite thickness on ferromagnetism in kagome Fe₃Sn₂ heterostructures

S. May¹, P. M. Laxmeesha¹, R. Dutta¹, T. Tandon¹, A. Velic¹, R. K. Rai², E. A. Stach², S. Sheikh³, U. M. Jayathilake³, A. X. Gray³, T. Charlton⁴, C. Jensen⁵, J. Borchers⁵, A. J. Grutter⁵

¹Materials Science and Engineering, Drexel University, Philadelphia, Pennsylvania, United States, ²Materials Science and Engineering, University of Pennsylvania, Philadelphia, Pennsylvania, United States, ³Department of Physics, Temple University, Philadelphia, Pennsylvania, United States, ⁴Oak Ridge National Laboratory, Oak Ridge, Tennessee, United States, ⁵NIST Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, Maryland, United States

09:54 AM-10:06 AM

EF-07. Spin Waves in a Bilayer Kagome Ferromagnet Fe₃Sn₂

Y. Soh

Paul Scherrer Institut, Villigen, Switzerland

10:06 AM-10:18 AM

EF-09. Intrinsic Non-linear Hall Effect

F. Xue, S. Ahmad

Physics Department, University of Alabama at Birmingham, Birmingham, Alabama, United States

10:18 AM-10:45 AM

Break

10:45 AM-11:21 AM

EF-08. Engineering Magnetic Transition Metal Chalcogenide-Based Quantum Interfaces

H. Chi

University of Ottawa, Ottawa, Ontario, Canada

11:21 AM-11:33 AM

EF-10. Studying the Effect of Nb Doping on the Magnetic Properties of CrTe₂ Crystals

D. R. Lawati¹, J. Kumar¹, P. Karki², K. Prasad², M. A. Elekhtiar¹, S. Lamichhane¹, B. Tiwari¹, K. Huang¹, Z. Hubble², J. Watt³, S. Liou¹, E. Y. Tsymbal¹, J. Wang², K. Ambal², A. Laraoui¹

¹*University of Nebraska-Lincoln, Lincoln, Nebraska, United States*, ²*Wichita State University, Wichita, Kansas, United States*, ³*Los Alamos National Laboratory, Albuquerque, New Mexico, United States*

11:33 AM-11:45 AM

EF-11. Fe₃GeTe₂ single crystals with varying Fe content probed by x-ray spectroscopy

D. Backes¹, R. Fujita², L. Veiga¹, D. Mayoh³, G. Wood³, S. S. Dhesi¹, G. Balakrishnan³, G. van der Laan¹, T. Hesjedal²

¹*Diamond Light Source, Didcot, United Kingdom*, ²*Claredon Laboratory, University of Oxford, Oxford, United Kingdom*, ³*Department of Physics, University of Warwick, Coventry, United Kingdom*

SESSION EG: ADVANCED MAGNETIC RECORDING TECHNOLOGIES

Chair(s): A. Venugopal, *Seagate Research, Seagate Technology, Edina, Minnesota, United States*

Thursday, October 30, 2025

08:30 AM-12:00 PM

Room 2A

08:30 AM-08:42 AM

EG-01. Quantifying Erasure and Interference from Adjacent Tracks in Heat-Assisted Magnetic Recording

S. Zheng, W. R. Eppler, J. Loven, J. Gadbois

Seagate Technology, Bloomington, Minnesota, United States

08:42 AM-08:54 AM

EG-02. Detection of In-Plane Magnetized Grains with a Magnetoresistive Head

Y. Chen, R. H. Victora

University of Minnesota, Minneapolis, Minnesota, United States

08:54 AM-09:06 AM

EG-03. The impact of in-plane grains on Heat Assisted Magnetic Recording performance and THMap metrics

N. A. Natekar, P. Jubert, T. Olson, A. Goncharov, R. Brockie, K. Tanahashi
Western Digital, San Jose, California, United States

09:06 AM-09:18 AM

EG-04. Dependence of Microstructure and Grain Density on Nucleation Layer Thickness in L1₀ FePt-hBN Granular Thin Films

J. Chang^{1,2}, A. K. Gribik^{1,2,3}, O. R. Peterson^{1,2,4}, B. L. Reese^{1,2}, D. E. Laughlin^{1,2,5}, J. Zhu^{1,2,5}

¹*Data Storage Systems Center, Carnegie Mellon University, Pittsburgh, Pennsylvania, United States,*

²*Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, United States,*

³*Computational and Chemical Sciences, Carlow University, Pittsburgh, Pennsylvania, United States,*

⁴*Physics, Kenyon College, Gambier, Ohio, United States,*

⁵*Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, United States*

09:18 AM-09:30 AM

EG-05. Microstructure and Magnetic properties of high-density L1₀-FePt grains on an electrically conductive (Mg,Ti)O underlayer for HAMR media.

D. Angayarkanni Ramamurthy¹, H. Sepehri-Amin¹, I. Suzuki¹, Y. K. Takahashi^{1,2}

¹*Research Centre for Magnetic and Spintronic Materials, national Institute for Materials Science, Tsukuba, Ibaraki, Japan,* ²*Research Institute of Electrical Communications, Tohoku University, Sendai, Tohoku, Japan*

09:30 AM-09:42 AM

EG-06. Thermal spin-torque heat-assisted magnetic recording

S. Isogami¹, Y. Sasaki¹, Y. Fan², Y. Kubota³, J. Gadbois², K. Hono¹, Y. K. Takahashi¹

¹*NIMS, Tsukuba, Japan,* ²*Seagate Technology, Minneapolis, Minnesota, United States,* ³*Seagate Technology, Fremont, California, United States*

09:42 AM-09:54 AM

EG-07. Vector Recording: Advancing Areal Density in Heat-Assisted Magnetic Recording with Innovative Reader Designs

K. Hosen¹, R. H. Victora^{1,2}

¹*Department of Electrical and Computer Engineering, University of Minnesota Twin Cities, Minneapolis, Minnesota, United States,* ²*Department of Physics, University of Minnesota Twin Cities, Minneapolis, Minnesota, United States*

09:54 AM-10:06 AM

EG-08. First-principles exploration of Cu-X spacers to enhance magnetoresistance in CPP-GMR read head for next generation HDD

K. Simalaotao^{1,2}, I. Kurniawan², Y. Miura^{3,2}, Y. Sakuraba^{1,2}

¹*Graduate School of Pure and Applied Sciences, University of Tsukuba, Tsukuba, Ibaraki, Japan,* ²*Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science, Tsukuba, Ibaraki, Japan,* ³*Faculty of Electrical Engineering and Electronics, Kyoto Institute of Technology, Kyoto, Kyoto, Japan*

10:06 AM-10:18 AM

EG-09. In-Plane Magnetization Switching in Spin Valves Using Optically Excited Spin Currents

J. Lin¹, Y. L. Guen¹, J. Hohlfeld¹, J. Igarashi¹, Q. Remy², J. Gorchon¹, G. Malinowski¹, S. Mangin¹, T. Hauet¹, M. Hehn¹

¹*Institut Jean Lamour, Nancy, France,* ²*Freie Universität Berlin, Berlin, Germany*

10:18 AM-10:45 AM

Break

10:45 AM-10:57 AM

EG-10. Magneto-structural characterization and THz emission enhancement in ultrathin Fe/L1₀-FePt/Pt heterostructures

O. Crisan

National Institute for Materials Physics, Bucharest, Romania

10:57 AM-11:09 AM

EG-11. High resolution spin wave based magnetic reader

K. Rivkin

RKMAG Corporation, Pacific Grove, California, United States

11:09 AM-11:21 AM

EG-12. Laser induced magnetization reversal in Co-Rare Earth alloys

B. Kunyangyuen¹, G. Malinowski¹, D. Lacour¹, J. Lin¹, Y. L. Guen¹, L. D. Buda-Prejbeanu², S. Mangin¹, J. Gorchon¹, M. Hehn¹

¹*Institute Jean-Lamour, Nancy, France,* ²*SPINTEC, Grenoble, France*

11:21 AM-11:33 AM

EG-13. CNN/DNN approximation of the recording process coupled with DNN accelerated solution for the magnetization reversal

K. Rivkin

RKMAG, Pacific Grove, California, United States

SESSION EP: SPIN AND ORBITAL DYNAMICS (POSTER SESSION)

Chair(s): G. Choi, *Department of Energy Science, Sungkyunkwan University College of Natural Science, Suwon,*

Korea (the Republic of)

Thursday, October 30, 2025

09:00 AM-12:00 PM

Exhibit Hall Posters

EP-01-LB. Spin pumping revisited: towards a non linear theory.

A. About

Physics, King Fahd University of Petroleum and Minerals, Dhahran, Alkhobar, Saudi Arabia

EP-02-LB. A High Performance Finite Element Approach to Linear and Nonlinear Magnetostatic Modeling

J. Brown, D. Faircloth

IERUS Technologies, Inc., Huntsville, Alabama, United States

EP-03-LB. Understanding the Line Shape of Ferromagnetic Resonance Spectrum in a Flip-Chip Measurement

E. D. DeVisscher, A. E. Mays, X. Fan

Physics and Astronomy, University of Denver, Denver, Colorado, United States

EP-05-LB. Bilinear magnetoresistance in conventional heterostructures

D. Kim¹, K. Kim², J. Jeong³, K. Lee⁴, H. Yang⁵

¹*Department of Materials Science and Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea (the Republic of),*

²*Department of Physics, Yonsei University, Seoul, Korea (the Republic of),*

³*Department of Materials Science and Engineering, Chungnam National University, Daejeon, Korea (the Republic of),*

⁴*Department of Physics, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea (the Republic of),*

⁵*Department of Electrical and Computer Engineering, National University of Singapore (NUS), Singapore*

EP-08-LB. Orbital dynamics of hybrid bosonic quasiparticles in magnetic systems

D. To, M. Doty

University of Delaware, Newark, Delaware, United States

EP-09-LB. Novel spin Hall effect materials and artificially engineered magnetic thin film heterostructures for energy-efficient spintronic memories

P. Wang, S. Parkin

Max Planck Institute of Microstructure Physics, Halle, Germany

SESSION EQ: TRANSFORMERS AND POWER ELECTRONICS II (POSTER SESSION)

Chair(s): C. Chinnasamy, *Manufacturing Science Division, Oak Ridge National Laboratory, Knoxville, Tennessee, United States*

Thursday, October 30, 2025

09:00 AM-12:00 PM

Exhibit Hall Posters

EQ-01. Design for AC Loss Reduction in PCB Motors Using Magnet Chamfering

J. Lee, Y. Lee, H. Kim, Y. Lim, W. Kim

Gachon University, Seongnamsi, Korea (the Republic of)

EQ-02. Optimal Design of a Support Structure to Enhance Counter-Torque Resistance in a Block-Coil-Type Compact Urban Wind Turbine Generator

H. Kim, Y. Lee, D. Choi, J. Lee, W. Kim

Gachon University, Seongnam-si, Gyeonggi-do, Korea (the Republic of)

EQ-03. Force Characterization and Axis Transformation of a Fixed-Bias Flux Three-Phase Magnetic Bearing

S. Noh, S. Byun, J. Kim, J. Park, H. Cho
Chungnam National University, Daejeon, Korea (the Republic of)

EQ-04. Study on the Reduction of Eddy Current Loss of Permanent Magnet Synchronous Motor considering PWM

Y. Lee¹, Y. Lim², J. Lee², H. Kim¹, W. Kim³
¹*Department of Next Generation Energy System Convergence, Gachon University, Seongnam-Si, Korea (the Republic of)*, ²*Department of Electrical Engineering, Gachon University, Gyeonggi-do, Korea (the Republic of)*, ³*Department of Electrical Engineering, Gachon University, Seongnam-Si, Korea (the Republic of)*

EQ-05. Design of Magnetization Yoke to Reduce the number of Double Spoke Type PMSM Magnetization Using I-Core

D. Choi, J. Lee, H. Kim, Y. Lim, W. Kim
Gachon University, Seongnam, Korea (the Republic of)

EQ-06. A Study on Improvement of Magnetization Performance and Torque Ripple through Magnet Shape Modification in Double-Spoke Type PMSM

S. Kim, H. Kim, D. Choi, J. Lee, W. Kim
Gachon University, Seongnam-si, Korea (the Republic of)

EQ-07. A Study on the Eddy Current Loss Characteristics of Axial Flux Permanent Magnet Motors According to Pole–Slot Combinations and Magnet Structures

D. Kim, S. Oh, S. Song, D. Ji, H. Lee
Dankook University, Yonginsu, Korea (the Republic of)

EQ-08. Iron Loss Calculation Method for Large-Capacity AC Filter Inductors Considering Non-Uniform Magnetic Flux Density

H. Matsumori¹, T. Yamaguchi¹, N. Kobayashi¹, K. Wada², K. Takano²
¹*Nagoya institute of technology, Nagoya, Aichi, Japan*, ²*Tokyo metropolitan university, Hachioji, Tokyo, Japan*

SESSION ER: HARD MAGNETIC MATERIALS II (POSTER SESSION)

Chair(s): S. Okada, *Multi-Material Research Institute, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan*

Thursday, October 30, 2025

09:00 AM-12:00 PM

Exhibit Hall Posters

ER-01. Altering Solidification Kinetics in Nd-Fe-B Alloys through Alloying Additions for 3D-Printable Magnets

S. Krishnan, Q. Guo, J. Shield

MME, University of Nebraska - Lincoln, Lincoln, Nebraska, United States

ER-03. Chemical bond and phase stability of Ga-doped $\text{Sm}_2\text{Fe}_{17}\text{C}_x$ Magnet

X. Liu, C. I. Nlebedim

Ames National Laboratory, Ames, Iowa, United States

ER-04. Tuning the Intrinsic Magnetic Properties of $\text{Sm}(\text{Fe}_{1-x}\text{Co}_x)_{10}\text{V}_2$ Compounds with the ThMn_{12} -type Structure

X. Zheng, P. Si, B. Zhang, Y. Song, J. Park

Korea Institute of Materials Science, Changwon, Korea (the Republic of)

ER-05. Magnetic properties and element site occupation of Zn-substituted W-type hexagonal ferrites

T. Nakagawa, K. Ota, A. Yonaga, S. Seino

The University of Osaka, Suita, Japan

ER-06. Process-driven Microstructure Control in Additively Manufactured Alnico Permanent Magnets

A. R. Duong¹, I. M. Smith¹, O. Bishop¹, C. Mayer¹, K. Snyder², R. Barua¹

¹*Virginia Commonwealth University, Richmond, Virginia, United States*, ²*Commonwealth Center for Advanced Manufacturing, Disputanta, Virginia, United States*

ER-07. Enhanced magnetic anisotropy in $(\text{Fe}_{0.7-x}\text{Co}_{0.3}\text{Zr}_x)_2\text{B}$ Nanocrystallites

P. Joshi¹, H. Abbas¹, T. Karki¹, J. Mohapatra¹, X. Liu², P. Liu¹

¹*Physics, The University of Texas at Arlington, Arlington, Texas, United States*, ²*Ames Laboratory, Critical Materials Institute, Ames, Iowa, United States*

ER-08. High Anisotropy Field in Fe₃CoB₂ Nanocrystallite Ribbons

H. Abbas¹, P. Joshi¹, T. Karki¹, J. Mohapatra¹, X. Liu², P. Liu¹

¹Physics, The University of Texas at Arlington, Arlington, Texas, United States, ²Ames Laboratory, Critical Materials Institute, Ames, Iowa, United States

ER-09. Prediction, Synthesis, and Experimental Validation of Magnetic Order and Dimensionality in Cerium-Based Compounds Guided by Structural Characteristics and Tri-critical Exponents

J. A. Torres, T. Lamichhane, A. S. Poulo

Engineering Physics, University of Central Oklahoma, Oklahoma City, Oklahoma, United States

ER-10. Effect of Mn and V Doping on the Structural and Magnetic Properties of Fe₁₆N₂ Thin Films

E. Gokce-Polat¹, A. DeRuiter², W. Echtenkamp¹, H. Kim¹, B. Wolf², J. Wang^{1,2}

¹Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, Minnesota, United States, ²Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, Minnesota, United States

ER-12. Controlling L1₀ Ordering in the MnAl System Through Cu Elemental Addition

H. Baldino^{1,2}, X. Zhang^{1,3}, G. Hadjipanayis¹, L. H. Lewis^{1,3}

¹Chemical Engineering, Northeastern University, Boston, Massachusetts, United States, ²Material Science and Engineering, University of Central Florida, Orlando, Florida, United States, ³Mechanical and Industrial Engineering, Northeastern University, Boston, Massachusetts, United States

EQ-09-LB. Measuring initial curves and minor hysteresis loops for high coercivity rare earth magnets using the Pulsed Field Magnetometer (PFM) system

J. Mckenzie, R. Cornelius, J. Wade

Hirst Magnetic Instruments Ltd, Falmouth, United Kingdom

EQ-10-LB. Tunable magnetic properties for epitaxially grown Co-rich CoPtP films by electrodeposition on Cu(111)/Si substrates: Crossover from non-exchange-spring to exchange spring/coupled magnetic states

S. Seth, S. Roy

Micropower Devices & Nanomagnetism Group, Tyndall National Institute, University College Cork, Cork, Ireland

MAGNETIC SENSORS CHALLENGE FINAL PRESENTATIONS

Thursday, October 30, 2025

12:15 PM-01:45 PM

Room 1DE

IEEE MAGNETICS SOCIETY STANDARDS COMMITTEE MEETING

Thursday, October 30, 2025

05:00 PM-06:30 PM

Room 1F

SESSION FA: ALL-ORBITRONIC CONCEPTS AND DEVICES

Chair(s): A. Kumar, *Physics, University of Gothenburg, Gothenburg, Sweden*

Thursday, October 30, 2025

02:00 PM-05:30 PM

Grand Ballroom

02:00 PM-02:36 PM

FA-01. Ultrafast Spin-Orbitronics with Terahertz Electromagnetic Pulses

O. Gueckstock

Freie Universität Berlin, Berlin, Germany

02:36 PM-03:12 PM

FA-02. Lanthanide nitride ferromagnets with large orbital magnetic moments

S. Granville^{1,2}

¹*Robinson Research Institute, Victoria University of Wellington, Wellington, New Zealand,* ²*MacDiarmid Institute for Advanced Materials and Nanotechnology, Wellington, New Zealand*

03:12 PM-03:48 PM

FA-03. All-Orbitronic Effects and Device Concepts

M. Kläui^{1,2}

¹*Institute of Physics, Johannes Gutenberg University Mainz, Mainz, Germany,* ²*Center for Quantum Spintronics and Department of Physics, NTNU, Trondheim, Norway*

03:48 PM-04:15 PM

Break

04:15 PM-04:51 PM

FA-04. Chiral Orbitronics

B. Göbel

*Martin Luther University Halle-Wittenberg, Halle,
Germany*

04:51 PM-05:27 PM

**FA-05. Nonlocal Electrical Detection of Reciprocal
Orbital Edelstein Effect**

W. Gao, L. Liao, Y. Otani

*The Institute for Solid State Physics, The University of
Tokyo, KASHIWA, Chiba, Japan*

**SESSION FB: COHERENT X-RAY FOR PROBING THE
INTERPLAY OF HETEROGENEITY AND SPIN-
ELECTRONIC CORRELATIONS**

Chair(s): S. Roy, *Advanced Light Source, Lawrence
Berkeley National Laboratory, Berkeley, California, United
States*

Thursday, October 30, 2025

02:00 PM-05:30 PM

Ballroom A

02:00 PM-02:36 PM

**FB-01. Imaging Transient States in Magnetic
Materials: Complexity across Space and Time**

C. Mazzoli

*NSLS-II, Brookhaven National Lab, Upton, New York,
United States*

02:36 PM-03:12 PM

**FB-02. Coherent x-ray studies of spontaneous
fluctuations in rare earth nickelates**

R. Kukreja

*University of California Davis, Davis, California, United
States*

03:12 PM-03:48 PM

**FB-03. Competition between two antiferromagnetic
phases in Fe_xNbS_2 studied through Coherent Resonant
Scattering**

A. Frano¹, R. Basak¹, S. Wu²

*¹University of California San Diego, La Jolla, California,
United States, ²Santa Clara University, Santa Clara,
California, United States*

03:48 PM-04:15 PM

Break

04:15 PM-04:51 PM

FB-04. Investigating topological Hall effect using simultaneous soft x-ray scattering in Fe/Gd

A. Us-Saleheen¹, A. Singh¹, D. W. Raftrey^{2,3}, M. A. Brozius⁶, M. McCarter¹, Z. Tumbleson^{1,3}, M. Im², S. Montoya⁴, E. Fullerton^{4,5}, P. Fischer², S. Kevan¹, S. Roy¹, S. A. Morley¹

¹*Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, California, United States*, ²*Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, California, United States*, ³*Physics Department, University of California Santa Cruz, Santa Cruz, California, United States*, ⁴*Center for Memory and Recording Research, University of California San Diego, La Jolla, California, United States*, ⁵*Department of Electrical and Computer Engineering, University of California San Diego, La Jolla, California, United States*, ⁶*Department of Applied Physics and Science Education, Eindhoven University of Technology, Eindhoven, Netherlands*

04:51 PM-05:27 PM

FB-05. Dispersion of Spontaneous Spin Fluctuations measured by MHz X-ray Photon Correlation Spectroscopy

L. Shen¹, J. J. Turner¹, S. Roy², Z. Tumbleson², E. Blackburn³

¹*SLAC National Accelerator Laboratory, Menlo Park, California, United States*, ²*Lawrence Berkeley National Laboratory, Berkeley, California, United States*, ³*Lund University, Lund, Sweden*

SESSION FC: BIOMAGNETISM AND BIOMEDICAL APPLICATIONS III

Co-Chair(s): R. L. Hadimani, *Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, Virginia, United States* and J. Gomez-Pastora, *Texas Tech University, Lubbock, Texas, United States*

Thursday, October 30, 2025

02:00 PM-05:30 PM

Ballroom C

02:00 PM-02:12 PM

FC-01. Validation of the Impact of Cylindrical Sensor Arrays on Cardiac Current Source Estimation Performance

W. Shang¹, M. Fushimi², S. Chikaki¹, M. Sekino¹

¹*Graduate School of Engineering, The University of Tokyo, Tokyo, Japan*, ²*Graduate School of Information science and Technology, The University of Tokyo, Tokyo, Japan*

02:12 PM-02:24 PM

FC-02. Design of a High-Frequency Magnetic Particle Spectroscopy Instrument for Applications In Vivo

E. Whittier^{1,2}, J. Beckham^{2,3,4}, N. Kent^{2,4}, P. Anikeeva^{3,2,4}

¹*EECS, MIT, Cambridge, Massachusetts, United States*,

²*RLE, MIT, Cambridge, Massachusetts, United States*,

³*DMSE, MIT, Cambridge, Massachusetts, United States*,

⁴*McGovern, MIT, Cambridge, Massachusetts, United States*

02:24 PM-02:36 PM

FC-03. Optimal Operating Condition of a Magnetic Helical Robot to Maximize the Kinetic Energy for Tunneling the Clogged Blood Vessel

S. Lee, J. Kwon, J. Sa, G. Jang

Department of Mechanical Convergence Engineering, Hanyang Univ., Seoul, Korea (the Republic of)

02:36 PM-02:48 PM

FC-04. Magnetoencephalographic mapping by optical stimulation of optogenetic rats using Optically pumped magnetometers

K. Komuro¹, M. Fushimi², Y. Kainuma³, T. Zhu¹, S. Funatani¹, S. Chikaki¹, M. Sekino¹

¹*Graduate School of Engineering, The University of Tokyo, Tokyo, Japan*,

²*Graduate School of Information Science and Technology, The University of Tokyo, Tokyo, Japan*,

³*National Institute of Advanced Industrial Science and Technology, Ibaraki, Japan*

02:48 PM-03:00 PM

FC-05. Exploiting the distinct Fe metabolism of breast cancer cells to analyze and separate stem tumor cells

K. Paz Gonzalez¹, L. Nguyen T. Tran¹, R. Farrell², K. Chen², K. Wu³, J. Chalmers⁴, J. Gomez-Pastora¹

¹Chemical Engineering, Texas Tech University, Lubbock, Texas, United States, ²Department of Biological Science, Texas Tech University, Lubbock, Texas, United States, ³Electrical and Computer Engineering, Texas Tech University, Lubbock, Texas, United States, ⁴William G. Lowrie Department of Chemical and Biomolecular Engineering, The Ohio State University, Columbus, Ohio, United States

03:00 PM-03:12 PM

FC-06. Measurement of the concentration of organic molecules in exhaled gas before and after repetitive magnetic or electrical stimulation of rat hindlimb muscle contractions.

R. Takahashi¹, J. Yang¹, G. Kwoun³, H. Yamada³, H. Yamahara¹, S. Funatani¹, I. Mimura³, M. Fushimi², H. Nishi³, H. Tabata¹, M. Nangaku³, M. Sekino¹

¹Graduate School of Engineering, The University of Tokyo, Bunkyo, Tokyo, Japan, ²Graduate School of Information Science and Technology, The University of Tokyo, Bunkyo, Tokyo, Japan, ³Graduate School of Medicine, The University of Tokyo, Bunkyo, Tokyo, Japan

03:12 PM-03:24 PM

FC-07. Development and Phantom-Based Evaluation of a Deep Transcranial Magnetic Stimulation Coil for the Treatment of Psychiatric Disorders

A. Iino¹, W. Lohr², H. M. Kim¹, S. Chikaki¹, M. Fushimi³, R. L. Hadimani⁵, Y. Noda⁴, M. Sekino¹

¹Bioengineering, The University of Tokyo, Tokyo, Japan, ²Biomedical Engineering, Virginia Commonwealth University, Richmond, Virginia, United States, ³Information Physics and Computing, The University of Tokyo, Tokyo, Japan, ⁴Psychiatry, International University of Health and Welfare, Tokyo, Japan, ⁵Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, Virginia, United States

03:24 PM-03:36 PM

FC-08. Rapid Detection of *Fusobacterium Nucleatum* in Saliva using Magnetic Susceptibility

S. Yabukami^{1,2}, T. Murayama¹, A. Ban¹, K. Okita², S. Tohtake¹, L. Tonthat¹, Y. Ozawa¹, S. Asamitsu¹, H. Okamoto¹, T. Kamei¹, T. Abe¹

¹Tohoku University, Sendai, Japan, ²Tohoku-TMIT, Sendai, Japan

03:36 PM-03:48 PM

FC-09. Superparamagnetic Nanoparticles: bridging traditional Characterization up to 1 GHz and Real-World Biosensing Applications

M. Hauwaert¹, R. Hanus¹, S. Spassov³, V. Pilati², R. B. Goldfarb⁴, L. Lejeune⁵, M. Salvador², S. Hermans⁵, M. Rivas², J. Raskin¹

¹ICTEAM, UCLouvain, Louvain La Neuve, Belgium, ²Dept de Fisica Aplicada, Universidad De Oviedo, Gijón, Spain, ³Geophysics Department, IRM-KMI, Dourbes, Belgium, ⁴NIST, Boulder, Colorado, United States, ⁵IMCN, UCLouvain, Louvain La Neuve, Belgium

03:48 PM-04:15 PM

Break

04:15 PM-04:27 PM

FC-10. Additive Manufacturing of Parabolic Ferromagnetic Coils for Transcranial Magnetic Stimulation Using Laser-Based Directed Energy Deposition

D. Mudakavi¹, V. E. Bodur¹, P. J. Udupudi¹, M. Tashli², R. L. Hadimani², S. M. Adinarayanappa¹

¹Additive Manufacturing and 4D Printing lab, Dept of Mechanical Materials and Aerospace Engineering, Indian Institute of Technology, Dharwad, Dharwad, Karnataka, India, ²Biomagnetics lab, Dept of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Virginia, Virginia, United States

04:27 PM-04:39 PM

FC-11. Evaluation of a Geometrically and Conductively Accurate Brain Phantom for Predicting TMS-Induced Electric Fields

M. Paslar¹, W. Lohr¹, T. J. Taylor¹, T. Atalugama², B. Embree², R. L. Hadimani^{2,1}, C. L. Peterson¹

¹Biomedical Engineering, Virginia Commonwealth University, Richmond, Virginia, United States, ²Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, Virginia, United States

04:39 PM-04:51 PM

FC-12. Wearable Magnetic Shielding for the Safe Application of Transcranial Magnetic Stimulation in Patients with Brain Implants

W. Lohr¹, T. Atalugama², B. Embree², H. Shah³, J. Chen³, K. Holloway³, R. L. Hadimani²

¹*Biomedical Engineering, Virginia Commonwealth University, Richmond, Virginia, United States,*

²*Mechanical and Nuclear Engineering, Virginia*

Commonwealth University, Richmond, Virginia, United States, ³*Neurosurgery, Virginia Commonwealth University, Richmond, Virginia, United States*

04:51 PM-05:03 PM

FC-13. Magnetic Field Gradient Trapping Efficacy on SH-SY5Y Cancer Cells and Total RNA

B. Gungordu¹, N. Gunduz Akdogan^{3,2}, C. Bagci¹, O. Akdogan^{1,2}

¹*Faculty of Engineering and Natural Sciences, Bahcesehir University, Istanbul / Besiktas, Istanbul / Besiktas, Turkey,*

²*NANOTerial Technology Corporation, Istanbul, Istanbul,*

Turkey, ³*Faculty of Engineering, Piri Reis University, Istanbul, Istanbul, Turkey*

05:03 PM-05:15 PM

FC-14. Bioplastics Based on Gelatin–Pectin Blends Enriched with Multifunctional Nanoparticles

B. Gungordu¹, S. Can¹, B. Onat¹, N. Gunduz Akdogan^{2,3}, O. Akdogan^{1,3}

¹*Bahcesehir University, Istanbul, Turkey,* ²*Piri Reis*

University, Istanbul, Turkey, ³*NANOTerial Technology Corporation, Istanbul, Turkey*

05:15 PM-05:27 PM

FC-15. Dual-Mode Detection of Magnetic and Dielectric Responses in Core–Shell Nanoparticles for Biomedical Diagnostics

D. Brown¹, D. Luu¹, K. Hwang¹, M. Nguyen², S. Hoijang², T. Lee², M. Phan¹

¹*Department of Physics, University of South Florida,*

Tampa, Florida, United States, ²*Department of Chemistry*

and the Texas Center for Superconductivity, University of Houston, Houston, Texas, United States

SESSION FD: LOW DAMPING AND TOPOLOGICAL SYSTEMS

Co-Chair(s): A. I. Ojo, *Physics, University of South Florida, Tampa, Florida, United States* and E. Thareja, *Department of Physics, University of South Florida, Tampa, Florida, United States*

Thursday, October 30, 2025

02:00 PM-05:30 PM

Ballroom B

02:00 PM-02:36 PM

FD-01. Vertically Graded FeNi Alloys with Low Damping and a Sizeable Spin-Orbit Torque

R. E. Maizel¹, S. Wu¹, P. P. Balakrishnan², A. J. Grutter², C. Kinane³, A. Caruana³, P. Nakarmi⁴, B. Nepal⁴, D. A. Smith¹, Y. Lim¹, J. L. Jones¹, W. C. Thomas¹, J. Zhao⁵, M. F. Michel⁵, T. Mewes⁴, S. Emori¹

¹*Physics, Virginia Tech, Blacksburg, Virginia, United States*, ²*National Institute of Standards and Technology, Center for Neutron Research, Gaithersburg, Maryland, United States*, ³*ISIS-Neutron and Muon Source, STFC Rutherford Appleton Laboratory, Didcot, United Kingdom*, ⁴*Dept. of Physics and Astronomy, University of Alabama, Tuscaloosa, Alabama, United States*, ⁵*Geoscience, Virginia Tech, Blacksburg, Virginia, United States*

02:36 PM-02:48 PM

FD-02. Low Gilbert damping of canonical frustrated Kagome magnet Fe₃Sn₂

Z. Jin^{1,2}, E. Lesne³, K. Nukui^{1,2}, S. Miki², C. Felser³, A. Hirohata^{5,4,3}, S. Mizukami^{2,4}

¹*Department of Applied Physics, Graduate School of Engineering, Tohoku Univ., Sendai, Miyagi, Japan*, ²*WPI-AIMR, Tohoku Univ., Sendai, Miyagi, Japan*, ³*Max Planck Institute for Chemical Physics of Solids, Dresden, Germany*, ⁴*CSIS, Tohoku Univ., Sendai, Miyagi, Japan*, ⁵*RIEC, Tohoku Univ., Sendai, Miyagi, Japan*

02:48 PM-03:00 PM

FD-03. Magnetic Losses in Soft Magnetic Composites and Ferrites under Rectangular Asymmetric Excitation

S. Dobák, F. Onderko, J. Fuzer, P. Kollár

Institute of Physics, P. J. Safarik University in Kosice, Kosice, Slovakia

03:00 PM-03:12 PM

FD-04. Modulation of spin dynamics in Fe thin films induced by adjacent Co/Ni multilayers with perpendicular magnetic anisotropy

S. Baek, T. Izumi, S. Komori, T. Taniyama

Nagoya University, Nagoya, Japan

03:12 PM-03:48 PM

FD-05. Gilbert damping in low-dimensional magnetic systems: Quantum oscillations and symmetry constraint

Z. Yuan

Interdisciplinary Center for Theoretical Physics and Information Sciences, Fudan University, Shanghai, China

03:48 PM-04:15 PM

Break

04:15 PM-04:27 PM

FD-06. Quantifying Spin-Mixing in Ferrimagnetic Fe-Gd Alloys via XMCD and FMR Spectroscopy

V. Ganepola Arachchige¹, J. J. Wisser², R. Knut³, D. A. Arena¹

¹Department of Physics, University of South Florida, Tampa, Florida, United States, ²National Institute of Standards and Technology, Boulder, Colorado, United States, ³Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden

04:27 PM-04:39 PM

FD-07. Crystal growth and terahertz time-domain spectroscopy in Sm_{1-x}R_xFeO₃ orthoferrite

A. Wu¹, Z. Zhang¹, Z. Zhang¹, L. Su¹, L. Luo², J. Wang²

¹State Key Laboratory of Functional Crystals and Devices, Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai, China, ²Department of Physics and Astronomy, Iowa State University, Ames, Iowa, United States

04:39 PM-04:51 PM

FD-08. Micromagnetic Insights into History-Dependent Domain Behavior in MBE-grown 2D Magnet/Topological Insulator Heterostructure Fe₃GeTe₂/Bi₂Te₃

M. Zhao¹, T. Cham^{6,2}, A. Koerner¹, E. Berg¹, D. Bergner¹, W. Zhou³, Z. Li³, L. Powalla⁴, S. Wintz⁵, M. Weigand⁵, D. C. Ralph², R. Kawakami³, Y. Luo^{1,7,8}

¹Department of Physics and Astronomy, University of Southern California, Los Angeles, California, United States, ²Laboratory of Atomic and Solid State Physics,

Cornell University, Ithaca, New York, United States, ³Ohio State University, Columbus, Ohio, United States, ⁴Max Planck Institute for Solid State Research, Stuttgart, Germany, ⁵Helmholtz-Zentrum Berlin für Materialien und Energie, Dresden, Germany, ⁶Division of Physics, Math and Astronomy, California Institute of Technology, Pasadena, California, United States, ⁷USC Mork Family Department of Chemical Engineering and Materials Science, University of Southern California, Los Angeles, California, United States, ⁸Department of Chemistry, University of Southern California, Los Angeles, California, United States

04:51 PM-05:03 PM

FD-09. Probing Temperature-dependent Magnetization Dynamics in Co₂MnGa Weyl Semimetal Thin Films

A. I. Ojo¹, V. Ganepola Arachchige¹, D. DeTellem¹, A. Markou^{2,3}, C. Felser³, J. D. Gayles¹, M. Phan¹, D. A. Arena¹

¹*Department of Physics, University of South Florida, Tampa, Florida, United States, ²Physics Department, University of Ioannina, Ioannina, Ioannina, Greece, ³Max Planck Institute for Chemical Physics of Solids, Dresden, Germany*

SESSION FE: MAGNETISM AND SPINTRONICS: LOW-DIMENSIONAL SYSTEMS

Chair(s): Y. Luo, *Physics and Astronomy, University of Southern California, Los Angeles, California, United States*

Thursday, October 30, 2025

02:00 PM-05:30 PM

Room 2DE

02:00 PM-02:36 PM

FE-01. Spin-filter tunneling detection of antiferromagnetic resonance with electrically-tunable damping

T. Cham^{1,2}, D. G. Chica³, X. Huang¹, K. Watanabe⁴, T. Taniguchi⁵, X. Roy³, Y. Luo^{7,8,9}, D. C. Ralph^{1,6}

¹*Laboratory of Atomic and Solid State Physics, Cornell University, Ithaca, New York, United States, ²Division of Physics, Math and Astronomy, Caltech, Pasadena, California, United States, ³Department of Chemistry, Columbia University, New York, New York, United States, ⁴Research Center for Electronic and Optical Materials, National Institute for Materials Science, Tsukuba, Ibaraki, Japan, ⁵Research Center for Materials Nanoarchitectonics, National Institute for Materials Science, Tsukuba, Ibaraki,*

Japan, ⁶Kavli Institute at Cornell, Ithaca, New York, United States, ⁷Department of Physics and Astronomy, University of Southern California, Los Angeles, California, United States, ⁸Mork Family Department of Chemical Engineering and Materials Science, University of Southern California, Los Angeles, California, United States, ⁹Department of Chemistry, University of Southern California, Los Angeles, California, United States

02:36 PM-02:48 PM

FE-02. Probing Magnetotransport in 2D Heterostructure of a Weyl Semimetal and a Semiconducting Antiferromagnet

R. Posti, R. Bandapelli, I. Kao, Z. Cui, J. Katoch, S. Singh
Department of Physics, Carnegie Mellon University,
Pittsburgh, Pennsylvania, United States

02:48 PM-03:00 PM

FE-03. Unusual Hall effect in vdW ferromagnetic Fe₃GeTe₂ nanoflake devices

R. Roy Chowdhury^{1,2}, D. Kurebayashi³, J. Lustikova⁴, O. Tretiakov³, S. Fukami^{5,4}, R. Singh², S. DuttaGupta^{6,4,5}
¹Department of Physics, University of South Florida, Tampa, Florida, United States, ²Department of Physics, Indian Institute of Science Education and Research Bhopal, Bhopal, Madhya Pradesh, India, ³School of Physics, University of New South Wales, Sydney, New South Wales, Australia, ⁴Center for Science and Innovation in Spintronics (CSIS), Tohoku University, Sendai, Miyagi, Japan, ⁵Research Institute of Electrical Communication (RIEC), Tohoku University, Sendai, Miyagi, Japan, ⁶Condensed Matter Physics Division, Saha Institute of Nuclear Physics, Kolkata, West Bengal, India

03:00 PM-03:12 PM

FE-04. Interface Engineering of Exchange Bias in van der Waals Heterostructures

A. Puthirath Balan¹, A. Kumar¹, P. Reiser², J. Vas³, T. Denneulin³, J. Yang⁴, A. Bonanni⁵, B. Lotsch⁶, P. Maletinsky², R. E. Dunin-Borkowski³, M. Kläui^{1,7}
¹Johannes Gutenberg University Mainz, Mainz, Germany, ²University of Basel, Basel, Switzerland, ³Forschungszentrum Jülich, Jülich, Germany, ⁴Peking University, Beijing, China, ⁵Johannes Kepler University Linz, Linz, Austria, ⁶Max Planck Institute for Solid State Research, Stuttgart, Germany, ⁷Norwegian University of Science and Technology, Trondheim, Norway

03:12 PM-03:24 PM

FE-05. Light-induced orbital and spin magnetism in 3d, 4d, and 5d transition metals

T. Adamantopoulos^{1,2,3}, D. Go^{1,2}, Y. Mokrousov^{2,1}

¹Johannes Gutenberg University Mainz, Mainz, Germany,

²Forschungszentrum Jülich, Jülich, Germany, ³RWTH Aachen University, Aachen, Germany

03:24 PM-03:36 PM

FE-06. Tunable Moiré Phases in Magnetic Van der Waals Homobilayers

G. Cheng¹, P. Upadhyaya², Y. P. Chen^{1,2}

¹Tohoku University, Sendai, Japan, ²Purdue University,

West Lafayette, Indiana, United States

03:36 PM-03:48 PM

FE-07. Ultrafast carrier dynamics explored in micron-sized van der Waals materials through spatially localized spintronic terahertz emission spectroscopy

P. Agarwal, M. Jiang, L. Ke, J. Lourembam

*Institute of Materials Research and Engineering (IMRE), Agency for Science, Technology and Research (A*STAR), Singapore*

03:48 PM-04:15 PM

Break

04:15 PM-04:51 PM

FE-08. Controllable Synthesis and Modulation of Two-dimensional Magnetic Materials

Z. Meng¹, Y. Hou²

¹Peking University, Beijing, China, ²Sun Yat-sen

University, Shenzhen, China

04:51 PM-05:03 PM

FE-09. Twist-angle-programmable magnetism in graphene/CrI₃ heterostructures

F. Sanchez-Ochoa

Instituto de Fisica, Universidad Nacional Autonoma de Mexico, CDMX, Mexico

05:03 PM-05:15 PM

FE-10. Giant Odd-Parity Magnetoresistance in α -Sn/(In,Fe)Sb Heterostructures via Magnetic Proximity-Induced Topological States

L. Anh¹, T. Hotta¹, T. Chiba^{2,3}, Y. Kota⁴, M. Tanaka¹

¹The University of Tokyo, Tokyo, Japan, ²Yamagata

University, Yamagata, Japan, ³Tohoku University, Sendai,

Japan, ⁴NIT, Fukushima College, Iwaki, Japan

05:15 PM-05:27 PM

FE-11. Magnetic properties of Fe_{5-x}GeTe₂/WSe₂ van-der-Waals heterostructures

H. Lv¹, J. Herfort¹, T. Shinwari¹, K. Khan¹, M. Hanke¹, A. Trampert¹, R. Engel-Herbert¹, C. Chen², J. M. Redwing², J. J. Lopes¹

¹*Paul-Drude Institut für Festkörperelektronik, Berlin, Germany,* ²*Pennsylvania State University, University Park, Pennsylvania, United States*

SESSION FF: UNCONVENTIONAL COMPUTING

Chair(s): P. Talatchian, *SPINTEC, Grenoble, Isère, France*

Thursday, October 30, 2025

02:00 PM-05:30 PM

Room 2BC

02:00 PM-02:36 PM

FF-01. Towards All-Electric, Non-volatile Intelligence in Physical Neural Systems

J. Zhou

*Institute of Materials Research and Engineering (IMRE), Agency for Science Technology and Research (A*STAR), Singapore*

02:36 PM-02:48 PM

FF-02. N-ary In-memory Computing in a Crossbar Array of Multistate Magnetic Tunnel Junctions

A. Moureaux, A. Lopes Temporao, F. Abreu Araujo

Institute of Condensed Matter and Nanosciences, UCLouvain, Louvain-la-Neuve, Walloon Brabant, Belgium

02:48 PM-03:00 PM

FF-03. Skyrmion based Reservoir Computing for Spatiotemporal Motion Recognition

M. Alam¹, M. Rajib¹, S. Sabyasachi¹, M. Stiles², J.

Atulasimha^{1,3}

¹*Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, Virginia, United States,* ²*Alternate Computing Group, NIST, Gaithersburg, Maryland, United States,* ³*Electrical and Computer Engineering, Virginia Commonwealth University, Richmond, Virginia, United States*

03:00 PM-03:12 PM

FF-04. Stochastic Multilayer Spintronic Neural Networks Trained using Local-Learning Rules

J. Peters¹, N. Phan^{1,2}, U. Ebels¹, P. Talatchian¹

¹Univ. Grenoble Alpes, CEA, CNRS, Grenoble INP, Spintec, Grenoble, France, ²Laboratoire Albert Fert, CNRS, Thales, Université Paris-Saclay, Paris, France

03:12 PM-03:24 PM

FF-05. A Probabilistic Nanomagnetic Logic Network Enabling Reversible Computing

S. Nallan, J. Zhu

Data Storage Systems Center, Carnegie Mellon University, Pittsburgh, Pennsylvania, United States

03:24 PM-03:36 PM

FF-06. Field-Free Random Number Generation with Elliptical Voltage-Controlled Magnetic Tunnel Junctions for Probabilistic Computing

J. G. Athas, C. Duffee, T. Neuner, P. Khalili Amiri

Electrical and Computer Engineering, Northwestern University, Chicago, Illinois, United States

03:36 PM-03:48 PM

FF-07. Exploiting Probabilistic Switching of Magnetic Tunnel Junctions (MTJs) for Near-Memory and In-Memory Computing

S. S. Mugdho, E. Rogers, K. Gupte, C. Wang

Electrical and Computer Engineering, Iowa State University, Ames, Iowa, United States

03:48 PM-04:15 PM

Break

04:15 PM-04:51 PM

FF-08. Wafer-Scale SOT-MRAM for Energy- and Memory-Efficient Analog Computing

S. Liu¹, M. Song², J. C. Incorvia¹

¹The University of Texas at Austin, Austin, Texas, United States, ²Taiwan Semiconductor Manufacturing Corporation, Hsinchu, Taiwan

04:51 PM-05:03 PM

FF-09. Non-reciprocal phase transitions in kagome artificial spin ice plasmonic metasurfaces

S. Gupta¹, L. Martinez², L. McClintok², Z. Jacob¹, P. Padmanabhan², P. Iyer³

¹Purdue University, West Lafayette, Indiana, United States, ²Los Alamos National Laboratory, Los Alamos, New Mexico, United States, ³Sandia National Laboratory, Albuquerque, New Mexico, United States

05:03 PM-05:15 PM

FF-10. Integrated Magnonic Reservoir Computing with Magnetic Metamaterials

C. Swindells¹, I. T. Vidamour^{2,1}, G. Venkat¹, T. Hayward¹

¹*Department of Materials Science and Engineering, University of Sheffield, Sheffield, United Kingdom,*

²*Department of Computer Science, University of Sheffield, Sheffield, United Kingdom*

05:15 PM-05:27 PM

FF-11. Energy Relaxation Pathways in Finite-Sized Artificial Square Ice Structures

H. Arava¹, N. Kern¹, J. Woods¹, P. Mellado², C. Phatak^{1,3}

¹*Argonne National Laboratory, Lemont, Illinois, United States,* ²*Adolfo Ibáñez University, Santiago, Chile,*

³*Northwestern University, Evanston, Illinois, United States*

SESSION FG: THIN FILM AND INTERFACES

Chair(s): P. Tiberto, *INRIM, Torino, Italy*

Thursday, October 30, 2025

02:00 PM-05:30 PM

Room 2A

02:00 PM-02:12 PM

FG-01. Design and Optimization of Thin-film Ferromagnetic Patterns for Ultra-Compact High Frequency Bandstop Filters

H. Yin, A. El-Ghazaly

Electrical and Computer Engineering, Cornell University, Ithaca, New York, United States

02:12 PM-02:24 PM

FG-02. Interface-Induced Magnetism in Hybrid Heterostructures Containing Monolayer Transition Metal Dichalcogenide Coated with V₂O₅ Thin Films

Y. Wadumesthri¹, N. Kapuruge¹, R. B. de Oliveira², B.

Ipaves², G. S. Fabris², R. Tromer³, K. Lasek¹, N. Schulz¹,

H. Srikanth¹, M. Phan¹, D. S. Galvão², H. Rodríguez

Gutiérrez¹

¹*Department of Physics, University of South Florida, Tampa, Florida, United States,* ²*Applied Physics*

Department and Center for Computational Engineering & Sciences, State University of Campinas, Campinas, São

Paulo, Brazil, ³*Institute of Physics, University of Brasília, Brasília, DF, Brazil*

02:24 PM-02:36 PM

FG-03. Mechanistic Insights into Anisotropy and Magnetoresistance Control in Cobalt Ferrite Thin Films by Swift Heavy Ion Irradiation

R. Charak¹, S. Gautam^{2,3}, S. Garg², R. Meena⁴, Y. Kim⁶, K. Chae⁵

¹Energy Research Center, Panjab University, Chandigarh, India, ²Department of Physics, Panjab University, Chandigarh, India, ³Advanced Functional Materials Lab Pvt. Ltd, Panjab University, Chandigarh, India, ⁴Materials Science Centre, Inter University Accelerator Centre, New Delhi, India, ⁵Advanced Analysis & Data Center, Korea Institute of Science and technology, Seoul, Korea (the Republic of), ⁶Pohang Accelerator Lab, Pohang University of Science & Technology, Pohang, Korea (the Republic of)

02:36 PM-02:48 PM

FG-04. Structural origin of the Perpendicular Magnetic anisotropy in Ta/CoFeB/MgO heterostructure

M. Singh¹, S. K. Vayalil^{2,1}, A. Hloskovsky², C. Schlueter², C. Meneghini³, I. Carlomagno⁴, S. Pathak¹, A. Gupta¹

¹Department of Physics, Applied Science Cluster, UPES, Dehradun, India, ²Deutsches Elektronen-Synchrotron DESY, Hamburg, Germany, ³Department of Science, Roma Tre University, Rome, Italy, ⁴Elettra Sincrotrone Trieste, Trieste, Italy

02:48 PM-03:00 PM

FG-05. Post-Oxidation Strategy for Reducing Antiphase Boundaries in Spinel Ferrites

H. Yanagihara, K. Takeo, E. Kita

University of Tsukuba, Tsukuba, Japan

03:00 PM-03:12 PM

FG-06. Spin-Canting at the Frontiers of NiCo₂O₄ Thin Films

A. Subedi¹, B. Giri¹, M. Z. Zaz¹, W. K. Chin¹, G. Viswan¹, A. T. N'Diaye², T. Komesu¹, X. Xu¹, P. Dowben¹

¹Department of Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, Nebraska, United States, ²Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, California, United States

03:12 PM-03:24 PM

FG-07. On the nature of spin reorientation transition thermal hysteresis in AFM/FM bilayers: experiment and phenomenology

M. Slezak¹, E. Swierkosz¹, A. Kwiatkowski¹, M.

Szpytma¹, W. Janus¹, M. Zajac², P. Drozd¹, E. Oles¹, A. Koziol Rachwal¹, T. Slezak¹

¹AGH University of Krakow, Krakow, Poland, ²National Synchrotron Radiation Centre SOLARIS, Jagiellonian University, Krakow, Poland

03:24 PM-03:36 PM

FG-08. Plasma-Treated Perpendicular Magnetic Anisotropy in Sub-Nanometer W/CoFeB/MgO for BEOL Integration

G. Hong¹, J. Park¹, J. Pyo¹, J. Yoo¹, S. Lee¹, B. Kang¹, J. An¹, B. Ham¹, J. Choi¹, J. Lee², J. Kwon², S. Ahn¹, R. Baek¹

¹Department of Electrical Engineering, POSTECH, Pohang, Gyeongbuk, Korea (the Republic of), ²AVP Division, Hyundai Motor Company, Hwaseong, Gyeonggi, Korea (the Republic of)

03:36 PM-03:48 PM

FG-09. Growth and Characterization of β -Mn Structured CoZn Thin Films

M. Dearg^{1,2}, S. Langridge³, G. Burnell¹, C. Marrows¹

¹University of Leeds, Leeds, United Kingdom, ²University of York, York, United Kingdom, ³STFC Rutherford Appleton Laboratory, Didcot, Oxon., United Kingdom

03:48 PM-04:15 PM

Break

04:15 PM-04:27 PM

FG-10. Utilizing a synthetic exchange bias effect to measure ferromagnetic interlayer interactions

J. Hatala, E. Stimpson, J. Sklenar

Physics, Wayne State University, Detroit, Michigan, United States

04:27 PM-04:39 PM

FG-11. Low-temperature T-ALD HfO₂ for magneto-ionic applications

A. Cataldo^{1,2}, D. Gouéré³, E. Montebancho³, D. Ravelosona³, A. Li Bassi⁴, A. Lamperti¹

¹CNR-IMM, Agrate Brianza, Italy, ²Department of Chemistry, Materials and Nanotechnology, Politecnico di Milano, Milan, Italy, ³Spin-Ion Technologies, Palaiseau, France, ⁴Department of Energy, Politecnico di Milano, Milan, Italy

04:39 PM-04:51 PM

FG-12. Depth-Resolved Profile of the Interfacial Ferromagnetism in $\text{CaMnO}_3/\text{CaRuO}_3$ Superlattices

J. R. Paudel^{1,2}, A. Mansouri Tehrani³, M. Terilli⁴, M. Kareev⁴, J. Grassi¹, R. K. Sah¹, L. Wu⁴, V. N. Strocov⁵, C. Klewe², P. Shafer^{2,6}, J. Chakhalian⁴, N. A. Spaldin³, A. X. Gray¹

¹Physics Department, Temple University, Philadelphia, Pennsylvania, United States, ²Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, California, United States, ³Materials Theory, ETH Zurich, Zurich, Switzerland, ⁴Department of Physics and Astronomy, Rutgers University, Piscataway, New Jersey, United States, ⁵Swiss Light Source, Paul Scherrer Institute, Villigen, Switzerland, ⁶National Synchrotron Light Source II, Brookhaven National Laboratory, Upton, New York, United States

04:51 PM-05:03 PM

FG-13. Engineering strong perpendicular magnetic anisotropy in Cu-buffered Co/Pt multilayers grown by moderate vacuum e-beam deposition

J. Porro^{1,2}, D. Doménech¹, A. Villar¹, C. Redondo³, N. Río-López^{1,3}, R. Morales^{3,1,2}

¹BCMaterials, Bilbao, Spain, ²Ikerbasque, Bilbao, Spain, ³Physical Chemistry, University of the Basque Country, UPV/EHU, Leioa, Spain

SESSION FP: SHIELDING AND LEVITATION / STRUCTURED MATERIALS, NANOPARTICLES, AND NANOCOMPOSITES (POSTER SESSION)

Chair(s): Y. Shen, *School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore*

Thursday, October 30, 2025

02:30 PM-05:30 PM

Exhibit Hall Posters

FP-01. Experimental Evaluation of an Active Magnetic Shielding System with a Moving Phantom

X. Cao, T. Zhu, S. Chikaki, M. Sekino

Graduate School of Engineering, The University of Tokyo, Tokyo, Japan

FP-02. Penetration of Magnetic Field by Long Cables into a Slot on Conducting Plate and Rectangular Enclosure

J. Kwon¹, H. Park²

¹*Electronics and Telecommunications Research Institute, Daejeon, Korea (the Republic of),* ²*The University of Suwon, Hwaseong, Korea (the Republic of)*

FP-03. Advancing PM Motor Sustainability Through Rapid Computational Evaluation of Alternative Magnet Materials

A. Baghel, I. Nlebedim

Division of Critical Materials, Ames National Laboratory, Ames, Iowa, United States

FP-04. A Link Type Haptic Motor with a Pure Magnetic Spring for Enhanced Lifespan and Performance

Y. Oh¹, K. Park¹, D. Xu², S. Hwang¹

¹*School of Mechanical Engineering, Pusan National University, Busan, Korea (the Republic of),* ²*School of Mechatronic Engineering and Automation, Shanghai University, Shanghai, China*

FP-05. A Railgun Concept for Space Launches and Return Travel from the Moon

M. Trapanese

Dipartimento di Ingegneria, Palermo University, Palermo, Italy

FP-06. Asymmetric Magnetization Switching Behavior in FeRh/NiFe Bilayers with Interplay of Competing Exchange Interactions

J. Ahn, M. Jung

Department of Physics, Sogang University, Seoul, Korea (the Republic of)

FP-07. Time-resolved and 3-dimensional vector imaging of magnetic materials with coherent soft x-rays

D. M. Burn, L. Turnbull, A. Walters, S. S. Dhesi

Diamond Light Source, Didcot, Oxfordshire, United Kingdom

FP-08. Effect of GO incorporation on microwave characteristics of Zn-Co ferrites nanocomposites

M. Dabla¹, S. Kaushik¹, P. Kumar¹, M. Sharma^{1,2}, B. K. Kuanr¹

¹*Special Centre for Nanoscience, Jawaharlal Nehru University, New Delhi, Delhi, India,* ²*Department of Physics, Deshbandhu College, University of Delhi, New Delhi, Delhi, India*

FP-09. Engineering Next-Generation Magnetic Coupling in Magnetite Core-Shell Nanostructures: The Influence of Advanced Preparation Methods

J. G. Lambe^{3,1}, M. Gamal^{1,2}, C. Castaño¹

¹*Mechanical and Nuclear Engineering Department, Virginia Commonwealth University, Richmond, Virginia, United States,* ²*Polymers and Pigments Department, National Research Centre, Cairo, Dokki, Egypt,* ³*Mechanical Engineering and Physics, Rose-Hulman Institute of Technology, Terre Haute, Indiana, United States*

FP-10. Fabrication of Fe-B/Epoxy Composite Film via LbL-Assisted Composite Plating Using Silica-Coated Fe-B Particles

T. Nishii¹, I. Tanigawa³, W. K. Tan⁴, H. Muto⁴, Y. Endo¹, M. Izaki², N. Fujita²

¹*Tohoku University, Sendai, Miyagi, Japan,* ²*National Institute of Technology, Nara College, Yamatokoriyama, Nara, Japan,* ³*Okuno Chemical Industries co., ltd., Osaka, Osaka, Japan,* ⁴*Toyohashi University of Technology, Toyohashi, Aichi, Japan*

SESSION FQ: ANTIFERROMAGNETS, FERRIMAGNETS & ULTRAFast SPIN DYNAMICS (POSTER SESSION)

Chair(s): S. Majumder, *Department of Physics, University of South Florida, Tampa, Florida, United States*

Thursday, October 30, 2025

02:30 PM-05:30 PM

Exhibit Hall Posters

FQ-01. Observation of magnon polarons in non-local spin transport in an antiferromagnetic crystal Cr_2O_3

Q. Gao^{1,2}, J. Li^{1,2}

¹*Department of Physics, Southern University of Science and Technology, Shenzhen, Guangdong, China,* ²*Quantum Science Center of Guangdong-Hong Kong-Macao Greater Bay Area (Guangdong), Shenzhen, Guangdong, China*

FQ-02. Enhancing the Magneto-Optical Kerr Effect in Non-collinear Antiferromagnets via a Dielectric Layer

E. Gong^{2,1}, M. Yoo^{2,1}, A. Hoffmann^{2,1}

¹*Department of Materials Science and Engineering, The Grainger College of Engineering, University of Illinois Urbana-Champaign, Urbana, Illinois, United States,* ²*Materials Research Laboratory, University of Illinois Urbana-Champaign, Urbana, Illinois, United States*

FQ-03. Engineering of magnetic anisotropy in antiferromagnetic NiO(111) epitaxial thin films

M. Slezak¹, A. Kwiatkowski¹, E. Swierkosz¹, M. Szpytma¹, M. Zajac², A. Koziol Rachwal¹, T. Slezak¹
¹AGH University of Krakow, Krakow, Poland, ²National Synchrotron Radiation Centre SOLARIS, Jagiellonian University, Krakow, Poland

FQ-04-LB. Reduction of materials criticality in hybrid manufacturing of Halbach arrays using sintered NdFeB magnets and additively manufactured soft magnet frames

L. Cosgrove¹, T. Lamichhane¹, M. P. Paranthaman², N. Poudel³, T. Charlton²
¹Engineering, University of Central Oklahoma, Edmond, Oklahoma, United States, ²Oakridge National Lab, Oak Ridge, Tennessee, United States, ³Veryst Engineering, Needham, Massachusetts, United States

FQ-07. Antiferromagnetic-Ferromagnetic Phase Transition in Epitaxial and Non-oriented FeRh Thin Films

F. Efe¹, F. Bakhshizadeh¹, D. Alharbi^{1,2}, M. Guy¹, M. Davis¹, A. Lisfi¹
¹Physics, Morgan State University, Baltimore, Maryland, United States, ²Physics, The Catholic University of America, Washington DC, District of Columbia, United States

FQ-08. Defect-Mediated Ferromagnetism in Transition Metal-Doped ZnO Thin Films

A. Alsmadi, B. Salameh
PHYSICS, Kuwait University, Kuwait, Kuwait

FQ-09. Deterministic modelling of ultrafast dynamics in magnetic tunnel junctions

P. Thibaudeau¹, M. Fattouhi², L. D. Buda-Prejbeanu²
¹CEA, DAM, Le Ripault, Monts, France, ²SPINtronique et Technologie des Composants, Grenoble, France

FQ-10. Terahertz emission from CoFeB/Pt_{1-x}Cu_x spintronic bilayers

C. Bull^{1,2}, R. Ji^{1,2}, C. Lin^{1,2}, T. Gething^{2,1}, S. M. Hewett^{1,2}, B. Spencer³, H. J. Waring¹, T. Thomson¹, D. M. Graham^{2,4}, P. Nutter¹
¹Dept. of Computer Science, University of Manchester, Manchester, United Kingdom, ²Dept. of Physics and Astronomy, University of Manchester, Manchester, United Kingdom, ³Department of Materials, University of

Manchester, Manchester, United Kingdom, ⁴The Cockcroft Institute, Daresbury, United Kingdom

SESSION FR: SKYRMIONS AND SPIN-ORBIT TORQUE (POSTER SESSION)

Chair(s): B. Sanyal, *Department of Physics & Astronomy, Uppsala University, Uppsala, Sweden*

Thursday, October 30, 2025

02:30 PM-05:30 PM

Exhibit Hall Posters

FR-01. Spin accumulation-induced magnetophotogalvanic effect in metals

A. Kamiryo¹, M. Yamamoto², T. Nishijima², R. Ohshima², M. Shiraishi², Y. Ando¹

¹Osaka Metropolitan Univ., Sakai, Osaka, Japan, ²Kyoto Univ., Kyoto, Kyoto, Japan

FR-02. Field-free highly efficient spin-orbit torque switching in Fe₃GaTe₂ at room temperature enabled by a unique reduced crystal symmetry of WTe₂

P. R. Sharma¹, B. Jang¹, G. Zhang², W. Jin², H. Chang², J. Hong¹

¹Materials Science and Engineering, Yonsei University, Seoul, Seoul, Korea (the Republic of), ²School of Materials Science and Engineering, Huazhong University, Wuhan, Wuhan, China

FR-03. Effects of In-Plane Magnetic Fields and Energy Analysis during the Control of Antiskyrmion Formation

Y. Machida, M. Taniwaki, A. L. Foggiatto, M. Kotsugi
Materials Science and Technology, Tokyo University of Science, Tokyo, Japan

FR-04. Antisymmetric Planar Hall-Induced Artifacts in Second Harmonic Hall SOT Measurements: A Case Study in RuO₂(101)

O. Jia, S. Nair, Y. Yang, S. G. Jeong, S. Lee, D. Tonini, S. Liang, Y. Chen, O. Benally, B. Dixit, T. Low, B. Jalan, J. Wang

University of Minnesota, Minneapolis, Minnesota, United States

FR-05. Metallic 2D-MXene: a promising underlayer of SOT device for field-free switching and enhancement of efficiency

P. Kumar¹, H. Abe², Y. Kotani³, A. Sumiyoshiya³, T. Nakamura^{4,3}, G. K. Shukla¹, S. Isogami¹

¹NIMS, Tsukuba, Japan, ²KEK, Tsukuba, Japan, ³PhoSIC, Sendai, Japan, ⁴Tohoku University, Sendai, Japan

FR-06. Nonlinear dynamics excited for room-temperature skyrmions by current injection

S. Yadav¹, S. Chatterjee¹, S. Sugimoto², S. Kasai²

¹Physics, IIT Varanasi, Varanasi, India, ²NIMS, Tsukuba, Japan

FR-07. Skyrmion-like magnetic domain structures in epitaxial [Ru/Co/Pt]_n synthetic antiferromagnets

Y. Hisada, S. Komori, T. Taniyama

Dept. Phys., Nagoya Univ., Nagoya, Japan

FR-08. Current-driven dynamics of an isolated skyrmion in a racetrack with materialistic defects: Influence of defect size and density

P. Kamal, R. Posti, A. Tripathi

Physics, Indian Institute of Technology, Ropar,

Department of Physics, Rupnagar, Ropar, Punjab, India

FR-09. Comparing spin Hall angle in (Bi_{1-x}Sb_x)₂Te_{3-y}Se_y (x = 0.58, y=1) using spin-torque ferromagnetic resonance and non-local voltage measurements

V. Sharma^{1,2}, S. Jois², G. M. Stephen², T. Hossain³, B. Jungfleisch³, P. J. Taylor⁴, A. T. Hanbicki², A. Friedman²

¹Department of Electrical and Computer Engineering, University of Maryland College Park, College Park, Maryland, United States, ²Laboratory for Physical Sciences, College Park, Maryland, United States,

³Department of Physics and Astronomy, University of Delaware, Newark, Delaware, United States, ⁴Army Research Laboratory, Adelphi, Maryland, United States

FR-10. Static and Dynamic Magnetic Properties of Ultrathin Co Films on MoSe₂/Sapphire Heterostructures for Opto-Spintronic Applications

I. A. Almuhanna, Y. Wadumesthri, A. I. Ojo, H.

Rodríguez Gutiérrez, D. A. Arena

University of South Florida, Tampa, Florida, United States

FR-13. Ultrafast stochastic thermal switching of dipolar skyrmion cores in Fe₃Sn₂ nanodisks with perpendicular magnetic anisotropy

C. M. Nezat, M. Charilaou

Department of Physics, University of Louisiana at

Lafayette, Lafayette, Louisiana, United States

BIERSTUBE

Thursday, October 30, 2025

05:00 PM-06:30 PM

Exhibit Hall Events

FROM THE LAB TO A STARTUP

Chair(s): C. Rinaldi, *Politecnico di Milano, Milan, Italy*

Thursday, October 30, 2025

06:30 PM-08:00 PM

Grand Ballroom

SESSION GA: UNCONVENTIONAL AND NONRECIPROCAL SUPERCONDUCTIVITY

Chair(s): D. Makarov, *Helmholtz-Zentrum Dresden-
Rossendorf, Dresden, Germany*

Friday, October 31, 2025

08:30 AM-12:00 PM

Grand Ballroom

08:30 AM-09:06 AM

GA-01. Superconducting Spintronics

S. Parkin

*NISE, Max Planck Institute for Microstructure Physics,
Halle (Saale), Germany*

09:06 AM-09:42 AM

GA-02. Superconducting diode effect in metallic multilayers

T. Ono

Kyoto University, Uji, Japan

09:42 AM-10:18 AM

GA-03. Superconductor-Ferromagnet Proximity Coupled Bilayers Leads to Majorana Bound States and Nonreciprocal Critical Current Flow

J. S. Moodera

*Physics, Plasma Science and Fusion Center, MIT,
Cambridge, Massachusetts, United States*

10:18 AM-10:45 AM

Break

10:45 AM-11:21 AM

GA-05. Magnetic Imaging of Chiral and Magnetic Superconductors

Y. Iguchi^{1,2}

¹*Geballe Laboratory for Advanced Materials, Stanford University, Stanford, California, United States*, ²*Stanford Institute for Materials and Energy Sciences, SLAC National Accelerator Laboratory, Menlo Park, California, United States*

11:21 AM-11:57 AM

Panel Discussion

**SESSION GB: PROBING AND MANIPULATING
MAGNETIC ORDER IN 2D SYSTEMS**

Chair(s): *S. Singh, Physics, Carnegie Mellon University, Pittsburgh, Pennsylvania, United States*

Friday, October 31, 2025

08:30 AM-12:00 PM

Ballroom A

08:30 AM-09:06 AM

GB-01. Spin-orbit torque in van der Waals magnetic heterostructures: from microscopic domain imaging to ultrasensitive Sagnac Kerr interferometry

Y. Luo^{1,2,3}

¹*Department of Physics and Astronomy, University of Southern California, Los Angeles, California, United States*, ²*Mork Family Department of Chemical Engineering and Materials Science, University of Southern California, Los Angeles, California, United States*, ³*Department of Chemistry, University of Southern California, Los Angeles, California, United States*

09:06 AM-09:42 AM

GB-02. Quantum Sensing Using Two-dimensional Hexagonal Boron Nitride

H. Wang, J. Zhou

School of Physics, Georgia Institute of Technology, Atlanta, Georgia, United States

09:42 AM-10:18 AM

GB-03. Electrostatic and Optical Control over the Magneto-Optics and the Magnetization Dynamics of van der Waals Magnets

M. H. Guimaraes

University of Groningen, Groningen, Netherlands

10:18 AM-10:45 AM

Break

10:45 AM-11:21 AM

GB-04. Magnetism and spin transport in van der Waals heterostructures with 2D magnets

B. Sanyal, S. Ershadrad, M. Davoudiniya
Uppsala University, Uppsala, Sweden

11:21 AM-11:57 AM

GB-05. Broadband Spin Dynamics and Magnon Transport in van der Waals Antiferromagnets

A. Melendez^{1,2}, S. Das², F. Ayala Rodriguez², I. Kao³, W. Liu⁴, A. Williams⁵, B. Lv⁴, J. Goldberger⁵, S. Chatterjee³, S. Singh³, C. Hammel²

¹*Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Knoxville, Tennessee, United States,*

²*Department of Physics, The Ohio State University, Columbus, Ohio, United States,* ³*Department of Physics, Carnegie Mellon University, Pittsburgh, Pennsylvania, United States,*

⁴*Department of Physics, The University of Texas at Dallas, Dallas, Texas, United States,*

⁵*Department of Chemistry, The Ohio State University, Columbus, Ohio, United States*

SESSION GC: QUANTUM MATERIALS AND COOPERATIVE STATES

Chair(s): J. F. Sierra, *Catalan Institute of Nanoscience and Nanotechnology (ICN2), Bellaterra, Barcelona, Spain*

Friday, October 31, 2025

08:30 AM-12:00 PM

Ballroom C

08:30 AM-09:06 AM

GC-01. Diverse Electronic Landscape of Kagome Motif

M. Neupane

Department of Physics, University of Central Florida, Orlando, Florida, United States

09:06 AM-09:18 AM

GC-03. Magnetic Enhancement and Possible Gap Opening for LSMO layers in LSMO/YBCO Superlattice

Y. Tsai¹, H. Salazar^{2,1}, S. Sun^{3,1}, L. Chen¹, A. J. Grutter⁴, D. Cortie⁵, T. Huang⁶, Y. Chin⁷, J. Lynn⁴, H. Chou^{1,3}

¹*Physics, National Sun Yat-sen University, Kaohsiung City, Taiwan,* ²*International PhD Program for Science, National Sun Yat-sen University, Kaohsiung City, Taiwan,*

³*Applied Physics, National University of Kaohsiung, Kaohsiung City, Taiwan,* ⁴*Center for Neutron Research, NIST, Gaithersburg, Maryland, United States,* ⁵*ANSTO,*

Lucas Heights, New South Wales, Australia, ⁶*NSRRC,*

Hsinchu, Taiwan, ⁷Physis, National Chung Chen University, Chiayi, Taiwan

09:18 AM-09:30 AM

GC-04. Molecular Beam Epitaxy Growth of EuIn_2As_2 Thin Films on Sapphire and YAG

M. Abdul Karim, X. Liu, B. A. Assaf

Physics, University of Notre Dame, Notre Dame, Indiana, United States

09:30 AM-10:06 AM

GC-05. Fractional Quantum Anomalous Hall Effect and Chiral Superconductivity in Graphene

L. Ju¹, Z. Lu²

¹Physics, Massachusetts Institute of Technology, Cambridge, Massachusetts, United States, ²Department of Physics, Florida State University, Tallahassee, Florida, United States

10:06 AM-10:18 AM

GC-06. Asymmetric Superconducting Vortex-induced Magnetoresistance in a Superconductor/Ferromagnet Heterostructure

R. Zhang¹, J. Huang², Y. Hao²

¹School of Integrated Circuit, Huazhong University of Science and Technology, Wuhan, Hubei, China, ²School of Microelectronics, University of Science and Technology of China, Hefei, Anhui, China

10:18 AM-10:45 AM

Break

10:45 AM-10:57 AM

GC-07. Fate of entanglement in quantum spin liquid under Lindbladian or non-Markovian dynamics induced by sudden coupling to dissipative bosonic environment

F. E. García Gaitan, B. Nikolić

Department of Physics, University of Delaware, Newark, Delaware, United States

10:57 AM-11:09 AM

GC-08. Structural design and multiple magnetic orderings of the intergrowth compound $\text{Eu}_2\text{CuMn}_2\text{P}_3$
X. Chen¹, Z. Wang¹, W. Yang², J. Lu³, Z. Zhou¹, Z. Ren², G. Cao³, S. Dong¹, Z. Wang¹

¹Southeast University, Nanjing, China, ²Westlake University, Hangzhou, China, ³Zhejiang University, Hangzhou, China

11:09 AM-11:21 AM

GC-09. Evidence for electron fractionalization in a kagome metal

G. Aeppli^{1,2,3}, S. Ekañana³, Y. Soh³, Z. Wenliang³, T. Schmitt³

¹ETH, Zurich, Switzerland, ²EPFL, Lausanne, Switzerland,

³PSI, Villigen, Switzerland

SESSION GD: MAGNETOELECTRIC AND MULTIFERROICS III

Chair(s): S. Husain, *Material Science and Engineering, University of California, Berkeley, Berkeley, California, United States*

Friday, October 31, 2025

08:30 AM-12:00 PM

Ballroom B

08:30 AM-09:06 AM

GD-01. Magnetoelectric Coupling Reprogrammed Magnonic Logic in Multiferroic Heterostructure

P. Che¹, A. Abdelsamie¹, Á. Papp², S. Salama³, A. Thiaville⁴, R. Lebrun¹, S. Fusil¹, V. Garcia¹, A. Vecchiola¹, K. Bouzehouane¹, M. Bibes¹, A. Barthelemy¹, J. Adam³, V. E. Demidov⁵, P. Bortolotti¹, A. Anane¹, I. Boventer¹

¹Laboratoire Albert Fert, CNRS, Thales, Université Paris-Saclay, Palaiseau, Île-de-France, France, ²Faculty of Information Technology and Bionics, Pazmany Peter Catholic University, Budapest, Hungary, ³Centre de Nanosciences et de Nanotechnologies, CNRS, Université Paris-Saclay, Palaiseau, Île-de-France, France,

⁴Laboratoire de Physique des Solides, Université Paris-Saclay, CNRS, Orsay, Île-de-France, France, ⁵Institute of Applied Physics, University of Muenster, Muenster, Germany

⁴Laboratoire de Physique des Solides, Université Paris-Saclay, CNRS, Orsay, Île-de-France, France, ⁵Institute of Applied Physics, University of Muenster, Muenster, Germany

09:06 AM-09:42 AM

GD-02. Ferroelectric-Control of Magnetotransport in Ruddlesden-Popper Strontium Iridates

X. Hong

Department of Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, Nebraska, United States

09:42 AM-09:54 AM

GD-03. Stress-Coupled Nonlinear Magneto-Thermo-Mechanical Behaviour of Magnetostrictive and Magnetoelectric Composites under Combined Loads

S. Somavarapu¹, P. Kondaiah¹, K. Deepak²

¹*Department of Aerospace and Mechanical Engineering, Mahindra University, Hyderabad, Telangana, India,*

²*Department of Metallurgical Engineering, Indian Institute of Technology (BHU) Varanasi, Varanasi, Uttar Pradesh, India*

09:54 AM-10:06 AM

GD-04. Giant interfacial Dzyaloshinskii-Moriya Interaction of epitaxial perovskite $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ films

N. Lei¹, L. Yang¹, X. Zhang², H. Wang¹

¹*Beihang University, Beijing, China,* ²*Fudan University, Shanghai, China*

10:06 AM-10:18 AM

GD-05. Swift Heavy Ion-Induced Modifications in the Magnetic and Electronic Properties of $\text{LaMn}_{0.8}\text{Co}_{0.2}\text{O}_3$ Thin Film

F. H. Bhat¹, A. Jan¹, G. Anjum²

¹*Department of Physics, Islamic University of Science and Technology, Kashmir, Pulwama, India,* ²*Department of Physics, Govt. SAM Degree College Budgam, Budgam, India*

10:18 AM-10:45 AM

Break

10:45 AM-10:57 AM

GD-06. Boosting Magneto-Ionic Effects in $\text{CoFeB}/\text{MgO}/\text{HfO}_2/\text{LiPON}$ Stacks by Ion Irradiation

Y. Sassi¹, R. Mansell², D. Gouéré¹, E. Montebianco¹, S. van Dijken², D. Ravelosona¹

¹*Spin-Ion Technologies, Centre de Nanosciences et Nanotechnologies, Palaiseau, France,* ²*NanoSpin, Department of Applied Physics, Aalto University School of Science, FI-00076 Aalto, Finland*

10:57 AM-11:09 AM

GD-07. Precession-Field-Free Voltage Controlled Magnetic Anisotropy Switching of Magnetic Tunnel Junction

D. Favaro^{2,1}, D. Narducci², J. Chatterjee², M. Gama Monteiro², S. Rao², R. Carpenter², J. Van Houdt^{2,1}, K. Temst^{1,2}, W. Kim²

¹*Physics and Astronomy, KU Leuven, Leuven, Belgium,* ²*Imec, Leuven, Belgium*

11:09 AM-11:21 AM

GD-08. Large Room-Temperature Anomalous Nernst Effect in a Magnetic Equiatomic Heusler Alloy for Spin-Caloritronic Applications

R. Roy Chowdhury¹, P. Sharma¹, A. Bera², J. Nag^{2,3}, A. Alam², K. G. Suresh², M. Phan¹, H. Srikanth¹

¹*Department of Physics, University of South Florida, Tampa, Florida, United States*, ²*Department of Physics, Indian Institute of Technology Bombay, Mumbai, Maharashtra, India*, ³*Pennsylvania State University, University Park, Pennsylvania, United States*

SESSION GE: MAGNONICS III: MATERIALS & SPIN TEXTURE DYNAMICS

Chair(s): B. Jungfleisch, *University of Delaware, Newark, Delaware, United States*

Friday, October 31, 2025

08:30 AM-12:00 PM

Room 2DE

08:30 AM-08:42 AM

GE-01. Magnetic Properties of CoFeB Films in the Ultrathin Limit

W. K. Peria¹, J. J. Wisser¹, C. Swindells^{2,4}, M.

Tanksalvala¹, M. Kiechle², G. Hu³, M. Pufall¹, H. T. Nembach¹

¹*Applied Physics Division, National Institute of Standards and Technology, Boulder, Colorado, United States*,

²*Associate, Physical Measurement Laboratory, National Institute of Standards and Technology, Boulder, Colorado, United States*,

³*IBM T. J. Watson Research Center, Yorktown Heights, New York, United States*, ⁴*Department of Electrical Engineering, University of Colorado Denver, Denver, Colorado, United States*

08:42 AM-08:54 AM

GE-02. Emulating 2D Materials with Magnonic Crystals

B. Kaman, J. Lim, A. Hoffmann

Materials Research Laboratory and Department of Materials Science and Engineering, The Grainger College of Engineering, University of Illinois Urbana-Champaign, Urbana, Illinois, United States

08:54 AM-09:06 AM

GE-03. Magnon-Magnon Coupling in a Pinned Synthetic Antiferromagnet

D. Backes

Diamond Light Source, Didcot, United Kingdom

09:06 AM-09:18 AM

GE-04. Experimental study of magnon-magnon interaction in bilayer, tetralayer, hexlayer, octlayer, and decalayer synthetic antiferromagnets (SAFs)

M. M. Subedi¹, K. Deng², Y. Xiong^{3,4,5}, J. Mongeon², T. Hossain⁶, P. Meisenheimer⁷, E. T. Zhou¹, J. Heron⁷, B. Jungfleisch⁶, W. Zhang^{3,4}, B. Flebus³, J. Sklenar¹

¹Physics and Astronomy, Wayne State University, Detroit, Michigan, United States, ²Department of Physics, Boston College, Chestnut Hill, Massachusetts, United States, ³Department of Physics and Astronomy, University of North Carolina, Chapel Hill, North Carolina, United States, ⁴Department of Physics, Oakland University, Rochester, Michigan, United States, ⁵Department of Electronic and Computer Engineering, Oakland University, Rochester, Michigan, United States, ⁶Department of Physics and Astronomy, University of Delaware, Newark, Delaware, United States, ⁷Department of Materials Science and Engineering, University of Michigan, Ann Arbor, Michigan, United States

09:18 AM-09:30 AM

GE-05. Soliton Formation and Topological Transitions during Stripe Collapse in Fe/Gd Multilayers

J. A. Reddinger¹, E. Fullerton², S. Montoya², B. McMorran¹

¹Department of Physics, University of Oregon, Eugene, Oregon, United States, ²Center for Memory and Recording Research, University of California San Diego, San Diego, California, United States

09:30 AM-09:42 AM

GE-06. Skyrmion Dynamics Probed with Neutron and X-ray Scattering and in situ Excitations

N. Tang¹, N. Liyanage¹, C. C. Buchanan¹, S. A. Morley², S. Roy², E. Fullerton³, S. Montoya³, L. DeBeer-Schmitt⁴, D. A. Gilbert¹

¹University of Tennessee, Knoxville, Tennessee, United States, ²Lawrence Berkeley National Laboratory, Berkeley, California, United States, ³University of California, San Diego, San Diego, California, United States, ⁴Oak Ridge National Laboratory, Oak Ridge, Tennessee, United States

09:42 AM-09:54 AM

GE-08. Coherent phonon excitation by phonon-magnon coupling in stripe domains

N. Arora¹, D. Prestwood^{1,2,3}, T. Kikkawa⁴, E. Saitoh^{4,5,6}, W. R. Branford^{3,7}, J. Gartside^{3,7}, H. Kurebayashi^{1,2,8}

¹London Centre for Nanotechnology, University College London, London, United Kingdom, ²Department of

Electronic and Electrical Engineering, University College London, London, United Kingdom, ³Blackett Laboratory, Imperial College London, London, United Kingdom, ⁴Advanced Science Research Center, Japan Atomic Energy Agency, London, United Kingdom, ⁵Institute for AI and Beyond, The University of Tokyo, Tokyo, Japan, ⁶Department of Physics and Astronomy & Nebraska Center for Materials and Nanoscience, University of Nebraska, Lincoln, Nebraska, United States, ⁷London Centre for Nanotechnology, Imperial College London, London, United Kingdom, ⁸WPI-Advanced Institute for Material Research, Tohoku University, Sendai, Japan

09:54 AM-10:06 AM

GE-09. Spin-torque skyrmion resonance in a frustrated Fe₃Sn₂ kagome magnet

N. Bernstein¹, B. J. Assouline¹, H. Li², Y. Lau², I. Rozhansky³, A. Capua¹

¹*Applied Physics, The Hebrew University of Jerusalem, Jerusalem, Israel, ²Physics, Beijing National Laboratory for Condensed Matter Physics, Beijing, China, ³National Graphene Institute, University of Manchester, Manchester, United Kingdom*

10:06 AM-10:45 AM

Break

10:45 AM-10:57 AM

GE-10. All-optical stochastic switching of magnetization textures in Fe₃Sn₂

A. Kovács¹, J. T. Weber², M. Charilaou³, D. Kong¹, N. Kiselev⁴, I. Kezsmarki⁵, R. E. Dunin-Borkowski¹, A. Tavabi¹, S. Schäfer²

¹*Ernst Ruska Centre, Forschungszentrum Juelich, Juelich, Germany, ²Department of Physics, University of Regensburg, Regensburg, Germany, ³Department of Physics, University of Louisiana at Lafayette, Lafayette, Louisiana, United States, ⁴Peter Gruenberg Institute, Forschungszentrum Juelich, Juelich, Germany, ⁵Experimental Physics V, University of Augsburg, Augsburg, Germany*

10:57 AM-11:33 AM

GE-11. Non-Abelian Gauge Theory for Magnons in Topologically Textured Frustrated Magnets

R. Zarzuela¹, S. Kim²

¹*Institut für Physik, Johannes Gutenberg Universität Mainz, Mainz, Germany, ²Department of Physics, Korean Advanced Institute of Science and Technology, Daejeon, Korea (the Republic of)*

SESSION GF: ALTER- / ANTI-FERROMAGNETISM IN RuO₂ AND OTHER MATERIALS

Chair(s): O. Amin, *University of Nottingham, Nottingham, United Kingdom*

Friday, October 31, 2025

08:30 AM-12:00 PM

Room 2BC

08:30 AM-09:06 AM

GF-01. Revisiting Spin Transport in RuO₂: Distinguishing Anisotropic Spin Hall from Altermagnetic Spin Splitting Effects

D. Ou¹, Y. Wang², C. Liao², Z. Shen², C. Lin², W. Hsu², Y. Chen¹, Y. Tien², Y. Chin³, A. Singh⁴, W. Lee⁴, S. Huang²

¹*Center for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan*, ²*Department of Physics, National Taiwan University, Taipei, Taiwan*, ³*Department of Physics, National Chung Cheng University, Chia-Yi, Taiwan*, ⁴*Institute of Physics, Academia Sinica, Taipei, Taiwan*

09:06 AM-09:18 AM

GF-02. Negative and Large Spin Hall Angle in RuO₂

Y. Wang^{1,2}, Z. Shen¹, C. Lin¹, W. Hsu¹, Y. Chen², Y. Chin³, A. Singh⁴, W. Lee⁴, S. Huang^{1,5}, D. Qu^{2,5}

¹*Department of Physics, National Taiwan University, Taipei, Taiwan*, ²*Center for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan*, ³*Department of Physics, National Chung Cheng University, Chia-Yi, Taiwan*, ⁴*Institute of Physics, Academia Sinica, Taipei, Taiwan*, ⁵*Center of Atomic Initiatives for New Materials, National Taiwan University, Taipei, Taiwan*

09:18 AM-09:30 AM

GF-03. Enhanced Transport of Altermagnet Grain Boundaries Between Crystallographic Domains of Opposite Handedness

S. Tkacik, G. M. Pantano, E. Thareja, J. D. Gayles
University of South Florida, Tampa, Florida, United States

09:30 AM-09:42 AM

GF-04. Spin-to-charge current conversion in altermagnet candidate RuO₂ probed by terahertz emission spectroscopy

J. Jechumtal¹, O. Gueckstock², K. Jasenský¹, Z. Kašpar^{1,3}, K. Olejník³, M. Gaerner⁴, G. Reiss⁴, S. Moser⁵, P. Kessler⁵, G. De Luca⁶, S. Ganguly⁷, J. Santiso⁷, D. Scheffler³, J. Zázvorka¹, P. Kubascik¹, H. Reichlova³, E.

Schmoranzero¹, P. Neme¹, T. Jungwirth³, P. Kuzel³, T. Kampfrath², L. Nadvornik¹

¹Faculty of Mathematics and Physics, Charles University, Prague, Czechia, ²Department of Physics, Freie Universität Berlin, Berlin, Germany, ³Institute of Physics, Czech Academy of Science, Prague, Czechia, ⁴Faculty of Physics, Bielefeld University, Bielefeld, Germany, ⁵Physikalisches Institut and Würzburg-Dresden Cluster of Excellence ct.qmat, Universität Würzburg, Würzburg, Germany, ⁶Materials Science Institute of Barcelona (ICMAB-CSIC), Barcelona, Spain, ⁷Catalan Institute of Nanoscience and Nanotechnology, Barcelona, Spain

09:42 AM-09:54 AM

GF-05. Indications of Terahertz Spin Transport in the Altermagnet Candidate RuO₂

O. Gueckstock¹, J. Jechumtal², M. Gaerner³, C. Simons¹, Z. Kaspar^{2,4}, T. Seifert¹, T. Kuschel^{3,5}, G. Reiss³, L. Nadvornik², T. Kampfrath¹

¹Department of Physics, Freie Universität Berlin, Berlin, Germany, ²Faculty of Mathematics and Physics, Charles University, Prague, Czechia, ³Faculty of Physics, Bielefeld University, Bielefeld, Germany, ⁴Institute of Physics, Czech Academy of Sciences, Prague, Czechia, ⁵Institute of Physics, Johannes Gutenberg University Mainz, Mainz, Germany

09:54 AM-10:06 AM

GF-06. Surface roughness effect on dynamic magnetic properties of RuO₂/CoFeB stack

T. Nguyen^{1,2}, H. Naganuma^{3,4}, Y. Saito², S. Maruyama⁵, T. Nguyen⁶, D. Vu⁶, S. Ikeda^{2,1}, T. Endoh^{2,1,5}

¹Center for Science and Innovation in Spintronics, Tohoku University, Sendai, Miyagi, Japan, ²Center for Innovative Integrated Electronic Systems, Tohoku University, Sendai, Miyagi, Japan, ³Institute for Advanced Study, Nagoya University, Nagoya, Aichi, Japan, ⁴Institute of Materials and Systems for Sustainability, Nagoya University, Nagoya, Aichi, Japan, ⁵Graduate School of Engineering, Tohoku University, Sendai, Miyagi, Japan, ⁶Institute of Physics, Vietnam Academy of Science and Technology, Hanoi, Hanoi, Viet Nam

10:06 AM-10:18 AM

GF-07. Giant Tunneling Magnetoresistance in Antiferromagnetic Tunnel Junctions with Non-collinear Mn₃NiN Electrodes

M. A. Elekhtiar¹, G. Gurung², D. Shao³, E. Y. Tsymbal¹

¹Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, Nebraska, United States, ²Trinity College,

University of Oxford, Oxford, United Kingdom, ³Institute of Solid-State Physics, Chinese Academy of Sciences, Hefei, China

10:18 AM-10:45 AM

Break

10:45 AM-11:21 AM

GF-08. Spintronics in “dirty” antiferromagnetic materials

B. L. Zink

Physics & Astronomy, University of Denver, Denver, Colorado, United States

11:21 AM-11:33 AM

GF-09. Temperature dependence of current-induced switching in epitaxial Mn₃Sn thin films

K. Nihei^{1,2}, T. Uchimura^{1,2}, J. Han^{1,3}, S. Kanai^{1,3}, H. Ohno^{1,4}, S. Fukami^{1,4}

¹RIEC, Tohoku Univ., Sendai, Miyagi, Japan, ²Grad School of Eng., Tohoku Univ., Sendai, Miyagi, Japan, ³AIMR, Tohoku Univ., Sendai, Miyagi, Japan, ⁴CSIS, Tohoku Univ., Sendai, Miyagi, Japan

11:33 AM-11:45 AM

GF-10. Distinct pulse-width dependence of two threshold currents driving a noncollinear antiferromagnetic nanodot via spin-orbit torque

Y. Sato^{1,2}, Y. Takeuchi^{3,4}, Y. Yamane^{1,5}, S. Kanai^{1,4}, H. Ohno^{6,7}, S. Fukami^{1,6}

¹Laboratory for Nanoelectronics and Spintronics, RIEC, Tohoku Univ., Sendai, Japan, ²Graduate School of Engineering, Tohoku Univ., Sendai, Japan, ³CMSM, NIMS, Tsukuba, Japan, ⁴WPI-AIMR, Tohoku Univ., Sendai, Japan, ⁵FRIS, Tohoku Univ., Sendai, Japan, ⁶CSIS, Tohoku Univ., Sendai, Japan, ⁷CIES, Tohoku Univ., Sendai, Japan

11:45 AM-11:57 AM

GF-11. Structural and Magnetic properties of pristine and gamma irradiated (Mo_{2/3}Dy_{1/3})₂AlC polycrystalline samples

B. K. Rai³, A. Bretana³, B. Bastakoti¹, B. Gautam²

¹Chemistry, North Carolina Agricultural and Technical State University, Greensboro, North Carolina, United States, ²Chemistry, Fayetteville State University, Fayetteville, North Carolina, United States, ³Savannah River National Laboratory, Aiken, South Carolina, United States

SESSION GG: MAGNETORESISTANCE IN HETEROSTRUCTURES (GMR, TMR, TAMR)

Co-Chair(s): H. Li, *Analog Devices, Hillsboro, Oregon, United States* and G. Yu, *Institute of Physics, Chinese Academy of Sciences, Beijing, China*

Friday, October 31, 2025

08:30 AM-12:00 PM

Room 2A

08:30 AM-08:42 AM

GG-01. Enhancing and Decoupling Magnetic Anisotropy and Tunnel Magnetoresistance in CoFe₂O₄/MgO Bilayers via Swift Heavy Ion Irradiation

R. Charak^{1,2}, S. Gautam^{2,3}, S. Garg², Y. Kim⁴, K. Chae⁵
¹*Energy Research Centre, Panjab University, Chandigarh, India*, ²*Dr. SSB Univ Inst of Chemical Engineering & Technology, Panjab University, Chandigarh, India*, ³*Advanced Functional Materials Lab Pvt. Ltd., Panjab University, Chandigarh, India*, ⁴*Pohang Accelerator Lab, Pohang University of Science and Technology, Pohang, Korea (the Republic of)*, ⁵*Advanced Analysis & Data Center, Korea Institute of Science & Technology, Seoul, Korea (the Republic of)*

08:42 AM-08:54 AM

GG-02. Revisiting the Role of Symmetry for High Performance Magnetic Tunnel Junctions

S. Chakraborti¹, A. Sharma²
¹*Electrical Engineering, Indian Institute Of Technology Ropar, Rupnagar, Punjab, India*, ²*School of Computing and Electrical Engineering, Indian Institute of Technology, Mandi, Mandi, Himachal Pradesh, India*

08:54 AM-09:06 AM

GG-03. Magnetic Tunnel Junctions utilizing metastable cubic GaN tunnel barrier

H. Kwon^{1,2}, K. Suzuki^{1,2}, D. Kumar², M. Tsujikawa³, T. Roy^{4,3}, S. Miki², M. Shirai^{3,4}, S. Mizukami^{2,4}
¹*School of engineering, Tohoku University, Sendai, Japan*, ²*WPI-Advanced Institute for Materials Research, Tohoku University, Sendai, Japan*, ³*Research Institute of Electrical Communication, Tohoku University, Sendai, Japan*, ⁴*Center for Science and Innovation in Spintronics, Tohoku University, Sendai, Japan*

09:06 AM-09:18 AM

GG-05. Magnetically Modulated Electrical Switching in an Antiferromagnetic Transistor

C. Chou¹, E. Park¹, J. Ingla-Aynes¹, J. Klein¹, K. Mosina², J. S. Moodera¹, Z. Sofer², F. Ross¹, L. Liu¹

¹MIT, Cambridge, Massachusetts, United States,

²University of Chemistry and Technology Prague, Prague, Czechia

09:18 AM-09:30 AM

GG-06. Metastable Spin Canting Lifetimes in Magnetic Tunnel Junction Artificial Spin Ice

C. Sullivan¹, H. Chen², S. Majetich²

¹Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, United States,

²Physics, Carnegie Mellon University, Pittsburgh, Pennsylvania, United States

09:30 AM-09:42 AM

GG-07. Impact of Synthetic Ferrimagnetic Free Layers on Current-in-Plane Giant Magnetoresistance

S. Abdizadeh Kalan¹, V. Amin², S. Emori¹

¹Physics, Virginia Tech, Blacksburg, Virginia, United States, ²Physics, School of Science, Indiana University–Purdue University Indianapolis (IUPUI), Indianapolis, Indiana, United States

09:42 AM-09:54 AM

GG-08. Co-Sputtered Diluted Magnetic Layers for Thermal Compensation in Vortex Magnetic Tunnel Junction Sensors

T. Fernandes¹, P. Araujo¹, R. Macedo¹, P. Freitas^{1,2}, S. Cardoso^{1,2}

¹INESC Microsistemas e Nanotecnologias, Lisboa, Portugal, ²Instituto Superior Técnico, Lisboa, Portugal

09:54 AM-10:06 AM

GG-10. Anomalous Spin Canting and Monopole-Like Excitations in Artificial Spin Ice

S. Majetich¹, C. Sullivan²

¹Physics, Carnegie Mellon University, Pittsburgh, Pennsylvania, United States, ²Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, United States

10:06 AM-10:18 AM

GG-11. Predicting Novel Tunnel Barrier Materials for Magnetic Tunnel Junctions using Language Models and First-Principles Screening

S. Islam¹, W. Rogers¹, C. Hu², M. Song², X. Bao², S. Sayed³, J. Incorvia¹

¹Chandra Family Department of Electrical and Computer Engineering, University of Texas at Austin, Austin, Texas, United States, ²Taiwan Semiconductor Manufacturing

Company, Taipei, Taiwan, ³Headway Technologies Inc., Milpitas, California, United States

10:18 AM-10:45 AM

Break

10:45 AM-10:57 AM

GG-12. Phase-resolved Ultrabroadband Terahertz Spectroscopy of Giant Magnetoresistance

Z. Kaspar^{1,2}, O. Gueckstock³, B. D. Mohapatra⁴, G. Schmidt⁴, P. Kubascik², J. Jechumtal², P. Kuzel¹, L. Nadvornik², T. Kampfrath³

¹FZU - Institute of Physics of the Czech Academy of Sciences, Prague, Czechia, ²Charles University, Prague, Czechia, ³Freie Universität Berlin, Berlin, Germany, ⁴Martin-Luther-Universität Halle-Wittenberg, Halle, Germany

10:57 AM-11:09 AM

GG-13. Terahertz spectroscopy of spin-Hall magnetoresistance: case study of YIG|Pt and CoFeB|Pt

P. Kubascik¹, R. Schlitz², O. Gueckstock^{3,4}, O. L. Franke³, D. Reiss³, M. Borchert⁵, M. Busina¹, G. Jakob⁶, K. Olejnik⁷, A. Farkas^{1,7}, Z. Kaspar^{1,7}, J. Jechumtal¹, E. Schmoranzero¹, P. Nemeč¹, M. Wolf⁴, Y. Wu^{8,9}, G. Woltersdorf¹⁰, M. Kläui⁶, P. Brouwer³, S. Goennenwein², T. Kampfrath^{3,4}, L. Nadvornik¹

¹Department of chemical physics and optics, Charles University, Prague, Czechia, ²Department of Physics, University of Konstanz, Konstanz, Germany, ³Department of Physics, Freie Universität Berlin, Berlin, Germany, ⁴Department of Physical Chemistry, Fritz Haber Institute of the Max Planck Society, Berlin, Germany, ⁵Max Born Institute for Nonlinear Optics and Short Pulse Spectroscopy, Berlin, Germany, ⁶Institut für Physik, Johannes Gutenberg-Universität Mainz, Mainz, Germany, ⁷Institute of Physics, Czech Academy of Sciences, Prague, Czechia, ⁸Department of Physics, State Key Laboratory of Surface Physics, Fudan University, Shanghai, China, ⁹Shanghai Research Center for Quantum Sciences, Shanghai, China, ¹⁰Institut für Physik, Martin-Luther-Universität, Halle, Germany

SESSION GP: ANTIFERROMAGNETS AND 2D MATERIALS (POSTER SESSION)

Chair(s): Z. Yuan, *Interdisciplinary Center for Theoretical Physics and Information Sciences, Fudan University, Shanghai, China*

Friday, October 31, 2025

09:00 AM-12:00 PM

Exhibit Hall Posters

GP-01-LB. Highly Tunable Electronic States near Chirality-reversed Planar Defect with Magnetic Interstitial Atomic Layer in Magnetic Weyl Semimetals

E. Thareja¹, G. M. Pantano¹, I. Vekhter², J. D. Gayles¹

¹*Physics, University of South Florida, Tampa, Florida, United States*, ²*Physics, Louisiana State University, Baton Rouge, Louisiana, United States*

GP-02-LB. Topological Magnetic Insulators for Dissipationless Monostructural Adiabatic Spintronics

J. Hanson-Flores¹, A. Regmi¹, J. Tang², J. Keum⁴, J. Park⁴, R. Cheng³, E. del Barco¹

¹*Physics, University of Central Florida, Orlando, Florida, United States*, ²*Physics, University of California, Riverside, Riverside, California, United States*, ³*Electrical Engineering, University of California, Riverside, Riverside, California, United States*, ⁴*Physics and Astronomy, Seoul National University, Seoul, Korea (the Republic of)*

GP-03-LB. Probing Magnetic Properties of RuO₂ Heterostructures Through Polarized Neutron Reflectometry

F. M. Abel¹, S. Bhatt², J. Q. Xiao², V. Lauter³, M. E. Jamer¹

¹*United States Naval Academy, Annapolis, Maryland, United States*, ²*Department of Physics and Astronomy, University of Delaware, Newark, Delaware, United States*, ³*Neutron Scattering Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee, United States*

GP-04-LB. Octupole-driven spin-transfer torque switching in all-antiferromagnetic tunnel junctions

J. Kang¹, M. Hamdi¹, S. Cheung¹, L. Yuan¹, M. A. Elekhtiar², W. Rogers¹, A. Meo³, P. G. Lim¹, M. N. Tey¹, A. D'Addario⁴, S. Konakanchi⁵, E. Matt¹, J. G. Athas¹, S. Arpacı¹, L. Wan⁶, S. Mehta⁶, P. Upadhyaya⁵, M. Carpentieri³, V. P. Dravid¹, M. C. Hersam¹, J. Katine⁶, G. Fuchs⁴, G. Finocchio⁷, E. Y. Tsymbal², J. M. Rondinelli¹, P. Khalili Amiri¹

¹*Northwestern University, Evanston, Illinois, United States*, ²*University of Nebraska, Lincoln, Nebraska, United States*

States, ³Politecnico di Bari, Bari, Italy, ⁴Cornell University, Ithaca, New York, United States, ⁵Purdue University, West Lafayette, Indiana, United States, ⁶Western Digital Corporation, San Jose, California, United States, ⁷University of Messina, Messina, Italy

GP-06-LB. Altermagnetism and Strain Induced Altermagnetic Transition in Cairo Pentagonal Monolayer

S. Li, Y. Zhang, A. Bahri, X. Zhang, C. Jia
Physics, University of Florida, Gainesville, Florida, United States

GP-08-LB. Sub-Terahertz Spin Pumping in Easy Plane Canted Antiferromagnet α -Fe₂O₃

A. Regmi¹, G. Fritjofson¹, J. Hanson-Flores¹, J. Michel², J. Tang³, F. Yang², R. Cheng³, E. del Barco¹
¹Physics, University of Central Florida, Orlando, Florida, United States, ²Department of Physics, The Ohio State University, Columbus, Ohio, United States, ³Department of Physics and Astronomy, University of California, Riverside, California, United States

GP-09-LB. Magnetoresistance in RuO₂(001)/Co Bilayers

S. Yoon¹, S. Ko², D. Woo¹, H. Jeon¹, H. Cho¹, W. Kim¹, G. Jung¹, K. Kim², J. Jeong³, B. Park⁴, S. Lee¹
¹Semiconductor Engineering, Gachon university, Seong, Korea (the Republic of), ²Physics, KAIST, Dae jeon, Korea (the Republic of), ³Materials Science and Engineering, Chungnam National university, Daejoen, Korea (the Republic of), ⁴Materials Science and Engineering, KAIST, Daejoen, Korea (the Republic of)

GP-10-LB. Angle-Resolved Sub-THz Resonant Absorptions in α -Fe₂O₃

S. Zhou¹, Y. Xiong¹, J. Wu¹, E. Kwao², B. Yang², W. Zhang¹
¹Physics and Astronomy, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, United States, ²Electrical and Computer Engineering, North Carolina Agricultural and Technical State University, Greensboro, North Carolina, United States

SESSION GQ: MULTI-FUNCTIONAL MAGNETIC MATERIALS AND OTHER EMERGING TOPICS (POSTER SESSION)

Co-Chair(s): H. Arava, *Argonne National Laboratory, Lemont, Illinois, United States* and Y. Wu, *Electrical and Computer Engineering, University of Florida, Gainesville, Florida, United States*

Friday, October 31, 2025

09:00 AM-12:00 PM

Exhibit Hall Posters

GQ-01. Investigation of Magnetic Field-Induced Phase Transition $\text{Ni}_{50}\text{Mn}_{28}\text{Ga}_{22}$, Ferromagnetic Shape Memory Alloy

P. Chaitanya¹, S. Smith³, M. Staruch⁴, R. L. Hadimani^{1,2}

¹*Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, Virginia, United States*, ²*Department of Biomedical Engineering, Virginia Commonwealth University, Richmond, Virginia, United States*, ³*Department of Chemical and Life Sciences Engineering, Virginia Commonwealth University, Richmond, Virginia, United States*, ⁴*Materials Science and Technology Division, US Naval Research Laboratory, Washington DC, District of Columbia, United States*

GQ-02. Influence of Cu Partial Substitution on Saturation Magnetostriction Constant of Polycrystalline CoFe_2O_4

S. Kosugi¹, M. Hisamatsu¹, S. Fujieda², Y. Ohishi¹, H. Muta¹, S. Seino¹, T. Nakagawa¹

¹*Graduate School of Engineering, Osaka University, Suita, Osaka, Japan*, ²*IAMR&D, Shimane University, Matsue, Shimane, Japan*

GQ-03. Enhanced Superparamagnetism and Emergent Phenomena at $\text{C}_{60}/\text{PdCo}$ Interface

V. H. Bui¹, Y. T. Pham¹, T. A. Ngo², N. Schulz¹, D. Le¹, T. D. Nguyen², M. Phan¹

¹*Department of Physics, University of South Florida, Tampa, Florida, United States*, ²*Department of Physics, University of Georgia, Athens, Georgia, United States*

GQ-04. Binary Magnon-Polaron Formation in a two-dimensional Artificial Magneto-Elastic Crystal

S. Majumder¹, J. L. Drobitch², S. Bandyopadhyay², A. Barman¹

¹*Department of Condensed Matter and Materials Physics, S. N. Bose National Centre for Basic Sciences, Kolkata, West Bengal, India*, ²*Department of Electrical and*

Computer Engineering, Virginia Commonwealth University, Richmond, Virginia, United States

GQ-05. Optimizing Magnetostrictive Films for Surface Acoustic Wave Devices

Z. Zhang, J. Lim, H. Ni, J. Zuo, A. Hoffmann
Materials Science and Engineering, University of Illinois Urbana-Champaign, Urbana, Illinois, United States

GQ-06. CeF₃ Magneto-Optical Crystal for Ultraviolet to Mid-Infrared Broadband Applications

Z. Zhang, Z. Zhang, A. Wu, L. Su
Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai, China

GQ-07. Silicon Nitride Integrated Magneto-Optical Isolator based on Mach–Zehnder Interferometer

B. Moghal¹, B. Stadler²
¹*Electrical and Computer Engineering, University of Minnesota, Minneapolis, Minnesota, United States,*
²*Electrical and Computer Engineering, University of Minnesota, Minneapolis, Minnesota, United States*

GQ-08. Transport of Paramagnetic Ions in Porous Materials

P. Andrei^{1,2}, P. Wang¹
¹*Department of Electrical and Computer Engineering, Florida State University, Tallahassee, Florida, United States,* ²*Center for Rare Earths, Critical Minerals, and Industrial Byproducts, National High Magnetic Field Laboratory, Tallahassee, Florida, United States*

GQ-09. Processing of Functional Magnetic Composite Filaments for Additive Manufacturing of Broadband Electromagnetic Absorbers

K. Bhandari, M. Patel, R. Barua
Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, Virginia, United States

GQ-10-LB. Dynamic Phase Transitions in Mean-Field Ginzburg–Landau Models: Conjugate Fields and Fourier-Mode Scaling

L. Satynska, D. T. Robb
Physics, Roanoke College, Salem, Virginia, United States

SESSION GR: FUNDAMENTAL PROPERTIES AND COOPERATIVE PHENOMENA (POSTER SESSION)

Co-Chair(s): D. Chakraborty, *Physics & Astronomy, University of Nebraska, Kearney, Nebraska, United States*

Friday, October 31, 2025

09:00 AM-12:00 PM

Exhibit Hall Posters

GR-01. Coexistence of superconductivity and antiferromagnetism in $\text{GdNi}_{0.7}\text{Bi}_2$

J. Moon¹, M. Jung¹, Y. Choi¹, T. Park², S. Yousuf²

¹*Department of Physics, Sogang University, Seoul, Korea*

(the Republic of), ²*Department of Physics, Sungkyunkwan University, Suwon, Korea (the Republic of)*

GR-02. Competing Magnetic Interactions and Functional Implications in Disordered $\text{Co}_2\text{TiSi}_{0.5}\text{Al}_{0.5}$ Heusler Alloy

P. Yadav, B. K. Mani, R. S. Dhaka

Physics, Indian Institute of Technology Delhi, New Delhi, Delhi, India

GR-03-LB. Permanent Magnet Repulsive Force Based Floor structure to mitigate Floor Impact Noise

J. Kim¹, S. Byun¹, S. Noh², W. Lee³, J. Han³, S. Lee³, H. Cho¹

¹*Electric., Electron. & Comm. Engineering Education, Chungnam National University, Daejeon, Korea (the Republic of)*,

²*Korea Research Institute of Ships & Ocean Engineering, Daejeon, Korea (the Republic of)*,

³*Floor Impact Noise Laboratory, Samsung C&T, Seoul, Korea (the Republic of)*

GR-04. Magnetic Field-Modulated Critical Phenomena in van der Waals Ferromagnets

N. T. Duc¹, N. Mudiyansele¹, D. Le¹, H. Srikanth¹, L. Balicas², M. Phan¹

¹*Department of Physics, University of South Florida,*

Tampa, Florida, United States,

²*National High Magnetic Field Laboratory, Florida State University, Tampa, Florida, United States*

GR-05. Magnetic ground states in Sc-Fe-Ge kagome systems

Z. Zhang¹, K. Belashchenko², V. Antropov¹

¹*Iowa State University, Ames, Iowa, United States*,

²*University of Nebraska-Lincoln, Lincoln, Nebraska, United States*

GR-06. Magnetic properties of the quaternary Heusler alloy CoFeTiSn

I. Shigeta¹, K. Kuma¹, H. Aoshima¹, T. Yamauchi², R. Umetsu³, T. Kanomata⁴, M. Hiroi¹

¹Kagoshima University, Kagoshima, Japan, ²The University of Tokyo, Kashiwa, Japan, ³Tohoku University, Sendai, Japan, ⁴Tohoku Gakuin University, Tagajo, Japan

GR-07. Unconventional magnetic glassiness in noncentrosymmetric Sm₇Pd₃

A. Kumar, A. Biswas, Y. Mudryk

Ames National Laboratory, U.S. Department of Energy, Iowa State University, Ames, Iowa, United States

GR-08. Effect of Second-Neighbor Hopping on Weyl points in the Antiferromagnetic Phase of Rashba-Hubbard Model

A. Jain, D. K. Singh

Department of Physics and Material Science, Thapar Institute of Engineering and Technology, Patiala, Punjab, India

GR-09. Observation of an Odd-Symmetric Planar Hall Effect in α'' -Fe₁₆N₂ Thin Films

Q. Jia, E. Gokce-Polat, A. DeRuiter, Y. Chen, W. Echtenkamp, B. Wolf, J. Wang

University of Minnesota, Minneapolis, Minnesota, United States

GR-10. Emergent Low-Temperature Magnetic Properties of [2.2.2] Cryptand (DHS)-MnBr₄ Compound

D. Le¹, K. Nassar², M. Elolimy², G. M. Pantano¹, I. Spanopoulos², J. D. Gayles¹, M. Phan¹

¹Department of Physics, University of South Florida, Tampa, Florida, United States, ²Department of Chemistry, University of South Florida, Tampa, Florida, United States

GR-11. A Comparative Study of Static and Dynamic Magnetic Responses in Equiatomic Heusler Alloys CoRuXGe (X = Co, Mn)

P. Sharma¹, R. Roy Chowdhury¹, J. Nag², A. Alam², K. G. Suresh², S. Witanachchi¹, M. Phan¹, H. Srikanth¹

¹Department of Physics, University of South Florida, Tampa, Florida, United States, ²Department of Physics, Indian Institute of Technology Bombay, Mumbai, Maharashtra, India

GR-12. Frequency-Dependent Nonlinear Hall Response in Focused-Ion-Beam-Deposited Platinum Cross-Bar Devices

J. Wu¹, S. Zhou¹, R. Sun², S. Lei³, D. Sun², W. Zhang¹
¹*Physics and Astronomy, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, United States,*
²*Department of Physics, North Carolina State University, Raleigh, North Carolina, United States,* ³*Materials Science and Engineering, University of Central Florida, Orlando, Florida, United States*

GR-13-LB. Sub 10 mK Refrigeration and Enhanced Magnetocaloric Effects

A. M. Donald¹, A. G. Duque¹, S. Li¹, C. J. Ollmann¹, R. Schanen², C. Huan¹, R. P. Haley², M. W. Meisel¹, C. Jia¹, R. Gazizulin¹
¹*Physics, University of Florida, Gainesville, Florida, United States,* ²*Physics, Lancaster University, Lancaster, United Kingdom*

GR-14-LB. Multiferroic heterostructured devices for energy efficient electronics and biomedical applications

J. Hong
Hubei University of Technology, Wuhan, Hubei, China

SESSION VP1: COMPUTATIONAL METHODS

Chair(s): R. Hertel, *Institut de Physique et Chimie des Matériaux de Strasbourg, Centre National de la Recherche Scientifique, Strasbourg, France*

Wednesday, November 19, 2025

08:30 AM-08:30 PM

Conference Resource Center

VP1-01. Impact of Surface Termination on Magnetic Anisotropy and Gilbert Damping in L1₀-MnAl Thin Films

R. R. Sheikh, R. K. Ghosh
Electronics and Communication Engineering, Indraprastha Institute of Information Technology Delhi, New Delhi, India

VP1-02. Prediction of Hysteresis Behavior in Soft Magnetic Materials Based on Neural Networks and Preisach Model

Y. Qin¹, Z. Li¹, R. Pei^{1,2}, Y. Li¹, J. Li¹, L. Zeng²
¹*Department of Electric Engineering, Shenyang University of Technology, Shenyang, China,* ²*Suzhou Inn-Mag New Energy Ltd, Suzhou, China*

VP1-03. Application of DeepONet Based on Multi-branch Residual Structure and Physical Priors in Magnetic Field Prediction

L. Chen, Z. Yang, T. Ben, W. Ke

China Three Gorges University, Yichang, China

VP1-04. Optimizing Recoil Damping in Artillery Systems Using Magnetorheological Fluid

K. Feng, Y. Li

National Defense University, Chung-Cheng Institute of Technology, Taoyuan, Taiwan

VP1-05. Manipulation of the spiking activity of Hodgkin-Huxley-analogue spintronic neuron based on magneto-impedance thin-film structure

G. D. Demin, N. A. Djuzhev

R&D Center "MEMSEC", National Research University of Electronic Technology (MIET), Moscow, Zelenograd, Russian Federation

VP1-06. Integrating Domain Knowledge with Machine Learning for Property Prediction from Chemical Composition

M. Shabir, A. Bashir, F. H. Bhat

Department of Physics, Islamic University of Science and technology, Kashmir, Awantipora, Jammu and Kashmir 192122, India

SESSION VP2: FUNDAMENTAL PROPERTIES AND COOPERATIVE PHENOMENA

Chair(s): Y. Wu, *Electrical and Computer Engineering, University of Florida, Gainesville, Florida, United States*

Wednesday, November 19, 2025

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VP2-02. Spin Nematic Phase of the Ferromagnetic Dimer System on the Shastry-Sutherland Lattice

T. Sakai^{1,2}

¹*School of Science, University of Hyogo, Kamigori, Hyogo, Japan*, ²*Institutes for Quantum Science and Technology, SPring-8, Sayo, Hyogo, Japan*

VP2-03. Magnetization Plateau of the S=1 Spin Ladder with Anisotropies

Y. Hamazaki, R. Hasegawa, T. Kawatsu, H. Suzuki, T. Houda, H. Nakano, T. Sakai, K. Okamoto

School of Science, University of Hyogo, Kamigouri, Hyogo, Japan

VP2-04. Field-Induced Spin Nematic Liquid of the $S=1/2$ Kondo Necklace Spin Chain

R. Hasegawa, Y. Hamazaki, T. Kawatsu, H. Suzuki, T. Houda, H. Nakano, K. Okamoto, T. Sakai
school of science, University of Hyogo, Kamigori, Hyogo, Japan

VP2-05. Application of Screened Range-Separated Hybrid Functional to Antiferromagnetic 3d-oxides

A. B. Shick^{1,2}, L. Kronik²

¹*Department of Condensed Matter Theory, Institute of Physics, Czech Academy of Sciences, Prague, Czechia,*

²*Department of Molecular Chemistry and Materials Science, Weizmann Institute of Science, Rehovoth, Israel*

VP2-06. Magnetism of rare earth intermetallic compound Pr_3Te_4 : a neutron diffraction study

R. Nirmala¹, G. Jangam², T. A², A. Morozkin³

¹*Physics, Indian Institute of Technology Madras, Chennai, India,* ²*Tata Institute of Fundamental Research, Mumbai, India,* ³*Moscow Lomonosov State University, Moscow, Russian Federation*

VP2-07. Low symmetry inter-orbital pairing states in Sr_2RuO_4 from DFT+DMFT

C. Moon

Korea Research Institute of Standards and Science, Daejeon, Korea (the Republic of)

VP2-08. Synthesis of niobium-doped sodium cobalt tellurate $\text{Na}_2\text{Co}_2\text{Te}_{1-x}\text{Nb}_x\text{O}_6$ towards zero-magnetic field stable quantum spin liquids

S. C. Mills¹, N. Hill², E. Patterson¹, M. Staruch¹

¹*Materials Science and Technology, US Naval Research Laboratory, Washington, District of Columbia, United States,*

²*Department of Chemistry, Howard University, Washington, District of Columbia, United States*

SESSION VP3: HARD MAGNETS AND FUNCTIONAL MAGNETIC MATERIALS

Chair(s): T. Gottschall, *Dresden High Magnetic Field Laboratory, Dresden, Germany*

Wednesday, November 19, 2025

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VP3-01. Effect of Solution Temperature on the Microstructures and Magnetic Properties of Fe-Rich Sm-Co-Fe-Cu-Zr Permanent Magnets

J. Yang¹, D. Zhang², H. Li¹, H. Sun¹, Z. Wang¹

¹*Anyang Institute of Technology, Anyang, Henan, China,*

²*Beijing University of Technology, Beijing, China*

VP3-02. Hard magnetic properties of Sm-Fe-Ga-C melt-spun ribbons with SmFe₅ phase

T. Saito¹, D. Nishio-Hamane²

¹*Chiba Institute of Technology, Narashino, Japan,*

²*University of Tokyo, Kashiwa, Japan*

VP3-03. (Nd,Ce)-Fe-B core-shell magnet simulation using mumax3 software

C. Li, J. Zuo, Y. Li, M. Zhang

School of Science, Inner Mongolia University of Science and Technology, Baotou, China

VP3-05. Influence of ytterbium-doping on the structural, magnetic and dielectric properties of gallium ferrite nanoparticles

T. Han, C. Lai, Y. Chen

Department of Applied Physics, National University of Kaohsiung, Kaohsiung, Taiwan

VP3-06. Influence of device structure on magnetoelectric coupling in laminate composites of textured Fe-Ga thin sheet and PZT

J. Liu^{1,2}, Z. He^{1,2}, S. Hu^{1,2}, Y. Sha³, L. Chen^{1,2}, L. Zuo³

¹*School of Materials Science and Engineering, Shenyang University of Technology, Shenyang, China,*

²*Shenyang Key Laboratory of Advanced Structural Materials and Applications, Shenyang University of Technology, Shenyang, China,*

³*Key Laboratory for Anisotropy and Texture of Materials (Ministry of Education), Northeastern University, Shenyang, China*

VP3-08. Structural, magnetic and electrical transport properties of YMnAl

P. Kharel, M. Anas

Chemistry, Biochemistry and Physics, South Dakota State University, Brookings, South Dakota, United States

SESSION VP4: MAGNETIC SENSORS, HIGH FREQUENCY DEVICES, AND POWER ELECTRONICS II

Co-Chair(s): S. Ajia, *Department of Electrical Engineering, Tohoku University, Sendai, Miyagi, Japan* and K. Srinivasan, *Electrical and Computer Engineering, Boise State University, Boise, Idaho, United States*

Wednesday, November 19, 2025

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VP4-01. Measurement of added mass of a spherical model in water using Magnetic Suspension and Balance System

N. Riho, H. Fujiwara

Mechanical engineering, National Defense Academy, Yokosuka, Kanagawa, Japan

VP4-02. Flyback Converter Design for Satellite Data Server Auxiliary Power Systems

Z. Lin, K. Zheng, T. Zhang, Y. Zhuang, Y. Zhang

College of Electrical Engineering and Automation, Fuzhou University, Fuzhou, Fujian, China

VP4-03. Analysis and Design of a Dual-Output Wireless Power Transfer System

J. Wang¹, D. Ahn², C. Liu¹, H. Xie¹, X. Mao¹, Y. Zhang¹

¹*College of Electrical Engineering and Automation, Fuzhou University, Fuzhou, China*, ²*Department of Electrical Engineering, Incheon National University, Incheon, Korea (the Republic of)*

VP4-04. Electromagnetic Shielding Analysis of Canned Magnetic Bearings

H. Jiang^{1,2}, Z. Su^{1,2}, Y. Wei^{1,2}

¹*Naval University of Engineering, Wuhan, Hubei, China*, ²*East Lake Laboratory, Wuhan, Hubei, China*

VP4-06. Novel Design of Dual-Coil Microspeaker for Low-Frequency Sound Pressure Level Improvement in Tablet

J. Park¹, K. Park¹, D. Xu², S. Hwang¹

¹*Department of Mechanical Engineering, Pusan National University, Busan, Korea (the Republic of)*, ²*School of*

Mechatronic Engineering and Automation, Shanghai University, Shanghai, China

VP4-07. Fundamental Consideration related to the Construction of a Bi-directional Wireless Power Transfer System for Independent Operation of Flying Drones.

T. Nitta, Y. Osaki, F. Sato, S. Miyahara, O. Ito
Tohoku Gakuin University, Sendai, Miyagi, Japan

VP4-08. Construction of Transformer Equivalent Circuit Model Based on Piecewise Linear Reluctance

Z. Ye, Y. Wang
School of Mechanical and Electrical Engineering, China University of Mining and Technology-Beijing, Beijing, China

VP4-09. Remanence Evaluation of Transformer Core Based on Magnetic Barkhausen Noise

L. Chen^{1,2}, L. Wu¹, T. Ben¹, H. Huang¹
¹*College of Electrical Engineering and New Energy, China Three Gorges University, Yichang, Hubei, China,* ²*Hubei Provincial Engineering Technology Research Center for Power Transmission Line, China Three Gorges University, Yichang, Hubei, China*

VP4-10. Basic Consideration about Constructing Cell-culture Management System by Functionalized Petri Dishes with Wireless Power Transfer

Y. Hara¹, F. Sato¹, O. Ito¹, S. Miyahara¹, K. Sagara², S. Sasaki², T. Abe³, K. Inada³
¹*Tohoku Gakuin University, Sendai, Miyagi, Japan,* ²*Hikaridenshi Co., Ltd., Osaki, Miyagi, Japan,* ³*NITTOKU Co., Ltd., Fukushima, Japan*

VP4-12. Calculation and Optimization Design of Parasitic Capacitance in High-Frequency Transformers

J. Liu, Y. Li, S. Yue, Z. Wan, Z. Cao
Hebei University of Technology, Tianjin, China

VP4-15. Energy Harvester Based on FeCoV-PZT Laminated Magnetolectric Composite for Transformer Temperature Monitoring System

C. Zhang, Z. Wang
Faculty of Electrical Engineering, Hebei University of Technology, Tianjin, China

VP4-17. Noninvasive Current Measurement in Multi-conductor Cables with TMR Sensor Array

C. Zhang, S. Zhao

School of Electrical Engineering, Hebei University of Technology, Tianjin, China

VP4-18. Quantifying Magnetic Degradation in Laser-Cut Electrical Steel: A Domain-Level Study with Angle-Dependent Magnetization

R. Shahbaz^{1,2}, C. Zhang¹, H. Fatima³, H. Zhang¹

¹*Electrical Engineering, State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, Hebei, China,*

²*Electrical Engineering, Hebei Key Laboratory of Equipment and Technology Demonstration of Flexible DC Transmission, Hebei University of Technology,,, Tianjin, Hebei, China,* ³*Physics, Xidian University, Xi'an, Shaanxi, China*

VP4-19. Damping Capacitor for Suppression of Ringing Caused by Parasitic Components in PCBs and EMI Reduction

H. Park¹, J. Cheon¹, S. Kim², D. Kim¹

¹*Yeungnam University, Gyeongsan-si, Gyeongsangbuk-do, Korea (the Republic of),* ²*Gyeongbuk Technopark, Gyeongsan-si, Gyeongsangbuk-do, Korea (the Republic of)*

SESSION VP5: NEW APPLICATIONS AND OTHER EMERGING TOPICS II

Chair(s): K. Sriram, *Electronics and Electrical Engineering, IIT Guwahatti, Assam, India*

Wednesday, November 19, 2025

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Conference Resource Center

VP5-01. Machine Learning Estimation of Curie Temperature for Ferromagnetic Perovskites

M. Shabir, F. H. Bhat

Physics, Islamic University of Science and Technology, Pulwama, Jammu and Kashmir, India

VP5-02. Loss research of graphene copper flat wire electrical machinery considering deformation and temperature effects

J. Li¹, Z. Li¹, R. Pei^{1,2}, Y. An¹

¹*Electrical Engineering, Shenyang University of Technology, Shenyang, China,* ²*Suzhou INN-MAG New Energy Technology Co.. Ltd., Suzhou, China*

VP5-03. High-Tc SQUID-Based Ultra-Low Field MRI in Unshielded Environments

S. Liao, H. Huang

Institute of Electro-Optical Engineering, National Taiwan Normal University, Taipei city, Taiwan

VP5-04. Multi-harmonic Response of Superparamagnetic Nanoparticles As a Function of Particle Size and Concentration Across Multiple Optical Configurations

M. Syed, C. Su, S. Reza

Physics, Optical Engineering and NanoEngineering, Rose-Hulman Institute of Tech, Terre Haute, Indiana, United States

VP5-05. Research on Magnetic Anomaly Noise Suppression Method Based on Magnetic Fields Induced by Three-dimensional Short Peak Ocean Waves

Y. Xu, J. Qiu, C. Cao, H. Sun, B. Fan, X. Zeng

College of Optoelectronic Engineering, Chongqing University, Chongqing, China

VP5-06. Stress Tunable Multiferroic Magnetic Circuit: The Magnetic Rheostat

T. R. Mion¹, M. Staruch¹, N. J. Jones², J. Yoo², R. Olsson³, M. G. Allen³, P. Finkel¹

¹US Naval Research Laboratory, Washington, District of Columbia, United States, ²Naval Surface Warfare Center, Bethesda, Maryland, United States, ³University of Pennsylvania, Philadelphia, Pennsylvania, United States

VP-07. Measurement of Viscoelastic Properties Using Magnetic Resonance Elastography (MRE) Technique on Brain Phantoms

M. M. William¹, W. Lohr¹, L. Schandler², V. J. Weir³, R. M. Khan⁴, R. L. Hadimani^{2,1}

¹Biomedical Engineering, Virginia Commonwealth University, Richmond, Virginia, United States, ²Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, Virginia, United States, ³Department of Veterans Affairs, Central Virginia VA Health Care System, Richmond, Virginia, United States, ⁴Clinical Professor of Diagnostic Radiology, Virginia Commonwealth University, Richmond, Virginia, United States

SESSION VP6: SOFT MAGNETIC MATERIALS III

Co-Chair(s): S. C. Mills, *Materials Science and Technology, US Naval Research Laboratory, Washington, District of Columbia, United States* and D. Hedlund, *Department of Electrical and Computing Engineering, University of Central Florida, Orlando, Florida, United States*

Wednesday, November 19, 2025

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VP6-01. Role of Surfactants in Enhancing Colloidal Stability and Magnetic Hyperthermia Efficiency of Fe₃O₄ Nanoparticles.

S. Singh¹, Y. Kaur², B. Chudasama¹

¹*Physics, Thapar Institute of engineering and Technology, Patiala, Punjab, India,* ²*Physics, Maharishi Markandeshwar University, Mullana, Ambala Cantt, Haryana, India*

VP6-04. Giant Magnetoimpedance and Magneto-optical Characterization of Amorphous Alloys

C. S. Martins¹, V. Bellintani¹, F. A. Albuquerque², A. D. Santos³, J. H. Severo⁴

¹*DEG, FATEC, São Paulo, SP, Brazil,* ²*Energy and Nuclear Research Institute, IPEN/CNEN, São Paulo, SP, Brazil,* ³*Institute of Physics, University of Sao Paulo, São Paulo, SP, Brazil,* ⁴*Institute of Physics, university of Sao Paulo, São Paulo, SP, Brazil*

VP6-06. Analysis and Calculation of Magnetostrictive Properties of Thin-gauge Low-loss Electrical Steel Sheets Considering Stress Effects

J. Wang¹, D. Ma¹, Z. Chen², P. Meng¹, L. Zeng³, R. Pei^{1,3}

¹*Shenyang University of Technology, ShenYang, China,* ²*Hunan CRRC Times Electric Drive Technology Co., Ltd., ZhuZhou, China,* ³*SuZhou Inn-Mag New Energy Ltd, SuZhou, China*

VP6-07. Comparative Research on the Magnetic Properties of High Permeability Soft Magnetic Materials and Conventional Silicon Steel Under Stress-electromagnetic Coupling

X. Liu¹, J. Li¹, Z. Li¹, S. Zhang¹, Z. Chen², R. Pei^{3,1}, L. Zeng³

¹*Shenyang University of Technology, Shenyang, China,* ²*Hunan CRRC Times Electric Drive Technology Co., Ltd., Zhuzhou, China,* ³*Suzhou InnMag New Energy Ltd., Suzhou, China*

VP6-08. Research on Magnetic Properties in Soft Magnetic Composites Considering Temperature and Stress Effect

Y. Li¹, Z. Li¹, B. Yang¹, R. Pei¹, L. Zeng²

¹Shenyang University of Technology, Shenyang, Liaoning, China, ²Suzhou InnMag New Energy Ltd, Suzhou, China

VP6-09. Analysis of Amorphous Alloy-Ultra-Thin Silicon Steel Hybrid Iron Core for High-Speed Electrical Machine

J. Feng¹, X. Lu¹, Z. Li¹, J. Wang¹, L. Zeng², R. Pei^{1,2}

¹Shenyang University of Technology, Shenyang, Liaoning, China, ²Suzhou InnMag New Energy Ltd, Suzhou, Jiangsu, China

VP6-10. Measuring Magnetostriction in Electric Motor Stator Cores Considering Manufacturing Factors and Material Anisotropy

L. Chen¹, H. Huang¹, T. Ben^{1,2}, L. Wu¹

¹College of Electrical Engineering and New Energy, China Three Gorges University, Yichang City, China, ²Hubei Provincial Research Center on Microgrid Engineering Technology, China Three Gorges University, Yichang City, China

VP6-11. Optimization of amorphous magnetostriction prediction model considering the effect of stresses

X. Liu¹, X. Lu¹, Z. Li¹, J. Feng¹, L. Zeng², R. Pei^{1,2}

¹Shenyang University of Technology, Shenyang, Liaoning, China, ²Suzhou InnMag New Energy Ltd, Suzhou, Jiangsu, China

VP6-12. Analysis of Stator Core Losses in Motors Made of Amorphous Alloy Materials Considering Temperature and Compressive Stress Factors

X. Lu¹, D. Ma¹, J. Feng¹, N. Zhang¹, L. Zeng², R. Pei^{1,2}

¹Department of Electrical Engineering, Shenyang University of Technology, Shenyang, Liaoning, China, ²Suzhou INN-MAG New Energy Technology Co., Ltd., Suzhou, Jiangsu, China

VP6-13. Effect of Ytterbium substitution on the structural and magnetic properties of cobalt ferrite nanoparticles

T. Han, F. Huang, T. Du

Department of Applied Physics, National University of Kaohsiung, Kaohsiung, Taiwan

VP6-15. Observation and Quantitative Analysis of Magnetic Domains in Grain-Oriented Silicon Steel under Two-Dimensional Magnetization

C. Zhang^{1,2}, G. Sun^{1,2}, Y. Li^{1,2}, W. Meng^{1,2}

¹State Key Laboratory of Intelligent Power Distribution Equipment and System, Hebei University of Technology, Tianjin, China, ²Hebei Key Laboratory of Equipment and Technology Demonstration of Flexible DC Transmission, Hebei University of Technology, Tianjin, China

VP6-16. On the analysis of the skin effect on the loss evaluation of soft magnetic materials under broadband magnetization

L. Chen^{1,2}, L. Tan¹, T. Ben¹, H. Huang¹, B. Huang¹

¹College of Electrical Engineering and New Energy, China Three Gorges University, Yichang, Hubei, China, ²Hubei Provincial Research Center on Microgrid Engineering Technology, China Three Gorges University, Yichang, Hubei, China

VP6-17. Structural and Magnetic Investigation of Fe doped $Mn_{3-x}Fe_xO_4$ ($x \leq 0.1$)

S. Yoon

Department of Physics, Gunsan National University, Gunsan, Korea (the Republic of)

VP6-18. Research and Analysis of Different Thickness Silicon Steels for an Ultra High-Speed PMSM

M. Cheng, Z. Li, Y. Li, R. Pei

Shenyang University of Technology, Shenyang, Liaoning, China

VP6-19. Magneto-Optical Investigation of Magnetization Reversal and Anisotropy in Amorphous Co-Based Microwires

M. Lostun, I. Murgulescu, H. Chiriac, T. A. Ovari, N. Lupu

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

VP6-20. Effect of Lamination Forming Process on the Magnetic Properties of Electrical Steel Core

W. Li¹, Y. Li¹, Z. Xie¹, L. Zeng², R. Pei^{1,2}

¹Shenyang University of Technology, Shenyang, China, ²Suzhou Inn-Mag New Energy Ltd., Suzhou, China

VP6-21. A Mean Field Approach to Analyzing the Magnetization of Interacting Ferrimagnetic Particles under Superparamagnetic Conditions

S. Rajput, S. Tiwari

Department of Physics and Materials Science, Thapar institute of Engineering and Technology, Patiala, Punjab, India

SESSION VP7: SPINTRONIC MATERIALS AND DEVICES

Chair(s): S. Husain, *Material Science and Engineering, University of California, Berkeley, Berkeley, California, United States*

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VP7-01. Spin-orbit torque magnetization switching in CoFeB/Ta/CoFeB tri-layer thin films

K. Okada, M. Matsuura, Y. Saito, N. Tezuka

Tohoku University, Sendai, Miyagi, Japan

VP7-02. Thermal noise induced probability switching in SOT-MTJs based on spin-circuit simulation

T. Huang, S. Hu

Shenzhen Technology University, Shenzhen, Guangdong, China

VP7-03. High-Throughput SEM Imaging of Nanoscale Metal Grains for Heat Assisted Magnetic Recording

M. Hauwiler, C. Mann, P. Mach, T. Zhao, T. Gao, A.

Abdurahman, S. Hernandez, K. Terry, M. Kautzky

Seagate Technology, Bloomington, Minnesota, United States

VP7-05. Field-free magnetic resonance detection in the terahertz band using $Gd_{3/2}Yb_{1/2}BiFe_5O_{12}$

T. Tsuchida¹, Y. Ishikawa², T. Ito², K. Kawagita², Y.

Goto², K. Yabushita², H. Fukumoto², Y. Fujii², K.

Mikuni³, T. Satoh³, M. Goto^{1,4}

¹*Department of Electrical and Electronics Engineering, University of Fukui, Fukui, Japan*, ²*Research Center for Development of Far-Infrared Region, University of Fukui, Fukui, Japan*, ³*Department of Physics, Institute of Science Tokyo, Tokyo, Japan*, ⁴*Center for Spintronics Research Network (CSRN-Osaka), Osaka, Japan*

VP7-06. Micromagnetic study of spin wave transmission in bent ferrimagnetic strips.

L. Sánchez-Tejerina, L. M. Moreno-Ramírez, O. Alejos

Universidad de Valladolid, Valladolid, Valladolid, Spain

VP7-07. Theoretical Insights Into Room-temperature Ferromagnetism of Metal-doped MoSe₂ Monolayer

B. NarangereL, M. Adiya, D. Odkhuu

Physics, Incheon National University, Incheon, Korea (the Republic of)

VP7-09. Exchange-Driven Ferrimagnetism and Magnetic Compensation in a Distorted Honeycomb Ni₄Nb₂O₉ Lattice

H. Singh¹, M. S. Seehra², M. Roy Chowdhury¹, P. Pramanik³, T. Sarkar³, S. Thota¹

¹*Department of Physics, Indian Institute of Technology Guwahati, Guwahati, Assam, India,* ²*Department of Physics & Astronomy, West Virginia University, Morgantown, Morgantown, West Virginia, United States,* ³*Department of Materials Science and Engineering, Uppsala University, Uppsala, Sweden*

VP7-10. Spin-Damping Dynamics Inspired Optimizer for Neural Networks

S. Ghaderi, A. D. Kent

Physics, New York University, New York, New York, United States

VP7-11. Magnetic Multilayer (MMLs) Domain Wall-Driven dynamically coupled hybrid vortex structures for mobile Majorana zero modes

K. K. Mishra

Physics & Astrophysics, University of Delhi, Delhi, Delhi, India

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