

Session AA

**NEW DIRECTIONS AND CHALLENGES IN
NEUROMORPHIC SPINTRONICS**

Pedro Landeros, Chair

Universidad Técnica Federico Santa María, Valparaíso, Chile

8:30

- AA-01. Machine Learning in Networks of Mathematically Agnostic Dynamical Devices. (Invited)** L. Manneschi¹, I.T. Vidamour¹, K.D. Stenning², J. Gartside², C. Swindells¹, G. Venkat¹, D. Griffin³, S. Stepney³, W.R. Branford², T. Hayward¹, M.O. Ellis¹ and E. Vasilaki¹ *1. University of Sheffield, Sheffield, United Kingdom; 2. Imperial College, London, United Kingdom; 3. University of York, York, United Kingdom*
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9:00

- AA-02. Reprogrammable Analogue Multi-functional Nanodevices: the building blocks of Neuromorphic Spintronics. (Invited)** A. Jenkins¹ and R. Ferreira¹
1. Spintronics, International Iberian Nanotechnology Laboratory, Braga, Portugal
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9:30

- AA-03. Harnessing stochastic properties of spintronic nanodevices for cognitive computing. (Invited)** N. Phan¹, L. Soumah¹, L. Desplat¹, N. Prasad^{2,3}, A. Hakam¹, A. Sidi El Valli¹, L. Anghel¹, L. Benetti⁴, A. Jenkins⁴, R. Ferreira⁴, F. Disdier¹, L.D. Buda-Prejbeanu¹, R. Sousa¹, A. Madhavan^{2,5}, M.D. Stiles², U. Ebels¹ and P. Talatchian¹ *1. SPINTEC, Univ. Grenoble Alpes, CEA, CNRS, Grenoble INP, Grenoble, France; 2. Physical Measurement Laboratory, National Institute of Standards and Technology, Gaithersburg, MD, United States; 3. Department of Chemistry and Biochemistry, University of Maryland, College Park, MD, United States; 4. International Iberian Nanotechnology Laboratory, Braga, Portugal; 5. Institute for Research in Electronics and Applied Physics, University of Maryland, College Park, MD, United States*
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10:00

- AA-04. Advancing Edge Computing: Leveraging MRAM Devices for Enhanced Efficiency and Security. (Invited)** S. Li¹
1. Beihang University, Beijing, China
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- AA-05. **Applications of Magnetic Straintronics to Unconventional Computing. (Invited)** *S. Bandyopadhyay*¹ *1. Virginia Commonwealth University, Richmond, VA, United States*
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11:00

- AA-06. **Exploiting the potential of magnetic tunnel junctions for spiking and dynamical neurons. (Invited)** *D. Rodrigues*¹, *M. Carpentieri*¹ and *G. Finocchio*² *1. Department of Electrical and Information Engineering, Politecnico di Bari, Bari, Italy; 2. Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina, Messina, Italy*
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OCEANIA VI & VII

Session AB
**INTERDISCIPLINARY TOPICS: CHIRALITY,
MICROMAGNETIC AND NANOMAGNETIC
STRUCTURES**

Silvia Tacchi, Chair
Consiglio Nazionale delle Ricerche, Perugia, Italy

8:30

- AB-01. **Chiral Magnetic Phases in Moire Bilayers of magnetic Dipoles. (Invited)** *I. Tapia*¹, *X. Cazor*¹ and *P. Mellado*¹
1. Department of Engineering and Sciences, Universidad Adolfo Ibañez, Santiago, Chile
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9:00

- AB-02. **Spin-reorientation driven emergent phases, unconventional magnetotransport and magnetic anisotropy in a quasi-2D ferromagnet Fe₄GeTe₂.** *R. Pal*^{1,2,5*^}, *B. Pal*¹, *S. Mondal*³, *R. Sharma*⁴, *J. Abraham*^{2,5}, *T. Das*⁴, *B. Buchner*^{2,5}, *V. Kataev*^{2,5}, *P. Mandal*¹, *A. Alfonsov*^{2,5} and *A. Pal*¹ *1. Department of Condensed Matter and Materials Physics, S. N. Bose National Centre for Basic Sciences, Block JD, Sector III, Salt Lake, 700106, Kolkata, India; 2. Leibniz Institute for Solid State and Materials Research, Helmholtzstr. 20, D-01069, Dresden, Germany; 3. Saha Institute of Nuclear Physics, HBNI, 1/AF Bidhannagar, Calcutta 700064, Kolkata, India; 4. Department of Physics, Indian Institute of Science, Bengaluru 560012, Bengaluru, India; 5. Institute for Solid State and Materials Physics, TU Dresden, D-01062, Dresden, Germany*
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- AB-04. Engineered magnetic domain patterns in exchange-biased thin films: A technological platform for multipurpose close-to-substrate transport of magnetic particles in liquids.** *R. Huhnstock*¹ and *A. Ehresmann*¹ *1. Institute of Physics and Center for Interdisciplinary Nanostructure Science and Technology (CINSA-T), University of Kassel, Kassel, Germany*
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9:30

- AB-05. Halbach Array Collaborative Robot End Effector for Advanced Handling of Magnetic Materials.** *L. Schorr*¹, *I. Scaparo*¹, *I. Thakur*¹, *J.P. Nunez*¹, *F. Hanna*¹ and *R.L. Hadimani*¹ *1. Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Henrico, VA, United States*
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- AB-06. Connecting magnetization dynamics measurements of suspended magnetic nanoparticles through the fluctuation-dissipation theorem.** *K. Everaert*^{1,2,3}, *D. Eberbeck*¹, *R. Körber*¹, *P. Radon*¹, *B. Van Waeyenberge*², *J. Leliaert*² and *F. Wiekhorst*¹ *1. Physikalisch-Technische Bundesanstalt, Berlin, Germany; 2. Ghent University, Ghent, Belgium; 3. University of Maryland, College Park, MD, United States*
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10:00

- AB-07. Enhanced Magnetism through Controlled Nanostructuring and Advanced Correlative Microscopy Probes. (Invited)** *A. Fraile Rodríguez*^{1,2}, *C. Moya*^{1,2}, *M. Escoda-Torroella*^{1,2}, *J. Rodríguez Alvarez*^{1,2}, *A.I. Figueroa*^{1,2}, *I. García*¹, *I. Batalla Ferrer-Vidal*¹, *A. Gallo-Cordova*³, *L. Aballe*⁴, *M.d. Morales*³, *A. Labarta*^{1,2} and *X. Batlle*^{1,2} *1. Física de la Matèria Condensada, Universitat de Barcelona, Barcelona, Spain; 2. Institut de Nanociència i Nanotecnologia (IN2UB), Universitat de Barcelona, Barcelona, Spain; 3. Instituto de Ciencia de Materiales de Madrid (ICMM-CSIC), Madrid, Spain; 4. Experiments Division, ALBA Synchrotron Light Facility, CELLS, Barcelona, Spain*
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10:30

- AB-08. Sound as an Additional Tool for Spin-Wave Dynamics Analysis.** *S. Pile*¹, *O. Lesota*¹, *S.D. Peter*¹, *C. Humer*¹ and *M. Gasser*² *1. Johannes Kepler University Linz, Linz, Austria; 2. University of Applied Arts Vienna, Vienna, Austria*
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- AB-09. Magnetic Properties Stability from 5 K to 800 K in Metastable γ -Fe₈₅Pd₁₅ Nanowires.** P.G. Bercoff^{1,2}, S. Aprea^{1,2}, E. Céspedes³, J. Martínez³, S. Urreta¹ and M. Vázquez³ *1. Facultad de Matemática, Astronomía, Física y Computación, Universidad Nacional de Córdoba, Córdoba, Argentina; 2. Instituto de Física Enrique Gaviola (IFEG), CONICET, Córdoba, Argentina; 3. Institute of Materials Science of Madrid (ICMM-CSIC), Madrid, Spain*
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- AB-11. Simulations of magnetic nanoparticles with internal magnetization dynamics for magnetic hyperthermia.** S. Helbig¹, A. Kuznetsov¹, D. Mostarac¹, D. Zehner¹, C. Abert¹, P. Sánchez^{1,2}, S. Kantorovich¹ and D. Suess¹ *1. Faculty of Physics, University of Vienna, Vienna, Austria; 2. Physics Department, University of the Balearic Islands, Palma de Mallorca, Spain*
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OCEANIA IX & X

Session AC

SPIN TORQUE AND VOLTAGE-CONTROLLED MAGNETIC ANISOTROPY

Hari Srikanth, Chair

University of South Florida, Tampa, FL, United States

8:30

- AC-04. Non-Relativistic Spin Currents and Torques in Antiferromagnets. (Invited)** J. Zelezny¹, S. Ghosh¹, R. González-Hernández² and A. Manchon³ *1. FZU - Institute of Physics, Czech Academy of Sciences, Prague, Czechia; 2. Universidad del Norte, Barranquilla, Colombia; 3. Aix-Marseille Univ, Marseille, France*
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9:00

- AC-02. Reconfigurable classifier based on spin torque driven magnetization switching in electrically connected magnetic tunnel junctions.** A. López^{1,2}, D. Costa³, T. Böhnert³, P.P. Freitas³, R. Ferreira³, I. Barbero¹, J. Camarero^{2,4}, C. León^{1,5}, J. Santamaria^{1,5}, J. Grollier⁶ and M. Romera^{1,5} *1. Universidad Complutense de Madrid, Madrid, Spain; 2. IMDEA Nanociencia, Madrid, Spain; 3. International Iberian Nanotechnology Laboratory (INL), Braga, Portugal; 4. Universidad Autónoma de Madrid, Madrid, Spain; 5. Lab. de Heteroestructuras con Aplicación en Espintrónica, Unidad Asociada UCM/CSIC, Madrid, Spain; 6. Unité Mixte de Physique CNRS, Thales, Université Paris-Sud, Université Paris-Saclay, Palaiseau, France*
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- AC-03. The Effect of Thermal Fields on Spin Hall Switching in Devices Stabilized by In-Plane Magnetocrystalline Anisotropy.** *S. Nallan*¹ and *J. Zhu*¹ *1. Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA, United States*
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9:30

- AC-05. Orbital currents and torques on transition metals using interfacial orbital Rashba effect.** *B. Bony*¹, *S. Krishnia*¹, *E. Rongione*², *L. Vicente Arche*¹, *T. Denneulin*³, *Y. Lu*³, *R.E. Dunin-Borkowski*³, *S. Collin*¹, *A. Fert*¹, *J. George*¹, *N. Reyren*¹, *J. Moussy*⁴, *M. Viret*⁴, *V. Cros*¹ and *H. Jaffrès*¹ *1. Laboratoire Albert Fert, CNRS-Thales - Université Paris-Saclay, Bourg-La-Reine, France; 2. Catalan Institute of Nanoscience and Nanotechnology, Barcelona, Spain; 3. Ernst Ruska-Centre for microscopy and spectroscopy with Electrons and Peter Grünberg Institute, Jülich, Germany; 4. Service de Physique de l'Etat Condensé, CEA, CNRS, Gif-sur-Yvette, France*
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9:45

- AC-06. Influence of metal-insulator transition of NdNiO₃ on the magnetization dynamics of metallic ferromagnet.** *B. Sahoo*^{1,3*}, *K. Akilan*², *S. Das*¹, *S. Petit-Watelot*², *A. Frano*¹ and *E. Fullerton*^{1,3} *1. Department of Physics, University of California San Diego, La Jolla, CA, United States; 2. Institut Jean Lamour, Nancy, France; 3. Center for Memory and Recording Research, University of California, La Jolla, CA, United States*
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10:00

- AC-08. Symmetry engineering induced out-of-plane spin-orbit fields in WSe₂ and NbIrTe₄.** *W. Yang*^{1,2,3^}, *D. Zhou*^{1,2}, *X. Wang*¹, *J. Rojas-Sanchez*³, *X.L. Lin*^{1,2} and *W. Zhao*^{1,2} *1. National Key Lab of Spintronics, Institute of International Innovation, Beihang University, Hangzhou, China; 2. Fert Beijing Institute, Beihang University, Beijing, China; 3. Université de Lorraine, Institut Jean Lamour, Nancy, France*
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10:15

- AC-09. **Experimental Analysis of the Impact of Voltage Pulse Parameters on the Writing Performance in VCMA-MRAM.** *D. Favaro*^{1,2}, *W. Kim*¹, *S. Ranjbar*¹, *M. Gama Monteiro*¹, *R. Carpenter*¹, *K. Sankaran*¹, *S. Rao*¹, *J. Van Houdt*^{1,3}, *K. Temst*^{1,2} and *S. Couet*¹ *1. Imec, Leuven, Belgium; 2. Quantum Solid State Physics, Department of Physics and Astronomy, KU Leuven, Leuven, Belgium; 3. Semiconductor Physics, Department of Physics and Astronomy, KU Leuven, Leuven, Belgium*
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- AC-10. **Enhancement of voltage-controlled magnetic anisotropy (VCMA) via electron depletion utilizing a W/Pt/W high work function underlayer.** *Y. Chen*¹, *J. Qi*¹, *D. Lyu*¹, *T. Peterson*² and *J. Wang*¹ *1. Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States; 2. School of Physics and Astronomy, University of Minnesota, Minneapolis, MN, United States*
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- AC-11. **Controllable Synthesis and Property Manipulation of 2D (nonlayered) Magnetic Nanomaterials.** *Y. Hou*¹
1. Sun Yat-Sen University, Shenzhen, China
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OCEANIA I & II

Session AD
MRAM APPLICATIONS AND MAGNETIC RECORDING

Jonathan Sun, Chair
IBM Research, Yorktown Heights, NY, United States

8:30

- AD-01. **Self compensated ferromagnetic micro-structures: Forming a dense superconducting memory. (Invited)** *C. Pot*¹, *W.F. Holmes-Hewett*², *E. Anton*¹, *J. Miller*², *B. Ruck*¹ and *J. Trodahl*¹ *1. Victoria University of Wellington, Wellington, New Zealand; 2. Robinson Research Institute, Wellington, New Zealand*
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- AD-02. Origin of the Switching Current Reduction in PtCu-SOT-MRAM.** *W. Janssens^{1,2}, G. Talmelli¹, R. Carpenter¹, V. Nguyen¹, K. Cai¹, K. Wostyn¹, S. Couet¹ and J. De Boeck^{1,2}* *1. imec, Leuven, Belgium; 2. Department of Electrical Engineering, KU Leuven, Leuven, Belgium*
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- AD-03. Decision-Feedback Single-Layer Read Reconstruction and Separation for Three-dimensional Magnetic Recording.** *Y. Liao^{1,3}, K. Zhang^{1,3}, Y. Jian^{2,3}, S. Wang⁴, J. Chen^{1,2,3}, P. Lu^{1,2,3} and K. Luo^{2,3}* *1. School of Computer Science & Technology, Huazhong University of Science & Technology, Wuhan, China; 2. Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, China; 3. Key Laboratory of Information Storage System, Engineering Research Center of Data Storage Systems and Technology, Huazhong University of Science and Technology, Wuhan, China; 4. School of Public Health, Hubei University of Medicine, Shiyan, China*
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- AD-04. Electrically controlled all-antiferromagnetic tunnel junctions on silicon.** *S. Arpaci^{1,2*}, J. Shi¹, V. Lopez-Dominguez^{1,3}, V. K. Sangwan⁴, F. Mahfouzi⁵, J. Kim⁵, J.G. Athas¹, M. Hamdi¹, C. Aygen¹, C. Phatak⁶, M. Carpentieri⁷, J.S. Jiang⁶, M.A. Grayson^{1,2}, N. Kioussis⁵, G. Finocchio⁸, M.C. Hersam^{1,2,4} and P. Khalili Amiri^{1,2}* *1. Department of Electrical and Computer Engineering, Northwestern University, Evanston, IL, United States; 2. Applied Physics Program, Northwestern University, Evanston, IL, United States; 3. Institute of Advanced Materials (INAM), Universitat Jaume I, Castellón, Spain; 4. Department of Materials Science and Engineering, Northwestern University, Evanston, IL, United States; 5. Department of Physics and Astronomy, California State University Northridge, Northridge, CA, United States; 6. Materials Science Division, Argonne National Laboratory, Lemont, IL, United States; 7. Department of Electrical and Information Engineering, Politecnico di Bari, Bari, Italy; 8. Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina, Messina, Italy*
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- AD-05. Electrical manipulation of exchange bias for memory and logic applications.** *A. Du¹, D. Zhu¹, K. Cao¹, Z. Zhang¹, Z. Guo¹, K. Shi¹, C. Zhao¹, Y. Zhang¹, S. Luo², A. Fert³ and W. Zhao¹* *1. Beihang University, Beijing, China; 2. Huawei Technologies, Shenzhen, China; 3. University of Paris-Saclay, Paris, France*
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10:00

- AD-06. Synthetic Antiferromagnetic/Ferromagnetic Spin-Orbit Torque Devices with an Oxide Spacer.** *Y. Huang¹, C. Cheng¹, J. Hsu², Y. Wu¹, Y. Lin¹, W. Chang³ and Y. Tseng¹*
1. Department of Materials Science & Engineering, National Yang Ming Chiao Tung University, Hsinchu, Taiwan; 2. Industry Academia Innovation School, National Yang Ming Chiao Tung University, Hsinchu, Taiwan; 3. Powerchip Semiconductor Manufacturing Corporation, Hsinchu, Taiwan
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- AD-08. How Magnetic Inhomogenieties Relate to Device Performance for Magnetic Storage Devices.** *V.J. Borrás¹, R. Carpenter², S. Couet², U. Celano^{3,4}, L. Zaper^{1,5}, A. Stark¹, M. Munsch¹, H. Zhong¹, C. Adelman⁴, P. van der Heide⁴, P. Maletinsky^{5,1} and P. Rickhaus¹*
1. Qnami, Muttenz, Switzerland; 2. MRAM, Imec, Leuven, Belgium; 3. Arizona State University, Phoenix, AZ, United States; 4. Imec, Leuven, Belgium; 5. University of Basel, Basel, Switzerland
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- AD-09. Reduction of writing temperature by the exchange-coupled FePt-C/Ru-C/FePt-C tri-layer films with different T_c .** *D. Ogawa¹, A. Bolyachkin¹, D. Angayarkanni Ramamurthy^{1,2}, N. Kulesh¹, H. Sepehri-Amin^{1,2} and Y. Takahashi¹*
1. Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science (NIMS), Tsukuba City, Japan; 2. University of Tsukuba, Tsukuba City, Japan
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- AD-10. Effect of Curie Temperature Distributions on the Areal Density Capability of Heat-Assisted Magnetic Recording.** *S. Greaves¹, H. Suto², Y. Nakamura³ and Y. Kanai⁴*
1. Tohoku University, Sendai, Japan; 2. National Institute for Materials Science (NIMS), Tsukuba, Japan; 3. Ehime University, Matsuyama, Japan; 4. Niigata Institute of Technology, Kashiwazaki, Japan
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- AD-11. Quaternary Neural Network Equalization for Three-Dimensional Magnetic Recording.** *K. Luo¹, Y. Wu², Y. Liao², S. Wang³, Y. Jian¹, J. Chen¹ and P. Lu²*
1. Wuhan National Laboratory for Optoelectronics, Huazhong University of Science & Technology, Wuhan, China; 2. School of Computer Science & Technology, Huazhong University of Science and Technology, Wuhan, China; 3. School of Public Health, Hubei University of Medicine, Shiyan, China
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Session AE

FUNDAMENTAL PROPERTIES, COOPERATIVE PHENOMENA AND COMPUTATIONAL MAGNETISM

Artur Carbonari, Chair

Instituto de Pesquisas Energeticas e Nucleares, São Paulo, Brazil

8:30

- AE-01. Cluster magnetic toroidal quadrupole and anomalous Hall effect in NiCo₂O₄ thin film. (Invited) H. Koizumi¹**
1. Tohoku University (CSIS), Sendai, Japan
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9:00

- AE-02. Dimension-Dependent Critical Scaling Analysis and Emergent Competing Interaction Scales in a 2D Van der Waals magnet Cr₂Ge₂Te₆.** P.C. Mahato¹, S. Saha¹, B. Das², S. Datta², R. Mondal³, S. Mal⁴, A. Garg⁵, P. Sen⁴ and S. Banerjee¹. *1. Department of Physics, Indian Institute of Technology, Kanpur, Kanpur, India; 2. School of Physical Sciences, Indian Association for the Cultivation of Science, Jadavpur, Kolkata, India; 3. UGC-DAE Consortium for Scientific Research, Kolkata Centre, Bidhannagar, Kolkata, India; 4. Harish-Chandra Research Institute, HBNI, Allahabad, India; 5. Department of Sustainable Energy Engineering, Indian Institute of Technology Kanpur, Kanpur, India*
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- AE-03. MnGaGe nanomagnets epitaxially grown on GaAs.** R.M. Araujo^{1,2}, C.A. Costa³, I.T. Neckel² and D.H. Mosca⁴
1. PPG Engenharia e Ciência dos Materiais - PIPE, Universidade Federal do Paraná, Curitiba, Brazil; 2. Laboratório Nacional de Luz Síncrotron - LNLS, Centro Nacional de Pesquisa em Energia e Materiais - CNPEM, Campinas, Brazil; 3. Laboratório Nacional de Nanotecnologia - LNNano, Centro Nacional de Pesquisa em Energia e Materiais - CNPEM, Campinas, Brazil; 4. PPG Física, Universidade Federal do Paraná, Curitiba, Brazil
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- AE-04. Automated analysis of magnetic domain structure using feature extended Landau free energy theory.** M. Kotsugi¹
1. Tokyo University of Science, Katsuhika, Japan
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- AE-05. Deconvolution of Magnetic Field by Coupling Efficiency Tensor of TMR Sensor Array.** *J. Rice*^{1,2} 1. *Allegro Microsystems, Boulder, CO, United States*; 2. *Crocus Technology, Lafayette, CO, United States*
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10:00

- AE-07. Simulation Acceleration Through a Data-Driven Technique for Non-Linear Dynamics in Vortex-Based Spin-Torque Nano-Oscillators.** *F. Abreu Araujo*¹, *C. Chopin*^{1,2}, *A. Moureaux*¹ and *S. de Wergifosse*¹
 1. *IMCN / BSMA, Université Catholique de Louvain, Louvain-la-Neuve, Belgium*; 2. *SPINTEC, CEA, Grenoble, France*
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- AE-08. Polarity Influence of Poles on Positional Accuracy in Absolute Encoders.** *K. Peng*¹ and *J. Chang*^{1,2} 1. *Department of Power Mechanical Engineering, National Tsing Hua University, Hsinchu, Taiwan*; 2. *Department of Mechanical and Computer-Aided Engineering, National Formosa University, Huwei Township, Taiwan*
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- AE-09. NeuralMag: An Open-Source Nodal Finite-Difference Code for Inverse Micromagnetics.** *C. Abert*¹, *S. Pathak*², *R. Kraft*¹, *A. Voronov*¹, *R. Allayarov*¹, *F. Bruckner*¹, *S. Koraltan*¹, *S.J. Holt*², *M. Lang*², *T. Schrefl*³, *H. Fangohr*² and *D. Suess*¹ 1. *University of Vienna, Vienna, Austria*; 2. *Max Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany*; 3. *University for Continuing Education Krems, Wiener Neustadt, Austria*
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- AE-10. Quantum thermal expectation values from an effective atomistic spin dynamics model using path integrals.** *T. Nussle*¹, *S. Nicolis*² and *J. Barker*¹ 1. *School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom*; 2. *Institut Denis Poisson, Université de Tours, Tours, France*
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- AE-11. Discretization Anisotropy In Micromagnetics.** *S.J. Holt*^{1,2}, *M. Lang*^{1,2}, *S.A. Pathak*^{1,2} and *H. Fangohr*^{1,2,3} *1. Max Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany; 2. Center for Free-Electron Laser Science, Hamburg, Germany; 3. The University of Southampton, Southampton, United Kingdom*
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EUROPA II

Session AF
MAGNETO-OPTIC AND MAGNETO-ELASTIC
MATERIALS AND DEVICES

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

8:30

- AF-01. Terahertz and far infrared magneto-optics in emergent magnets. (Invited)** *Y. Takahashi*^{1,2} *1. The University of Tokyo, Tokyo, Japan; 2. Center for Emergent Matter Science, RIKEN, Wako, Japan*
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9:00

- AF-02. Efficient Synthesis and Magneto-Optical Enhancement of Au-Fe₃O₄ Hetero-dimer Nanoparticles with Triiron Dodecacarbonyl.** *L. Tonthat*¹, *T. Ogawa*² and *S. Yabukami*² *1. Department of Electrical Engineering, Tohoku University, Sendai, Japan; 2. Tohoku University, Sendai, Japan*
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- AF-03. Magneto-optical Ce:YIG Film with Maze-Shaped Magnetic Domains on GGG Substrate.** *T. Goto*¹, *Y. Yoshihara*¹, *T. Koguchi*¹, *T. Watanabe*², *K. Mori*¹, *H. Miyashita*¹, *M. Inoue*¹, *C. Ross*³ and *K. Ishiyama*¹ *1. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 2. Shin-Etsu Chemical Co., Ltd., Annaka, Japan; 3. Massachusetts Institute of Technology, Cambridge, MA, United States*
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9:30

- AF-04. Magnetoelastic Coupling of Surface Spin & Surface Acoustic Waves.** *N. Homrocky¹, C. Trevillian¹ and V. Tyberkevych¹* *1. Department of Physics, Oakland University, Rochester, MI, United States*
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9:45

- AF-05. Self-consistent time integration of the dynamics of surface acoustic waves and spin waves in magnetic films.** *P. Flauger^{1,2}, M. Küß³, M.K. Steinbauer^{1,2}, M. Albrecht³ and C. Abert^{1,2}* *1. Faculty of Physics, University of Vienna, Vienna, Austria; 2. University of Vienna Research Platform MMM Mathematics - Magnetism - Materials, University of Vienna, Vienna, Austria; 3. Institute of Physics, University of Augsburg, Augsburg, Germany*
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10:00

- AF-06. Magnetorheological printable elastomers: from optimizing performance to self-sensing devices. (Invited)** *S. Lanceros-Mendez¹* *1. Basque Center for Materials, Applications and Nanostructures, BC Materials, Leioa, Spain*
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10:30

- AF-07. Comparison of Torque Generated by In-Plane and Out-of-Plane Anisotropic Magnetorheological Elastomers.** *H. Htet¹, L. Cestarollo² and A. El-Ghazaly¹* *1. Department of Electrical and Computer Engineering, Cornell University, Ithaca, NY, United States; 2. Department of Materials Science and Engineering, Cornell University, Ithaca, NY, United States*
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- AF-08. U-shape Magnetostrictive Harvester: Design and Experimental Validation.** *D. Gandia¹, E. Garaio¹, J. Beato-Lopez¹, I. Royo-Silvestre¹ and C. Gomez-Polo¹* *1. Department of Science, UPNA, Pamplona, Spain*
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11:00

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

Session AG
SKYRMIONS AND MAGNETIC
HETEROSTRUCTURES

Johanna Fischer, Chair
 CEA-SPINTEC, Grenoble, France

8:30

- AG-01. Skyrmion-based applications: recent developments and future directions. (Invited)** *R. Tomasello*¹, M. Carpentieri¹ and G. Finocchio² *1. Department of Electrical and Information Engineering, Politecnico di Bari, Bari, Italy; 2. Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina, Messina, Italy*
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9:00

- AG-02. The role of interfacial atomic intermixing in the formation of skyrmions.** *P. Costa Carvalho*¹, I. de Paula Miranda², J. Brandao³, A. Bergman², J.C. Cezar³, A.B. Klautau⁴ and H.M. Petrilli¹ *1. University of Sao Paulo, São Paulo, Brazil; 2. Uppsala University, Uppsala, Sweden; 3. Centro Nacional de Pesquisa em Energia e Materiais, São Paulo, Brazil; 4. Federal University of Pará, Belém, Brazil*
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9:15

- AG-03. Skyrmion stabilisation in 3D magnetic nanostructures.** *M.K. Zelent*¹, M. Moalic¹, B. Rana¹, K. Gusliyenkov^{2,3} and M. Krawczyk¹ *1. Faculty of Physics, Uniwersytet im Adama Mickiewicza w Poznaniu, Poznan, Poland; 2. Departamento de Polímeros y Materiales Avanzados: Física, Química y Tecnología, Universidad del País Vasco, San Sebastián, Spain; 3. The Basque Foundation for Science, IKERBASQUE, Bilbao, Spain*
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- AG-04. **Magnetic skyrmions in synthetic ferri- and antiferromagnets. (Invited)** *A. Hoffmann*¹ *1. University of Illinois at Urbana-Champaign, Urbana, IL, United States*
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10:00

- AG-05. **Higher-order skyrmions and antiskyrmions at room temperature. (Invited)** *S. Koraltan*¹, *M. Hassan*^{2,3}, *A. Ullrich*², *F. Bruckner*¹, *R. Serha*¹, *K. Levchenko*¹, *G. Vavaro*³, *N. Kiselev*⁴, *M. Heigl*², *C. Abert*¹, *D. Suess*¹ and *M. Albrecht*² *1. Faculty of Physics, University of Vienna, Wien, Austria; 2. Institute of Physics, University of Augsburg, Augsburg, Germany; 3. nM2-Lab, ISM-CNR, Roma, Italy; 4. Peter Grünberg Institute and Institute for Advanced Simulation, Forschungszentrum Jülich, Jülich, Germany*
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10:30

- AG-07. **Ultrafast Skyrmion Motions and Detections. (Invited)** *J. Zang*¹ *1. Department of Physics, University of New Hampshire, Durham, NH, United States*
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11:00

- AG-08. **Unveiling Orbital Pumping in Magnetic Heterostructures.** *E. Santos*¹, *J.E. Abrão*¹, *J.B. Mendes*² and *A. Azevedo*¹
1. Universidade Federal de Pernambuco (Physics), Recife, Brazil; 2. Física, Universidade Federal de Viçosa, Viçosa, Brazil
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EXHIBIT HALL

Session AP
MAGNETIZATION DYNAMICS AND
MICROMAGNETICS I
(Poster Session)

Luis Aviles Felix, Co-Chair
 Centro Atómico Bariloche, Bariloche, Argentina
 Emily Darwin, Co-Chair
 EMPA, Zurich, Switzerland

- AP-01. **A Data-driven Extended Landau Theory Method For The Coercivity Analysis Of Magnetic Materials.** *C. Mitsumata*¹, *A.L. Foggiatto*¹ and *M. Kotsugi*¹ *1. Department of Materials Science, Tokyo University of Science, Tokyo, Japan*
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- AP-02. Modifying the trajectory of a skyrmionium using defects.** H. Vigo¹, S. Urcia Romero², S.R. Navarro Vilca³ and A.P. Guimarães⁴ 1. *Universidad Privada del Norte, Trujillo, Peru*; 2. *University of Puerto Rico, Mayagüez, Puerto Rico*; 3. *Universidad Nacional Jorge Basadre Grohmann, Tacna, Peru*; 4. *Centro Brasileiro de Pesquisas Fisicas, Rio de Janeiro, Brazil*
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- AP-03. Control of 3D Topological Spin Texture in a Ferromagnetic Rectangular disk.** M. Kang¹, H. Han², H. Ok¹, G. Kim¹, S. Jeong¹, Y. Yu³, S. Je⁴, W. Chao⁵, M. Im⁵ and K. Lee¹ 1. *Ulsan National Institute of Science and Technology (UNIST), Ulsan, The Republic of Korea*; 2. *Korea National University of Transportation, Chungju, The Republic of Korea*; 3. *Chungbuk National University, Cheongju, The Republic of Korea*; 4. *Chonnam National University, Gwangju, The Republic of Korea*; 5. *Center for X-ray Optics, Berkeley, CA, United States*
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- AP-04. Magnetization dynamics in $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3/\text{LaTiO}_3(\delta)/\text{SrTiO}_3(001)$ thin films.** K. Lal¹, P. Ghising¹, B. Samantaray¹ and Z. Hossain¹ 1. *Department of Physics, Indian Institute of Technology, Kanpur, India*
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- AP-06. Magnetic and elasto optic dynamic on Co/Pt multilayers.** T. Fernandes¹, L.H. de Andrade¹, M.D. Martins², J. Zarpellon³, D.H. Mosca³ and F.M. Matinaga² 1. *SENAN, Centro de Desenvolvimento de Tecnologia Nuclear, Belo Horizonte, Brazil*; 2. *SEMAV, Centro de Desenvolvimento de Tecnologia Nuclear, Belo Horizonte, Brazil*; 3. *Departamento de Física, Universidade Federal do Paraná, Curitiba, Brazil*
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- AP-09. Interpretation in physics on magnetic domain structure dynamics in soft magnetic materials using feature extended energy landscape.** R. Nagaoka¹, K. Masuzawa¹, A.L. Foggiatto¹, T. Yamazaki¹, I. Obayashi³, Y. Hiraoka², C. Mitsumata¹ and M. Kotsugi¹ 1. *Department of Material Science, Tokyo University of Science, Katsushika-ku, Japan*; 2. *Kyoto University, Kyoto, Japan*; 3. *Okayama University, Okayama, Japan*
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- AP-10. Structural and magnetic properties of Fe/Ti superlattices.** M.S. Yactayo Yaranga¹, H.S. Tarazona¹, J. Ghanbaja², O. Copie², J. Rojas-Sanchez², C. Landauro Saenz^{1,3} and J. Quispe-Marcato^{1,3} 1. *Facultad de Ciencias Físicas, Universidad Nacional Mayor de San Marcos, P.O.-Box 14-0149, Lima, Peru*; 2. *Institut Jean Lamour-U. Lorraine UMR7198 CNRS, Nancy, France*; 3. *Centro de Investigaciones Tecnológicas, Biomédicas y Medioambientales, Calle José Santos Chocano 199, Callao, Peru*
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- AP-11. Analysis of the high-frequency magnetization process through machine learning and topological data techniques.** *A.L. Foggiatto¹, R. Nagaoka¹, M. Taniwaki¹, T. Yamazaki¹, T. Ogasawara², I. Obayashi³, Y. Hiraoka⁴, C. Mitsumata¹ and M. Kotsugi¹* *1. Tokyo University of Science, Katsushika, Japan; 2. National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan; 3. Okayama University, Okayama, Japan; 4. Kyoto University, Kyoto, Japan*
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- AP-12. Tailoring the exchange bias by AFM interface patterned control.** *G. de Oliveira Gurgel Rebouças¹, A.L. Dantas² and A.S. Carriço³* *1. Departamento de Ciências Exatas e Tecnologia da Informação, UFERSA, Mossoró, Brazil; 2. Departamento de Ciência e Tecnologia, UERN, Natal, Brazil; 3. Departamento de Física, UFRN, Natal, Brazil*
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- AP-14. Utilizing exchange bias in ferro/anti-ferromagnetic structure for obtaining a field-free Spin Hall Nano Oscillator (SHNO).** *M.S. Ban¹ and S. Bhuktare¹*
1. Department of Electrical Engineering, Indian Institute of Technology Tirupati, Tirupati, India
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EXHIBIT HALL

Session AQ
THIN FILMS, MULTI-LAYERED FILMS AND SUPERLATTICES
(Poster Session)

Xiufeng Han, Chair

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

- AQ-01. Electrodeposition of Fe-based thin films for applications in nanodevices.** *B.G. Silva¹, D. Gonzalez-Chavez¹, J. Gomes Filho¹ and R.L. Sommer¹* *1. Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil*
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- AQ-02. Consecutive field-assisted Ne ion irradiation of Co and Ni films with collapsed hard-magnetization axes.** *H.S. Acosta¹, L. F. S. Azeredo¹, A. M. H. de Andrade¹ and J. Geshev¹* *1. Instituto de Física, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil*
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- AQ-03. Strain-induced oxygen vacancies and ferromagnetic order near the interface in CaMnO₃ thin films.** *J. Gajst^{1,2,3}, J.P. Coronel¹, J. Santiso⁴, F.J. Williams^{2,3} and L. Steren^{1,2}* *1. Instituto de Nanociencia y Nanotecnología CAC—CNEA/ CONICET, San Martín, Argentina; 2. Consejo Nacional de Investigaciones Científicas y Técnicas, Buenos Aires, Argentina; 3. INQUIMAE, Facultad de Ciencias Exactas y Naturales, Buenos Aires, Argentina; 4. Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and BIST, UAB, Bellaterra, Spain*
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- AQ-04. Effect of Cobalt doping on Resistive Switching Process in ZnO and TiO₂ Nanostructures for Flexible Non-Volatile Memories.** *A. Dussan Cuenca*¹, *H.P. Quiroz*¹, *C.L. Terán*¹ and *J.A. Calderón*^{1,2} *1. Department of Physics, Universidad Nacional de Colombia, Bogotá, Colombia; 2. Engineering and Basic Science Faculty, Universidad Central, Bogotá, Colombia*
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- AQ-05. Withdrawn**
- AQ-06. H⁺ and He⁺ irradiation induce selective oxygen diffusion for oxide/metal/oxide interfaces heterostructures fabrication.** *M. Mery*¹, *I. Stankovic*², *C. Gonzalez*¹, *J. Nunez*³, *J. Valdes*¹, *M. Aguirre*^{4,3} and *C. Garcia*^{1,5} *1. Department of Physics, UTFSM - Universidad Tecnica Federico Santa Maria, Valparaiso, Chile; 2. Center for Solid State Physics and New Materials, Institute of Physics Belgrade, University of Belgrade, Belgrade, Serbia; 3. Fisica de la Materia Condensada, Universidad de Zaragoza, Zaragoza, Spain; 4. INMA-Instituto de Nanociencia y Materiales de Aragon-CSIC, Zaragoza, Spain; 5. CCTVal - Centro Cientifico y Tecnologico de Valparaiso, Valparaiso, Chile*
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- AQ-07. The Interplay of Orbital Magnetic Moments in Tuning Perpendicular Magnetic Anisotropy in TmIG Thin Films.** *C.C. Soares*^{1,2,3}, *D. Chaves*², *T.J. Mori*², *T. Rocha*², *J. Brandao*², *F. Béron*³, *J.C. Cezar*², *J.S. Moodera*⁴ and *G. Vilela*¹ *1. Física de Materiais, Universidade de Pernambuco, Campinas, Brazil; 2. Laboratório Nacional de Luz Síncrotron, Centro Nacional de Pesquisa em Energia e Materiais, Campinas, Brazil; 3. Instituto de Física Gleb Wataghin, Universidade Estadual de Campinas, Campinas, Brazil; 4. Plasma Science and Fusion Center and FBML, Massachusetts Institute of Technology, Cambridge, MA, United States*
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- AQ-08. Structural characterization and local surface electronic response of sputtered growth Bi₂Se₃ on MgO (100) substrate.** *G.R. Junior*¹, *A. Vieira*¹, *R. Magalhães-Paniago*², *L. Moura*¹, *R.O. da Cunha*¹ and *J.B. Mendes*¹ *1. Department of Physics, Universidade Federal de Viçosa, Viçosa, Brazil; 2. Department of Physics, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil*
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- AQ-09. Magnetometry of Buried Co-based Nanolayers by Hard X-ray Photoelectron Spectroscopy.** *A. Hloskovsky*¹, *C. Schlueter*¹ and *G. Fecher*² *1. Photon Science, DESY, Hamburg, Germany; 2. Max Planck Institute for Chemical Physics of Solids, Dresden, Germany*
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- AQ-10. Structure and magnetic properties of Co₂FeGa Heusler alloy films grown by sputtering deposition.** *B.D. dos Santos*¹, *A.C. Krohling*¹ and *W.A. Macedo*¹ *1. Centro de Desenvolvimento da Tecnologia Nuclear, Belo Horizonte, Brazil*
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- AQ-11. Thin Films of Heusler alloy – Ni₂(MnCu)(GaAl): structural and magnetic properties, a spin glass behavior-like appears.** *R. Duarte de Melo*¹, *V.M. T.S. Barthem*¹ and *A. Gomes*¹ *1. Instituto de Física, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil*
[View Digest Text](#)
- AQ-13. Surface Spin Wave Resonance in NiFe/Zr Multilayers.** *M. Pessoa*¹, *F. Pelegrini*², *A. Biondo*³, *V. Nascimento*³ and *E.M. Saitovitch*⁴ *1. Departamento de Ciências Naturais, Universidade Federal do Espírito Santo, São Mateus, Brazil; 2. Instituto de Física, Universidade Federal de Goiás, Goiânia, Brazil; 3. Departamento de Física, Universidade Federal do Espírito Santo, Vitória, Brazil; 4. Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil*
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- AQ-14. Simulations of Experimentally Detected Ambient Skyrmions in Symmetric Synthetic Antiferromagnetic Multilayers.** *L.S. Palhares*^{1,2}, *T.M. Batistel*^{1,2}, *J. Brandao*² and *F. Béron*¹ *1. Instituto de Física Gleb Wataghin, Universidade Estadual de Campinas, Campinas, Brazil; 2. Laboratório Nacional de Luz Síncrotron, Centro Nacional de Pesquisa em Energia e Materiais, Campinas, Brazil*
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- AQ-15. High frequency response of magnetically coupled Co/Cu/CoFeB trilayers.** *Z. Wei*¹, *D. Navas*¹, *S.A. Bunyaev*², *M. Abellan*³, *C. Garcia*^{3,4}, *G.N. Kakazei*² and *M. Vázquez*¹ *1. Instituto de Ciencia de Materiales de Madrid (ICMM-CSIC), Madrid, Spain; 2. IFIMUP/Department of Physics and Astronomy, University of Porto, Porto, Portugal; 3. Centro Científico Tecnológico de Valparaíso - CCTVal, Universidad Técnica Federico Santa María, Valparaíso, Chile; 4. Departamento de Física, Universidad Técnica Federico Santa María, Valparaíso, Chile*
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- AQ-16. Correlation between strains, oxygen vacancies and magnetotransport properties of CaMnO₃ thin films.** *A. Lopez Pedroso*^{1,2}, *J. Gajst*^{1,2,6}, *S. Carreira*³, *J. Santiso*⁴, *M. Aguirre*⁵, *J. Briatico*³, *F.J. Williams*^{2,6} and *L. Steren*^{1,2} *1. Instituto de Nanociencia y Nanotecnologia CNEA/ CONICET- Constituyentes, San Martin, Argentina; 2. Consejo Nacional de Investigaciones Científicas y Técnicas, San Martin, Argentina; 3. Laboratoire Albert Fert, Palaiseau, France; 4. Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and the Barcelona Institute of Science and Technology (BIST), Campus de la UAB, Bellaterra, Spain; 5. Condensed Matter Physics, INMA-Instituto de Nanociencia y Materiales de Aragón, Zaragoza, Spain; 6. Chemistry, Inquimae, Buenos Aires, Argentina*
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Session AR
TRANSFORMERS AND WIRELESS POWER
TRANSFER, MAGNETIC BEARINGS AND
LEVITATION
(Poster Session)

Hamed Hamzehbahmani, Chair
 Durham University, Durham, United Kingdom

- AR-01. Magnetic Ageing of Electrical Steel: Precipitates Impact on Magnetic Losses.** M. Mota^{1,2}, W. França¹, L.F. Costa¹, J. Dias^{1,3}, L. Favarato³, T. Barros¹, J.R. Oliveira Junior³, L.M. Meireles¹ and D.L. Rocco¹ *1. Departamento de Formação Geral, Centro Federal de Educação Tecnológica de Minas Gerais, Timóteo, Brazil; 2. SENAI/MG, Ipatinga, Brazil; 3. Aperam South America, Timóteo, Brazil*
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- AR-02. An alternative heat treatment recovery of the magnetic properties of a non-grain oriented Fe-Si steel after cutting.** A.C. Junior¹, J.C. Ferreira¹, D.L. Rocco¹ and L.M. Meireles¹ *1. POSMAT, Centro Federal de Educacao Tecnologica de Minas Gerais, Timoteo, Brazil*
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- AR-03. Influence of leakage inductance of a transformer operating in a DC resistance welding machine on welding conditions.** Z. Mikno² and M. Stepień¹ *1. Department of Power Electronics, Electrical Drives and Robotics, Silesian University of Technology, Gliwice, Poland; 2. Lukasiewicz Research Network – Upper Silesian Institute of Technology, Gliwice, Poland*
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- AR-04. An Ultra-thin Self-Resonant Coupler with Nanocrystalline Flake Ribbons for Wireless Power Transfer System.** J. Xiang¹, C. Jiang¹, T. Ma¹, Y. Wang¹ and Y. Fan¹ *1. Department of Electrical Engineering, City University of Hong Kong, Kowloon, Hong Kong*
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- AR-05. Configurable Nanocrystalline Flake Ribbon Transformer with Variable Leakage Inductance.** R. Sheng¹, C. Jiang¹, L. Mo¹, C. Chen¹ and Y. Wang¹ *1. Department of Electrical Engineering, City University of Hong Kong, Kowloon, Hong Kong*
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- AR-06. Design Method of Transformer in LLC Resonant Converters considering Electro-magnetic and Thermal Characteristics.** J. Ryu¹, S. Cho¹, D. Lee¹, Y. Shin¹, G. Koo¹, J. Park¹, B. Kim¹ and H. Seol¹ *1. Korea Automotive Technology Institute, Cheonan-Si, The Republic of Korea*
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- AR-10. Multi-source vibration suppression of magnetic bearing supporting rotor system based on phase-shift Least Mean Square adaptive filter.** *P. Xiao*¹, *K. Liu*¹ and *J. Wei*¹
1. Sun Yat-Sen University, ShenZhen, China
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- AR-12. K-best-Sphere-Decoding-Based Model Predictive Control for Dual Three-Phase SPMSMs.** *Z. Zhang*¹, *J. Chen*¹, *R. Han*², *Y. Wu*¹, *Y. Gong*¹ and *S. Chang*¹ *1. Tianjin University, Tianjin, China; 2. Tianjin Navigation Instruments Research Institute, Tianjin, China*
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- AR-13. Torque-Ripple-Mitigated Model-Free Predictive Current Control with Extended Control Set for PMSMs.** *Z. Zhu*¹, *X. Wei*¹, *Z. Zhang*¹, *R. Han*², *Y. Wu*¹, *Y. Gong*¹ and *S. Chang*¹ *1. Tianjin University, Tianjin, China; 2. Tianjin Navigation Instruments Research Institute, Tianjin, China*
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- AR-14. Dc-link Utilization Enhanced Implicit Model Predictive Control for Dual Three-Phase PMSMs.** *Y. Wu*¹, *Z. Zhang*¹, *R. Han*², *Y. Gong*¹ and *S. Chang*¹ *1. Tianjin University, Tianjin, China; 2. Tianjin Navigation Instruments Research Institute, Tianjin, China*
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- AR-15. Modulation-Incorporated Model Predictive Control Using Symmetric Single Pulse for Dual Three-Phase PMSMs.** *B. Deng*¹, *R. Gu*¹, *Y. Gong*¹ and *Y. Wu*¹ *1. Tianjin University, Tianjin, China*
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- AR-16. Drag Force Analysis of Superconducting EDS Type Hyperloop System According to Changes in Tube Material Properties.** *S. Kim*¹, *J. Lee*¹, *C. Kim*² and *H. Lee*²
1. Hanyang University, Seoul, The Republic of Korea; 2. Department of Railway Vehicle & Operation System Engineering, Korea National University of Transportation - Uiwang Campus, Uiwang-si, The Republic of Korea
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EXHIBIT HALL

Session AS
INTERDISCIPLINARY TOPICS IN MAGNETICS I
(Poster Session)

Alisson Krohling, Chair
Nuclear Technology Development Center, Belo Horizonte, Brazil

- AS-01. High-frequency electric Dipole-Dipole interaction contribution for the magnetoelectric effect in the multiferroic composite PZT/NFO.** *A.J. Gualdi*¹ and *F.L. Zabotto*¹ *1. Department of Physics, Federal University of São Carlos, São Carlos, Brazil*
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- AS-02. Synthesis and Characterization of BiFeO₃ Nanoparticles Obtained by the Coprecipitation Method.** J. Duque¹, B. Santos¹, G. Cunha¹, L. Fernandes¹ and P. Oliveira¹
1. Federal University of Sergipe, Itabaiana, Brazil
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- AS-03. Temperature dependence of the magnetic hyperfine field and electric field gradient in HfNiO₃ ferroic perovskite.** L.F. Pereira¹, T. da Silva Nascimento Sales¹, L. Scalise¹, A. Burimova¹, K.S. Souza¹, B.S. Corrêa¹, A. A. Miranda¹, I.S. Ribeiro-Junior¹, M. Ozório¹, W.L. Ferreira¹, F.A. Genezini¹, R.N. Saxena¹ and A.W. Carbonari¹
1. Centro do Reator de Pesquisas, Instituto de Pesquisas Energéticas e Nucleares, São Paulo, Brazil
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- AS-05. Transition metal spin and color center in β-Ga₂O₃.** M. Jansson¹, J. Stehr¹, S. Pearton², J. McCloy³, J. Jesenovec³, B. Dutton³, M. McCluskey³, W.M. Chen¹ and I.A. Buyanova¹
1. Linköping University, Linköping, Sweden; 2. University of Florida, Gainesville, FL, United States; 3. Washington State University, Seattle, WA, United States
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- AS-06. Magnetic Resonance Imaging Contrast Enhancement Induced by Hydrophobic Iron Oxide Nanoparticles in Oil-in-Water Emulsion.** A.d. da Cruz¹, C.L. Rodrigues¹, M.G. Martins², A.M. Souza¹, M. Nascimento³, I.S. Oliveira¹ and F. Garcia¹
1. Centro Brasileiro de Pesquisas Físicas, São Gonçalo, Brazil; 2. Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil; 3. Centro de Pesquisas e Desenvolvimento Leopoldo Américo Miguez de Mello, Rio de Janeiro, Brazil
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- AS-07. Evaluation of Hydrogen-Induced Degradation of Steel Through Multispectral Analysis of Magnetic Barkhausen Noise.** G. Psuj¹, C. Camerini², M. Maciusowicz¹ and G. Pereira²
1. Faculty of Electrical Engineering, West Pomeranian University of Technology, Szczecin, Poland; 2. Laboratory of Non-Destructive Testing, Corrosion and Welding, Department of Metallurgical and Materials Engineering, University of Rio de Janeiro, Rio de Janeiro, Brazil
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- AS-08. Itinerant SDW phases, contributions from the CrNb dilute alloys.** P.E. de Souza¹, L.M. Oliveira², F. Yokaichiya⁴, P.C. de Camargo³ and A.J. de Oliveira³
1. Institute of Physics, Universidade de Brasília, Brasília, Brazil; 2. Coleg. Ciências da Natureza, Universidade Federal do Vale do São Francisco, Petrolina, Brazil; 3. Dept. of Physics, Universidade Federal de São Carlos, São Carlos, Brazil; 4. Dept. of Physics, Universidade Federal do Paraná, Curitiba, Brazil
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- AS-11. **Impact of annealing on the band structure of (Ga,Mn)(P,As) nanofilms.** *N. Tataryn*¹, *S. Mamykin*¹, *L. Riney*², *X. Liu*², *B.A. Assaf*², *V. Romanyuk*¹, *O. Kondratenko*¹, *O. Kolomys*¹, *O. Yastrubchak*¹ and *J. Furdyna*² *I. V. E. Lashkaryov Institute of Semiconductor Physics, National Academy of Sciences of Ukraine, Kiev, Ukraine;*
2. Department of Physics and Astronomy, University of Notre Dame, Notre Dame, IN, United States
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- AS-12. **Modeling of the micro-focused Brillouin light scattering signal.** *O. Wojewoda*¹, *M. Hrton*¹ and *M. Urbánek*¹
1. CEITEC, Brno University of Technology, Brno, Czechia
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- AS-13. **Bright Envelope Solitons in the Double Negative Media Based on Thin Films of Nonlinear Ferromagnetic Semiconductor.** *S.V. Grishin*¹, *A.V. Bogomolova*¹ and *S. Nikitov*^{2,1} *1. Saratov State University, Saratov, Russian Federation;* *2. Kotelnikov Institute of Radioengineering and Electronics of Russian Academy of Science, Moscow, Russian Federation*
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- AS-16. **Super-Resolution in Computed Tomography Images: An Integrated Approach of Artificial Intelligence and LapSRN Techniques.** *A.M. Guimarães*¹ and *G.A. Pizo*¹
1. Instituto de Engenharia Eletrônica, Universidade de Brasília, Brasília, Brazil
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OCEANIA IV & V

Session BA

MAGNETICS FOR TOMORROW'S MEDICAL TECHNOLOGIES

Ravi Hadimani, Chair

Virginia Commonwealth University, Richmond, VA, United States

2:00

- BA-01. **Biomimetic magnetic nanocarriers for cancer therapy.** *(Invited)* *J.V. Rocha*¹, *R. Krause*¹, *C.E. Cardoso*¹, *N.C. Oliveira*¹, *L.R. Sousa*¹, *E.M. Lima*¹, *M.C. Valadares*¹, *M.C. Xavier*¹, *S. Mendanha*¹ and *A.F. Bakuzis*¹ *1. Federal University of Goiás, Goiânia, Brazil*
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2:30

- BA-02. **Toward Non-Invasive Deep Brain Stimulation Using Externally Applied Electromagnetic Fields.** *(Invited)* *M. Sekino*¹, *A. Iino*¹, *M. Fushimi*¹, *Z. Xin*¹, *K. Nakagawa*¹ and *K. Inoue*¹ *1. The University of Tokyo, Tokyo, Japan*
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3:00

- BA-03. Enhanced Rapid Diagnostic Tests: Improved Sensitivity and Quantification with Magnetic Nanoparticles and Sensors. (Invited)** *M. Rivas*¹, *M. Salvador*¹, *J.L. Marques*¹, *L.B. Fraile*¹, *V. Pilati*¹ and *J.C. Martinez-Garcia*¹
1. Department of Physics, Universidad de Oviedo, Gijón, Spain
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3:30

- BA-04. Micromagnetic Neural Stimulation and Spintronic Neural Sensing. (Invited)** *R. Saha*¹, *D. Tonini*¹, *M. Hopper*¹, *A. Goyal*², *J. Yuen*², *Y. Oh*², *Z. Sanger*³, *S. Faramarzi*³, *M. Shiao*⁴, *D. Helden*⁵, *R. Bloom*¹, *O. Benally*¹, *K. Wu*¹, *S. Keirstead*⁴, *T. Netoff*³, *W. Low*⁶, *J. Osborn*⁵, *K. Bennet*², *K. Lee*², *H. Shin*² and *J. Wang*¹ *1. Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States; 2. Department of Neurologic Surgery, Mayo Clinic, Rochester, MN, United States; 3. Department of Biomedical Engineering, University of Minnesota, Minneapolis, MN, United States; 4. Stem Cell Institute, University of Minnesota, Minneapolis, MN, United States; 5. Department of Surgery, University of Minnesota, Minneapolis, MN, United States; 6. Department of Neurosurgery, University of Minnesota, Minneapolis, MN, United States*
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4:00

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

- BA-06. Magnetic Hyperthermia Optimization. (Invited)** *H. Chen*¹, *D. Billington*², *E. Riordan*², *J. Blomgren*³, *S.R. Giblin*², *C. Johansson*³ and *S. Majetich*¹ *1. Department of Physics, Carnegie Mellon University, Pittsburgh, PA, United States; 2. Department of Physics, Cardiff University, Cardiff, United Kingdom; 3. RISE Research Institutes of Sweden, Göteborg, Sweden*
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Session BB

MAGNONICS I: FUNDAMENTAL PROPERTIES

David Cortés-Ortuño, Chair

Universidad Técnica Federico Santa María, Valparaíso, Chile

2:00

- BB-01. Electric analog of magnon excitations and electric polarization transport in ferroelectric materials. (Invited)**
*P. Tang*¹ 1. *Tohoku University, Sendai, Japan*
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2:30

- BB-02. Transient Response and Relaxation of Spin Waves Measured in a Rectangular Ni₈₀Fe₂₀ Microstrip.** *S. Pile*¹, *S. Wintz*^{2,3}, *K. Lenz*⁴, *R. Narkowicz*⁴, *A. Ney*¹, *J. Lindner*⁴, *J. Förster*², *S. Mayr*^{5,6} and *M. Weigand*³ 1. *Johannes Kepler University Linz, Linz, Austria*; 2. *Max Planck Institute for Intelligent Systems, Stuttgart, Germany*; 3. *Helmholtz-Zentrum Berlin für Materialien und Energie, Berlin, Germany*; 4. *Helmholtz-Zentrum Dresden-Rossendorf, Institute of Ion Beam Physics and Materials Research, Dresden, Germany*; 5. *Paul Scherrer Institut, Villigen PSI, Switzerland*; 6. *Laboratory for Mesoscopic Systems, Department of Materials, Zurich, Switzerland*
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2:45

- BB-03. Increase of Spin-Wave Damping with Wavenumber in YIG/GGG at Millikelvin Temperatures.** *D. Schmoll*^{1,2}, *R. Serha*^{1,2}, *R.V. Verba*³, *K. Levchenko*¹, *S. Knauer*¹ and *A. Chumak*¹ 1. *Faculty of Physics, University of Vienna, Vienna, Austria*; 2. *Vienna Doctoral School in Physics, University of Vienna, Vienna, Austria*; 3. *Institute of Magnetism, Kyiv, Ukraine*
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3:00

- BB-04. Local Temperature Control of Magnon Frequency and Direction of Supercurrents in a Magnon Bose–Einstein Condensate.** *A.A. Serga*¹, *M.R. Schweizer*¹, *F. Kühn*¹, *V.S. L'vov*^{2,3}, *A. Pomyalov*³, *G. von Freymann*^{1,4} and *B. Hillebrands*¹ 1. *Department of Physics, RPTU Kaiserslautern-Landau, Kaiserslautern, Germany*; 2. *Department of Complex Systems, Weizmann Institute of Science, Rehovot, Israel*; 3. *Department of Chemical and Biological Physics, Weizmann Institute of Science, Rehovot, Israel*; 4. *Fraunhofer Institute for Industrial Mathematics ITWM, Kaiserslautern, Germany*
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- BB-05. Excitation Of High-Frequency Short-Wavelength Spin Waves Via High Harmonics Of Magnonic Cavity Mode.** *P. Gruszecki¹, N. Kumar², M. Golebiewski¹, J.W. Klos¹ and M. Krawczyk¹* *1. Faculty of Physics, Uniwersytet im Adama Mickiewicza w Poznaniu, Poznan, Poland; 2. Electronics and Communication Engineering Department, National Institute of Technology Calicut, Calicut, India*
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3:30

- BB-07. Nonlinear Effects in Inelastic Scattering of Spin-Wave Beams on Localized Modes for Controlling Propagation of Scattered Beams.** *K. Sobucki¹, J. Kharlan^{1,2}, R.V. Verba², I. Lyubchanskii¹, M. Krawczyk¹ and P. Gruszecki¹* *1. ISIK, Faculty of Physics, Adam Mickiewicz University, Poznan, Poland; 2. Institute of Magnetism of NAS of Ukraine and MES of Ukraine, Kyiv, Ukraine*
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3:45

- BB-08. Application of Mie-enhanced BLS to study parametric pumping of spin-waves.** *O. Wojewoda¹, D. Pavelka¹, M. Hrton¹, J. Klima², J. Krcma², J. Holobradek¹, T. Sikola^{2,1} and M. Urbánek¹* *1. CEITEC, Brno University of Technology, Brno, Czechia; 2. Institute of Physical Engineering, Brno University of Technology, Brno, Czechia*
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4:15

- BB-10. Brillouin light scattering study of nonreciprocal spin dynamics in magnetic chiral tubes.** *M. Xu¹, A.J. Deenen¹, H. Guo¹ and D. Grundler^{1,2}* *1. Institute of Materials (IMX), Ecole Polytechnique Fédérale de Lausanne (EPFL), Saint-Sulpice, Switzerland; 2. Institute of Electrical and Micro Engineering (IEM), EPFL, Lausanne, Switzerland*
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4:30

- BB-11. Solutions to the Landau-Lifshitz-Gilbert equation in the frequency space: Discretization schemes for the dynamic-matrix approach.** *D. Gonzalez-Chavez¹, G.P. Zamudio¹ and R.L. Sommer¹* *1. Centro Brasileiro de Pesquisas Fisicas, Rio de Janeiro, Brazil*
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Session BC
**PATTERNED FILMS, NANOCOMPOSITES,
 SELF-ASSEMBLY**

Julian Geshev, Chair
 Institute of Physics, UFRGS, Porto Alegre, Brazil

2:00

- BC-01. Role of Magnetic Anisotropy in Applications of Magnetic Nanoparticles. (Invited)** C. Dennis¹ *1. NIST, Gaithersburg, MD, United States*
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2:30

- BC-03. Vortex-state in Iron Nanodisks: Formation and Response in Water Solutions.** I. Solozabal Azcarate¹, R. Zurbano¹, C. Redondo¹, A. Benedicto⁴ and R. Morales^{3,2} *1. Department of Physical-Chemistry, University of the Basque Country, Leioa, Spain; 2. IKERBASQUE Basque Foundation for Science, Bilbao, Spain; 3. University of the Basque Country & BC Materials, Leioa, Spain; 4. Department of Cell Biology and Histology, University of the Basque Country, Leioa, Spain*
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2:45

- BC-04. Magnetophoretic-Based Bacterial Cell Localization.** B. Gungordu¹, N. Gunduz Akdogan^{2,3} and O. Akdogan^{1,2} *1. Faculty of Engineering and Natural Sciences, Bahcesehir University, Istanbul, Turkey; 2. NANOTerial Technology Corporation, Istanbul, Turkey; 3. Faculty of Engineering, Piri Reis University, Istanbul, Turkey*
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3:00

- BC-05. Synthesis and Characterization of CeO₂/g-C₃N₄ Nanocomposites: Structural, Morphological, Optical, and Magnetic Properties Investigation.** R. Cardoso de Oliveira¹, E. Chaves Pereira² and A.J. de Oliveira¹ *1. Department of Physics, Federal University of São Carlos, São Carlos, Brazil; 2. Department of Chemistry, Federal University of São Carlos, São Carlos, Brazil*
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- BC-06. Simple Tuning of the Magnetic Properties of CoNi Nanoparticles During Generation.** P. Ternero^{1,2}, M. Sedrpooshan^{1,2}, D. Wahlqvist^{3,2}, B.O. Meuller^{1,2}, M. Ek^{3,2}, J.M. Hübner³, R. Westerström^{1,2} and M.E. Messing^{1,2}
1. Department of Physics, Lund University, Lund, Sweden; 2. NanoLund, Lund, Sweden; 3. Chemistry, Lund University, Lund, Sweden
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3:30

- BC-07. Magnetic Nanowires: Cylindrical Geometry, Remagnetization and Sensor Applications. (Invited)** M. Vázquez¹ *1. ICMM/CSIC, Madrid, Spain*
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4:00

- BC-08. Magneto-Structural Properties of Co₂FeIn Heusler Nanowires for Spintronics Applications.** A.I. Jimenez¹, J. Garcia¹, V. Vega¹, Y. Alvarez¹, A.S. Gonzalez¹, E.D. Barriga-Castro², C. Luna³ and V.M. Prida¹
1. Department of Physics, University of Oviedo, Oviedo, Spain; 2. Centro de Investigación de Química aplicada, Saltillo, Mexico; 3. Department of Physics, Universidad Autónoma de Nuevo León, San Nicolás de los Garza, Mexico
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4:15

- BC-09. Cobalt-iron nitride nano-flake powders: synthesis, analysis morphological, structural, magnetic and catalytic activity.** G. Gubert¹, R. Gonçalves¹, R. Cardoso de Oliveira², G. Zepon³, A.J. de Oliveira² and E. Chaves Pereira¹
1. Department of Chemistry, Universidade Federal de São Carlos, São Carlos, Brazil; 2. Department of Physics, Federal University of São Carlos, São Carlos, Brazil; 3. Department of Materials Science and Engineering, Federal University of São Carlos, São Carlos, Brazil
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4:30

- BC-10. Magnon-drag thermopower and active Peltier cooling in 3D ferromagnetic nanowire networks.** T. da Câmara Santa Clara Gomes¹, N. Machal¹, F. Abreu Araujo¹ and L. Piraux¹
1. Institute of Condensed Matter and Nanosciences, Université Catholique de Louvain, Louvain-la-Neuve, Belgium
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Session BD
ULTRAFast DYNAMICS AND
ALL-OPTICAL SWITCHING

Alex Jenkins, Chair

International Iberian Nanotechnology Laboratory, Braga, Portugal

2:00

- BD-01. Towards on-chip spintronic-photonic integration. (Invited)** *B. Koopmans*¹, *P. Li*¹, *H. Pezeshki*¹, *E. Demirer*¹, *G. Simons*¹, *Y. Jiao*², *J. van der Tol*² and *R. Lavrijsen*¹ *1. Department of Applied Physics, Eindhoven University of Technology, Eindhoven, Netherlands; 2. Department of Electrical Engineering and Eindhoven Hendrik Casimir Institute, Eindhoven University of Technology, Eindhoven, Netherlands*
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2:30

- BD-02. Optical control of the magnetization emerging from the magnetic part of the optical field in the Landau-Lifshitz-Gilbert equation.** *B.J. Assouline*¹ and *A. Capua*¹
1. Department of Electrical Engineering and Applied Physics, The Hebrew University of Jerusalem, Jerusalem, Israel
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2:45

- BD-03. Picosecond Spin-Orbit Torque Switching Dynamics in a Ferromagnet.** *A. Pattabi*^{1,2}, *D. Polley*^{2,3,4}, *A. Rastogi*², *K. Jhuria*^{3,5}, *E. Díaz*⁵, *H. Singh*², *A. Lemaitre*⁶, *M. Hehn*⁵, *J. Gorchon*⁵ and *J. Bokor*^{2,3} *1. Department of Engineering, University of San Francisco, San Francisco, CA, United States; 2. Department of Electrical Engineering and Computer Sciences, University of California, Berkeley, Berkeley, CA, United States; 3. Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 4. SRM Institute of Science and Technology, Chennai, India; 5. CNRS, IJL, Université de Lorraine, Nancy, France; 6. Centre de Nanosciences et de Nanotechnologies, Université Paris-Saclay, Palaiseau, France*
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3:00

- BD-04. All-optical control and ultrafast spin dynamics in van der Waals magnets. (Invited)** *M. Dabrowski*¹ *1. Department of Physics and Astronomy, University of Exeter, Exeter, United Kingdom*
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- BD-05. High frequency dynamics in half-metallic compensated ferrimagnetic $\text{Mn}_2\text{Ru}_x\text{Ga}$ thin films.** *K.E. Siewierska¹, G. Atcheson^{2,3}, J. O'Brien³, M. Kusch¹, K. Ruotsalainen¹, C. Liu^{1,4}, R. Decker¹, P.S. Stamenov³, K. Rode³ and A. Föhlisch^{1,4}* *1. PS-ISRR, Helmholtz Zentrum Berlin für Materialien und Energie, Berlin, Germany; 2. CEA-SPINTEC, Grenoble, France; 3. Department of Physics, Trinity College Dublin, Dublin, Ireland; 4. Institute of Physics and Astronomy, Universität Potsdam, Potsdam, Germany*
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3:45

- BD-07. Emission of Coherent THz Magnons in an Antiferromagnetic Insulator Triggered by Ultrafast Spin-Phonon Interactions. (Invited)** *E. Rongione^{1,2,3} and M. Mićica²* *1. Laboratoire Albert Fert, CNRS, Thales, Université Paris-Saclay, Palaiseau, France; 2. Laboratoire de Physique de l'Ecole Normale Supérieure, ENS, Université PSL, CNRS, Sorbonne Université, Université Paris Cité, Paris, France; 3. Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC, BIST, Barcelona, Spain*
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4:15

- BD-08. Manipulation of Correlated Weyl Fermions in the Chiral Antiferromagnet Mn_3Sn . (Invited)** *S. Nakatsuji^{1,2,3}* *1. Department of Physics, University of Tokyo, Tokyo, Japan; 2. Department of Physics and Astronomy, Johns Hopkins University, Baltimore, MD, United States; 3. Canadian Institute for Advanced Research, Toronto, ON, Canada*
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EUROPA I

Session BE

NUMERICAL, SEMI-ANALYTICAL AND ANALYTICAL ANALYSIS METHODS I

Yacine Amara, Chair

Université Le Havre Normandie, Le Havre, France

2:00

- BE-01. Frequency Spectrum Analysis of Magnetic Field Strength for Effective Condition Monitoring of Magnetic Cores.** *H. Hamzehbahmani¹* *1. Department of Engineering, Durham University, Durham, United Kingdom*
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2:15

- BE-04. Computational Speed Improvement of Reluctance Network Analysis Combined with Play Model.** *Y. Hane*¹ and *K. Sugahara*² *1. Department of Electrical Engineering, Tohoku University, Sendai, Japan; 2. Kindai University, Higashiosaka, Japan*
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2:30

- BE-06. Reluctance Network Model of V-Type IPMSM for Accurate and Practical Design.** *Y. Hane*¹ and *K. Nakamura*¹ *1. Department of Electrical Engineering, Tohoku University, Sendai, Japan*
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2:45

- BE-05. Load Operations Analysis of a Hybrid Excited Flux Switching Vernier Alternator for Renewable Energy Conversion.** *H.N. Nasser*¹, *V. Dyck*¹, *E. Lemains*¹, *Y. Amara*¹, *F. Chabour*¹ and *J.J. Paulides*² *1. Université Le Havre Normandie, Le Havre, France; 2. AE Group (Advanced Electromagnetics), Eindhoven, Netherlands*
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3:00

- BE-07. Graphical Root Cause Analysis of Magnetically Induced Vibrations in Synchronous Machines.** *A. de Barros*¹, *A. Ebrahimi*², *B. Schwarz*³ and *B. Ponick*¹ *1. Institute for Drive Systems and Power Electronics, Leibniz University Hannover, Hannover, Germany; 2. Institute of Electrical Drives, Power Electronics and Devices, University Bremen, Bremen, Germany; 3. Voith Hydro Holding GmbH & Co. KG, Heidenheim, Germany*
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3:15

- BE-08. A Quasi-3-D Finite Element Modeling of An Axial Flux Magnetic Resonant Motor.** *J. Besong*¹ *1. Institute for Multidisciplinary Sciences, Yokohama National University, Yokohama, Japan*
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3:30

- BE-09. Advancing Torque Calculation in Axial-Flux Machines: An Easy-to-Implement Approach for Finite Element Analysis.** *J.M. Silveyra*^{1,2} and *J.M. Conde Garrido*^{1,2} *1. University of Buenos Aires, Buenos Aires, Argentina; 2. CONICET, Buenos Aires, Argentina*
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- BE-10. Fast Calculation of High Frequency Air Gap Flux Density Harmonics by Frozen Permeability Method in Electrical Machines.** *S. Ni*¹, *J. Le Besnerais*², *G. Bauw*¹, *R. Romary*¹ and *B. Cassoret*¹ *1. LSEE, Artois University, Lille, France; 2. Eomys Engineering, Villeneuve-d'Ascq, France*
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4:00

- BE-11. Interlaminar faults in a GOFesi laminated magnetic core: measurements and simulations.** *B. Ducharne*^{1,2,3}, *H. Hamzehbahmani*⁴ and *Y. Gao*⁵ *1. Institut National des Sciences Appliquées de Lyon, Villeurbanne, France; 2. Tohoku University, Sendai, Japan; 3. ELyTMAX, CNRS, Sendai, Japan; 4. Durham University, Durham, United Kingdom; 5. Oita University, Oita, Japan*
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4:15

- BE-12. A Novel Winding Design for EV Traction Electric Motors: Hybrid Hairpin Winding Layout Containing Both Copper and Aluminum Windings.** *B. Guruwatta Vidanalage*¹, *Z. Li*¹, *A. Lombardi*² and *N. Kar*¹ *1. Department of Electrical and Computer Engineering, University of Windsor, Windsor, ON, Canada; 2. Nemak, Windsor, ON, Canada*
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EUROPA II

Session BF

MAGNETOELECTRIC MATERIALS AND PHENOMENA

Thiago Mori, Chair

Brazilian Center for Research in Energy and Materials,
Campinas, Brazil

2:00

- BF-01. Low Noise Inverse Magnetolectric Magnetic Field Sensor. (Invited)** *L. Thormählen*¹, *P. Hayes*¹, *E. Elzenheimer*¹, *E. Spetzler*¹, *J. McCord*¹, *G. Schmidt*¹, *M. Höft*¹, *D. Meyners*¹ and *E. Quandt*¹ *1. Christian-Albrechts-Universität, Kiel, Germany*
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- BF-02. Exploring the magnetoelectric functionality in PMN-PT/FSMA multiferroic heterostructure for flexible MEMS applications.** D. Arora¹ and D. Kaur¹ *1. Department of Physics, Indian Institute of Technology Roorkee, Roorkee, India*
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2:45

- BF-03. Study of the Magnetoelectric Effect in PVDF/Ni Composites.** F. Luciano^{1,2*}, A. De Coster¹, E. Giorgione³, D. Wysocka², S. De Gendt^{1,2}, F. Ciubotaru² and C. Adelmann²
1. KU Leuven, Leuven, Belgium; 2. Imec, Leuven, Belgium; 3. Politecnico di Torino, Turin, Italy
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3:00

- BF-04. Electric Field Control of Magnetization in FeGa microstructures on PMN-PT.** G. Pradhan^{1,2}, F. Celegato¹, A. Magni¹, M. Coisson¹, G. Barrera¹, P. Rizzi² and P. Tiberto¹
1. INRIM, Torino, Italy; 2. Department of Chemistry, Università di Torino, Torino, Italy
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3:15

- BF-05. Magnetic properties induced by epitaxial strain in BaTi_{1/2}Mn_{1/2}O₃ thin films.** R.P. Amaral^{1,2}, F.R. Estrada¹, J.C. Araújo², T.J. Mori¹, J.C. Cezar¹, R. Lora-Serrano² and P. Schio³ *1. Brazilian Synchrotron Light National Laboratory (LNLS), Brazilian Center for Research in Energy and Materials (CNPEM), Campinas, Brazil; 2. Instituto de Física, Universidade Federal de Uberlândia, Uberlândia, Brazil; 3. Brazilian Nanotechnology National Laboratory (LNNano), Brazilian Center for Research in Energy and Materials (CNPEM), Campinas, Brazil*
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3:30

- BF-06. Magnetoelectric Coupling in Pb(Zr,Ti)O₃/Co₄₀Fe₄₀B₂₀ Nanoscale Waveguides Studied by All-Electrical Spin-Wave Spectroscopy.** D. Narducci^{1,2}, X. Wu¹, I. Boventer³, J. De Boeck^{1,4}, A. Anane³, P. Bortolotti³, C. Adelmann¹ and F. Ciubotaru¹ *1. imec, Leuven, Belgium; 2. Departement Materiaalkunde (MTM), KU Leuven, Leuven, Belgium; 3. Unité Mixte de Physique CNRS-Thales, Palaiseau, France; 4. Departement Elektrotechniek (ESAT), KU Leuven, Leuven, Belgium*
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- BF-07. Ptychographic nanoscale imaging of multiferroic domains in freestanding bismuth ferrite films.** *T.A. Butcher*¹, N.W. Phillips¹, S. Finizio¹, C. Wei², C.A. Vaz¹, A. Kleibert¹, J. Yang^{2,3}, S. Huang¹ and J. Raabe¹ *1. Paul Scherrer Institut, Villigen, Switzerland; 2. Department of Physics, National Cheng Kung University, Tainan, Taiwan; 3. Center for Quantum Frontiers of Research & Technology (QFort), National Cheng Kung University, Tainan, Taiwan*
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4:00

- BF-08. Room Temperature Magnetocapacitance in Epitaxial (La,Sr)MnO₃/(K,Na)NbO₃-Based Heterostructures.** S. Pradhan¹, W. Prellier² and M.R. Rao¹ *1. Department of Physics, Indian Institute of Technology, Madras, Chennai, India; 2. Laboratoire de Cristallographie et Sciences des Matériaux, Caen, France*
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4:15

- BF-09. Evidence of strain and charge mediated coupling in Fe-Ga/PMN-PT composite multiferroic.** *M. Tortarolo*^{1,2}, D. Goijman³, S. DiNápoli¹, M.A. Barral¹, A.A. Perez Martinez³, A. Sarmiento³, G. Ramirez¹, J. Gomez³, C.A. Vaz⁴, J. Milano³ and C. Piamonteze⁴ *1. INN, CONICET-CNEA, Buenos Aires, Argentina; 2. LAHN, CNEA, Buenos Aires, Argentina; 3. INN, CONICET-CNEA, Bariloche, Argentina; 4. SLS, PSI, Zurich, Switzerland*
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4:30

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

SKYRMIONS AND SPIN-ORBIT TORQUE DEVICES

Michal Slezak, Chair

AGH University of Science and Technology, Krakow, Poland

2:00

- BG-01. Gate-controlled skyrmion and domain wall chirality.**
(Invited) J. Fischer¹, C. Fillion¹, C. Gueneau¹, F. Ibrahim¹, R. Kumar¹, C. Balan², A. Fassatoui², S. Pizzini², L. Ranno², L. Cagnon², D. Ourdani³, M. Belmeguenai³, Y. Roussigné³, S. Chérif³, S. Auffret¹, I. Joumard¹, O. Boulle¹, G. Gaudin¹, M. Chshiev¹, L.D. Buda-Prejbeanu¹, C. Baraduc¹ and H. Béa¹
 1. CEA-SPINTEC, Grenoble, France; 2. Institut Néel CNRS, Grenoble, France; 3. Université Sorbonne, Paris, France
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2:30

- BG-04. Composite skyrmion-vortex matter in ferromagnet-superconductor heterostructures.** *(Invited)*
 C.C. de Souza Silva¹ and J.F. Neto^{1,2} 1. Federal University of Pernambuco, Recife, Brazil; 2. Universidade Federal do Piauí, Teresina, Brazil
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3:00

- BG-05. Spin-orbit torque in α -W-based magnetic tunnel junction.**
 M. Cierpiał³, K. Grochot³, J. Mojsiejuk³, M. Vafaei¹, J. Wrona¹, T. Nan² and W. Skowronski³ 1. Singulus Technologies AG, Kahl am Main, Germany; 2. Tsinghua University, Beijing, China; 3. Institute of Electronics, AGH University of Krakow, Krakow, Poland
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3:15

- BG-06. Spin-Orbit Torque Driven True Random Number Generation by Varying the Field-Like to Damping-Like Torque Ratio.** M. Lee¹, S. Kim², S. Yoon¹, J. Lee¹, H. Ko¹, G. Kim³, S. Hong³, K. Lee² and Y. Kim¹ 1. Department of Materials Science and Engineering, Korea University, Seoul, The Republic of Korea; 2. Department of Physics, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, The Republic of Korea; 3. School of Cybersecurity, Korea University, Seoul, The Republic of Korea
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- BG-10. Spin-orbit torques in CrXY monolayers (X, Y ∈ {S, Se, Te}): an *ab initio* study.** *L. Vojáček*¹, J.E. Medina Dueñas², J. Li³, F. Ibrahim¹, S. Roche^{2,4}, M. Chshiev^{1,5} and J.H. Garcia²
1. CEA-SPINTEC, Grenoble, France; 2. ICN2, Barcelona, Spain; 3. LETI, Grenoble, France; 4. ICREA, Barcelona, Spain; 5. IUF, Paris, France
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EXHIBIT HALL

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

SN Piramanayagam, Co-Chair
 Nanyang Technological University, Singapore
 Simon Greaves, Co-Chair
 Tohoku University, Sendai, Japan

- BP-01. Spin-dependent transport in Spin-orbit Ferroelectric devices, modelled and studied via Finite Element Method simulations.** *P. Sgarro*¹, T. Frottier¹, A. Kandazoglou¹, S. Teresi¹, M. Culot¹, M. Cosset-Cheneau¹, F. Osana¹, L. Anghel¹, A. Marty¹, L. Vila¹, G. Prenat¹ and J. Attané¹
1. CEA-SPINTEC, Grenoble, France
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- BP-02. Enhanced SOT Efficiency in Pt/Co Systems with a NiO Interlayer for SOT-MRAM.** *M. Wijshoff*^{1,2}, R. Carpenter¹, G. Talmelli¹, S. Couet¹, C. Fleischmann^{1,2} and K. Temst^{2,1}
1. imec, Leuven, Belgium; 2. QSP, KU Leuven, Leuven, Belgium
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- BP-03. Magnetic-Resistive Random Access Memories based on Diluted Co-TiO₂ Nanotubes.** K.S. Jaimes¹, H.P. Quiroz¹, J.A. Calderón^{1,2} and A. Dussan Cuenca¹ *1. Department of Physics, Universidad Nacional de Colombia, Bogotá, Colombia; 2. Engineering and Basic Science Faculty, Universidad Central, Bogotá, Colombia*
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- BP-05. Racetrack memory devices based on freestanding multilayers.** *K. Gu*^{1,2}, Y. Guan¹, P. Wang¹, B. Hazra¹, H. Deniz¹, A. Migliorini¹, W. Zhang¹ and S. Parkin^{1,2}
1. NISE, Max Planck Institute of Microstructure Physics, Halle, Germany; 2. Martin-Luther-University Halle-Wittenberg, Halle, Germany
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- BP-07. Towards integrated skyrmionic artificial synapses.** *W. Griggs*¹, M. Lewandowski¹, I. Charalampidis¹, V. Pavlidis^{1,2} and C. Moutafis¹ *1. The University of Manchester, Manchester, United Kingdom; 2. Aristotle University of Thessaloniki, Thessaloniki, Greece*
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- BP-08. Leveraging the phase dynamics of spin-torque nano-oscillators for unconventional computing.** A. Hakam¹, N. Phan¹, L. Martins¹, L. Hutin², F. Badets², L. Benetti³, A. Jenkins³, R. Ferreira³, P. Talatchian¹ and U. Ebels¹
1. Univ. Grenoble Alpes, CEA, CNRS, Grenoble INP, SPINTEC, 38000 Grenoble, France; 2. CEA-Leti Minatec, Grenoble, France; 3. International Iberian Nanotechnology Laboratory (INL), 4715-31 Braga, Portugal
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- BP-09. Towards 3.8 nm diameter grains and 53.6 T/in² areal grain density FePt granular films with co-addition of nitride and carbon as grain boundary materials for HAMR media.** K. Tham¹, R. Kushibiki¹ and S. Saito²
1. Tanaka Kikinzoku Kogyo, Sendai, Japan; 2. Tohoku University, Sendai, Japan
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- BP-10. Using Long Short-Term Memory to Estimate the Two-Dimensional Interference of Bit-Patterned Media Recording Systems.** T.A. Nguyen¹ and J. Lee¹
1. Soongsil University, Seoul, The Republic of Korea
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- BP-11. Optimization of Layer Thicknesses for Dual-Layer Bit-Patterned Media Recording (BPMR) Systems.** N. Rueangnetr¹, C. Warisarn¹ and S. Greaves²
1. College of Advanced Manufacturing Innovation, King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand; 2. Research Institute of Electrical Communication (RIEC), Tohoku University, Sendai, Japan
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EXHIBIT HALL

Session BQ
SPINTRONICS WITH ANTIFERROMAGNETS
(Poster Session)

Qi Wang, Chair

Huazhong University of Science & Technology, Wuhan, China

- BQ-01. Electrical Manipulation and Detection of Antiferromagnetism in Magnetic Tunnel Junctions.** A. Du¹, D. Zhu¹, K. Cao¹, Z. Zhang¹, Z. Guo¹, K. Shi¹, D. Xiong¹, R. Xiao¹, W. Cai¹, J. Yin¹, S. Lu¹, C. Zhang¹, Y. Zhang¹, S. Luo², A. Fert³ and W. Zhao¹
1. Beihang University, Beijing, China; 2. HUAWEI, Shenzhen, China; 3. Univ. Paris-Sud, Paris, France
[View Digest Text](#)
- BQ-02. Withdrawn**

- BQ-03. Exploring Anomalous Hall Effects in Ta(Al)-TbCo-Ta(Al) Structures with Vertical Composition Gradients.** R.C. Bhatt^{1,2}, L. Ye^{1,2}, M. Tsai^{1,2} and T. Wu^{1,2} *1. Graduate School of Materials Science, National Yunlin University of Science and Technology, Douliu, Taiwan; 2. Taiwan Spin Research Center, National Yunlin University of Science and Technology, Douliu, Taiwan*
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- BQ-04. The Deposition Temperature Influence in Pt/CoFe₂O₄ Thin Films on Spin Hall Magnetoresistance for a Wide Range of Fields and Temperatures.** P.R. Ribeiro¹, M. Gamino², R. Rodriguez³ and K.R. Pirola¹ *1. Universidade Estadual de Campinas, Campinas, Brazil; 2. Universidade Federal do Rio Grande do Norte, Natal, Brazil; 3. Pontificia Universidad Católica de Chile, Santiago, Chile*
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- BQ-05. Spin Seebeck effect in the spin-flop and paramagnetic phases of the antiferromagnet RbMnF₃.** J. Marques de Lima¹, P. Trajano Ribeiro¹, E. Souza¹, F. de Araujo Machado¹ and S.M. Rezende¹ *1. Departamento de Física, Universidade Federal de Pernambuco, Recife, Brazil*
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- BQ-06. Quantum Sensing of Spin Fluctuations in Anisotropic Antiferromagnetic Insulators Using Nitrogen-Vacancy Centers.** R. Rodriguez¹, R. Cabezón¹, F. Pinto¹, E. Rodriguez¹ and J. Maze¹ *1. Department of Physics, Pontifical Catholic University of Chile, Santiago, Chile*
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- BQ-07. Evidence of Spin-Polarized Current in Fe-Rich NbFe₂ Compound.** M. Bigolin Lorenzon¹, O. Isnard², A. M. H. de Andrade¹, M. Tumelero¹, P. Pureur¹ and F. Mesquita¹ *1. Instituto de Física, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil; 2. Université du Grenoble Alpes, Grenoble, France*
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- BQ-08. Unveiling a Bulk Antiferromagnetic Order via the Polarity of Spin-orbit Torque Ratchet at Ferromagnet/Antiferromagnet Interface.** H. Chang¹ and C. Yang¹ *1. Department of Materials Science and Engineering, National Yang Ming Chiao Tung University, Hsinchu, Taiwan*
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- BQ-09. Raman Spectroscopy of Optimally-Doped Manganites with Praseodymium Substitution La_{5/8-x}Pr_xCa_{3/8}MnO₃ (x = 0.35; 0.40; 0.45).** G.K. Soares¹, D. Carranza-Célis², J.A. Bohorquez², J.G. Ramirez² and D. Muraca¹ *1. DEQ, Universidade Estadual de Campinas, Campinas, Brazil; 2. Department of Physics, Universidad de los Andes, Bogota, Colombia*
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- BQ-10. Probing Magnetic Phase Transitions in HoMnO₃: A Landau Theory Analysis of Perturbed Angular Correlation Spectroscopy Data.** *L. Scalise*¹, *N. Pereira de Lima*¹, *L.F. Pereira*¹, *J. Schell*^{2,3}, *A. Burimova*¹, *B.S. Corrêa*¹, *A. A. Miranda*¹ and *A.W. Carbonari*¹ *1. CERPq, IPEN, Sao Paulo, Brazil; 2. CENIDE, Essen, Germany; 3. ISOLDE, CERN, Geneva, Switzerland*
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EXHIBIT HALL

Session BR
NANOPARTICLES AND NANOWIRES
(Poster Session)
Marcio Correa, Chair
Federal University of Rio Grande do Norte, Natal, Brazil

- BR-01. Effect of synthesis method and calcination temperature on the physical properties of Ni-NiO nanocomposites.** *R.A. Pinto*¹, *J. Soares*¹, *R.B. da Silva*¹, *M. Correa*² and *F. Bohn*² *1. Departamento de Física, Universidade do Estado do Rio Grande do Norte, Parnamirim, Brazil; 2. Departamento de Física, Universidade Federal do Rio Grande do Norte, Natal, Brazil*
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- BR-02. Withdrawn**
- BR-03. Control of Magnetic Nanoparticle Properties by Different Syntheses Methodologies.** *B.S. Corrêa*¹, *C. Sena*², *M.S. Costa*², *G.A. Cabrera-Pasca*², *R.S. Freitas*³ and *A.W. Carbonari*¹ *1. CERPQ, Instituto de Pesquisas Energéticas e Nucleares, São Paulo, Brazil; 2. Faculdade de Ciências Exatas e Tecnologia, Federal University of Pará, Abaetetuba, Brazil; 3. Instituto de Física, University of São Paulo, São Paulo, Brazil*
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- BR-04. Extremophilic microorganisms: An alternative as synthesizers of ferromagnetic nanoparticles.** *V. Antúnez - Ossio*¹ and *J.M. Blamey*^{1,2} *1. Laboratorio de Bioquímica de Extremófilos, Universidad de Santiago, Santiago, Chile; 2. Fundación Biociencia, Santiago, Chile*
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- BR-05. Unsaturated Modes of Ferromagnetic Resonance in Maghemite Nanoparticles.** *M. Pessoa*¹, *M.A. Sousa*², *I.C. Merino*³, *P.C. Morais*^{4,5}, *F. Pelegrini*⁶, *M.S. Parise*⁴, *L.C. Figueiredo*⁴ and *E.M. Saitovitch*³ *1. Departamento de Ciências Naturais, Universidade Federal do Espírito Santo, São Mateus, Brazil; 2. Instituto de Ciências Exatas e Tecnológicas, Universidade Federal de Jataí, Jataí, Brazil; 3. Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil; 4. Universidade de Brasília, Brasília, Brazil; 5. Universidade Católica de Brasília, Brasília, Brazil; 6. Universidade Federal de Goiás, Goiânia, Brazil*
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- BR-06. Alternative One-Pot Microwave Assisted Synthesis of Superparamagnetic CoFe₂O₄ Nanoparticles.** *K.O. Abreu*^{1,2,3}
1. Departamento de Química Orgânica e Inorgânica, Universidade Federal do Ceará, Fortaleza, Brazil;
2. Departamento de Química Analítica e Físico-Química, Universidade Federal do Ceará, Fortaleza, Brazil;
3. Instituto de Química, Universidade de São Paulo, São Paulo, Brazil
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- BR-07. Impact of temperature on structural and magnetic properties of CoFe₂O₄ nanoparticles.** *T. da Silva Nascimento Sales*¹, *K.S. Souza*¹, *J.A. Guerra*¹, *D.P. Vieira*¹, *R.N. Saxena*¹ and *A.W. Carbonari*¹ 1. Instituto de Pesquisas Energéticas e Nucleares, São Paulo, Brazil
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- BR-09. Exchange Bias Effects in Bismuth Ferrite Nanostructures produced by Pulsed Laser Deposition.** *D. M. A. García*¹, *R. D. Santos*¹, *A. M. S. Gomes*² and *W. Castro Nunes*¹
1. Department of Physics, Universidade Federal Fluminense, Niterói, Brazil; 2. Department of Physics, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil
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- BR-10. Investigating Unusual Dynamics: Time and Frequency-Dependent Variations in Specific Power Absorption of Magnetite Nanoparticles in Magnetic Hyperthermia.** *G.S. Silva*¹, *A.A. de Almeida*¹, *F. Fabris*¹ and *D. Muraca*¹
1. Instituto de Física “Gleb Wataghin”, Universidade Estadual de Campinas, Sumaré, Brazil
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- BR-11. Interface Phenomena and Magnetic Hyperthermia of Fe₃O₄ Nanoparticles.** *M.B. Alves*¹, *A.A. de Almeida*¹, *P. Tancredi*² and *D. Muraca*¹ 1. IFGW, Universidade Estadual de Campinas, Campinas, Brazil; 2. Centro de Micro y Nanotecnología, Instituto Nacional de Tecnología Industrial, Buenos Aires, Argentina
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- BR-12. Optimizing Magnetic Hyperthermia: Controlling Magnetic Properties of Co_xFe_{3-x}O₄ Nanoparticles for Enhanced Magnetoliposome-Mediated Drug Release.** *A.A. de Almeida*¹, *G.S. Silva*¹, *F. Fabris*¹, *M. Knobel*¹, *K.R. Pirota*¹ and *D. Muraca*¹ 1. Universidade Estadual de Campinas, Barao Geraldo - Campinas, Brazil
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- BR-13. Withdrawn**
- BR-14. Producing High-Ratio Nanowires by Pressure-Induced Infiltration into Anodized Aluminum Oxide Nanoporous Template.** *L. Tomiatti*¹, *A. Mendonça*¹ and *F. Béron*¹
1. Instituto de Física Gleb Wataghin, Universidade Estadual de Campinas, Campinas, Brazil
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BR-15. Structural and Magnetic Characterization of a Ferrofluid Obtained Through an Economical Way of Chemical Synthesis. I.G. Cely Orjuela^{1,2}, P.C. Rivas Rojas^{3,6}, P. Tancredi⁴, O. Moscoso Londoño⁵ and L.M. Socolovsky^{1,2}
1. Universidad Tecnológica Nacional Facultad Regional Santa Cruz, Rio Gallegos, Argentina; 2. CIT Santa Cruz, CONICET, Rio Gallegos, Argentina; 3. Laboratorio de Cristalografía Aplicada, Instituto de Tecnologías Emergentes y Ciencias Aplicadas, UNSAM-CONICET, San Martín, Argentina; 4. Micro y nanotecnología, Instituto Nacional de Tecnología Industrial, San Martín, Argentina; 5. Facultad de Ingeniería, Universidad Autónoma de Manizales, Manizales, Colombia; 6. Instituto de Ingeniería Mecánica, Universidad Austral de Chile, Valdivia, Chile
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BR-16. Cobalt ferrite-polyurethane composites as magnetic valves for microfluidic systems. A. Veloso-Fernández¹, J. Laza¹, S. Muñana-González¹, L. Ruiz-Rubio^{1,3}, L. Pérez-Álvarez^{1,3}, A. Aguilera-Grande¹, D. Salazar Jamillo³, A. Lopes^{1,2} and J. Vilas-Vilela^{1,3}
1. Department of Physical-Chemistry, University of Basque Country, Leioa, Spain; 2. Ikerbasque- Basque Foundation for Science, Bilbao, Spain; 3. BC Materials, Basque Center for Materials, Applications and Nanostructures, Leioa, Spain
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EXHIBIT HALL

Session BS
PERMANENT MAGNET MACHINES I
(Poster Session)

Narayan Kar, Co-Chair
University of Windsor, Windsor, ON, Canada
Elena Lomonova, Co-Chair
Technische Universiteit Eindhoven, Eindhoven, Netherlands

BS-01. Computation-Efficient Current Harmonic Mitigation for Dual Three-Phase Permanent Magnet Synchronous Motors. Z. Zhang¹, J. Zhang¹, R. Han², Y. Wu¹, Y. Gong¹ and S. Chang¹
1. Tianjin University, Tianjin, China; 2. Tianjin Navigation Instruments Research Institute, Tianjin, China
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BS-02. A Study on reducing electromagnetic vibrations noise by changing the rotor shape for traction motors. S. Lee¹, S. Song², I. Yang², D. Jung³ and W. Kim¹
1. Department of Electrical Engineering, Gachon University, Seongnam-si, The Republic of Korea; 2. Hanyang University, Seoul, The Republic of Korea; 3. Halla University, Wonju, The Republic of Korea
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- BS-03. Design of a Slotless Structure for Minimizing Cogging Torque and Torque Ripple in a Column Type EPS Motor for Vehicles.** D. Choi¹, D. Kim², H.S. Han¹, D. Jung³ and W. Kim⁴ *1. Department of Next Generation Smart Energy System Convergence, Gachon University, Seongnam, The Republic of Korea; 2. Department of Electrical Engineering, Hanyang University, Seoul, The Republic of Korea; 3. Department of Mechanical Automotive and Robot Engineering, Halla University, Wonju, The Republic of Korea; 4. Department of Electrical Engineering, Gachon University, Seongnam, The Republic of Korea*
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- BS-04. Withdrawn**
- BS-05. Asymmetric Design of Consequent-Pole to Reduce Torque Ripple.** C. Jo¹, I. Yun¹, H. Hong¹, C. Jin², S. Yoon² and J. Lee¹ *1. Department of Electrical Engineering, Hanyang University, Seoul, The Republic of Korea; 2. Department of Electrical Engineering, Wonkwang University, Iksan, The Republic of Korea*
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- BS-06. A Study on the Design of Axial Flux Motor for Increased Power Density Compared to Radial Flux Motor.** M. Youn³, D. Nam³, M. Hong², N. Jo³ and W. Kim¹ *1. Department of Electrical Engineering, Gachon University, Seongnam, The Republic of Korea; 2. Department of Electrical Engineering, Hanyang University, Seoul, The Republic of Korea; 3. Department of Next Generation Energy System Convergence, Gachon University, Seongnam, The Republic of Korea*
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- BS-08. Impact of Characteristic Current on Efficiency Area within Flux-Weakening Region of Interior Permanent Magnet Motor.** L.J. Vera¹ and M. Hsieh¹ *1. National Cheng Kung University, Tainan, Taiwan*
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- BS-09. Evaluation of Slot-Modulation Generated Surface Core Loss in Consequent Pole Permanent Magnet Synchronous Motor.** R. Kumar¹, P. Song¹ and N. Kar¹ *1. Department of Electrical and Computer Engineering, University of Windsor, Windsor, ON, Canada*
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- BS-10. Improvement of Magnetic Properties of Ring-shaped Laminated Cores by Laser Welding.** Y. Tsuchida¹ and K. Otsuka¹ *1. Oita University, Oita, Japan*
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- BS-11. Comparative Study of Cogging Torque, Torque Ripple and Vibration on Stator Tooth Chamfer Types in Permanent Magnet Synchronous Motors.** Y. Won¹, J. Kim¹, S. An¹ and M. Lim¹ *1. Hanyang University, Seoul, The Republic of Korea*
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BS-12. Design process of high power density hybrid type motor using 3D printing. H. Kim¹, Y. Lee¹, H. Pyo², S. Ko¹ and W. Kim² 1. Department of Next Generation Energy System Convergence, Gachon University, Seongnam, The Republic of Korea; 2. Department of Electrical Engineering, Gachon University, Gwangmyeong-si, The Republic of Korea
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BS-13. A Study on the High Efficiency Design and Demagnetization of Hybrid Line Start Permanent Magnet Synchronous Motor. H. Hong¹, C. Jo¹, H. Koo¹, J. Lee¹, D. Jung² and B. Kang³ 1. Department of Electrical Engineering, Hanyang University, Seoul, The Republic of Korea; 2. Department of Mechanical, Automotive and Robot Engineering, Halla University, Wonju, The Republic of Korea; 3. SJ Global Co. R&D Center, Changwon, The Republic of Korea
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OCEANIA IV & V

Session CA
GRADIENT DZYALOSHINSKII-MORIYA
INTERACTION

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

8:30

CA-01. Conical-helix magnetic textures stabilized in planar and curved films with different kinds of Dzyaloshinskii-Moriya interaction. (Invited) M. Cepeda-Arancibia^{1,2}, B. Mimica-Figari¹, F. Brevis¹, D.I. Cortés-Ortuño¹, R. Gallardo^{1,2} and P. Landeros^{1,2} 1. Departamento de Física, Universidad Técnica Federico Santa María, Valparaiso, Chile; 2. Center for the Development of Nanoscience and Nanotechnology (CEDENNA), Santiago, Chile
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9:00

CA-02. Fast moving spin textures in ferrimagnets: from domain walls to skyrmions. (Invited) L. Berges¹, E. Haltz¹, S. Panigraphy¹, S. Mallick¹, R. Weil¹, S. Rohart¹, J. Sampaio¹ and A. Mougin¹ 1. UMR CNRS 8502, Laboratoire de Physique des Solides Université Paris-Saclay, Orsay, France
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9:30

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

- CA-04. **Skyrmions and Hopfions: Magnetic vs. Polar Structures.** *(Invited)* S. Kondovych¹, A. Razumnaya², Y. Tikhonov³, V. Vinokur⁴ and I. Luk'yanchuk³ *1. Institute for Theoretical Solid State Physics, IFW Dresden, Dresden, Germany; 2. Jozef Stefan Institute, Ljubljana, Slovenia; 3. University of Picardie Jules Verne, Amiens, France; 4. Terra Quantum AG, St. Gallen, Switzerland*
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10:30

- CA-05. **Withdrawn**

OCEANIA VI & VII

Session CB

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

Santa Pile, Chair

Johannes Kepler University Linz, Linz, Austria

8:30

- CB-01. **Room temperature switching of perpendicular magnetization by magnon torques.** *(Invited)* F. Wang^{2,1}, G. Shi¹ and H. Yang¹ *1. ECE, National University of Singapore, Singapore; 2. Shanxi Normal University, Taiyuan, China*
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9:00

- CB-02. **Optical and electrical investigation of Permalloy nanomagnet reversal induced by propagating magnons in a magnonic memory.** S. Joglekar¹, M. Xu¹ and D. Grundler^{1,2} *1. Laboratory of Nanoscale Magnetic Materials and Magnonics, Institute of Materials, Swiss Federal Institute of Technology, (EPFL), Lausanne, Switzerland; 2. Institute of Electrical and Micro Engineering (IEM), Swiss Federal Institute of Technology, (EPFL), Lausanne, Switzerland*
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- CB-03. Controlling Spin-Waves by Spin-Polarized Current for Logic and Neuromorphic Computing.** *R.M. de Menezes*^{1,2}, *J. Mulkers*³, *C.C. de Souza Silva*¹, *B. Van Waeyenberge*³ and *M. Milosevic*² *1. Department of Physics, Federal University of Pernambuco, Recife, Brazil; 2. Department of Physics, University of Antwerp, Antwerp, Belgium; 3. Department of Physics, Ghent University, Ghent, Belgium*
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9:30

- CB-04. Magnonic Hall Effect and Magnonic Focusing Induced by Hopfions. (Invited)** *C. Saji*¹, *R. Troncoso*², *V. Carvalho*³, *D. Altbir*^{4,5} and *A. Nuñez*¹ *1. Departamento de Fisica, Universidad de Chile, Santiago, Chile; 2. Universidad Adolfo Ibañez, Santiago, Chile; 3. Universidade Federal de Viçosa, Viçosa, Brazil; 4. Universidad Diego Portales, Santiago, Chile; 5. Universidad de Santiago de Chile, Santiago, Chile*
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10:00

- CB-05. Detection of Gate-Switchable Magnons in Graphene via Thermal Transport.** *J. Weissman*^{1,2}, *Z. Yan*¹, *A.V. Talanov*¹, *Y.J. Shin*¹, *D.H. Najafabadi*¹ and *P. Kim*¹ *1. Department of Physics, Harvard University, Cambridge, MA, United States; 2. Institute of Applied Physics, The Hebrew University of Jerusalem, Jerusalem, Israel*
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10:15

- CB-06. Going vertical: sub-micrometer spin-wave directional couplers.** *K. Szulc*¹ and *M. Krawczyk*¹ *1. Faculty of Physics, Adam Mickiewicz University, Poznan, Poland*
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10:30

- CB-07. Biasing Magnonic Devices with Integrated Permanent Micromagnets.** *M. Cocconcelli*¹, *F. Maspero*¹, *A. Cattoni*¹, *B. Heinz*², *P. Pirro*², *R. Erdélyi*³, *A. Papp*³, *G. Csaba*³, *M. Madami*⁴, *S. Tacchi*⁵ and *R. Bertacco*¹ *1. Department of Physics, Politecnico di Milano, Milan, Italy; 2. Rheinland-Pfälzische Technische Universität Kaiserslautern-Landau and Landesforschungszentrum OPTIMAS, Kaiserslautern, Germany; 3. Pazmany Peter Catholic University, Budapest, Hungary; 4. Dipartimento di Fisica e Geologia, Università di Perugia, Perugia, Italy; 5. Istituto Officina dei Materiali del CNR, Perugia, Italy*
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- CB-08. Exploring Spin Wave Dynamics in Square Artificial Spin Ice Vertices via Ferromagnetic Resonance.**
G.A. Gomez-Iriarte¹, D. Gonzalez-Chavez¹, R.L. Sommer¹ and J.P. Sinnecker¹ 1. Centro Brasileiro de Pesquisas Fisicas, Rio de Janeiro, Brazil
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11:00

- CB-09. Phase velocity reversal and propagation of zero-momentum spin waves in synthetic antiferromagnets with uniaxial anisotropy.** O. Wojewoda¹, J. Holobradek¹, D. Pavelka¹, E. Pribytova¹, J. Krcma¹, J. Klima¹, J. Michalicka¹, T. Lednický¹, A. Chumak² and M. Urbánek¹ *1. Brno University of Technology, Brno, Czechia; 2. University of Vienna, Vienna, Austria*
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OCEANIA IX & X

Session CC
NEUROMORPHIC AND UNCONVENTIONAL
COMPUTING

Sonal Shreya, Co-Chair
 Aarhus University, Aarhus, Denmark

Sai Li, Co-Chair
 Beihang University, Beijing, China

8:30

- CC-01. Spintronics domain wall neuron devices with leak-integrate-fire functions. (Invited)** B. Sekh¹, W. Mah¹, H. Rahaman¹, D. Kumar¹, S. Dhull³, A. Nisar³, M. Ramu¹, J. Chan^{1,2}, K.R. Ganesh², V.B. Naik², B.K. Kaushik³ and S. Piramanayagam¹ *1. School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore; 2. GlobalFoundries, Singapore; 3. Department of Electronics and Communication Engineering, Indian Institute of Technology, Roorkee, India*
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9:00

- CC-02. **Neuromorphic Computing with the Ferromagnetic/Antiferromagnetic SOT Systems: the Role of Emerging Antiferromagnetic Phase.** *D.K. Ojha^{1,2,5}, Y. Huang¹, Y. Lin¹, R. Chatterjee^{2,3}, W. Chang⁴ and Y. Tseng^{1,5}* 1. *Department of Materials Science & Engineering, National Yang Ming Chiao Tung University, Hsinchu, Taiwan;* 2. *Department of Physics, Indian Institute of Technology Delhi, Delhi, India;* 3. *National University of Science and Technology MISiS, Moscow, Russian Federation;* 4. *Powerchips Semiconductor Manufacturing Corporation, Hsinchu, Taiwan;* 5. *International College of Semiconductor Technology, National Yang Ming Chiao Tung University, Hsinchu, Taiwan*
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9:15

- CC-03. **Gradient Descent Learning in Multilayer Antiferromagnetic Neural Networks.** *H. Bradley¹, V. Tyberkevych¹ and A.N. Slavin¹* 1. *Department of Physics, Oakland University, Auburn Hills, MI, United States*
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9:30

- CC-04. **Unleashing the Potential of Magnetic Vortex in Spintronic Devices for Various Applications. (Invited)** *S. Shreya¹, K.K. Das², Y. Rezaeiyan¹, T. Böhnert³, S. Soni², R. Li¹, A. Jenkins³, B.K. Kaushik², R. Ferreira³, H. Farkhani¹ and F. Moradi¹* 1. *Electrical and Computer Engineering Department, Aarhus University, Aarhus, Denmark;* 2. *Electronics and Communication Engineering Department, Indian Institute of Technology Roorkee, Roorkee, India;* 3. *Spitronics, International Iberian Nanotechnology Laboratory (INL), Braga, Portugal*
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10:00

- CC-05. **Probability distributions generated using stochastic actuated perpendicular magnetic tunnel junctions.** *A. Sidi El Valli¹, L. Rehm¹, M. Tsao¹, S. Misra², D. Smith² and A.D. Kent¹* 1. *Department of Physics, New York University, New York, NY, United States;* 2. *Sandia National Laboratories, Albuquerque, NM, United States*
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10:15

- CC-06. **Spintronic Oscillator-based Ising Machine simulated to solve large Max-Cut problems.** *V. Puliafito¹, L. Mazza¹, A. Grimaldi², D. Rodrigues¹, E. Raimondo², M. Carpentieri¹ and G. Finocchio²* 1. *Department of Electrical and Information Engineering, Politecnico di Bari, Bari, Italy;* 2. *University of Messina, Messina, Italy*
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- CC-07. Brownian reservoir computing approach for Gesture recognition by using geometrically confined skyrmion dynamics.** *G. Beneke¹, T. Winkler¹, K. Raab¹, M.A. Brems¹, F. Kammerbauer¹, P. Gerhards², K. Knobloch², S. Krishnia¹, J. Mentink³ and M. Kläui^{1,4}* *1. Institute of Physics, Johannes Gutenberg-Universität Mainz, Ober-Olm, Germany; 2. Infineon Technologies Dresden, Dresden, Germany; 3. Institute for Molecules and Materials, Radboud University, Nijmegen, Netherlands; 4. Center for Quantum Spintronics, Norwegian University of Science and Technology, Trondheim, Norway*
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- CC-08. Skyrmionic Synapse Implementation for Pattern Recognition using Convolutional Neural Network.** *S. Gupta¹, V. Vadde¹, B. Muralidharan¹ and A. Sharma²* *1. Department of Electrical Engineering, Indian Institute of Technology Bombay, Mumbai, India; 2. Department of Electrical Engineering, Indian Institute of Technology Ropar, Rupnagar, India*
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- CC-09. Leveraging Spintronic Nonlinear Random Projections for Handwritten Digit Recognition.** *A. Moureaux¹, S. de Wergifosse¹, C. Chopin¹ and F. Abreu Araujo¹* *1. UCLouvain, Louvain-la-Neuve, Belgium*
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- CC-10. Magnetization Dynamics in Square Lattice Artificial Spin Ice.** *C. Sullivan¹, H. Chen², B. Fang³, X. Zhang³ and S. Majetich²* *1. Department of Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, PA, United States; 2. Department of Physics, Carnegie Mellon University, Pittsburgh, PA, United States; 3. Department of Materials Science and Engineering, King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia*
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Session CD
NOVEL SPINTRONICS

Clécio de Souza Silva, Chair
Federal University of Pernambuco, Recife, Brazil

8:30

- CD-01. **Visualizing symmetry-breaking electronic orders in epitaxial Kagome magnet FeSn films. (Invited) L. Li¹**
1. West Virginia University, Morgantown, WV, United States
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9:00

- CD-03. **Withdrawn**

9:15

- CD-04. **Chiral antiferromagnetic Josephson junctions as spin-triplet supercurrent spin-valves and dc SQUIDS. (Invited) K. Jeon¹** *1. Chung-Ang University (CAU), Seoul, The Republic of Korea*
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9:45

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

- CD-06. **Large Interfacial Rashba Torques in Atomically Thin Co|Al Systems.** *N. Sebe¹, S. Krishnia², S. Mallick¹, Y. Sassi¹, S. Collin¹, T. Denneulin³, A. Kovács³, R.E. Dunin-Borkowski³, A. Fert¹, J. George¹, V. Cros¹ and H. Jaffrès¹* *1. Laboratoire Albert Fert, CNRS, Thales, Université Paris-Saclay, Palaiseau, France; 2. Institute of Physics, Johannes Gutenberg-University Mainz, Mainz, Germany; 3. Forschungszentrum Jülich, Jülich, Germany*
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10:15

- CD-07. **Transporting the Shape of Spin: From Spintronics to Multipoletronics. (Invited) H. Chen¹** *1. Department of Physics, Colorado State University, Fort Collins, CO, United States*
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- CD-08. Room temperature spin-charge interconversion in nanodevices made of sputtered GeTe.** S. Teresi¹, P. Sgarro¹, M. Cosset-Cheneau¹, T. Frottier¹, W. Savero-Torres¹, M. Wissman¹, M. Culot¹, F. Osana¹, A. Kandazoglou¹, J. Paterson², A. Oysel Mestre², F. Hippert³, F. Leroy⁴, B. Croes⁴, M. Bibes⁵, A. Manchon⁴, A. Marty¹, J. Attané¹, F. Cheynis⁴, G. Prenat¹, L. Hutin², P. Noé² and L. Vila¹
1. CEA-SPINTEC, Grenoble, France; 2. CEA-LETI, Grenoble, France; 3. LMGP, Grenoble INP, Grenoble, France; 4. CINAM, Marseille, France; 5. Laboratoire Albert Fert, Paris, France
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11:00

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

Session CE
ELECTRICAL MACHINES AND POWER SYSTEM COMPONENTS

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

8:30

- CE-01. Test bench for characterization of HTS tapes at low magnetic fields based on additive manufacturing.**
 K. Habelok¹, K. Gruszczyk², P. Lasek¹, D. Koterla³ and M. Stepień¹ *1. Department of Power Electronics, Electrical Drives and Robotics, Silesian University of Technology, Gliwice, Poland; 2. Faculty of Electrical Engineering, Silesian University of Technology, Gliwice, Poland; 3. ILC Dover Poland Sp. z o.o., Gliwice, Poland*
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8:45

- CE-03. Overload Capabilities of Synchronous Motors.**
 H.N. Nasser¹, S. Asfirane¹, Y. Amara¹ and F. Chabour¹
1. Université Le Havre Normandie, Le Havre, France
[View Digest Text](#)

- CE-04. Online Permanent Magnet Demagnetization Monitoring using Model Reference Adaptive System Considering VSI Nonlinearity.** *S. Garaei¹, C. Lai¹ and L. Iyer²*
1. Electrical and Computer Engineering, Concordia University, Montréal, QC, Canada; 2. Magna International Inc, Troy, MI, United States
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9:15

- CE-05. Maximum-Torque-per-Watt Control Framework for Variable Flux Reluctance Machines with Magnetic Saturation and Cross-Coupling.** *G. Bayazit¹, J. Escarate¹, D. Ceylan¹, E. Ilhan Caarls¹, J. Schellekens¹, K.O. Boynov¹ and E. Lomonova¹* *1. Eindhoven University of Technology, Eindhoven, Netherlands*
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9:30

- CE-06. Improvement of the propulsion force by optimizing the range of magnetic field influence in a permanent magnet-HTS Hybrid Maglev Transporter System.** *A.H. Takinami¹ and S. Ohashi¹* *1. Department of Electrical Engineering, Kansai University, Suita, Japan*
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9:45

- CE-07. Influence of friction on high speed permanent magnet bearing rings.** *T. Tan^{1,2}, D.F. Förster¹, U. Pabst¹, U. Giesen¹, M. Butzek¹ and G. Natour^{1,2}* *1. Central Institute of Engineering, Electronics and Analytics – Engineering and Technology (ZEA-1), Forschungszentrum Jülich GmbH, Jülich, Germany; 2. Faculty of Mechanical Engineering, RWTH Aachen University, Aachen, Germany*
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10:00

- CE-08. A Novel Electromagnetic Force Calculation Method for Homopolar Hybrid Magnetic Bearing.** *G. Cao¹, H. Li¹, H. Hu¹, S. Huang¹, H. Wang¹, K. Liu² and J. Wei²*
1. Shenzhen University, Shenzhen, China; 2. Sun Yat-Sen University, Shenzhen, China
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10:15

- CE-09. Noval Electrodynamic Damper for Homopolar and Heteropolar Electrodynamic Bearings.** *A. Alzhrani¹ and K. Atallah²* *1. Department of Electrical Engineering, Jubail Industrial College, Jubail, Saudi Arabia; 2. University of Sheffield, Sheffield, United Kingdom*
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10:30

- CE-10. **Systematic Optimization of Electromagnet Hardware for Electromagnetic Suspension: A Fusion of Simulation and Multi-Objective Optimization Techniques.** J. Demicoli¹, O. Kleikemper² and S. Steinhorst¹ *1. Technical University of Munich, Munich, Germany; 2. TUM Hyperloop Program, Technical University of Munich, Munich, Germany*
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10:45

- CE-11. **Proposal of a Bearingless Consequent-Pole Motor Using Combined Winding with Functions of Three-Phase Radial Suspension and Single-Phase Motor Driven by Zero-Sequence Current.** Y. Fujii¹ and K. Tanaka¹
1. Department of Electrical and Electronic Engineering, Tokyo Institute of Technology, Tokyo, Japan
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11:00

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

Session CF

MAGNETIC TEXTURES, STATICS, AND DYNAMICS

Christian Tzschaschel, Co-Chair
Max Born Institute, Berlin, Germany

Adekunle Adeyeye, Co-Chair
Durham University, Durham, United Kingdom

8:30

- CF-01. **Spin wave localization in ferromagnetic layer induced by superconducting nanostructure.** J. Kharlan^{1,2}, K. Sobucki¹, K. Szulc¹, S. Memarzadeh¹ and J.W. Klos¹
1. Adam Mickiewicz University, Poznan, Poland; 2. Institute of Magnetism, Kyiv, Ukraine
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- CF-02. Critical slowing of the spin and charge density wave order in thin film Cr following photoexcitation.** *S.K. Patel*^{1,2}, *O. Gorobtsov*³, *D. Cela*², *S.B. Hrkac*², *N. Hua*², *R. Medapalli*¹, *A. Shabalin*², *J. Wingert*², *J.M. Glownia*⁴, *D. Zhu*⁴, *M. Chollet*⁴, *O. Shpyrko*², *A. Singer*³ and *E. Fullerton*¹ *1. Center for Memory and Recording Research, University of California, San Diego, La Jolla, CA, United States; 2. Physics Department, University of California, San Diego, La Jolla, CA, United States; 3. Department of Materials Science and Engineering, Cornell University, Ithaca, NY, United States; 4. Linac Coherent Light Source, SLAC National Accelerator Laboratory, Menlo Park, CA, United States*
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9:00

- CF-03. Magnetization dynamics induced by spin-vortex locking in topological insulators proximate to a superconductor.** *F. Nogueira*¹ *1. Leibniz Institute for Solid State and Materials Research (IFW) Dresden, Dresden, Germany*
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9:15

- CF-04. Vortex chaotic dynamics in a cross-tie domain wall.** *M. Al-Mahdawi*¹ and *M. Oogane*² *1. Mechatronics Engineering Department, Libya International Medical University, Benghazi, Libya; 2. Tohoku University, Sendai, Japan*
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9:30

- CF-05. Resonant Excitation of Vortex Gyrotropic Mode via Surface Acoustic Waves.** *A. Koujok*¹, *A. Riveros*², *D. Rodrigues*³, *G. Finocchio*⁴, *M. Weiler*¹, *A. Hamadeh*¹ and *P. Pirro*¹ *1. Fachbereich Physik and Landesforschungszentrum OPTIMAS, Rheinland-Pfalzische, Technische Universität Kaiserslautern- Landau, Kaiserslautern, Germany; 2. Escuela de Ingeniería, Universidad Central de Chile, Santiago, Chile; 3. Department of Electrical and Information Engineering, Politecnico di Bari, Bari, Italy; 4. Department of Mathematical and Computer Sciences, Physical Sciences and Earth Sciences, University of Messina, Messina, Italy*
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- CF-06. Non-Volatile Frequency Reconfiguration of Vortex Oscillators.** *M. Steblii*¹, *A. Jenkins*¹, *L. Benetti*¹, *A. Schulman*¹, *E. Paz*¹, *T. Böhnert*¹ and *R. Ferreira*¹
1. International Iberian Nanotechnology Laboratory, Braga, Portugal
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10:00

- CF-07. Geometry-induced effects in domain wall dynamics in stripes with spatially varying cross-section.** *K. Yershov*^{1,2}
1. Leibniz Institute for Solid State and Materials Research in Dresden, Dresden, Germany; 2. Bogolyubov Institute for Theoretical Physics of the National Academy of Sciences of Ukraine, Kyiv, Ukraine
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10:15

- CF-08. Quantitative Description of the Impact of the Ampère-Oersted Field on the Stiffness of Magnetic Vortices.** *S. de Wergifosse*¹, *C. Chopin*^{1,2}, *A. Moureaux*¹ and *F. Abreu Araujo*¹ *1. UCLouvain, Louvain-la-Neuve, Belgium; 2. CEA-SPINTEC, Grenoble, France*
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10:30

- CF-11. Graph Neural Networks to Predict Coercivity of Hard Magnetic Microstructures.** *H.A. Moustafa*¹, *A. Kovacs*¹, *J. Fischbacher*¹, *M. Gusenbauer*¹, *Q. Ali*^{1,2}, *L. Breth*¹, *Y. Hong*³, *W. Rigaut*³, *T. Devillers*³, *N. Dempsey*³, *T. Schrefl*^{1,2} and *H. Oezelt*¹ *1. Department for Integrated Sensor Systems, University for Continuing Education Krems, Wiener Neustadt, Austria; 2. Christian Doppler Laboratory for Magnet Design Through Physics Informed Machine Learning, Wiener Neustadt, Austria; 3. CNRS, Grenoble INP, Institute Néel, Université Grenoble Alpes, Grenoble, France*
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10:45

- CF-12. Numerical simulations and annihilation mechanisms of skyrmion tubes in a bulk chiral magnet.** *D.I. Cortés-Ortuño*¹ and *M. Birch*² *1. Departamento de Física, Universidad Técnica Federico Santa María, Valparaíso, Chile; 2. RIKEN Center for Emergent Matter Science, Wako, Japan*
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Session CG
MAGNETORESISTANCE AND SPIN CURRENT
GENERATION

Gyoung-Min Choi, Chair
 Sungkyunkwan University, Suwon, The Republic of Korea

8:30

- CG-01. Thermally driven magneto-transport in quaternary spin-gapless semiconductors and semi-metal Heusler alloys. (Invited) H. Srikanth¹** *1. Department of Physics, University of South Florida, Tampa, FL, United States*
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9:00

- CG-02. Thermal Spin-Current Generation in Bi-substituted YIG films with Perpendicular Magnetic Anisotropy.** *L.M. Solis^{1,2}, A. Anadón³, M. Rengifo², J. Santiso⁴, J. Rojas-Sanchez³, S. Petit-Watelot³, M. Aguirre^{2,5,6} and L. Steren^{1,7}* *1. Instituto de Nanociencia y Nanotecnología CNEA/CONICET - Constituyentes, San Martín, Argentina; 2. Instituto de Nanociencia y Materiales de Aragón, UNIZAR-CSIC, Zaragoza, Spain; 3. Institut Jean Lamour, Université de Lorraine CNRS UMR 7198, Nancy, France; 4. Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and BIST, Universitat Autònoma de Barcelona, Bellaterra, Spain; 5. Departamento de Física de la Materia Condensada, UNIZAR, Zaragoza, Spain; 6. Laboratorio de Microscopías Avanzadas, UNIZAR-CSIC, Zaragoza, Spain; 7. Consejo Nacional de Investigaciones Científicas y Técnicas, Ciudad Autónoma de Buenos Aires, Argentina*
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9:15

- CG-03. Anisotropic Magnetoresistance of Epitaxial Grown CoFe thin films on Flexible Mica and Rigid MgO Substrates.** *J. Cheng¹, M. You¹, A. Anbalagan¹, G. Su¹, K. Chuang², C. Hsieh³, C. Yang³ and C. Lee^{1,2}* *1. Department of Engineering and System Science, National Tsing Hua University, Hsinchu, Taiwan; 2. Institute of Nuclear Engineering and Science, National Tsing Hua University, Hsinchu, Taiwan; 3. Department of Materials Science and Engineering, National Yang Ming Chiao Tung University, Hsinchu, Taiwan*
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[Now VP7-21](#)

- CG-04. High TMR in a semiconductor host with black phosphorus.** *H. Wei*¹, M. Galbiati¹, J. Peiro¹, S.M. Dubois², F. Brunnett¹, V. Zatzko¹, R. Galceran¹, P. Brus³, F. Godel¹, D. Perconte¹, F. Bouamrane¹, E. Gaufrès⁴, A. Loiseau⁴, F. Petroff¹, J. Charlier², M. Martin¹, B. Dlubak¹ and P. Seneor¹
1. Laboratoire Albert Fert, CNRS, Thales, Université Paris-Saclay, Palaiseau, France; 2. Institute of Condensed Matter and Nanosciences (IMCN), Université Catholique de Louvain, Louvain-la-Neuve, Belgium; 3. Thales Research and Technology, Palaiseau, France; 4. Laboratoire d'Étude des Microstructures (LEM), CNRS, ONERA, Université Paris-Saclay, Châtillon, France
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9:45

- CG-05. Longitudinal Spin Seebeck Effect on exchange biased system: A theoretical overview.** *M.A. Correa*¹ and F. Bohn¹
1. Physics Department, Federal University of Rio Grande do Norte, Natal, Brazil
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10:00

- CG-06. Spintronic applications from polymer-based magnetoelectric materials.** R. Carvalho^{1,2}, L. Amorim^{1,2}, S. Lanceros-Mendez^{3,4} and P. Martins^{1,2}
1. Department of Physics, Universidade do Minho, Braga, Portugal; 2. LaPMET - Laboratory of Physics for Materials and Emergent Technologies, Universidade do Minho, Braga, Portugal; 3. BC Materials, Basque Center for Materials, Applications and Nanostructures, Bilbao, Spain; 4. IKERBASQUE, Basque Foundation for Science, Bilbao, Spain
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10:15

- CG-07. Self-induced inverse spin Hall effect in disordered FePt thin films.** *J. Ampuero Torres*^{1*}, A. Anadon², H. Damas², J. Ghanbaja², S. Petit-Watelot², J. Rojas-Sanchez², D. Velázquez¹, L. Avilés Félix¹, J. Gomez¹ and A. Butera¹
1. Department of Physics, Balseiro Institut, San Carlos de Bariloche, Argentina; 2. Institut Jean Lamour, Nancy, France
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10:30

- CG-08. Efficient spin to charge current conversion in WSe₂ by spin pumping from CoFeB.** *E.O. Burgos Parra*^{1,2}, K. Abdukayumov³, G. Rodriguez², C. Vergnaud³, H. Boukari³, A. Marty³, F. Bonell³, I.G. de Moraes³, R. Rodriguez⁴, S. Oyarzún² and M. Jamet³
1. Physics Department, Universidad de Chile, Santiago, Chile; 2. Physics Department, Universidad de Santiago de Chile, Santiago, Chile; 3. CEA-SPINTEC, Grenoble, France; 4. Pontificia Universidad Católica de Chile, Santiago, Chile
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- CG-09. Maximizing Competing Spin Current of the W/Pt/ferromagnet Devices with Spin-torque Ferromagnetic Resonance Analysis.** *J. Hsu*¹, *C. Cheng*², *Y. Huang*², *Y. Wu*², *Y. Lin*², *W. Chang*³ and *Y. Tseng*² *1. Industry Academia Innovation School, Hsinchu, Taiwan; 2. Department of Materials Science & Engineering, National Yang Ming Chiao Tung University, Hsinchu, Taiwan; 3. Powerchip Semiconductor Manufacturing Corporation, Hsinchu, Taiwan*
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11:00

- CG-10. Unveiling the mechanism of spin to charge conversion in the ferroelectric Rashba semiconductor SnTe.** *M. Gamino*¹, *E. Souza*², *J. Abr o*² and *S.M. Rezende*² *1. Department of Physics, Federal University of Rio Grande do Norte, Natal, Brazil; 2. Department of Physics, Federal University of Pernambuco, Recife, Brazil*
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11:15

- CG-11. Low damping and large charge-to-spin conversion efficiency in Co₂₅Fe₇₅/Pt thin films and microwire devices.** *P. Radhakrishnan*¹, *T. Chen*¹, *Z. Zhang*², *R. Klause*², *B. Sahoo*³, *E. Fullerton*³, *A. Hoffmann*² and *A.D. Kent*¹
1. Center for Quantum Phenomena, Department of Physics, New York University, New York, NY, United States; 2. Materials Research Laboratory and Department of Materials Science and Engineering, University of Illinois Urbana-Champaign, Urbana, IL, United States; 3. Center for Memory and Recording Research, University of California San Diego, La Jolla, CA, United States
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EXHIBIT HALL

Session CP

2D SPINTRONICS AND TOPOLOGICAL MATERIALS (Poster Session)

Connie Li, Chair

Naval Research Lab, Washington, DC, United States

- CP-01. Magnetic skyrmion ground state in a 2D van der Waals compound.** *Z. Yin*^{1,2}, *A. Srivastava*¹, *K. Gu*^{1,2} and *S. Parkin*^{1,2}
1. NISE, Max Planck Institute of Microstructure Physics, Halle, Germany; 2. Martin-Luther-University Halle-Wittenberg, Halle, Germany
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- CP-02. Harnessing van der Waals CrPS₄ and surface oxides for unique pre-set field induced Exchange Bias in Fe₃GeTe₂.** A. Puthirath Balan¹, A. Kumar¹, T. Scholz², Z. Lin³, A. Shahee¹, S. Fu⁴, T. Denneulin⁵, J. Vas⁵, A. Kovács⁵, R.E. Dunin-Borkowski⁵, H. Wang⁴, J. Yang³, B. Lotsch², U. Nowak⁶ and M. Kläui^{1,7} 1. *Institute of Physics, Johannes Gutenberg University, Mainz, Germany*; 2. *Max Planck Institute for Solid State Research, Stuttgart, Germany*; 3. *School of Physics, State Key Laboratory for Artificial Microstructure and Mesoscopic Physics, Beijing, China*; 4. *Max Planck Institute for Polymer Research Mainz, Mainz, Germany*; 5. *Forschungszentrum Jülich, Jülich, Germany*; 6. *Department of Physics, University of Konstanz, Konstanz, Germany*; 7. *Department of Physics, Norwegian University of Science and Technology, Trondheim, Norway*
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- CP-04. Ultra-high Curie temperature and specific magnetic configuration in 2D Fe₂O₃.** T. Wang¹, W. Xue¹, H. Yang³, C. Song² and X. Xu¹ 1. *Shanxi Normal University, Taiyuan, China*; 2. *Tsinghua University, Beijing, China*; 3. *Ningbo Institute of Material Technology and Engineering, Chinese Academy of Sciences, Ningbo, China*
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- CP-05. Hubbard U correction and long-range exchange interactions in CrXY monolayers (X, Y ∈ {S, Se, Te}).** L. Vojáček¹, F. Ibrahim¹, J. Li² and M. Chshiev^{1,3} 1. *CEA-SPINTEC, Grenoble, France*; 2. *LETI, Grenoble, France*; 3. *IUF, Paris, France*
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- CP-06. Spin-to-charge current conversion and charge transfer dynamics in graphene/WS₂ heterostructures.** R.O. da Cunha¹, Y. Garcia-Basabe², D.G. Larrude³, M. Gamino⁴, E.N. Lima^{5,6}, F.C. de Lima⁵, A. Fazio⁵, A. Azevedo⁷, S.M. Rezende⁷ and J.B. Mendes¹ 1. *Departamento de Física, Universidade Federal de Viçosa, Viçosa, Brazil*; 2. *Centro Interdisciplinar de Ciências da Natureza, Universidade Federal da Integração Latino-Americana, Foz do Iguaçu, Brazil*; 3. *Escola de Engenharia, Universidade Presbiteriana Mackenzie, São Paulo, Brazil*; 4. *Departamento de Física, Universidade Federal do Rio Grande do Norte, Natal, Brazil*; 5. *Illum School of Science, Brazilian Center for Research in Energy and Materials (CNPEM), Campinas, Brazil*; 6. *Instituto de Física, Universidade Federal de Mato Grosso, Cuiabá, Brazil*; 7. *Departamento de Física, Universidade Federal de Pernambuco, Recife, Brazil*
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- CP-07. Enhancement of thermal stability in heterostructures base on Weyl semimetal WTe₂.** Y. Wang¹, W. Li¹, L. Zhang² and Y. Feng¹ 1. *School of Physics, Dalian University of Technology, Dalian, China*; 2. *School of Chemical Engineering, Dalian University of Technology, Dalian, China*
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- CP-09. Arpes studies on weyl semimetal candidate PrAl(Ge,Si).** K.R. Pakuszewski¹, A.P. Machado¹, J.C. Souza², M. Piva³, V. Brousseau-Couture⁴, M. Côté⁴, P. Pagliuso¹, W. Simões e Silva⁵ and C. Adriano⁶ *1. Instituto de Física Gleb Wataghin, University of Campinas, Campinas, Brazil; 2. Department of Condensed Matter Physics, Weizmann Institute Of Science, Rehovot, Israel; 3. Max Planck Institute for Chemical Physics of Solids, Dresden, Germany; 4. Université de Montréal, Montreal, QC, Canada; 5. Centro Nacional de Pesquisa em Energias e Materiais, Campinas, Brazil; 6. Université de Sherbrooke, Sherbrooke, QC, Canada*
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- CP-10. Proximity Induced Artificial Magnetic Graphene As An Electrode for Magnetic Tunnel Junctions.** J. Peiro¹, V. Zatko¹, F. Brunnett¹, R. Galceran¹, M. Galbiati¹, F. Godel¹, L. Kern¹, D. Perconte¹, F. Ibrahim², A. Hallal², M. Chshiev², B. Martinez³, C. Frontera³, L. Balcells³, P. Kidambi⁴, J. Robertson⁵, S. Hoffman⁵, S. Collin¹, F. Petroff¹, M. Martin¹, B. Dlubak¹ and P. Seneor¹ *1. Laboratoire Albert Fert, CNRS, Thales, Université Paris-Saclay, Palaiseau, France; 2. CEA-SPINTEC, Grenoble, France; 3. ICMAB-CSIC, Bellaterra, Spain; 4. Department of Chemical and Biomolecular Engineering, Vanderbilt University, Nashville, TN, United States; 5. Department of Engineering, University of Cambridge, Cambridge, United Kingdom*
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- CP-11. Spin transfer torque (STT) in graphene interface structures: the emergence of STT-van der Waals tunneling junctions (2DMTJs).** J. Hong¹, J. Lu² and P. Zhang²
1. UC Berkeley, Berkeley, CA, United States; 2. Hubei University of Technology, Wuhan, China
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- CP-12. TMD Engineering of 2D-Magnetic Tunnel Junctions – From Barriers to Electrodes.** F. Brunnett¹, H. Wei¹, J. Peiro¹, V. Zatko¹, S.M. Dubois², M. Galbiati¹, F. Godel¹, E. Carré¹, M. Och³, C. Mattevi³, F. Fossard⁴, J. Mérot⁴, A. Loiseau⁴, J. Charlier², M. Martin¹, B. Dlubak¹ and P. Seneor¹
1. Laboratoire Albert Fert – CNRS, Thales, Université Paris-Saclay, Palaiseau, France; 2. Institute of Condensed Matter and Nanosciences (IMCN), Université Catholique de Louvain, 1348 Louvain-la-Neuve, Belgium; 3. Department of Materials, Imperial College, London, United Kingdom; 4. Laboratoire d'Etude des Microstructures - ONERA, Châtillon, France
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Session CQ
MAGNETORESISTANCE AND RELATED
PHENOMENA I
(Poster Session)

Jakub Zelezny, Chair
 FZU - Institute of Physics, Czech Academy of Sciences,
 Prague, Czechia

- CQ-01. Spin injection, spin filtering and spin-photon interfacing in III-V semiconductor nanostructures.** Y. Huang¹, V. Polojärvi², S. Hiura³, P. Höjer¹, A. Aho², R. Isoaho², T. Hakkarainen², M. Guina², S. Sato³, J. Takayama³, A. Murayama³, I.A. Buyanova¹ and W.M. Chen¹ *1. Linköping University, Linköping, Sweden; 2. Tampere University, Tampere, Finland; 3. Hokkaido University, Sapporo, Japan*
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- CQ-02. Withdrawn**
- CQ-03. Thermomagnetic Conversion in Ni₈₉Fe₁₁/Pt Multilayer Grown onto PVDF Flexible Polymer Substrates.** A. de Morais^{1,2}, C.M. Valença², J.M. de Oliveira², F. Bohn², A. Ferreira³, C.A. Costa³, F. Vaz³ and M.A. Correa²
1. Department of Materials Engineering, Federal University of Rio Grande do Norte, Natal, Brazil; 2. Department of Physics, Federal University of Rio Grande do Norte, Natal, Brazil; 3. Physics Department, University of Minho, Braga, Portugal
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- CQ-04. Anomalous Nernst effect on NiFe film grown onto ceramic ribbons substrate.** J.M. de Oliveira¹, A. de Morais¹, N.L. de Siqueira¹, J.O. Rodriguez¹, M.R. Delmonte¹, F. Bohn¹ and M.A. Correa¹ *1. Departamento de Física Teórica e Experimental, Universidade Federal do Rio Grande do Norte, Natal, Brazil*
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- CQ-05. Mn/Co Substitution Effect on Magnetoelectric and Structural Properties of ZnO Nanostructures Prepared by DC-Magnetron co-Sputtering For Spintronic Applications.** Á.P. Lancho D.¹, L.F. Prieto R.¹, H.P. Quiroz¹, J.A. Calderón^{1,2}, A. Dussan Cuenca¹ and F. Mesa³
1. Department of Physics, Universidad Nacional de Colombia, Bogotá, Colombia; 2. Engineering and Basic Science Faculty, Universidad Central, Bogotá, Colombia; 3. Engineering and Basic Science Faculty, Universidad Los Libertadores, Bogotá, Colombia
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- CQ-06. Influence of ferromagnetic coupling in Fe₈₅Co₁₅/Py bilayers on the ISHE voltage generated by spin pumping.** Á.A. Pérez Martínez^{1,2}, D. Velázquez^{1,2}, D. Goijman², T.E. Torres¹, A. Butera^{1,2} and J. Milano^{1,2} *1. Magnetic Resonance Laboratory, Instituto de Nanociencias y Nanotecnología (CNEA - CONICET), San Carlos de Bariloche, Argentina; 2. Instituto Balseiro, Universidad Nacional de Cuyo (UNCuyo), Río Negro, Argentina*
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- CQ-07. Development of Interdigitated Devices for Surface Acoustic Waves (SAW) applied to Magnonics.** *M.S. de Lacerda¹, L. Sampaio¹ and J.P. Sinnecker¹ 1. Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil*
[View Digest Text](#)
- CQ-08. Colossal superconducting spin-valve effect in superconductor-non-magnetic metal heterostructures.** *A. Paschoa¹, J.L. Gonzalez¹, V. Nascimento¹ and E.C. Passamani¹ 1. Departamento de Física, Universidade Federal do Espírito Santo (UFES), Vitória, Brazil*
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- CQ-09. Inverse spin hall and spin rectification voltage in NiFe/IrMn exchange-biased multilayer.** *A.R. Syed¹, D. Gonzalez-Chavez¹, R. Dutra¹, D.S. da Rosa¹, R.L. Sommer¹, A.H. de Oliveira², J.N. Rigue² and R.B. da Silva² 1. Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil; 2. Physics Department, Federal University of Santa Maria, Santa Maria, Brazil*
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- CQ-10. Giant spin-to-charge conversion in $Gn_{(1-x)}Sn_x$ alloying.** *R. Rodriguez¹, S. Oyarzún², C. Gonzalez-Fuentes¹, F. Pezzoli³ and M. Jamet⁴ 1. Facultad de Física, Pontificia Universidad Católica de Chile, Santiago, Chile; 2. Facultad de Física, Universidad de Santiago, Santiago, Chile; 3. LNESS, Milano, Italy; 4. Univ. Grenoble Alpes, Grenoble, France*
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- CQ-11. Local and non-local magnetoresistance in ferromagnetic spin valves.** *I.R. Greca¹, J.B. Mendes¹ and R.O. da Cunha¹ 1. Departamento de Física, Universidade Federal de Viçosa, Viçosa, Brazil*
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- CQ-12. Theory of Pressure-Induced Negative-Positive Magnetoresistance Crossover Near Metal-Insulator Transition in $La_{0.8}Ag_{0.1}MnO_3$.** *Z. Alisultanov^{1,2} 1. Moscow Institute of Physics and Technology (State University), Moscow, Russian Federation; 2. Amirkhanov Institute of Physics of DFRC of RAS, Makhachkala, Russian Federation*
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- CQ-13. Nanodomains substrates as a tool for tuning the magnetoelectro properties of a Co-based pseudo spinvalve.** *E.O. Burgos Parra^{2,1}, J. Hermosilla¹, J.L. Palma³, J.C. Denardin¹ and S. Oyarzún¹ 1. Physics Department, Universidad de Santiago de Chile, Santiago, Chile; 2. Physics Department, Universidad de Chile, Santiago, Chile; 3. Universidad Central de Chile, Santiago, Chile*
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- CQ-14. Efficiency of Spin-Transfer Torque Assist Spin-Orbit Torque Magnetization Switching Under In-plane External Field Application.** *D. Pan¹, D. Oshima¹ and T. Kato¹ 1. Nagoya University, Nagoya, Japan*
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Session CR
MAGNONICS AND RELATED PHENOMENA
(Poster Session)

Philippe Talatchian, Chair
 CEA-SPINTEC, Grenoble, France

- CR-01. Reconfigurable Magnonics in Santa Fe Ice.** *A. Mondal¹ and A. Barman^{1,2}* *1. Technical Research Centre, S. N. Bose National Centre for Basic Sciences, Salt Lake City, India; 2. Condensed Matter and Materials Physics, S. N. Bose National Centre for Basic Sciences, Salt Lake City, India*
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- CR-02. In-Plane Magnon Valve Effect in Magnetic Insulator/ Heavy Metal/ Magnetic Insulator Device.** *T. Zhang¹, C. Wan^{1,2} and X. Han^{1,2,3}* *1. Institute of Physics, Chinese Academy of Science, Beijing, China; 2. University of Chinese Academy of Sciences, Beijing, China; 3. Songshan Lake Materials Laboratory, Dongguan, China*
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- CR-03. Spin Pumping into Superconductors: Influence of Spin-Orbit Coupling and Alloy Composition.** *M. Raboni Ferreira^{1,2}, R. Torrao Victor³, D. do Carmo², R. Donizeth dos Reis², F. Garcia^{3,2} and N. Marques de Souza Neto²* *1. "Gleb Wataghin" Institute of Physics, University of Campinas, Campinas, Brazil; 2. Brazilian Synchrotron Light Laboratory, Brazilian Center for Research in Energy and Materials, Campinas, Brazil; 3. Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil*
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- CR-04. Magnon energy renormalization in yttrium iron garnet.** *E. Souza¹, D.S. Maior¹ and S.M. Rezende¹* *1. Departamento de Física, Universidade Federal de Pernambuco, Recife, Brazil*
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- CR-05. Self-Generation of Spatiotemporal Parametric Patterns in Active Ring Resonators Based on Single- and Bicomponent Magnonic Quasicrystals.** *A. Bir¹, S.V. Grishin¹, D. Romanenko¹ and S. Nikitov^{2,1}* *1. Saratov State University, Saratov, Russian Federation; 2. Kotelnikov Institute of Radioengineering and Electronics of Russian Academy of Science, Moscow, Russian Federation*
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- CR-07. Spin waves in magnetic films: Micromagnetic simulations results in frequency and reciprocal space.** *A.Y. Requejo¹, G.P. Zamudio², B.R. Pujada Bermudez¹, R.L. Sommer² and D. Gonzalez-Chavez²* *1. Faculty of Science, Universidad Nacional de Ingenieria, Chorrillos, Peru; 2. Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil*
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- CR-08. Analytical Calculations of Electron's Phase Shift Due to Interactions with Magnetized Materials.** *G.K. Soares¹ and D. Muraca¹* *1. DEQ, Universidade Estadual de Campinas, Campinas, Brazil*
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Session CS

**SOFT MAGNETIC MATERIALS: AMORPHOUS,
CRYSTALLINE AND NANOCRYSTALLINE****(Poster Session)**Paola Tiberto, Co-Chair
INRIM, Torino, Italy

Arkady Zhukov, Co-Chair

Basque Foundation for Science, San Sebastian, Spain

- CS-01. Magnetic Domain Walls in Rapidly Solidified Magnetostrictive and Non-Magnetostrictive Submicron Amorphous Wires.** *T.A. Ovari*¹, G. Ababei¹, G. Stoian¹, S. Corodeanu¹, H. Chiriac¹ and N. Lupu¹ *I. National Institute of Research and Development for Technical Physics, Iasi, Romania*
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- CS-02. Exploring the Structural and Functional Frontiers of Nanocrystalline NANOMET-Based Metallic Glasses.** *H. Yim*¹ *I. Department of Applied Physics, Sookmyung University, Seoul, The Republic of Korea*
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- CS-03. Amorphous magnetic Zn-Co alloys.** J.P. Pereira¹, A.O. Guimarães² and M.J. Pires¹ *I. Instituto de Ciência e Tecnologia, Universidade Federal dos Vales do Jequitinhonha e Mucuri, Diamantina, Brazil; 2. Universidade Estadual do Norte Fluminense, Campos dos Goytacazes, Brazil*
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- CS-04. Non-uniform Gd distribution and magnetization profile within 'nominally uniform' GdCoFe alloy thin film.** O. Inyang¹, C. Swindells², D. Rianto¹, L. Bouchenoire^{3,4}, R. Morris⁵, A. Merkulov⁵, A. Caruana⁶, C. Kinane⁶, T. Hase^{7,4} and D. Atkinson¹ *1. Department of Physics, Durham University, Durham, United Kingdom; 2. Department of Materials Science and Engineering, University of Sheffield, Sheffield, United Kingdom; 3. Department of Physics, University of Liverpool, Liverpool, United Kingdom; 4. XMaS Beamline, Grenoble, France; 5. IMEC, Leuven, Belgium; 6. ISIS Neutron and Muon Source, Didcot, United Kingdom; 7. Department of Physics, University of Warwick, Coventry, United Kingdom*
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- CS-05. Magnetic properties of novel TmFe_{1-x}Co_xO₃ perovskites.** *M.E. Vivas Arellano*¹, F. Lurgo², J. De Paoli¹, R. Carbonio¹ and R. Sanchez² *1. Departamento de Fisicoquímica, Universidad Nacional de Córdoba, Córdoba, Argentina; 2. INN-CNEA-CONICET, Bariloche, Argentina*
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- CS-06. Synthesis of NiFe₂O₄/NiFe Nanocomposites: Structural and Magnetic Study.** M.S. Nunes¹, I. Bezerra¹, J. Lima¹, R. Checca², A. Paesano Jr.¹, J. de Araújo¹ and M. Morales Torres¹ *1. Department of Physics, Federal University of Rio Grande do Norte, Natal, Brazil; 2. Brazilian Center for Research in Physics, Rio de Janeiro, Brazil*
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- CS-07. Effective magnetic anisotropy of $\text{Ni}_x\text{Co}_{1-x}\text{Fe}_2\text{O}_4$ nanoparticles.** *L.J. Dalla Costa*¹, *M.R. Freitas*², *G.L. Gouveia*², *R.H. Kiminami*², *A.J. de Oliveira*¹ and *A.J. Gualdi*¹
1. Department of Physics, Universidade Federal de São Carlos, São Carlos, Brazil; 2. Department of Materials Engineering, Federal University of São Carlos, São Carlos, Brazil
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- CS-09. Influence of Electromagnetic Stirring During the Solidification on the Structure and Magnetic Properties of 2% Si Electrical Steel.** *F.G. Toledo Junior*^{2,1}, *S. da Costa Paolinelli*³, *J.R. Oliveira Junior*¹ and *D.L. Rocco*²
1. Research Center, Aperam South America, Timoteo, Brazil; 2. Department of Materials Engineering, Federal Center Technological Education of Minas Gerais, Timoteo, Brazil; 3. Paolinelli Electrical Steels Consultancy Ltda, Carmopolis, Brazil
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- CS-11. Mapping the Magnetic Properties of Polycrystalline CeCrGe_3 Using Macroscopic and Microscopic Techniques.** *B.S. Corrêa*¹, *B.B. Santos*², *E.L. Correa*², *G.A. Cabrera-Pasca*³, *W.L. Ferreira*¹, *A. A. Miranda*¹, *T. da Silva Nascimento Sales*¹, *L. Scalise*¹, *R.N. Saxena*¹ and *A.W. Carbonari*¹ *1. CERPQ, Instituto de Pesquisas Energéticas e Nucleares, São Paulo, Brazil; 2. NIST Center for Neutron Research, Gaithersburg, MD, United States; 3. Faculdade de Ciências Exatas e Tecnologia, Universidade Federal do Pará, Abaetetuba, Brazil*
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- CS-13. Effect of sheet thickness on the Excess Loss of Non-oriented Electrical Steel.** *N.A. Rodrigues*¹ and *F. Landgraf*¹
1. Departamento de Engenharia Metalúrgica e de Materiais, Universidade de São Paulo, São Paulo, Brazil
[View Digest Text](#)
- CS-14. Analysis of Cutting Effect on Non-Grain Oriented Steels for High-Frequency Applications.** *R.F. de Medeiros*¹, *O.T. Alves*¹, *E.M. Alves*², *G.A. Mendonça*², *N. Sadowski*¹ and *N.J. Batistela*¹ *1. Departamento de Engenharia Elétrica e Eletrônica, Universidade Federal de Santa Catarina, Florianópolis, Brazil; 2. Research Center, Aperam South America, Timóteo, Brazil*
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- CS-15. Effect of dew point on the microstructure and magnetic properties of non-grain oriented electrical steel during stress relief annealing.** *E.M. Alves*^{1,2}, *C.C. Silveira*¹, *F. Landgraf*² and *M.M. Cesar*³ *1. Research Center, Aperam South America, Timoteo, Brazil; 2. Polytechnic School, University of Sao Paulo, São Paulo, Brazil; 3. MGRMELO Consultoria Ltda, Timoteo, Brazil*
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- CS-16. **Influence of energy density on the microstructure, growth orientation, and anisotropy of magnetic properties in additively manufactured Fe-3.8wt%Si transformer steels.** *S.M. Varahabhatla*^{1,2}, *M. Nartu*^{1,2,3}, *S.A. Mantri*^{1,2}, *V. Chaudhary*⁴, *M. Karri*^{1,2}, *S. Joshi*^{1,2}, *R. Ramanujan*⁵, *N.B. Dahotre*^{1,2} and *R. Banerjee*^{1,2} 1. *Center for Agile and Adaptive Additive Manufacturing (CAAAM), University of North Texas, Denton, TX, United States*; 2. *Department of Materials Science and Engineering, University of North Texas, Denton, TX, United States*; 3. *Nuclear Sciences Division, Pacific Northwest National Laboratory, Richland, WA, United States*; 4. *Industrial and Materials Science, Chalmers University of Technology, Gothenburg, Sweden*; 5. *School of Materials Science and Engineering, Nanyang Technological University, Nanyang, Singapore*
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ASIA

Session PL
IEEE AWARD CEREMONY &
PLENARY SESSION

Rubem L. Sommer, Co-Chair

CBPF, Rio de Janeiro, Brazil

Mingzhong Wu, Co-Chair

Northeastern University, Boston, MA, United States

5:00

- PL-01. **Advances in Orbitronics: Giant Torques from Orbital Textures at Interfaces, Light-induced Orbital Currents for TeraHz Emission. (Invited)** *A. Fert*¹ 1. *Laboratoire Albert Fert, CNRS, Thales, Université Paris-Saclay, Palaiseau, France*
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6:00

- PL-02. **Spintronics: Fundamentals and Some Recent Advances (Invited)** *S. Rezende*¹ 1. *Departamento de Física, Universidade Federal de Pernambuco, Recife, Brazil*
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Session DA
MAGNETIC TUNNEL JUNCTION AND QUANTUM DEVICES FOR UNCONVENTIONAL COMPUTING

Nathan Satchell, Co-Chair
 Texas State University, San Marcos, TX, United States

Guohan Hu, Co-Chair
 IBM, Yorktown Heights, NY, United States

8:30

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

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

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

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

- DA-05. Ising Computer Based on Superparamagnetic Tunnel Junctions. (Invited)** *J. Si¹, S. Yang² and H. Yang²*
1. Peking University, Beijing, China; 2. National University of Singapore, Singapore
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11:00

- DA-06. **Emergent magnetism for quantum information. (Invited)**
*C. Panagopoulos¹ 1. Division of Physics and Applied Physics,
Nanyang Technological University, Singapore*
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OCEANIA VI & VII

Session DB

MAGNONICS III: BAND PROPERTIES AND DEVICES

Pawel Gruszecki, Chair

Uniwersytet im Adama Mickiewicza w Poznaniu, Poznan, Poland

8:30

- DB-01. **Brillouin Light Scattering investigation of spin-wave dynamics in reconfigurable magnonic systems. (Invited)**
S. Tacchi¹ 1. Istituto Officina dei Materiali, Consiglio Nazionale delle Ricerche, Perugia, Italy
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9:00

- DB-02. **Flat bands and compact localized states in magnonic crystals.** *J.W. Klos¹ and G. Centala¹ 1. ISQI, Faculty of Physics, Adam Mickiewicz University, Poznan, Poland*
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9:15

- DB-03. **3D Ferromagnetic Nanoarchitectures with Lattice-Size dependent Magnon Modes.** *H. Guo¹, M. Xu¹, A.J. Deenen¹ and D. Grundler^{1,2} 1. IMX, EPFL, Lausanne, Switzerland; 2. IEM, EPFL, Lausanne, Switzerland*
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- DB-04. Opening complete band gaps in two-dimensional magnonic crystals using yttrium iron garnets and non-magnetic metals.** *K. Mori*^{1,2}, T. Koguchi^{1,2}, T. Watanabe³, Y. Yoshihara^{1,2}, H. Miyashita^{1,2}, M. Inoue¹, D. Grundler⁴, K. Ishiyama¹ and T. Goto¹ *1. RIEC, Tohoku University, Sendai, Japan; 2. Graduate School of Engineering, Tohoku University, Sendai, Japan; 3. Shin-Etsu Chemical Co., Ltd, Annaka, Japan; 4. Institute of Electrical and Micro Engineering, Ecole Polytechnique Federale de Lausanne (EPFL), Lausanne, Switzerland*
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9:45

- DB-05. Magnon-magnon coupling in an antidot lattice with perpendicular magnetic anisotropy.** *M. Moalic*¹, M. Krawczyk¹, M.K. Zelent¹ and K. Szulc¹ *1. Uniwersytet im Adama Mickiewicza w Poznaniu, Poznan, Poland*
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10:00

- DB-06. Universal magnonic machine-learning module.** *N. Zenbaa*^{1,2}, C. Abert¹, F. Majcen¹, M. Kerber¹, R. Serha^{1,2}, S. Knauer¹, Q. Wang³, T. Schrefl⁴, D. Suess¹ and A. Chumak¹ *1. Faculty of Physics, University of Vienna, Vienna, Austria; 2. Vienna Doctoral School of Physics, University of Vienna, Vienna, Austria; 3. School of Physics, Huazhong University of Science and Technology, Wuhan, China; 4. Center for Modelling and Simulation, Donau-Universität Krems, Wiener Neustad, Austria*
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10:15

- DB-07. Reconfigurable Magnon-based Radio Frequency filters.** *A. Del Giacco*¹, F. Kohl², A. Toniato¹, M. Wagner², F. Maspero¹, A. Cattoni¹, P. Pirro² and R. Bertacco¹ *1. Department of Physics, Politecnico di Milano, Milano, Italy; 2. Nanoscaled Magnonic Hybrids, Rheinland-Pfälzische Technische Universität Kaiserslautern-Landau, Kaiserslautern, Germany*
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10:30

- DB-08. All-magnonic repeater based on bistability.** *Q. Wang*^{1,2}, R.V. Verba³, K. Davidková^{2,4}, B. Heinz⁵, S. Tian⁶, Y. Rao⁶, X. Ge¹, O. Wojewoda⁴, C. Dubs⁷, M. Urbánek⁴, P. Pirro⁵ and A. Chumak² *1. Huazhong University of Science & Technology, Wuhan, China; 2. Universitat Wien, Vienna, Austria; 3. Institute of Magnetism, Kyiv, Ukraine; 4. Brno University of Technology, Brno, Czechia; 5. Rheinland-Pfälzische Technische Universität Kaiserslautern-Landau, Kaiserslautern, Germany; 6. Hubei University, Wuhan, China; 7. INNOVENT e.V., Technologieentwicklung, Jena, Germany*
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- DB-09. Arbitrary Two-Qubit Magnon-Mediated Quantum Gates.**
C. Trevillian¹ and V. Tyberkevych¹ 1. Department of Physics, Oakland University, Rochester Hills, MI, United States
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OCEANIA IX & X

Session DC**PATH TOWARDS MORE SUSTAINABLE TOMORROW – MAGNETIC SOLUTIONS**

Yacine Amara, Chair

Université Le Havre Normandie, Le Havre, France

8:30

- DC-01. Challenges Electrical Mobility and Wind Energy Present to Magnetic Materials. (Invited) F. Landgraf¹ 1. University of São Paulo, São Paulo, Brazil**
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9:00

- DC-02. Availing Highly-saturable Advanced Soft Magnetic Materials for Rotating Machines. (Invited) P. Upadhyay¹ 1. Anduril Industries, Costa Mesa, CA, United States**
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9:30

- DC-03. A Comparative Study between Permanent-magnet-free Reluctance Machines for Heavy-duty Electric Vehicles. (Invited) D. Ceylan¹ and K.O. Boynov¹ 1. Department of Electrical Engineering, Eindhoven University of Technology, Eindhoven, Netherlands**
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10:00

- DC-04. PM-Free Axial-Flux Motors for Transport Electrification. (Invited) A. Mahmoudi¹, Z. Cao¹, S. Kahourzade² and W. Soong³ 1. Flinders University, Adelaide, SA, Australia; 2. University of South Australia, Adelaide, SA, Australia; 3. The University of Adelaide, Adelaide, SA, Australia**
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- DC-05. Potential of Wave Energy Harvesting in the North Sea; The AE-WaveHexapod WEC. (Invited) J.J. Paulides^{1,2}, R. Sheno², F. Van Bodegraven², L. Nijman², R. Jonkman¹, L. Encica¹ and P. Wellens³** *1. R&D, Advanced Electromagnetics Group, Waalwijk, Netherlands; 2. R&D, AE-WaveHexaPod, Dordrecht, Netherlands; 3. Ship Hydromechanics and Structures, Delft University of Technology, Delft, Netherlands*
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11:00

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

Session DD**BIOMAGNETICS I**

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

8:30

- DD-01. Unveiling the Influence of Interactions in the Behavior of Magnetic Nanoparticle Agglomerates: Experiments and Simulations. (Invited) D. Valdes^{1,2}, T.E. Torres³, A.C. Moreno Maldonado³, G. Urretavizcaya^{2,4}, M.S. Nadal¹, M. Vasquez Mansilla^{1,2}, I. Rodrigo⁵, I. Orue⁶, R.D. Zysler^{1,2}, J. García⁷, F. Plazaola⁷, G.F. Goya³, E. De Biasi^{1,2} and E. Lima Jr.¹** *1. Instituto de Nanociencia y Nanotecnología (INN), CNEA-CONICET, Bariloche, Argentina; 2. Instituto Balseiro, Universidad Nacional de Cuyo, Bariloche, Argentina; 3. Instituto de Nanociencia y Materiales de Aragón (INMA), CSIC-Universidad de Zaragoza, Zaragoza, Spain; 4. Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), CNEA, Bariloche, Argentina; 5. Departamento de Física Aplicada, Escuela de Ingeniería de Gipuzkoa - Eibar, Universidad del País Vasco/Euskal Herriko Unibertsitatea (UPV/EHU), Eibar, Spain; 6. SGiker, Servicios Generales de Investigación, Universidad del País Vasco/Euskal Herriko Unibertsitatea (UPV/EHU), Leioa, Spain; 7. Universidad del País Vasco/Euskal Herriko Unibertsitatea (UPV/EHU), Leioa, Spain*
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9:00

- DD-02. Multifunctional materials for the applications from electronics to biosensors.** *J. Hong*¹ and *X. Song*²
1. *UC Berkeley, Berkeley, CA, United States;*
2. *Hubei University of Technology, Wuhan, China*
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9:15

- DD-03. Cellular Interaction with Low-Frequency-Vibrating Magnetic Nanoparticles in Bio-Mimetic Mechanical Environment.** *A. Visonà*^{1,2}, *B. Diény*², *R. Morel*², *H. Joisten*², *S. Soulan*¹ and *A. Nicolas*¹ 1. *LTM CNRS, Grenoble, France;*
2. *CEA-SPINTEC, Grenoble, France*
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9:30

- DD-04. Restoring cryopreserved bio-specimens using magnetic nanobars. (Invited)** *B. Stadler*^{1,2}, *R. Kolisnyk*¹, *A. Harpel*², *Y. Chen*² and *R. Franklin*¹ 1. *Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States;* 2. *Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN, United States*
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10:00

- DD-05. Multiplanar Imaging with a Single-Sided MPI Scanner.** *C. McDonough*¹, *J. Chrisekos*¹ and *A. Tonyushkin*¹
1. *Physics Dept, Oakland University, Rochester, MI, United States*
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10:15

- DD-06. MRI Pulse Sequence for Quantifying Magnetic Nanoparticles from Highly Distorted Static Field: View Line.** *S. Liu*¹, *W. Qiu*¹, *G. Della Maggiore*², *A. Kuwahata*³, *P. Irrazaval*² and *M. Sekino*¹ 1. *The University of Tokyo, Tokyo, Japan;* 2. *Pontificia Universidad Católica de Chile, Santiago, Chile;* 3. *Tohoku University, Sendai, Japan*
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10:30

- DD-07. Magnetic Particle Spectroscopy (MPS)-based Bioassays. (Invited)** K. Wu^{1,2}, V.K. Chugh², V.D. Krishna³, A. di Girolamo², Y.A. Wang⁴, M.C. Cheeran³ and J. Wang² 1. *Department of Electrical and Computer Engineering, Texas Tech University, Lubbock, TX, United States*; 2. *Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States*; 3. *Department of Veterinary Population Medicine, University of Minnesota, St. Paul, MN, United States*; 4. *Ocean Nano Tech LLC, San Diego, CA, United States*
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11:00

- DD-08. Development of Transcranial Magnetic Stimulator Coils Achieving Physically the Deepest Stimulation Based on the Inverse Problem Approach.** A. Iino¹, M. Fushimi¹, J. Tabata², T. Kikuchi², Y. Soejima², M. Wada³, S.L. Nakajima³, Y. Noda³ and M. Sekino¹ 1. *Department of Bioengineering, The University of Tokyo, Hongo, Japan*; 2. *Department of Electrical Engineering and Information Systems, The University of Tokyo, Hongo, Japan*; 3. *Department of Neuropsychiatry, Keio University, Shinanomachi, Japan*
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11:15

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

Session DE

HARD MAGNETIC MATERIALS I

Pelin Tozman, Chair

Technical University of Darmstadt, Darmstadt, Germany

8:30

- DE-01. Anisotropic magnetic nanoparticles. (Invited)** P. Liu¹
1. *Department of Physics, University of Texas at Arlington, Colleyville, TX, United States*
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9:00

- DE-02. Study of magnetization reversal and magnetic hardening in SmCo₅ single crystal magnets.** *A. Aubert¹, H. Zhang^{1,2}, F. Maccari¹, C. Dietz³, M. Yue², O. Gutfleisch¹ and K. Skokov¹*
1. Technische Universität Darmstadt, Darmstadt, Germany; 2. Faculty of Materials and Manufacturing, Beijing University of Technology, Beijing, China; 3. Physics of Surfaces, TU Darmstadt, Darmstadt, Germany
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9:15

- DE-03. Data-Mining Search for Crystal Structure Predicted Rare-Earth-Free Permanent Magnets.** *A. Vishina¹, O. Eriksson¹ and H.C. Herper¹*
1. Uppsala Universitet, Uppsala, Sweden
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9:30

- DE-04. High-temperature phase transition during hydrogen disproportionation of various Nd-Fe-B alloys.** *F. Orlandini Keller¹, G. Bacchetta¹, C. Flament¹, L. Magnier¹, C. Delafosse¹, C. Rado¹, S. Luca¹ and J. Garandet¹*
1. Univ. Grenoble Alpes, CEA LITEN, Grenoble 38000, France
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9:45

- DE-05. Synthesis, processing and magnetic properties of Fe₁₆N₂.** *I. Dirba¹ and O. Gutfleisch¹*
1. Institute of Materials Science, TU Darmstadt, Darmstadt, Germany
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10:00

- DE-06. Tailoring pressless processing parameters to achieve highly textured Nd-Fe-B recycled magnets. (Invited)** *M.A. Rosa¹, E.F. Neves¹, L.T. Quispe¹, L.U. Lopes¹, J.B. Neto¹ and P.A. Wendhausen¹*
1. Federal University of Santa Catarina, Florianópolis, Brazil
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- DE-07. Critical Transitions in Rare-Earths Magnets of (R,R')₂Fe₁₄B Type.** *N. Kostyuchenko*^{1,2}, *D. Plokhov*^{3,2}, *Y. Kudasov*^{4,5}, *I. Tereshina*⁶, *O. Surdin*^{4,5} and *A. Zvezdin*^{3,2}
 1. *Moscow Institute of Physics and Technology (State University), Moscow, Russian Federation*; 2. *Lebedev Physical Institute of the Russian Academy of Sciences, Moscow, Russian Federation*; 3. *Prokhorov General Physics Institute of Russian Academy of Sciences, Moscow, Russian Federation*; 4. *Russian Federal Nuclear Center – VNIIEF, Sarov, Russian Federation*; 5. *Sarov Institute of Physics and Technology, National Research Nuclear University MEPhI, Sarov, Russian Federation*; 6. *Faculty of Physics, Lomonosov Moscow State University, Moscow, Russian Federation*
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- DE-08. Crystallographic quantification of magnetic alignment degree for permanent magnet fine powders with high anisotropy field.** *Y. Hirayama*¹, *K. Park*¹, *W. Yamaguchi*¹ and *S. Okada*¹
 1. *Innovative Functional Materials Research Institute, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan*
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- DE-09. Benefits of Incorporating Dy-Cu Alloy Through the GBD Process for Recycled Magnets.** *M.B. Dias*^{1,2}, *G. Shimizu*², *L. Azevedo*², *D. Rodrigues Jr*², *W.C. Macedo*³, *L.F. Antunes*³, *L. Ulian Lopes*³, *P.A. Wendhausen*³, *R. Farias*⁴, *C.A. Lino dos Santos*⁵, *F. PASTRIÁN*⁵ and *F. Landgraf*²
 1. *SENAI SP College, Osasco, Brazil*; 2. *University of São Paulo, São Paulo, Brazil*; 3. *Federal University of Santa Catarina, Florianópolis, Brazil*; 4. *Institute for Energy and Nuclear Research, São Paulo, Brazil*; 5. *Institute of Technological Research, São Paulo, Brazil*
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Session DF
SOFT MAGNETIC ALLOYS: MATERIALS
AND METHODS

Del Atkinson, Chair
 Durham University, Durham, United Kingdom

8:30

- DF-01. Magnetoelastic resonance mass sensors: the importance of their geometry and nanocrystallization annealing induction. (Invited)** P. G. Saiz^{1,2}, A. Lasheras³, J. Vilas-Vilela^{1,2} and A. Lopes^{1,4} *1. Department of Physical-Chemistry, University of Basque Country, Leioa, Spain; 2. BC Materials-Basque Center for Materials Applications and Nanostructures, Leioa, Spain; 3. Department of Physics, University of the Basque Country, Leioa, Spain; 4. Ikerbasque, Basque Foundation for Science, Leioa, Spain*
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9:00

- DF-02. Measurement of Anisotropy and Magnetoelastic Constants of Thin Crystalline Films by Angle- and Strain-Dependent Ferromagnetic Resonance Spectroscopy.** K. Masood¹, A. Jander¹ and P. Dhagat¹ *1. Department of Electrical Engineering and Computer Science, Oregon State University, Corvallis, OR, United States*
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9:15

- DF-03. Magnetic behavior of nanoporous FeCo, fully and partially dealloyed by liquid metal.** B. Ducharne^{1,2,3}, S. Joo⁴, P. Geslin¹, E. Wasniewski⁵ and H. Kato² *1. Institut National des Sciences Appliquées de Lyon, Villeurbanne, France; 2. Tohoku University, Sendai, Japan; 3. ELyTMaX CNRS, Sendai, Japan; 4. Dankook University, Seoul, The Republic of Korea; 5. CETIM, Senlis, France*
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9:30

- DF-06. A Matlab Toolbox for Anhysteretic Magnetization Analysis.** J.M. Silveyra^{1,2}, M.I. González¹, T.F. González¹ and J.M. Conde Garrido^{1,2} *1. University of Buenos Aires, Buenos Aires, Argentina; 2. CONICET, Buenos Aires, Argentina*
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9:45

- DF-07. Role of interface roughness in perpendicular magnetic anisotropy of CoFeB/MgO based stacks.** S. Ahn¹ *1. POSTECH, Pohang, The Republic of Korea*
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- DF-08. Magnetic Properties and Applications of Glass-coated Ferromagnetic Microwires.** *V. Zhukova*^{1,2,3}, *P. Corte-Leon*^{1,3,2}, *M. Ipatov*^{1,3}, *A. García-Gómez*^{1,2,3}, *J. Blanco*^{3,2} and *A. Zhukov*^{4,1,2} *1. Dept. Polymers and Advanced Materials, Univ. Basque Country, UPV/EHU, San Sebastian, Spain; 2. EHU Quantum Center, University of the Basque Country, UPV/EHU, San Sebastian, Spain; 3. EIG, Dept. Applied Physics, University of Basque Country, UPV/EHU, San Sebastian, Spain; 4. Ikerbasque, Basque Foundation for Science, San Sebastian, Spain*
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10:15

- DF-09. How accurate are magnetic loss measurements?**
*M. Pasquale*¹, *E. Ferrara*¹, *N. Banu*¹, *F. Fiorillo*¹, *L. Rocchino*¹, *M. Ulvr*², *F. Weickert*³, *K. Pfnuer*³, *J. Luedke*³, *K. Hoffmann*³, *S. Harmon*⁴, *D. Brunt*⁴ and *A. Wilson*⁴ *1. INRIM, Torino, Italy; 2. CMI, Prague, Czechia; 3. PTB, Braunschweig, Germany; 4. NPL, Teddington, United Kingdom*
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10:30

- DF-11. Ferromagnetic behavior induced by structural distortion in pristine g-C₃N₄ pellets prepared via isostatic pressure.**
*J.R. dos Santos*¹, *T. de Melo Lima*², *M.W. Paixão*³, *A.A. Correa*³, *E. Chaves Pereira*³ and *A.J. de Oliveira*^{1,4}
1. Departamento de Física, Universidade Federal de São Carlos, São Carlos, Brazil; 2. Departamento de Química Inorgânica, Universidade Federal Fluminense, Niterói, Brazil; 3. Departamento de Química, Universidade Federal de São Carlos, Brazil, Brazil; 4. Instituto de Estudos Avançados e Estratégicos, Universidade Federal de São Carlos, São Carlos, Brazil
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Session DG

2D SPINTRONICS AND MAGNETISM

Xufeng Zhang, Chair

Northeastern University, Boston, MA, United States

8:30

- DG-01. Observation of octupole-driven magnetoresistance in a chiral antiferromagnetic tunnel junction. (Invited)**
T. Higo¹, X. Chen^{2,1}, K. Tanaka¹, T. Nomoto¹, H. Tsai¹, H. Idzuchi¹, M. Shiga^{3,1}, S. Sakamoto¹, H. Kosaki¹, T. Matsuo^{4,1}, D. Nishio-Hamane¹, R. Arita^{1,5}, S. Miwa¹ and S. Nakatsuji^{1,4}
1. The University of Tokyo, Bunkyo-ku, Japan; 2. University of California, Berkeley, Berkeley, CA, United States; 3. Kyushu University, Fukuoka, Japan; 4. Johns Hopkins University, Baltimore, MD, United States; 5. RIKEN, Wako, Japan
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9:00

- DG-02. Thermal cycling induced metamorphosis of exchange bias in MnPS₃/Fe₃GeTe₂ van der Waals heterostructures.**
A. Puthirath Balan¹, A. Kumar¹, P. Reiser², J. Vas³, T. Denneulin³, M. Tschudin², C. Pellet-Mary², D. Dutta², C. Schrader², T. Scholz⁴, J. Geuchies⁵, S. Fu⁵, H. Wang⁵, A. Bonanni⁶, B. Lotsch⁴, A. Kovács³, R.E. Dunin-Borkowski³, P. Maletinsky² and M. Kläui^{1,7}
1. Institute of Physics, Johannes Gutenberg University, Mainz, Germany; 2. Department of Physics, University of Basel, Basel, Switzerland; 3. Ernst Ruska-Centre for Microscopy and Spectroscopy with Electrons and Peter Grünberg Institute, Forschungszentrum Julich, Julich, Germany; 4. Max Planck Institute for Solid State Research, Stuttgart, Germany; 5. Max Planck Institute for Polymer Research Mainz, Mainz, Germany; 6. Institute of Semiconductor & Solid State Physics, Johannes Kepler University - Linz, Linz, Austria; 7. Department of Physics, Norwegian University of Science and Technology, Trondheim, Norway
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9:15

- DG-03. Automated mechanical exfoliation technique and spin pumping in YIG/TMD heterostructures.** *L. Sampaio¹, R. Torrao Victor¹, J. Marroquin³, S. Safeer^{1,2}, D. Dugato¹, B. Archanjo⁴, F. Garcia¹ and J. Felix³*
1. Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil; 2. Department of Physics, Quaid-i-Azam University, Islamabad, Pakistan; 3. Instituto de Física, Universidade de Brasília, Brasília, Brazil; 4. INMETRO, Rio de Janeiro, Brazil
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- DG-04. Exploring Magnon–Magnon Coupling, Spin Hall Magnetoresistance, and Laser–Driven Spin Textures in 2D van der Waals Magnets. (Invited)** C. Freeman^{1,2}, M. Dabrowski³, P.S. Keatley³, Z. Xue¹, A. Budniak⁴, O. Kazakova², G. Eda⁴, R. Hicken³, H. Kurebayashi¹ and M. Cubukcu^{1,2} *1. University College London, London, United Kingdom; 2. National Physical Laboratory, Teddington, United Kingdom; 3. University of Exeter, Exeter, United Kingdom; 4. National University of Singapore, Singapore*
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10:00

- DG-06. Above room temperature ferromagnetism in all-epitaxial Fe_{5-x}GeTe₂/graphene and Fe_{5-x}GeTe₂/WSe₂ van der Waals heterostructures.** J. J. Lopes¹, H. Lv¹, J. Herfort¹, M. Hanke¹, C. Chen², J.M. Redwing², A. Trampert¹, R. Engel-Herbert¹ and M. Ramsteiner¹ *1. Paul-Drude-Institute for Solid State Electronics, Berlin, Germany; 2. 2D Crystal Consortium Materials Innovation Platform, Materials Research Institute, The Pennsylvania State University, University Park, PA, United States*
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10:15

- DG-07. Magnetism and Spin-Orbit Coupling in Iron Chalcogenide Superconductors. (Invited)** Q. Li^{1,2}
1. Department of Physics and Astronomy, Stony Brook University, Stony Brook, NY, United States; 2. Condensed Matter Physics and Materials Sciences Division, Brookhaven National Laboratory, Upton, NY, United States
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10:45

- DG-08. Magnetism and Excitations in Quasi-2D magnets VBr₃ and VI₃.** K. Carva¹, K. Pokhrel¹, D. Hovančík¹ and J. Pospíšil¹ *1. Dept. Condensed Matter Physics, Charles University, Prague, Czechia*
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11:00

- DG-09. Magnetic Properties of Two Dimensional Fe₃GeTe₂ Nanoflakes.** R. Cardias Alves de Almeida¹, T. Cysne¹, A. Bergman², R. Bechara Muniz¹ and M. Costa¹ *1. Instituto de Física, Universidade Federal Fluminense, Niterói, Brazil; 2. Uppsala University, Uppsala, Sweden*
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Session DP
HIGH-SPEED, WOUND-FIELD, INDUCTION AND
RELUCTANCE MACHINES I
(Poster Session)

Marco Trapanese, Chair
 Palermo University, Palermo, Italy

- DP-01. Computation-Efficient Model Predictive Control Using Sphere Decoding Algorithm for Dual Three-Phase SPMSMs.** Z. Zhang¹, J. Chen¹, R. Han², Y. Wu¹, Y. Gong¹ and S. Chang¹ *1. Tianjin University, Tianjin, China; 2. Tianjin Navigation Instruments Research Institute, Tianjin, China*
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- DP-02. Study on the Slotless PM Motor Design Process Considering High Speed.** Y. Lee¹, K. Kim², I. Jang³, I. Yang⁴ and W. Kim⁵ *1. Department of Next Generation Energy System Convergence, Gachon University, Gyeonggi-do, The Republic of Korea; 2. Department of Mechanical Automotive and Robot Engineering, Halla University, Wonju, The Republic of Korea; 3. Electric Powertrain Core Technology, Hyundai Mobis, YoungIn, The Republic of Korea; 4. Department of Electrical Engineering, Hanyang University, Seoul, The Republic of Korea; 5. Department of Electrical Engineering, Gachon University, Seongnam, The Republic of Korea*
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- DP-03. Innovative SynRM Rotor Design for Simplified Construction and Enhanced Mechanical Reliability in High-Speed Applications.** G. Behling da Silveira¹, R. Petry Homrich¹, I.P. Wiltuschnig¹, A. Ferreira Flores Filho¹, A. Tergolina Salton¹ and P. Eckert¹ *1. Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, Brazil*
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- DP-04. A Comparative Performance Study of High-Speed SynRM and PMA-SynRM Rare-Earth and Rare-Earth-Less Permanent Magnets for Automotive Traction.** G. Behling da Silveira¹, I.P. Wiltuschnig¹, R. Petry Homrich¹, A. Ferreira Flores Filho¹, A. Tergolina Salton¹, L. Gonçalves Tobias dos Santos², C. de Abreu Soares² and P. Eckert¹ *1. Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, Brazil; 2. Mercosul Industria de Motores S.A., Caxias do Sul, Brazil*
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- DP-05. Use of a Ferrofluid in a Magnetic Brake for a Wind Energy Generator.** I.G. Cely Orjuela^{1,2}, O. Moscoso Londoño³ and L.M. Socolovsky^{1,2} *1. Universidad Tecnológica Nacional Facultad Regional Santa Cruz, Rio Gallegos, Argentina; 2. CIT Santa Cruz, CONICET, Rio Gallegos, Argentina; 3. Facultad de Ingeniería, Universidad Autónoma de Manizales, Manizales, Colombia*
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- DP-06. Optimal Design and Experimental Analysis of Rotor Casting Defect Detector.** *K. Lee^{1,2}, J. Seo^{1,2} and S. Lee¹*
1. Korea Institute of Industrial Technology, Gwangju, The Republic of Korea; 2. Department of Electrical Engineering, Chungnam National University, Daejeon, The Republic of Korea
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- DP-08. Enhancing Noise and Vibration Performance for a Traction Squirrel Cage Induction Machine through Rotor Design Optimization.** *P. Song¹, O. Taqavi¹, Z. Li¹, G. Byczynski¹ and N. Kar¹*
1. Department of Electrical & Computer Engineering, University of Windsor, Windsor, ON, Canada
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- DP-09. Magnetizing Inductance Estimation Method of Induction Motor for EV Traction Considering Magnetic Saturation Changes According to Current and Slip Frequency.** *D. Park¹, C. Song¹, Y. Won¹, J. Park¹, H. Kim¹ and M. Lim¹*
1. Hanyang University, Seoul, The Republic of Korea
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- DP-10. Design of LS-SynRM Rotor for Efficiency Improvement and Torque Ripple Reduction.** *C. Kim¹, H. Lee¹, J. Lee², S. Kim³ and C. Park¹*
1. Department of Railroad Vehicle & Operation System Engineering, Korea National University of Transportation, Uiwang-si, The Republic of Korea; 2. Department of Railroad Electric Engineering, Korea National University of Transportation, Uiwang-si, The Republic of Korea; 3. Department of Electrical Engineering, Hanyang University, Seoul, The Republic of Korea
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EXHIBIT HALL

Session DQ
SKYRMIONS AND RELATED PHENOMENA
(Poster Session)

Svitlana Kondovych, Chair

Leibniz Institute for Solid State and Materials Research (IFW) Dresden,
 Dresden, Germany

- DQ-01. Ab initio study of Pd/Fe/Ir(111) bilayers decorated with Co nanostructures.** *J.G. Cornelio Palma¹, P. Costa Carvalho¹, A.B. Klautau^{2,1} and H.M. Petrilli¹*
1. Department of Physics of Materials and Mechanics - Institute of Physics, University of Sao Paulo, São Paulo, Brazil; 2. Department of Physics, Federal University of Pará, Belém, Brazil
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- DQ-02. Skyrmionic States and Dynamics in Synthetic Antiferro and Ferrimagnets.** *M.V. Correia¹, J.C. Velásquez² and C.C. de Souza Silva¹*
1. Physics Department, Universidade Federal de Pernambuco, Recife, Brazil; 2. Núcleo de Tecnologia - Centro Acadêmico do Agreste, Universidade Federal de Pernambuco, Caruaru, Brazil
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- DQ-03. Tunable skyrmion nucleation in nanodot arrays.** Y. Zang¹, W. Griggs¹, T. Thomson¹ and C. Moutafis¹ *1. The University of Manchester, Manchester, United Kingdom*
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- DQ-04. Application of Artificial Neural Networks for Identification of Skyrmionic Phases on Bidimensional Archimedean Ferromagnetic Lattices.** J.R. Gomez Quispe¹, P. Autreto¹, T.W. Milla Robles², C. Rojas-Ayala² and J. Rojas-Tapia² *1. Center of Natural and Human Sciences, Federal University of ABC, Sao Paulo, Brazil; 2. Faculty of Physical Sciences, National University of San Marcos, Lima, Peru*
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- DQ-05. Isolated zero-field skyrmions at ambient conditions in ferrimagnetic Pt/Co_x/Gd heterostructures.** J. Brandao^{1,2}, T.J. Mori^{1,2}, F. Béron³ and J.C. Cezar^{1,2} *1. Laboratório Nacional de Luz Síncrotron, Campinas, Brazil; 2. Centro Nacional de Pesquisa em Energia e Materiais, Campinas, Brazil; 3. Universidade Estadual de Campinas, Campinas, Brazil*
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- DQ-07. Towards Skyrmion Nucleation on Multilayered Thin Films Over Self-Formed Nanodomes.** F.L. Vital^{2,1}, D. de Souza Chaves¹, J. Brandao¹, P. Schio³, F. Béron² and J.C. Cezar^{1,2} *1. LNLS, CNPEM, Campinas, Brazil; 2. IFGW, Unicamp, Campinas, Brazil; 3. LNNANO, CNPEM, Campinas, Brazil*
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- DQ-08. In search of Magnetic Skyrmion Phase in 4d Under-Doped MnSi.** P. Khandelwal¹, S. Samatham², A. Patel³ and K.G. Suresh¹ *1. Department of Physics, Indian Institute of Technology Bombay, Mumbai, India; 2. Department of Physics, Chaitanya Bharathi Institute of Technology, Gandipet, Hyderabad, Hyderabad, India; 3. Research Centre for Magnetic and Spintronic Materials, National Institute for Materials Science, Tsukuba, Ibaraki, Ibaraki, Japan*
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- DQ-09. Effects of an Exchange-reducing Defect on a Skyrmion Interaction in Antiferromagnetic Frustrated Films.** I.F. Sharafullin¹, D. Abdrakhmanov¹, A. Nugumanov¹ and H.T. Diep² *1. Institute of Physics and Technologies, Ufa State University of Science and Technology, Ufa, Russian Federation; 2. Laboratoire de Physique Théorique et Modélisation, Cergy-Paris University, Cergy, France*
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- DQ-10. Local Electric-field Control of Skyrmions in Nanostructured Multiferroic Heterostructure.** Y. Wang¹, Q. Liu¹, X. Zhang², S. Zhang³, B. He⁴, G. Yu⁴, H. Piao² and Y. Zhao¹ *1. Tsinghua University, Beijing, China; 2. Yanbian University, Yanji, China; 3. National University of Defense Technology, Changsha, China; 4. Chinese Academy of Sciences, Beijing, China*
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DQ-11. Proximity-induced moment and saturation magnetization reduction in Pt/Co/Hf/Pt multilayers. D.A. Dugato^{1,2}, J. Brandao¹, F. Béron³ and T.J. Mori¹ *1. Brazilian Synchrotron Light Laboratory, Brazilian Center for Research in Energy and Materials, Campinas, Brazil; 2. Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil; 3. Universidade Estadual de Campinas, Campinas, Brazil*
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DQ-13. Effect of Inhomogeneous Magnetoelectric Interaction on Flat Magnetic Structures. E.B. Magadeev¹ and R.M. Vakhitov¹ *1. Ufa University of Science and Technology, Ufa, Russian Federation*
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EXHIBIT HALL

Session DR
MULTI-FUNCTIONAL MAGNETIC MATERIALS
AND APPLICATIONS I
(Poster Session)

Joao Belo, Co-Chair
IFIMUP, Porto, Portugal

Lei Bi, Co-Chair
University of Electronic Science and Technology of China,
Chengdu, China

DR-01. Machine Learning-Guided Discovery of Laves Phases for Magnetocaloric Hydrogen Liquefaction. V.G. Lunde¹, B.G. Eggert¹, A. Møller¹, R. Bjørk², J. Grivel², B.C. Hauback¹ and C. Frommen¹ *1. Department for Hydrogen Technology, Institute for Energy Technology, Oslo, Norway; 2. Department of Energy Conversion and Storage, Technical University of Denmark, Copenhagen, Denmark*
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DR-02. Fingerprint of magneto-optical Faraday rotation in Raman spectra of MoS₂. M. Bacani¹, T. Dieing², D. Strom², J. Englert² and P. Altmann¹ *1. Attocube Systems AG, Haar, Germany; 2. WITec GmbH, Ulm, Germany*
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DR-03. Formation of ferromagnetic clusters affecting the first-order phase transition in off-stoichiometric Fe-Rh. A. Aubert¹, K. Skokov¹, A. Rogalev², A. Chirkova¹, B. Beckmann¹, E. Dilmieva², F. Wilhelm², V. Nassif³, L.V. Diop⁴, E. Bruder⁵, J. Löfstrand⁶, D. Primetzhofer⁶, M. Sahlberg⁷, E. Adabifiroozjaei¹, L. Molina-Luna¹, G. Gomez⁸, B. Eggert⁸, K. Ollefs⁸, H. Wende⁸ and O. Gutfleisch¹ *1. Technische Universität Darmstadt, Darmstadt, Germany; 2. ESRF, Grenoble, France; 3. University Grenoble Alpes, CNRS, Institut Néel, Grenoble, France; 4. Université de Lorraine, CNRS, IJL, Nancy, France; 5. Department of Physical Metallurgy, TU Darmstadt, Darmstadt, Germany; 6. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden; 7. Uppsala University, Uppsala, Sweden; 8. University of Duisburg-Essen, Duisburg, Germany*
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- DR-04. Effect of Ge Doping on the Martensitic Transformation and Magnetoelectric Behavior of $\text{Ni}_{42}\text{Co}_8\text{Mn}_{39}\text{Sn}_{11-x}\text{Ge}_x$ Melt-Spun Ribbons.** A. Rosales-Rivera¹, D.C. Jaimes-Gómez¹, N.A. Salazar-Henao¹, H. Gómez-Cordoba¹ and D. Salazar Jamillo² 1. *Laboratorio de Magnetismo y Materiales Avanzados, Universidad Nacional de Colombia, Sede Manizales, Manizales, Colombia;* 2. *BC Materials, Basque Center for Materials, Applications, and Nanostructures, Leioa, Spain*
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- DR-05. Structure-property relationships in GdCuX and the corresponding hydrides (X= Si, Al).** B.G. Eggert¹, A.M. Döring², K. Skokov², O. Gutfleisch², B.C. Hauback¹ and C. Frommen¹ 1. *Hydrogen Technology, Institute for Energy Technology, Kjeller, Norway;* 2. *Department of Materials Science, TU Darmstadt, Darmstadt, Germany*
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- DR-06. Stability of the Magnetocaloric Effect in Heusler Alloys in Cyclic Magnetic Fields.** A. Gamzatov¹ and A. Aliev¹ 1. *Amirkhanov Institute of Physics DFRC of RAS, Makhachkala, Russian Federation*
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- DR-07. Magnetic anisotropy control through mechanical deformations: Study of magnetoelastic coupling.** D. Pérez¹, J. Espina¹, J. Fuentealba¹ and R.M. Freire¹ 1. *Facultad de Ingeniería y Arquitectura, Universidad Central de Chile, Santiago, Chile*
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- DR-08. Residual Stress Monitoring in Magnetostrictive Cylinders.** E. Mangiorou¹, T. Damatopoulou¹, S. Angelopoulos², A. Ktena² and E.V. Hristoforou¹ 1. *Laboratory of Electronic Sensors, National TU of Athens, Athens, Greece;* 2. *National Kapodistrian University of Athens, Athens, Greece*
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- DR-09. Optimizing Relative Cooling Power through Magnetic Field-Induced Magnetocaloric Effects in $\text{La}_{2-2x}\text{Sr}_{1+2x}\text{Mn}_2\text{O}_7$ (x=0.33).** A.K. Saw¹, J.P. Nunez², R.L. Hadimani², S. Gupta³, V. Franco⁴ and V. Dayal¹ 1. *Department of Physics, Maharaja Institute of Technology Mysore (Aff: VTU, Belagavi), Mandya, India;* 2. *Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States;* 3. *Division of Material Science and Engineering, Ames Laboratory, US Dept. of Energy, Ames, IA, United States;* 4. *Departamento de Física de la Materia Condensada, Universidad de Sevilla, Sevilla, Spain*
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- DR-10. On the behavior of the magnetocaloric quantities ΔS_{iso} and ΔT_{ad} .** J. Caro Patiño¹ and N.A. de Oliveira¹ 1. *Instituto de Física, Universidade do Estado do Rio de Janeiro, Rio de Janeiro, Brazil*
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- DR-11. New design of La(Fe, Co, Si)₁₃ magnetocaloric composites using Gd as a binder.** *H. Zhang*¹, *Z. Wu*¹, *W. Pan*¹, *Y. Zhang*³, *J. Huang*³, *M. Yue*¹, *K. Skokov*² and *O. Gutfleisch*²
 1. *Beijing University of Technology, Beijing, China*; 2. *Technical University of Darmstadt, Darmstadt, Germany*; 3. *Baotou Research Institute of Rare Earths, Baotou, China*
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- DR-12. Magnetotransport Properties and Spin Textures in Gd₅Ge₄.** *F. Mesquita*¹, *N. Marcano*², *L. Barquin*³, *S. Magalhães*¹, *M. Tumelero*¹, *D. Möckli*¹ and *P. Pureur*¹
 1. *Departamento de Física, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil*; 2. *University of Zaragoza, Zaragoza, Spain*; 3. *University of Cantabria, Santander, Spain*
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- DR-13. Temperature Anomalies of Magnetic Hyperfine Fields at ¹¹⁹Sn and ¹¹¹Cd probes in Gd₅Ge₄ Studied by Mössbauer and PAC Spectroscopy.** *V. Krylov*¹, *B.B. Santos*¹, *G.A. Cabrera-Pasca*², *A.W. Carbonari*¹, *R.N. Saxena*¹ and *O.F. Leite Neto*¹
 1. *CERPQ, Instituto de Pesquisas Energeticas e Nucleares, São Paulo, Brazil*; 2. *Faculty of Exact Sciences and Technology, UFPA, Abaetetuba, Brazil*
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EXHIBIT HALL

Session DS
SENSORS AND HIGH-FREQUENCY DEVICES I
(Poster Session)

Shin Yabukami, Chair
 Tohoku University, Sendai, Japan

- DS-01. Study of disorientation in polycrystalline hexaferrites and application to the design of a Ka-band planar self-biased isolator.** *V. Laur*¹, *A. Hoesz*¹, *J. Mattei*¹ and *R. Lebourgeois*²
 1. *Lab-STICC / University of Brest, Brest, France*; 2. *Thales Research & Technology, Palaiseau, France*
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- DS-02. Dual Band Analysis of a Novel Rectenna for Wireless Power Transmission and Energy Harvesting Applications.** *A.M. Viana*¹, *S.T. Gonçalves*¹, *Ú.C. Resende*¹ and *T.H. Mello*¹
 1. *Department of Electrical Engineering, Federal Center for Technological Education of Minas Gerais - CEFET-MG, Belo Horizonte, Brazil*
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- DS-05. Enhanced Millimeter-wave Filter Design under Stochastic Uncertainties.** *I. Koutzoglou*², *I. Stamatopoulos*⁴, *D.I. Karatzidis*², *T. Ohtani*³, *Y. Kanai*¹ and *N.V. Kantartzis*²
 1. *Department of Engineering, Niigata Institute of Technology, Kashiwazaki, Japan*; 2. *School of Electrical and Computer Engineering, Aristotle University of Thessaloniki, Thessaloniki, Greece*; 3. *Independent Researcher, Asahikawa, Japan*; 4. *Directorate for Transport and Communications, Thessaloniki, Greece*
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- DS-06. Magnetoelastic Constraint on Sensor-Intrinsic Noise.** E. Spetzler¹, B. Spetzler², J. Arbustini³, D. Seidler¹, A. Bahr^{3,4,5} and J. McCord^{1,6} 1. Institute for Material Science, Kiel University, Kiel, Germany; 2. Department of Electrical Engineering and Information Technology, Technical University Ilmenau, Ilmenau, Germany; 3. Institute of Electrical Engineering and Information Technology, Kiel University, Kiel, Germany; 4. Electronics for Medical Applications, Jade University of Applied Sciences, Wilhelmshaven, Germany; 5. Institute for Integrated Circuits, Hamburg University of Technology, Hamburg, Germany; 6. Kiel Nano, Surface and Interface Science (KiNSIS), Kiel University, Kiel, Germany
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- DS-07. Generation of Multiple Dark Solitons in a Magnonic Active Ring Below Self-Oscillation Threshold.** A.B. Ustinov¹, L.S. Vedernikov¹ and A.A. Stashkevich² 1. Dept. of Physical Electronics and Technology, St. Petersburg Electrotechnical University, St. Petersburg, Russian Federation; 2. LSPM (CNRS-UPR 3407), Université Paris 13, Villetaneuse, France
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- DS-08. Implementing Sensors Based on Tunneling MagnetoResistance (TMR) Effect on 3D Self-Assembled Substrate.** Z. Zhou¹, V. Neu², Q. Leng¹, D. Zhu¹, W. Zhao¹, O.G. Schmidt³ and D. Karnaushenko³ 1. Beihang University, Beijing, China; 2. Leibniz Institute for Solid State and Materials Research (IFW) Dresden, Dresden, Germany; 3. TU Chemnitz, Chemnitz, Germany
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- DS-09. Development of Co-based Heusler alloy $\text{Co}_2\text{FeAl}_x\text{Si}_{1-x}$ with small magneto-crystalline anisotropy K_1 for highly sensitive TMR sensor.** T. Hojo¹, H. Hamasaki¹, M. Tsunoda^{3,2} and M. Oogane^{1,4} 1. Department of Applied Physics, Graduate School of Engineering, Tohoku University, Sendai, Japan; 2. Research Center for Green X-Tech, Green Goals Initiative, Tohoku University, Sendai, Japan; 3. Department of Electronic Engineering, Graduate School of Engineering, Tohoku University, Sendai, Japan; 4. Center for Science and Innovation in Spintronics (Core Research Cluster) Organization for Advanced Studies, Tohoku University, Sendai, Japan
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- DS-10. RTD Fluxgate Sensors based on Twisted Glass-Coated Microwires.** S. Corodeanu¹, C. Hlenschi¹, H. Chiriac¹, T.A. Ovari¹ and N. Lupu¹ 1. National Institute of R&D for Technical Physics, Iasi, Romania
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Session EA

ORBITRONICS: FROM THEORY TO EXPERIMENTS

Antonio Azevedo, Chair

Universidade Federal de Pernambuco (Physics), Recife, Brazil

2:00

- EA-01. **Electron Orbital Dynamics in Solids. (Invited)** S. Han¹, H. Ko², J. Oh², K. Lee², K. Kim³ and H. Lee¹ 1. *Department of Physics, Pohang University of Science and Technology, Pohang, The Republic of Korea*; 2. *Department of Physics, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, The Republic of Korea*; 3. *Center for Spintronics, Korea Institute of Science and Technology, Seoul, The Republic of Korea*
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2:30

- EA-02. **Orbital Hall effect, orbital-to-spin conversion and magnetoresistance in metallic heterostructures. (Invited)** P. Gambardella¹ 1. *ETH Zurich, Zurich, Switzerland*
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3:00

- EA-03. **Optical detection of orbital Hall effect in Ti, Mn, and Cu. (Invited)** Y. Choi¹, D. Jo², K. Ko¹, H. Lee² and G. Choi¹ 1. *Sungkyunkwan University, Suwon, The Republic of Korea*; 2. *POSTECH, Pohang, The Republic of Korea*
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3:30

- EA-04. **Orbital currents and orbital torques in metallic systems. (Invited)** K. Ando¹ 1. *Keio University, Yokohama, Japan*
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4:00

- EA-05. **From Discovery to Application: Orbital Hall Materials for Cutting-Edge SOT-MRAM Devices. (Invited)** R. Gupta¹, C. Bouard², D. Go^{1,3}, A. Bose¹, F. Kammerbauer¹, O. Ledesma¹, S. Martin², G. Jakob¹, Y. Mokrousov^{1,3}, M. Drouard² and M. Kläui^{1,4} 1. *Johannes Gutenberg University, Mainz, Germany*; 2. *ANTAIOS, Meylan, France*; 3. *Peter Grünberg Institut and Institute for Advanced Simulation, Jülich, Germany*; 4. *Department of Physics, Center for Quantum Spintronic, Trondheim, Norway*
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- EA-06. Orbitronics in Two-dimensional Materials. (Invited)**
T.G. Rappoport^{1,2} 1. Department of Physics, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil;
2. Physics, Minho University, Braga, Portugal
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OCEANIA VI & VII

Session EB
MAGNETIC FIELD SENSORS

Paul Stevenson, Chair
 Northeastern University, Boston, MA, United States

2:00

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

- EB-02. Skyrmionic device for three dimensional magnetic field sensing enabled by spin-orbit torques.** S. Koraltan¹, R. Gupta², R. Peremadathil Pradeep⁴, F. Kammerbauer², K. Prügl⁵, M. Kirsch⁵, B. Aichner¹, K. Davidkova¹, F. Bruckner¹, S. Zeilinger¹, S. Helbig¹, C. Abert¹, A. Mandru⁴, A. Satz³, G. Jakob², H.J. Hug⁴, M. Kläui² and D. Suess¹
1. Faculty of Physics, University Vienna, Vienna, Austria;
2. Faculty of Physics, University Mainz, Mainz, Germany;
3. Infineon Technologies, Villach, Austria; 4. EMPA, Zürich, Switzerland; 5. Infineon Technologies, Regensburg, Germany
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2:45

- EB-03. Sensitivity and Linearity of Domain Wall Displacement Modulation GMR Sensors with Closed-loop Current-field Feedback.** K. Komuro¹, D. Oshima¹ and T. Kato²
1. Department of Electronics, Nagoya University, Nagoya, Japan; 2. Institute of Materials and Systems for Sustainability, Nagoya University, Nagoya, Japan
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- EB-04. An ultrathin, rapidly fabricated, flexible giant magnetoresistive electronic skin.** J. Zhang^{1,2}, Z. Jin^{1,2}, G. Chen¹ and J. Chen^{1,3,2} *1. Chinese Academy of Sciences, State Key Laboratory of Transducer Technology, Aerospace Information Research Institute, Beijing, China; 2. School of Electronic, Electrical and Communication Engineering, University of Chinese Academy of Sciences, Beijing, China; 3. College of Materials Sciences and Opto-Electronic Technology, University of Chinese Academy of Sciences, Beijing, China*
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3:15

- EB-05. Development of Open-structure Rotary Magnetic Encoder for Underwater Applications.** H. Lin¹, K. Peng¹ and J. Chang^{1,2} *1. Power Mechanical Engineering, National Tsing Hua University, Hsinchu, Taiwan; 2. National Formosa University, Huwei Township, Taiwan*
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3:30

- EB-06. Remote sensing of nanoscale displacements through detection of magnetic field gradients with magnetic tunnel junction sensors.** A. Talantsev¹, T. Böhnert¹, A. Araújo¹, E. Paz¹, L. Benetti¹ and R. Ferreira¹ *1. Spintronics, International Iberian Nanotechnology Laboratory, Braga, Portugal*
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3:45

- EB-07. Recent Advances in Modeling ΔE -Effect Magnetic Field Sensors. (Invited)** F. Ilgaz², E. Spetzler², P. Wiegand³, F. Faupel², R. Rieger³, J. McCord^{2,4} and B. Spetzler¹ *1. Department of Electrical Engineering and Information Technology, Ilmenau, Germany; 2. Department of Materials Science, Kiel, Germany; 3. Institute of Electrical Engineering and Information Technology, Kiel, Germany; 4. Kiel Nano, Surface and Interface Science (KiNSIS), Kiel, Germany*
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4:15

- EB-08. Numerical Modeling of the Magnetoimpedance effect from Micromagnetism.** G. Gestoso¹, D. de Cos Elices², E. Fernandez³ and A. García-Arribas^{1,3} *1. Departamento de Electricidad y Electrónica, Universidad del País Vasco UPV/EHU, Leioa, Spain; 2. Departamento de Física, Universidad del País Vasco UPV/EHU, Vitoria, Spain; 3. BC Materials, Leioa, Spain*
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- EB-09. Multifunctional MgO-Based Magnetic Tunnel Junctions with Coexisting Magnetoresistance and Memristive Properties.** A. Schulman^{1,2}, E. Paz¹, T. Boehnert¹, A. Jenkins¹ and R. Ferreira¹ *1. Spintronics, International Iberian Nanotechnology Laboratory (INL), Braga, Portugal; 2. University of Salamanca, Salamanca, Spain*
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4:45

- EB-10. 2-Axis planar Hall magnetic field sensors with sub nanoTesla resolution.** P.T. Das^{1,2}, H. Nhalil², V. Mor², M. Schultz², N. Hasidim³, A. Grosz³ and L. Klein²
1. Intelligent Materials and Systems (FWID), Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. Department of Physics, Bar-Ilan University, Ramat Gan, Israel; 3. Department of Electrical and Computer Engineering, Ben-Gurion University of the Negev, Beer-Sheva, Israel
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OCEANIA IX & X

Session EC

INTERDISCIPLINARY TOPICS: SENSORS, ANTENNAS, AND NANOFABRICATION

Luiz Sampaio, Chair

Brazilian Center for Research in Physics, Rio de Janeiro, Brazil

2:00

- EC-01. Nanoscale Magnetic Field Quantification of Skyrmion Spin Textures using in-vacuum Magnetic Force Microscopy.** *(Invited)* H.J. Hug^{1,2}, R. Peremadathil-Pradeep^{1,2}, L. Jamilpanah¹, E. Darwin¹ and A. Mandru¹ *1. Magnetic and Functional Thin Films, Empa, Duebendorf, Switzerland; 2. Department of Physics, University of Basel, Basel, Switzerland*
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2:30

- EC-02. Frequency-Domain Propagation in Multiconductor Submarine Power Cables.** R.A. Coelho¹, G.C. Biage¹, M.L. P. Filho² and J.R. Cardoso¹ *1. InnovaPower - RCGI, Universidade de São Paulo, São Paulo, Brazil; 2. Institute for Technological Research, São Paulo, Brazil*
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[Now VP13-14](#)

- EC-03. Research on High Performance TMR-Superconducting Composite Magnetic Sensor and Performance Optimization.** *S. Han*^{1,2}, *Y. Wu*³, *Z. Jin*¹ and *J. Chen*^{1,2,4}
1. State Key Laboratory of Transducer Technology, Aerospace Information Research Institute, Beijing, China; 2. School of Electronic, Electrical and Communication Engineering, University of Chinese Academy of Sciences, Beijing, China; 3. Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China; 4. College of Materials Sciences and Opto-Electronic Technology, University of Chinese Academy of Sciences, Beijing, China
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3:00

- EC-04. Analytical Calculation of Series Impedance for Deeply Buried Coaxial Cables.** *G.C. Biage*¹, *R.A. Coelho*¹ and *J.R. Cardoso*¹ *1. RCGI, Universidade de São Paulo, São Paulo, Brazil*
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3:15

- EC-05. Progress in nanofabrication of superconducting devices and diverse applications.** *A.C. Rebello*¹, *N.Y. Klein*¹, *L.M. Ruela*², *E. Martins*³, *I.S. Oliveira*¹, *J.P. Sinnecker*¹ and *F. Rouxinol*² *1. Department of Condensed Matter, Centro Brasileiro de Pesquisas Físicas, Niteroi, Brazil; 2. University of Campinas, Campinas, Brazil; 3. Centro de Pesquisas, Desenvolvimento e Inovação Leopoldo Américo Miguez de Mello, Rio de Janeiro, Brazil*
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3:30

- EC-06. Magnetolectric Materials and Ultra-compact Mechanical Antennas. (Invited)** *B. Luo*¹, *Y. Liu*¹, *R. Huang*¹ and *N.X. Sun*¹
1. Northeastern University, Boston, MA, United States
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4:00

- EC-07. Withdrawn**

4:15

- EC-08. In Plane Single Domain 3D SOT Sensor with Active Offset Compensation.** *S. Zeilinger*¹, *A. Satz*², *J. Guettinger*², *J.M. Salazar*¹ and *D. Suess*¹ *1. University of Vienna, Vienna, Austria; 2. Infineon Austria, Villach, Austria*
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- EC-09. Skyrmion-based rotation counter-sensor device.** *K. Leutner*¹, *R. Frömter*¹, *T. Winkler*¹, *R. Gruber*¹, *J. Guettinger*², *H. Fangohr*^{3,4} and *M. Kläui*¹ *1. Institute of Physics, Johannes Gutenberg University Mainz, Mainz, Germany; 2. Infineon Technologies Austria AG, Villach, Austria; 3. Max-Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany; 4. Faculty of Engineering and Physical Sciences, University of Southampton, Southampton, United Kingdom*
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4:45

- EC-10. A carborane-based Gd metal-organic framework towards scalable Quantum Computing.** *E. Bartolomé*¹, *A. Arauzo*², *I. García-Rubio*², *J. Luzón*³, *X. Li*¹ and *J. Giner-Planas*¹ *1. Instituto de Ciencia de Materiales de Barcelona (ICMAB), Barcelona, Spain; 2. Department of Condensed Matter Physics, Instituto de Nanociencia y Materiales de Aragón (INMA), CSIC-Universidad de Zaragoza, Zaragoza, Spain; 3. Centro Universitario de Defensa (CUD), Zaragoza, Spain*
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OCEANIA I & II

Session ED BIOMAGNETICS II

Andris Bakuzis, Co-Chair

Federal University of Goiás, Goiânia, Brazil

Kai Wu, Co-Chair

Texas Tech University, Lubbock, TX, United States

2:00

- ED-01. Magnetism for mechanobiology and related biomedical applications. (Invited)** *B. Dieny*¹, *A. Visonà*^{1,2}, *R. Morel*¹, *H. Joisten*¹, *P. Obeid*⁵, *A. Nicolas*², *S. Belin*³ and *F. Berger*⁴ *1. SPINTEC, Univ.Grenoble Alpes, CEA, CNRS, Grenoble, France; 2. LTM, Univ.Grenoble Alpes, CEA, CNRS, Grenoble, France; 3. Grenoble Institut Neurosciences, Univ. Grenoble Alpes, UI216, Grenoble, France; 4. Brain Tech Lab, Univ. Grenoble Alpes, INSERM, Grenoble, France; 5. Biomics, Univ.Grenoble Alpes, CEA, INSERM, Grenoble, France*
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- ED-02. Melanoma Cell Internalization of Spin-Vortex Nanodisks for Cancer Treatment.** *R. Zurbano*¹, *C. Redondo*¹, *I. Solozabal Azcarate*¹, *M. Boyano*^{2,3} and *R. Morales*^{4,5}
1. Department of Physical Chemistry, University of the Basque Country, Leioa, Spain; 2. Department of Cell Biology and Histology, University of the Basque Country, Leioa, Spain; 3. Biocruces Health Research Institute, Bilbao, Spain; 4. University of the Basque Country UPV/EHU & BC Materials, Leioa, Spain; 5. IKERBASQUE, Bilbao, Spain
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2:45

- ED-03. Level Change of Biochemical Markers in Serum after Acute Administration of Magnetite (Fe₃O₄) Nanoparticles.** *S. Lee*¹, *J. Choi*¹, *Y. Hong*³ and *M. Hasan*² *1. Department of Digital Healthcare Engineering, Sangji University, Wonju, The Republic of Korea; 2. Department of Biochemistry and Molecular Biology, Bangabandhu Sheikh Mujibur Rahman Science and Tech. University, Gopalganj, Bangladesh; 3. Department of Information and Communication Software Engineering, Sangji University, Wonju, The Republic of Korea*
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3:00

- ED-04. Effects, Mechanisms, and Potential Biomedical Applications of Static Magnetic Fields. (Invited)** *X. Zhang*¹
1. High Magnetic Field Laboratory, Hefei Institutes of Physical Science, Hefei, China
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3:30

- ED-05. Fe₃N nanoparticles: properties, stability and applications.** *Y. Ablets*¹, *L. Kubičková*², *A. Chanda*³, *I. Orue*⁴, *D. Koch*¹, *S. Najma*¹, *S. Forg*⁵, *E. Adabifiroozjaei*¹, *L. Molina-Luna*¹, *T. Kmječ*⁶, *J. Ángel García*⁷, *F. Plazaola*⁸, *R. von Klitzing*⁵, *W. Donner*¹, *H. Srikanth*³, *O. Gutfleisch*¹ and *I. Dirba*¹
1. Institute of Materials Science, TU Darmstadt, Darmstadt, Germany; 2. FZU - Institute of Physics of the Czech Academy of Sciences, Praha, Czechia; 3. Department of Physics, University of South Florida, Tampa, FL, United States; 4. SGIker Medidas Magnética, Universidad del País Vasco (UPV/EHU), Leioa, Spain; 5. Institute for Condensed Matter Physics, TU Darmstadt, Darmstadt, Germany; 6. Faculty of Mathematics and Physics, Charles University in Prague, Prag, Czechia; 7. Departamento de Física, Universidad del País Vasco (UPV/EHU), Leioa, Spain; 8. Elektrizitatea eta Elektronika Saila, Facultad de Ciencia y Tecnología, (UPV/EHU), Leioa, Spain
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- ED-06. Measurement of Transcranial Magnetic Stimulation-Induced Electric Fields in conductively accurate Rat Head Phantoms.** *W. Lohr*¹, *R.L. Hadimani*^{1,2}, *P. Sundaram*³ and *M. Tashli*² *1. Department of Biomedical Engineering, Virginia Commonwealth University, Richmond, VA, United States; 2. Department of Mechanical and Nuclear, Virginia Commonwealth University, Richmond, VA, United States; 3. Martino's Center, Harvard Medical School, Boston, MA, United States*
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4:00

- ED-07. Magnetic Nanoparticle-Based Detection of Genetic Biomarkers Using Surface-Localized Nucleic Acid Amplification for Ultrasensitive and Rapid Diagnosis.** *(Invited) J. Lee*¹ *1. Hanyang University, Ansan, The Republic of Korea*
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4:30

- ED-08. Giant Magnetoresistive Biosensors for Measuring Enzyme Kinetics.** *J. Im*¹, *S. Kim*¹, *S. Park*¹, *S.X. Wang*² and *J. Lee*¹ *1. Ewha Womans University, Seoul, The Republic of Korea; 2. Stanford University, Stanford, CA, United States*
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4:45

- ED-09. Magnetically-Enabled Detection of Circulating Tumor DNA in Non-Small Cell Lung Cancer Patients for Therapy Selection Purposes.** *K. Antilla*¹, *C. Choi*² and *S.X. Wang*^{2,3} *1. Department of Chemical Engineering, Stanford University, Stanford, CA, United States; 2. Department of Materials Science and Engineering, Stanford University, Stanford, CA, United States; 3. Department of Electrical Engineering, Stanford University, Stanford, CA, United States*
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Session EE

HARD MAGNETIC MATERIALS II

Paulo Wendhausen, Co-Chair

Universidade Federal de Santa Catarina, Florianópolis, Brazil

Ping Liu, Co-Chair

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

2:00

- EE-01. **Development of Permanent Magnets – A Critical Materials Consideration. (Invited) M.J. Kramer^{1,2}, A. Palasyuk¹, I.Z. Hlova¹, J. Cui^{1,2} and D. Parker³** *1. Ames National Laboratory, Ames, IA, United States; 2. Department Materials Science and Engineering, Iowa State University, Ames, IA, United States; 3. Materials Science and Technology Division, ORNL, Oak Ridge, TN, United States*
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2:30

- EE-02. **Smart Predictions: Machine Learning in Constructing Sm-Fe-V Phase Diagram.** *P. Tozman¹, A.D. Zamalloa¹, A. Aubert¹, K. Skokov¹ and O. Gutfleisch¹* *1. Functional Materials, Technical University of Darmstadt, Darmstadt, Germany*
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2:45

- EE-04. **Novel hardening mechanism and element specific magnetic anisotropy in SmCoCu thin films.** *G. Gkouzia¹, D. Günzing^{2,4}, R. Xie¹, T. Weßels^{2,3}, A. Kovács³, A.T. N'Diaye⁴, M. Major¹, J. Palakkal^{5,1}, R.E. Dunin-Borkowski³, H. Wende², H. Zhang¹, K. Ollefs² and L. Alff¹* *1. Department of Materials Science, TU Darmstadt, Darmstadt, Germany; 2. Department of Physics, University Duisburg-Essen, Duisburg, Germany; 3. Ernst Ruska-Centre for Microscopy and Spectroscopy with Electrons and Peter Grünberg Institute, Forschungszentrum Jülich, Jülich, Germany; 4. Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 5. Department of Physics, Georg August University of Göttingen, Göttingen, Germany*
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3:00

- EE-05. **Exploring the Formation of Ordered Tetrataenite Phase in Cryomilled FeNi Alloys with Small Carbon Additions.** *V.R. da Silva¹, B.C. Hauback¹ and S. Deledda¹* *1. Institute for Energy Technology, Kjeller, Norway*
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- EE-06. Effect of different grain boundary diffusion alloys on magnetic properties of Dy-free sintered NdFeB magnet.** W. Tang¹, J. Wang¹, C. Pan¹, M. Kang¹, L. Zhou^{1,2}, M.J. Kramer¹, J. Cui^{1,2} and I.E. Anderson^{1,2} *1. Ames National Laboratory of USDOE, Ames, IA, United States; 2. Department of Materials Science & Engineering, Iowa State University, Ames, IA, United States*
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3:30

- EE-08. Disproportionation and recombination reactions - a promising technique of producing sintered nanostructured anisotropic SmCo5 magnets.** I. Bulyk^{1,2,3}, B. Yang^{1,2}, M. Yang^{1,2} and I. Boruch³ *1. Institute of Rare Earth Magnetic Materials and Devices, Jiangxi University of Science and Technology, Ganzhou, China; 2. National Rare Earth Functional Materials Innovation Center, Ganzhou, China; 3. Karpenko Physico-Mechanical Institute of National Academy of Sciences of Ukraine, Lviv, Ukraine*
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3:45

- EE-09. Magnetic hardness of Fe₃C-based alloys: A first-principles study.** J. Snarski-Adamski¹, J.N. Rychly-Gruszecka¹ and M. Werwinski¹ *1. Institute of Molecular Physics Polish Academy of Sciences, Poznan, Poland*
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4:00

- EE-10. Fe₂MnSn Heusler alloy based rare-earth-free permanent magnets.** M.A. Jami¹, R. Pathak² and A. Bhattacharya¹ *1. Department of Metallurgical Engineering and Materials Science, IIT Bombay, Mumbai, India; 2. Uppsala University, Uppsala, Sweden*
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4:15

- EE-11. Deflection patterns on strontium ferrite/iron oxide/Ecoflex 00-30 flexible composites.** V.V. Xavier¹, M. Elabbasi², A. El-Gendy² and A. de Oliveira Barros³ *1. Department of Mechanical Engineering, Federal Institute of Pernambuco, Caruaru, Brazil; 2. Department of Physics, University of Texas at El Paso, El Paso, TX, United States; 3. Department of Industrial, Manufacturing and Systems Engineering, University of Texas at El Paso, El Paso, TX, United States*
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Session EF
**SOFT MAGNETIC ALLOYS: SYNTHESIS,
 CHARACTERISATION AND MODELING**

Ivan Skorvanek, Chair
 Institute of Experimental Physics, Slovak Academy of Sciences,
 Kosice, Slovakia

2:00

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

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

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

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

- EF-05. Tensile stress effect on magnetic Barkhausen noise of silicon steel single crystal (measurements and simulations).** *B. Ducharne^{1,2,3}, E. Wasniewski⁴, L. Daniel⁵, M. Domenjoud⁵ and P. Fagan⁵* *1. Institut National des Sciences Appliquees de Lyon, Villeurbanne, France; 2. Tohoku University, Sendai, Japan; 3. ELyTMaX, CNRS, Sendai, Japan; 4. CETIM, Senlis, France; 5. Université Paris-Saclay, CentraleSupélec, Gif-sur-yvette, France*
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- EF-06. Stress-Induced Magnetization Process in Shifted Grain-Oriented Steel Ring Cores.** *S. Dobák¹, J. Fuzer¹, I. Petryshynets², F. Onderko¹, P. Kollár¹ and F. Kováč²*
1. Institute of Physics, Faculty of Science, P. J. Šafárik University, Košice, Slovakia; 2. Institute of Materials Research, Slovak Academy of Sciences, Košice, Slovakia
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3:30

- EF-08. Effect of tension and compression stress on the magnetic losses in a low-Carbon steel.** *A. Ouazib^{1,2}, M. Domenjoud^{1,2} and L. Daniel^{1,2}*
1. Université Paris-Saclay, CentraleSupélec, CNRS, Laboratoire de Genie Electrique et Electronique de Paris, Gif sur Yvette, France; 2. Sorbonne Université, Paris, France
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3:45

- EF-09. Process Development for Synthesizing FeCoN-based Magnetic Materials.** *T. Tabata¹, Y. Asari¹, M. Noujima¹ and S. Terada¹*
1. Research & Development Group, Hitachi, Ltd., Hitachi, Japan
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4:00

- EF-10. First-Principles Study of Saturation Magnetization Flux Density in Nitrogen Defective α' -Fe₈N_x.** *Y. Asari¹, T. Tabata¹, M. Noujima¹ and S. Terada¹*
1. Hitachi, Ltd., Hitachi, Japan
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4:15

- EF-11. Enhancing Magnetic Properties of Fe-Ni Soft Magnetic Composites via Dry-coated MgO Insulation.** *H. Kim^{1,2}, K. Kim¹, S. Yang¹, Y. Kim² and J. Jeong¹*
1. Korea Institute of Materials Science (KIMS), Changwon, The Republic of Korea; 2. Sungkyunkwan University, Suwon, The Republic of Korea
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4:30

- EF-12. High-Rate Deposition and Characterization Study of CoZrO Films for On-Chip Power Applications.** *E. Ng¹, J. Lin², E. Young-Dohe³, C. Sullivan⁴, A. Hanson¹ and J. Incurvia¹*
1. Chandra Family Department of Electrical and Computer Engineering, University of Texas at Austin, Austin, TX, United States; 2. Materials Engineering Department, Southwest Research Institute, San Antonio, TX, United States; 3. NASA Glenn Research Center, Cleveland, OH, United States; 4. Dartmouth College, Hanover, NH, United States
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- EF-07. Boron added Fe-6.5%Si melt spun ribbon with improved processability and magnetic properties.** G. Ouyang¹, B. Hillard¹, M.J. Kramer^{1,2}, I.E. Anderson^{1,2} and J. Cui^{1,2}
1. Department of Material Science and Engineering, Ames Laboratory, Ames, IA, United States; 2. Iowa State University, Ames, IA, United States
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EUROPA IV

Session EG**MAGNETIZATION DYNAMICS, DAMPING, AND MICROMAGNETIC MODELING**

Jose Angel Fernandez-Roldan, Co-Chair
 HZDR, Oviedo, Spain
 Vito Puliafito, Co-Chair
 Politecnico di Bari, Bari, Italy

2:00

- EG-01. Optical control of antiferromagnetism. (Invited)**
 C. Tzschaschel¹ *1. Max Born Institute, Berlin, Germany*
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2:30

- EG-02. Complex Dynamics In Mutually Coupled Spin Torque Vortex Oscillators.** K. Ho^{1,2,3}, S. Wittrock⁴, S. Perna⁵, R. Dutra⁶, R. Ferreira⁷, C. Serpico⁵, P. Bortolotti^{1,2,3}, R. Lebrun^{1,2,3} and V. Cros^{1,2,3} *1. Laboratoire Albert Fert, Palaiseau, France; 2. CNRS, University of Paris-Sud, Palaiseau, France; 3. Thales Communications & Security, Palaiseau, France; 4. Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Berlin, Germany; 5. University of Naples, Naples, Italy; 6. Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil; 7. International Iberian Nanotechnology Laboratory, Braga, Portugal*
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2:45

- EG-04. Microcoils for magnetisation reset in stroboscopic optical pump-probe experiments.** C.R. Sait¹, T.H. Loughran¹, M. Dabrowski¹, P.S. Keatley¹ and R. Hicken¹ *1. Department of Physics, University of Exeter, Exeter, United Kingdom*
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- EG-05. Dramatic Enhancement of Magnetic Domain Wall Velocity beyond Walker breakdown via the Resonant Dissipation.** *G. Kim¹, D. Jung¹, H. Han², S. Jeong¹, M. Im³ and K. Lee^{1,4}* *1. School of Materials Science and Engineering, Ulsan National Institute of Science Technology, Ulsan, The Republic of Korea; 2. Department of Materials Science and Engineering, Korea National University of Transportation, Chungju, The Republic of Korea; 3. Center for X-ray Optics, Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 4. Graduate School of Semiconductor Materials and Devices Engineering, Ulsan National Institute of Science Technology, Ulsan, The Republic of Korea*
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3:15

- EG-06. Scaling exponents for Barkhausen avalanches in magnetic multilayers.** *F. Bohn¹, N.R. Machado¹, E.F. da Silva¹, M. Gamino¹, M.A. Correa¹ and R.L. Sommer²* *1. Department of Physics, Universidade Federal do Rio Grande do Norte, Natal, Brazil; 2. Centro Brasileiro de Pesquisas Físicas, Rio de Janeiro, Brazil*
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3:30

- EG-07. Tunable 2-D Magnonic Crystals: Effect of Packing Density.** *C. Tian² and A.O. Adeyeye^{1,2}* *1. Department of Physics, Durham University, Durham, United Kingdom; 2. Department of Electrical & Computer Engineering, National University of Singapore, Singapore*
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3:45

- EG-08. Evolution of the magnetic switching processes from in-plane to out-of-plane in Ni₉₀Fe₁₀/Fe₇₀Ga₃₀ magnetostrictive bilayers.** *A. Begué¹, N. Cotón¹, C. Martín-Rubio², M. Jaafar³, R. Sanz González² and R. Ranchal¹* *1. Department of Material Physics, Complutense University, Madrid, Spain; 2. Payloads and Space Sciences Department, Instituto Nacional de Técnica Aeroespacial, Torrejón de Ardoz, Spain; 3. Material Science Institute of Madrid, Madrid, Spain*
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4:00

- EG-09. Enhancement of damping in YIG films at millikelvin temperatures due to GGG substrate.** *R. Serha¹, A. Voronov¹, D. Schmoll¹, R.V. Verba², S. Koraltan¹, M. Urbánek³, M. Lindner⁴, T. Reimann⁴, C. Dubs⁴, C. Abert¹, D. Suess¹, S. Knauer¹ and A. Chumak¹* *1. Department of Physics, University of Vienna, Vienna, Austria; 2. Institute of Magnetism, Kyiv, Ukraine; 3. CEITEC BUT, Brno University of Technology, Brno, Czechia; 4. INNOVENT e.V. Technologieentwicklung, Jena, Germany*
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- EG-10. Magnetization reversal and direct observation of magnetic domains on FePt thin films.** *A. Román*^{1,2}, *J. Gomez*^{3,4,5}, *A. Butera*^{3,4,5}, *P. Vavassori*^{6,7} and *L. Steren*^{1,3} *1. Instituto de Nanociencia y Nanotecnología, CNEA/CONICET, Nodo Constituyentes, San Martín, Argentina; 2. Instituto de Nanociencia y Nanotecnología, CNEA/CONICET, Buenos Aires, Argentina; 3. Consejo Nacional de Investigaciones Científicas y Técnicas, Argentina, Argentina; 4. Instituto de Nanociencia y Nanotecnología, CNEA/CONICET, Nodo Bariloche, San Carlos de Bariloche, Argentina; 5. Laboratorio de Resonancias Magnéticas, Centro Atómico Bariloche, San Carlos de Bariloche, Argentina; 6. Nanomagnetism, CIC nanoGUNE, Donostia-San Sebastián, Spain; 7. IKERBASQUE, Basque Foundation for Science, Bilbao, Spain*
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- EG-11. Theoretical analysis of the spin-torque diode effect driven by magnetization phase-transitions.** *M. Lianeris*¹, *A. Meo*¹, *M. Carpentieri*¹, *R. Tomasello*¹ and *G. Finocchio*²
1. Department of Electrical and Information Engineering, Politecnico di Bari, Bari, Italy; 2. University of Messina, Messina, Italy
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EXHIBIT HALL

Session EP
BIOMAGNETICS III
(Poster Session)

Javier Alonso, Co-Chair
 University of Cantabria, Santander, Spain

Ravi Hadimani, Co-Chair
 Virginia Commonwealth University, Richmond, VA, United States

Ana García-Prieto, Co-Chair
 University of the Basque Country UPV/EHU, Bilbao, Spain

- EP-01. Novel polymer memristor as an integrate and fire synaptic device.** *W. Lohr*¹, *R.L. Hadimani*², *S. Khannah*³, *S. Bothra*¹, *N. Kumar*⁴ and *S. Singh*³ *1. Department of Biomedical Engineering, Virginia Commonwealth University, Richmond, VA, United States; 2. Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States; 3. Academy of Scientific and Innovative Research, Ghaziabad, India; 4. CSIR-National Physical Laboratory, New Delhi, India*
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- EP-02. An Output-Fusion Fuzzy Logic Controller for Tumor Thermal Ablation Therapy System with Wireless Power Transfer.** *Y. Huang*¹, *C. Hung*¹ and *C. Tai*¹ *1. Department of Electrical Engineering, National Cheng Kung University, Tainan, Taiwan*
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- EP-04. Evaluating Magnetic Nanoparticles for Efficient Magnetic Kidney Stone Extraction.** *J. Bryan*¹, *D. Massana Roquero*², *J.C. Liao*² and *S.X. Wang*^{1,3} *1. Department of Materials Science and Engineering, Stanford University, Stanford, CA, United States; 2. Department of Urology, Stanford University, Stanford, CA, United States; 3. Electrical Engineering, Stanford University, Stanford, CA, United States*
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- EP-05. An Ultra-Broadband Magnetic Susceptivity Evaluation of Magnetic Nanoparticle and Protein.** *S. Yabukami*^{1,2}, *J. Honda*¹, *T. Murayama*¹, *L. Tonthat*¹ and *K. Okita*² *1. Tohoku University, Sendai, Japan; 2. Tohoku-TMIT, Sendai, Japan*
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- EP-06. Development of Siloxane-Polyether Hybrid Materials Containing Superparamagnetic Nanoparticles for Future Drug Delivery Applications.** *A.C. Teixeira*¹, *N.M. Suguhiro*¹, *B.R. Salles*², *V. de Oliveira Freitas Lione*³ and *K. Dahmouche*¹ *1. Campus Duque de Caxias, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil; 2. Instituto de Física, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil; 3. Faculdade de Farmácia, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil*
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- EP-07. Fe-Cr-Nb-B Magnetic Particles for Cancer Cell Destruction.** *H. Chiriac*¹, *A. Minuti*¹, *C. Stavila*^{1,2} and *N. Lupu*¹ *1. National Institute of Research and Development for Technical Physics, Iasi, Romania; 2. "Alexandru Ioan Cuza" University of Iasi, Iasi, Romania*
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- EP-08. Intermittent F-actin Perturbations by Magnetic Fields Inhibit Breast Cancer Metastasis.** *X. Ji*¹ and *X. Zhang*¹ *1. High Magnetic Field Laboratory of CAS (CHMFL), Hefei, Anhui, China*
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EXHIBIT HALL

Session EQ
NUMERICAL, SEMI-ANALYTICAL AND
ANALYTICAL ANALYSIS METHODS II
(Poster Session)

Johannes Paulides, Chair
Advanced Electromagnetics Group, Waalwijk, Netherlands

- EQ-02. Anisotropic Models of Nonlinear Magnetic Behavior Laws for Finite Element Modeling of Iron Losses in a Toroidal Core.** *J. Drappier*¹, *F. Guyomarch*¹, *R. Cherif*², *Y. Le Menach*¹, *O. Messal*¹, *L. Chevallier*¹ and *A. Benabou*¹ *1. L2EP, University of Lille, Lille, France; 2. ESME, Lille, France*
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- EQ-03. Skewing Effect on the Performance Characteristics of Synchronous Reluctance Machine with 3D Printed Axially Laminated Anisotropic Rotor.** *M. Sitnikov¹, F. Martin¹ and A. Belahcen¹* *1. Department of Electrical Engineering and Automation, Aalto University, Espoo, Finland*
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- EQ-04. Highly Efficient Experimental System for Thermomagnetic Coefficient Calculations.** *C.M. Valença¹, J.M. de Oliveira¹, A. de Morais¹, A. Ferreira², F. Vaz², F. Bohn¹ and M.A. Correa¹* *1. Physics Department, Universidade Federal do Rio Grande do Norte, Natal, Brazil; 2. Physics Department, University of Minho, Braga, Portugal*
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- EQ-05. Implementation of an Edge-Based h-Formulation in the Nonlinear Magnetostatic Case.** *L.D. Domenig¹, K. Roppert¹ and M. Kaltenbacher¹* *1. Institute of Fundamentals and Theory in Electrical Engineering, Graz University of Technology, Graz, Austria*
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- EQ-06. Development of a Combined Maxwell's Equations and Magnetic Equivalent Circuit Solution for Induction Machines in Electric Vehicle Applications.** *O. Taqavi¹, P. Song¹, Z. Li¹ and N. Kar¹* *1. Department of Electrical and Computer Engineering, University of Windsor, Windsor, ON, Canada*
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- EQ-07. Shape Optimization of Electric Motors Using 2.5-D Continuum Sensitivity Analysis.** *E. Jung¹, K. Seo¹ and I. Park¹* *1. Sungkyunkwan University, Suwon-si, The Republic of Korea*
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- EQ-08. Frequency Sensitivity Analysis of Magnetoquasistatic System with Voltage or Current Excitation.** *S. Rho¹ and I. Park¹* *1. Department of Electrical and Computer Engineering, Sungkyunkwan University, Suwon, The Republic of Korea*
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- EQ-12. Optimal Shape Design of Permanent Magnet Synchronous Motor to Reduce Cogging Torque and Torque Ripple.** *H. Koo¹, I. Yun¹, H. Hong¹, C. Jo¹ and J. Lee¹* *1. Department of Electrical Engineering, Hanyang University, Seoul, The Republic of Korea*
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- EQ-14. Performances of direct drive and magnetically geared PMSMs with different cooling technologies.** *S. Mezani¹, T.A. Marcand¹, C. Bonnard¹ and N. Takorabet¹* *1. Laboratoire GREEN - FST, Université de Lorraine, Vandoeuvre lès Nancy CEDEX, France*
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Session ER
SPIN-ORBIT TORQUES AND RELATED
PHENOMENA
(Poster Session)

Mathias Kläui, Chair
 Universität Mainz, Mainz, Germany

- ER-01. Orbital Current Driven Magnetic Memory.** *Y. Yao*¹, *D. Zhu*¹, *S. Lu*¹, *H. Zhang*¹, *D. Xiong*², *H. Liu*², *K. Cao*² and *W. Zhao*¹ *1. School of Integrated Circuit Science and Engineering, Beihang University, Beijing, China; 2. Truth Memory Corporation, Beijing, China*
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- ER-02. Spin-charge interconversion in oxides for low-power memory and logic devices.** *P. Sgarro*¹, *A. Kandazoglou*¹, *M. Cosset-Cheneau*¹, *W. Savero-Torres*¹, *S. Teresi*¹, *T. Frottier*¹, *M. Culot*¹, *S. Auffret*¹, *M. Bibes*², *J. Attané*¹ and *L. Vila*¹ *1. CEA-SPINTEC, Grenoble, France; 2. Laboratoire Albert Fert, Paris, France*
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- ER-05. Non-Volatile Electric-Field Control of Spin-Orbit Torques in Perpendicular Ferromagnet - SrTiO₃ System.** *C. Grezes*¹, *P. Sgarro*¹, *A. Kandazoglou*¹, *M. Cosset-Cheneau*¹, *L. Vicente Arche*³, *P. Noël*², *S. Auffret*¹, *K. Garello*¹, *M. Bibes*³, *L. Vila*¹ and *J. Attané*¹ *1. CEA-SPINTEC, Grenoble, France; 2. ETH Zurich, Zurich, Switzerland; 3. Laboratoire Albert Fert, Paris, France*
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- ER-03. Spin-orbit torque driven Skyrmion Hall effect-like motion of stripe domains in the perpendicularly magnetized system.** *S. Maji*¹, *I. Bhat*¹ and *P. Anil Kumar*¹ *1. Department of Physics, Indian Institute of Science, Bangalore, Bengaluru, India*
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- ER-04. Ferromagnetic material as dominant spin source achieving field-free SOT switching.** *S. Liu*¹, *C. Wan*¹, *G. Yu*¹ and *X. Han*¹ *1. Institute of Physics, Chinese Academy of Sciences, Beijing, China*
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- ER-07. Exploring Interatomic Exchange Interactions in Noncollinear Magnetic Configurations.** *J. Silva*^{2,3}, *R. Cardias Alves de Almeida*^{4,1}, *A. Bergman*⁵, *A. Szilva*⁵, *Y. Kvashnin*⁵, *J. Fransson*⁵, *A.B. Klautau*², *O. Eriksson*^{5,6}, *A. Delin*^{4,6} and *L. Nordström*⁵ *1. Instituto de Física, Universidade Federal Fluminense, Niterói, Brazil; 2. Universidade Federal do Pará, Belém, Brazil; 3. Instituto Federal do Pará, Óbidos, Brazil; 4. KTH Royal Institute of Technology, Stockholm, Sweden; 5. Uppsala University, Uppsala, Sweden; 6. Wallenberg Initiative Materials Science for Sustainability, Uppsala University, Uppsala, Sweden*
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- ER-08. Zr thickness dependence of perpendicular magnetic anisotropy and spin-orbit torques in the W/CoFeB/Zr/MgO multilayers.** *T. Zhu*¹ *1. Institute of Physics, Chinese Academy of Sciences, Beijing, China*
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- ER-09. Field-free spin-orbit torque switching in conically magnetized free layer nanomagnet.** *P.K. Mishra*¹ and *S. Bhuktare*¹ *1. Department of Electrical Engineering, Indian Institute of Technology, Tirupati, India*
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- ER-10. Understanding the Influence of Capping Layer on Spin Wave Modes: An In-Depth Investigation with a Custom Time-Resolved Magneto-Optical Kerr Effect (TR-MOKE) Setup.** *D. Ghosh*¹, *C. Dolai*¹, *S.S. Bodra*¹ and *P. Datta*¹ *1. Physics, IIT Kharagpur, Kharagpur, India*
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EXHIBIT HALL

Session ES
HARD MAGNETIC MATERIALS III
(Poster Session)

Matthew Kramer, Co-Chair
Ames National Laboratory, Ames, IA, United States
Alex Aubert, Co-Chair
Technische Universität Darmstadt, Darmstadt, Germany

- ES-01. The potential of SmCo₄B-based compounds as a permanent magnet.** *P. Tozman*¹, *A. Aubert*¹, *K. Skokov*¹, *H. Sepeshri-Amin*², *Y. Skourski*³, *Y. Ishii*⁴, *Y. Matsuda*⁴ and *O. Gutfleisch*¹ *1. Functional Materials, Technical University of Darmstadt, Darmstadt, Germany; 2. National Institute for Materials Science (NIMS), Tsukuba, Japan; 3. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 4. The University of Tokyo, Kashiwa, Japan*
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- ES-02. Transforming Highly Corroded Scrap Magnets into Coercive Powders.** *S.X. Lima*², *M.A. Rosa*², *J.C. Ronchi*², *S.M. Souza*¹, *Q.H. Rebelo*¹, *P.O. Junior*³, *R.D. Souza*³ and *P.A. Wendhausen*² *1. UFAM, Manaus, Brazil; 2. Magnetic Materials Laboratory, Federal University of Santa Catarina, Florianópolis, Brazil; 3. Laboratory-Factory of Magnets and Rare-earth Alloys (LabFabITR), Lagoa Santa, Brazil*
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- ES-03. The Role of Coercivity on Texture Assessment of Nd-Fe-B Magnets via Magnetometry Technique.** *L. Quispe*¹, *L.F. Antunes*¹, *A. Baldarrago-Alcántara*¹, *L. Luza-Mamani*¹, *L. Ulian Lopes*¹, *S.M. Souza*² and *P.A. Wendhausen*¹ *1. Magnetic Materials Laboratory, Federal University of Santa Catarina, Florianópolis, Brazil; 2. Department of Materials Physics, Federal University of Manaus, Manaus, Brazil*
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- ES-04. The detrimental effect on the magnetic properties of Nd-Fe-B magnets subjected to high-temperature treatment (1000 °C) during grain boundary diffusion.** *M.B. Dias*^{1,2}, *G. Shimizu*², *L. Azevedo*², *D. Rodrigues Jr*², *W.C. Macedo*³, *L.F. Antunes*³, *L. Ulian Lopes*³, *P.A. Wendhausen*³ and *F. Landgraf*³ *1. SENAI SP College, Osasco, Brazil; 2. University of São Paulo, São Paulo, Brazil; 3. Federal University of Santa Catarina, Florianópolis, Brazil*
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- ES-05. Recycling Nd-Fe-B End-of-Life Magnets with Different Levels of Oxidation Using the Magnet-to-Magnet Approach.** *W.C. Macedo*¹, *L.F. Antunes*¹, *B. Fertig*¹, *C.F. Sampietro*¹, *D.A. Silva*¹, *N.V. Junior*¹, *S.M. Souza*² and *P.A. Wendhausen*¹ *1. Magnetic Materials Laboratory, Federal University of Santa Catarina, Florianópolis, Brazil; 2. Department of Materials Physics, Federal University of Amazonas, Manaus, Brazil*
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- ES-06. Using Nanocrystalline HDDR Powders in the Additive Manufacturing of Bonded Nd-Fe-B Magnets.** *B. Fertig*¹, *M.A. Rosa*¹, *G. Vieira*², *M. Martins*², *C. Ahrens*¹, *M.V. da Luz*¹, *A. Mascheroni*³, *J.M. Mascheroni*³ and *P.A. Wendhausen*¹ *1. Magnetic Materials Laboratory, Federal University of Santa Catarina, Florianópolis, Brazil; 2. Center for the Development of Nuclear Technology, Belo Horizonte, Brazil; 3. Alkimat, São José, Brazil*
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- ES-07. Towards Recycling of Nd-Fe-B Permanent Magnets in a Circular Economy.** *A. Paksoy*¹, *A. Khan*¹, *A. Durgun*¹, *M. Hasan*², *M. Schönfeldt*^{1,2}, *I. Radulov*², *J. Gassmann*², *I. Dirba*¹ and *O. Gutfleisch*¹ *1. Institute of Materials Science, TU Darmstadt, Darmstadt, Germany; 2. Magnetic Materials, Fraunhofer IWKS, Hanau, Germany*
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- ES-08. Effect of particle size on magnetic properties of SmCo₅ powder prepared by ball-milling process.** *K. Park*¹ and *Y. Hirayama*¹ *1. National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan*
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- ES-09. Synthesis of size-controlled and dispersible Sm₂Fe₁₇N₃ particles by reduction diffusion.** *Z. Yang*¹, *J. Xi*¹ and *M. Yue*¹ *1. Beijing University of Technology, Beijing, China*
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- ES-10. Development of bonded α''-Fe₁₆N₂ permanent magnet.** *M. Grigoras*¹, *M. Lostun*¹, *G. Ababei*¹, *G. Stoian*¹ and *N. Lupu*¹ *1. National Institute of Research and Development for Technical Physics, Iasi, Romania*
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- ES-12. Evaluating the magnetic hardening of Nd-Fe-B magnets after grain boundary diffusion: a layer by layer approach.** *L.F. Antunes*¹, *L. Quispe*¹, *W.C. Macedo*¹, *M.B. Dias*³, *L. Ulian Lopes*¹, *S.M. Souza*² and *P.A. Wendhausen*¹ *1. Universidade Federal de Santa Catarina, Florianópolis, Brazil; 2. Universidade Federal do Amazonas, Manaus, AM, Brazil; 3. Universidade de São Paulo, São Paulo, Brazil*
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ES-13. **Magnetic coupling on multilayer of NdFeB/Dy films grown by magnetron sputtering.** *A.C. Krohling¹, L. Fernandez Outon² and J. Ardisson¹* 1. *Department of Physics, Nuclear Technology Development Center, Belo Horizonte, Brazil;* 2. *Department of Physics, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil*
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ES-11. **Enhancement of the magnetic performance of Nd-Fe-B sintered magnets through novel powder modification.** *M. Zhu¹, Y. Wang¹, Q. Sun¹, Y. Fang¹ and W. Li¹*
1. Central Iron & Steel Research Institute, Beijing, China
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ES-14. **Strategies for ultra-limited utilization of heavy rare-earth Tb in Ce magnets with high Ce-content: synergistic diffusion mechanism of Pr.** *M. Zhu¹, X. Song¹, Q. Sun¹, Y. Fang¹ and W. Li¹* 1. *Central Iron & Steel Research Institute, Beijing, China*
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OCEANIA IV & V

Session FA MAGNONIC MATERIALS AND DEVICES

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

8:30

FA-01. **All-on-chip approach towards quantum magnonic devices. (Invited)** *O. Santos^{1,2} and C. Ciccarelli¹*
1. Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom; 2. *Zernike Institute for Advanced Materials, University of Groningen, Groningen, Netherlands*
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9:00

FA-02. **Magnon transport in YIG/GGG at millikelvin temperatures for quantum magnonics. (Invited)** *A. Chumak¹* 1. *Faculty of Physics, University of Vienna, Vienna, Austria*
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9:30

- FA-03. **Magnon Quantum Effects in Magnon Junction and Heterojunction. (Invited)** X. Han^{1,2,3} 1. Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences, Beijing, China; 2. Center of Materials Science and Optoelectronics Engineering, University of Chinese Academy of Sciences, Beijing, China; 3. Songshan Lake Materials Laboratory, Dongguan, China
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10:00

- FA-04. **Active control of spin waves in nanoscale magnonic devices. (Invited)** H. Qin^{1,2} and S. van Dijken¹ 1. NanoSpin, Department of Applied Physics, Aalto University, Helsinki, Finland; 2. School of Physics and Technology, Wuhan University, Wuhan, China
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10:30

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

Session FB

NOVEL CHARACTERIZATION APPROACHES

Pedram Khalili, Chair

Northwestern University, Evanston, IL, United States

8:30

- FB-01. **Antiferromagnetic and ferromagnetic domain and domain wall manipulation revealed using polarised x-ray imaging. (Invited)** S.S. Dhessi¹ 1. Diamond Light Source Ltd, Didcot, United Kingdom
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9:00

- FB-02. **The photoemission microscopy end station at SIRIUS: an advanced instrument to investigate magnetism at surfaces.** D. de Souza Chaves¹, J. Brandao¹, M.O. Gardingo¹ and J.C. Cezar¹ 1. LNLS, CNPEM, Campinas, Brazil
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- FB-04. Optical heterodyne microscopy for addressing operating spin Hall nano-oscillator networks.** *A. Aleman*^{1,2,3}, *A.A. Awad*^{1,4,5}, *A. Kumar*^{1,4,5}, *A. Houshang*¹, *S. Muralidhar*¹, *D. Hanstorp*³ and *J. Akerman*^{1,4,5} *1. Applied Spintronics Group, University of Gothenburg, Gothenburg, Sweden; 2. NanOsc AB, Gothenburg, Sweden; 3. Atomic and Optical Physics, University of Gothenburg, Gothenburg, Sweden; 4. Center for Science and Innovation in Spintronics, Tohoku University, Sendai, Japan; 5. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan*
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9:30

- FB-05. Ferris-wheel magneto-optic Kerr effect and optical Hall effect technique.** *A. Rothschild*¹, *N. Am-Shalom*¹, *N. Bernstein*¹ and *A. Capua*¹ *1. The Hebrew University of Jerusalem, Modiin, Israel*
[View Digest Text](#)

9:45

- FB-06. Magnetic field imaging of thin exfoliated iron halides flakes.** *F. Meneses*^{1,2}, *R. Qi*^{3,4}, *A. Healey*^{1,2,5}, *Y. You*^{3,4}, *I. Robertson*⁵, *S. Scholten*^{1,2}, *A. Keerthi*^{3,6}, *G. Harrison*⁷, *A. Bera*⁴, *H. Jyothishilal*⁴, *L. Hollenberg*^{1,2}, *B. Radha*^{3,4} and *J. Tetienne*⁵ *1. School of Physics, University of Melbourne, Melbourne, VIC, Australia; 2. University of Melbourne, Centre for Quantum Computation and Communication Technology, Melbourne, VIC, Australia; 3. The University of Manchester, National Graphene Institute, Manchester, United Kingdom; 4. The University of Manchester, Department of Physics and Astronomy, Manchester, United Kingdom; 5. RMIT University, School of Science, Melbourne, VIC, Australia; 6. The University of Manchester, Department of Chemistry, Manchester, United Kingdom; 7. The University of Manchester, Department of Materials, Manchester, United Kingdom*
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10:00

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

10:45

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

Session FC

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

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

8:30

- FC-03. Generalized Reservoir Computing with Spin-torque Oscillator.** *Y. Imai*¹, *T. Kubota*¹, *S. Tsunegi*² and *K. Nakajima*¹ *1. The University of Tokyo, Bunkyo, Japan; 2. National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan*
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- FC-04. A Blinking Detection System Based on Magnetic Sensor and Magnetic Hair Array.** J. Man^{1,2}, Z. Jin¹ and J. Chen^{1,2,3}
1. Aerospace Information Research Institute, Chinese Academy of Sciences, Beijing, China; 2. School of Electronic, Electrical and Communication Engineering, University of Chinese Academy of Sciences, Beijing, China; 3. College of Materials Sciences and Opto-Electronic Technology, University of Chinese Academy of Sciences, Beijing, China
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9:00

- FC-05. IMU-based Robotic Finger Force Sensing with Modular Soft Actuators.** S. Lin¹, H. Chang¹ and J. Chang^{1,2}
1. Department of Power Mechanical Engineering, National Tsing Hua University, Hsinchu, Taiwan; 2. National Formosa University, Huwei Township, Taiwan
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9:15

- FC-06. Modeling of Magnetic Separation of Metal Ions in Aqueous Solutions.** P. Andrei¹ and N. Carlstet¹
1. Florida State University, Tallahassee, FL, United States
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9:30

- FC-07. Magnetic Small-Scale Robots: A Path Towards Minimally Invasive Medicine. (Invited)** S. Pané¹
1. ETH Zurich, Zürich, Switzerland
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10:00

- FC-08. Biotemplated Magnetic Composites for Microrobotic Applications.** A. Veciana¹, G. Llauredó-Capdevila², C. Franco¹, S. Pané¹ and J. Puigmartí-Luis²
1. Institute of Robotics and Intelligent Systems, ETH Zurich, Zurich, Switzerland; 2. Institut de Química Teòrica i Computacional, Universitat de Barcelona, 2Departament de Ciència de Materials i Química Física, Barcelona, Spain
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10:15

- FC-09. Two-dimensional fractionally magnetized quantum ferromagnet.** S. Miyahara¹ and I. Maruyama²
1. Fukuoka University, Fukuoka, Japan; 2. Fukuoka Institute of Technology, Fukuoka, Japan
[View Digest Text](#)

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

Session FD
ANTIFERROMAGNETIC/FERRIMAGNETIC
SPINTRONICS AND DOMAIN WALL DEVICES

Kim Kong Tham, Chair
 Tanaka Kikinzoku Kogyo, Sendai, Japan

8:30

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

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

- FD-03. Measurement of the Orbital Hall Effect in Pure Cu and Al by Spin-Torque- and Microwave- Optical Ferromagnetic-Resonance Techniques.** *Y. Ben Tal*¹, N. Am-Shalom¹, A. Rothschild¹, N. Bernstein¹ and A. Capua¹
1. The Hebrew University in Jerusalem, Jerusalem, Israel
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9:30

- FD-04. Magneto-optical detection of spin-orbit torque vector with first-order Kerr effects.** *C. Gonzalez-Fuentes*¹ and *M. Abellan*² *1. Department of Physics, Pontificia Universidad Católica de Chile, Santiago, Chile; 2. Department of Physics, Universidad Técnica Federico Santa María, Valparaíso, Chile*
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9:45

- FD-05. Exploiting the non-linear dynamics of defect-induced pinning in vortex-based magnetic tunnel junctions for physical unclonable functions.** *A. Jenkins*¹, *L. Martins*¹, *L. Benetti*¹, *A. Schulman*¹, *P. Anacleto*¹, *M. Claro*¹, *E. Paz*¹, *I. Caha*¹, *F.L. Deepak*¹ and *R. Ferreira*¹ *1. Spintronics, International Iberian Nanotechnology Laboratory, Braga, Portugal*
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10:00

- FD-07. Enabling synthetic antiferromagnets in nanoscale domain wall devices.** *D. Giuliano*^{1,2}, *Y. Canvel*³, *Y. Li*³, *A. Palomino Lopez*³, *G. Talmelli*³, *R. Carpenter*³, *S. Rao*¹, *C. Fleischmann*³, *K. Wostyn*³, *K. Temst*², *V. Nguyen*³ and *S. Couet*³
1. MADE, Imec, Leuven, Belgium; 2. Department of Physics and Astronomy, KU Leuven, Leuven, Belgium; 3. Imec, Leuven, Belgium
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10:15

- FD-08. Control of the Moving Direction of Magnetic Domain Walls by Surface Acoustic Waves.** *A. Rivelles*¹, *R. Guedas*², *R. Yanes*³, *L. Torres*³, *R. Izquierdo*¹, *M.C. Maicas*¹, *M. Sanz*¹, *J. Pedrós*¹, *F. Calle*¹, *J. Prieto*¹ and *L. Lopez-Diaz*³
1. ISOM-Universidad Politécnica de Madrid, Madrid, Spain; 2. CEA-SPINTEC, Grenoble, France; 3. Universidad de Salamanca, Salamanca, Spain
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10:30

- FD-09. Multifunctional In-Sensor Computing Based on Phase-Change Controlled Magnetic Tunnel Junction.** *C. Lv*^{1,2}, *X.L. Lin*^{1,2} and *W. Zhao*^{1,2} *1. National Key Lab of Spintronics, Institute of International Innovation, Beihang University, Hangzhou, China; 2. Fert Beijing Institute, MIIT Key Laboratory of Spintronics, Beihang University, Beijing, China*
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Session FE
**LINEAR MACHINES AND FIELD MODULATING
MACHINES**

Jonathan Bird, Co-Chair
Portland State University, Portland, OR, United States

Kenji Nakamura, Co-Chair
Tohoku University, Sendai, Japan

Chinweze Ubadigha, Co-Chair
National Cheng Kung University, Tainan, Taiwan

8:30

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

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

- FE-03. Design of a linear motor: An optimization approach considering motor and inverter losses with different voltage waveforms.** *A.A. Espindola^{1,2}, M. Lungareze Neto², N.J. Batistela¹ and N. Sadowski¹* 1. *Department of Electrical Engineering, UFSC, Florianópolis, Brazil;* 2. *Research and Development, Nidec GA, Joinville, Brazil*
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9:15

- FE-04. Harnessing Magnetic-Field Driven Actuation for Microscale Motion in MEMS-Inspired Device.** *L. Cestarollo¹ and A. El-Ghazaly²* 1. *Department of Materials Science and Engineering, Cornell University, Ithaca, NY, United States;* 2. *Department of Electrical and Computer Engineering, Cornell University, Ithaca, NY, United States*
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9:30

- FE-05. **Real-time identification of the impact frequency in a DTH electric drilling rig through time-frequency analysis of the motor current.** *D. Brito*¹, *Y. Millalonco*¹, *S. Vergara*¹ and *G. Ramírez*¹ *I. Departamento de Ingeniería Eléctrica, Universidad Católica de la Santísima Concepción, Concepción, Chile*
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9:45

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

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

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

Session FF

TOPOLOGICAL INSULATORS, WEYL AND DIRAC SEMIMETALS

Jiadong Zang, Co-Chair

University of New Hampshire, Durham, NH, United States

Hao Zeng, Co-Chair

University of Buffalo, Buffalo, NY, United States

8:30

- FF-01. **Weyl semimetal based spin-orbit torque and energy harvesting devices.** (*Invited*) *G. Shi*¹, *Y. Liu*¹, *F. Wang*¹, *D. Kumar*¹ and *H. Yang*¹ *I. National University of Singapore, Singapore*
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- FF-02. Room temperature field-free switching of CoFeB/MgO heterostructure based on large-scale few-layer WTe₂.** X. Wang¹, H. Wu², R. Qiu¹, X. Huang¹, J. Zhang³, J. Long⁴, Y. Yao¹, Y. Zhao¹, Z. Zhu⁴, J. Wang³, S. Shi¹, H. Chang² and W. Zhao¹ 1. *Beihang University, Beijing, China*; 2. *Huazhong University of Science and Technology, Wuhan, China*; 3. *Suzhou Institute of Nano-Tech and Nano-Bionics (SINANO), Chinese Academy of Sciences, Suzhou, China*; 4. *ShanghaiTech University, Shanghai, China*
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9:15

- FF-03. Spin and Orbital Moments of Magnetic Topological Insulator MnBi₂Te₄ Epitaxial Thin Films.** J. Sun^{1,2}, S. Liu^{3,4}, F. Xiu^{3,4} and W. Liu^{1,5} 1. *Department of Electronic Engineering, Royal Holloway University of London, Egham, United Kingdom*; 2. *Beijing Superstring Academy of Memory Technology, Beijing, China*; 3. *State Key Laboratory of Surface Physics and Department of Physics, Fudan University, Shanghai, China*; 4. *Institute for Nanoelectronic Devices and Quantum Computing, Fudan University, Shanghai, China*; 5. *Department of Electrical Engineering and Electronics, University of Liverpool, Liverpool, United Kingdom*
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9:30

- FF-05. Spin-Orbit Torque Switching of Mn₃Sn in Configuration II.** Z. Xu¹, X. Zhang¹, Y. Qiao¹, G. Liang^{2,3}, S. Shi⁴ and Z. Zhu¹ 1. *School of Information Science and Technology, ShanghaiTech University, Shanghai, China*; 2. *Department of Electrical and Computer Engineering, National University of Singapore, Singapore*; 3. *Industry Academia Innovation School, National Yang-Ming Chiao Tung University, Hsinchu City, Taiwan*; 4. *Fert Beijing Institute, MIIT Key Laboratory of Spintronics, School of Integrated Circuit Science and Engineering, Beihang University, Beijing, China*
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9:45

- FF-06. Graphene intercalation in topological insulator/ferromagnet heterostructures for efficient spin orbit torques.** T. Guillet¹, V. Zlatko¹, R. Galceran², J. Sierra¹ and S.O. Valenzuela^{1,3} 1. *Catalan Institute of Nanoscience and Nanotechnology, Barcelona, Spain*; 2. *Universitat de Barcelona, Barcelona, Spain*; 3. *Institució Catalana de Recerca i Estudis Avançats (ICREA), Barcelona, Spain*
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10:00

- FF-07. Highly Efficient Spin-Orbit Torque Switching in Bi₂Se₃/Fe₃GeTe₂ van der Waals Heterostructures. (Invited)** C. Li¹ 1. *Naval Research Lab, Washington, DC, United States*
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- FF-08. Efficient spin to charge current conversion using the Topological Insulator BiSb.** S. Massabeau¹, L. Vicente Arche¹, N. Figueiredo-Prestes¹, D. She^{1,2}, G. Patriarche², A. Lemaitre², M. Morassi², F. Bertran³, P. Le Fevre⁴, S. Dhillon⁵, N. Reyren¹, M. Bibes¹, R. Lebrun¹, H. Jaffrès¹ and J. George¹ *1. Laboratoire Albert Fert, Centre National de la Recherche Scientifique, Palaiseau, France; 2. Université Paris-Saclay, CNRS, Centre de Nanosciences et de Nanotechnologies, CNRS, Palaiseau, France; 3. Synchrotron SOLEIL, L'Orme des Merisiers, Saint Aubin, France; 4. Institut de Physique de Rennes, CNRS, Rennes, France; 5. Laboratoire de Physique de l'Ecole Normale Supérieure, ENS, CNRS, Paris, France*
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- FF-09. Interaction Effects in a 1D Flat Band at a Topological Crystalline Step Edge.** S. Das¹, F. Kuester¹, P. Sessi¹ and S. Parkin¹ *1. NISE, Max Planck Institute of Microstructure Physics, Halle, Germany*
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EUROPA IV

Session FG**MAGNETO-CALORIC MATERIALS AND DEVICES**

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

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

- FG-01. First-order phase transition kinetics on magnetocaloric materials - a chicken and egg tale. (Invited)** A. Belezá¹, R. Almeida¹, B. Beckmann², A. dos Santos⁴, P. Álvarez-Alonso³, J.P. Araújo¹, M. Frontzek⁴, J.L. Sanchez Llamazares⁵, J. Amaral⁶, O. Gutfleisch², K. Skokov², A.M. Abeykoon⁷ and J.H. Belo¹ *1. Departamento de Física e Astronomia da Faculdade de Ciências da Universidade do Porto, IFIMUP, Porto, Portugal; 2. TU Darmstadt, Darmstadt, Germany; 3. Departamento de Física, Universidad de Oviedo, Oviedo, Spain; 4. Neutron Scattering Division, Oak Ridge National Laboratory, Oak Ridge, TN, United States; 5. Instituto Potosino de Investigación Científica y Tecnológica A.C., San Luis Potosí, Mexico; 6. Department of Physics and CICECO, University of Aveiro, Aveiro, Portugal; 7. National Synchrotron Light Source II, Brookhaven National Laboratory, Upton, NY, United States*
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- FG-02. Phase Shift in AC Magnetocaloric Effect Measurements as an Indicator of the Order of Magnetic Phase Transitions.** *A. Aliev*¹, *A. Gamzatov*¹ and *Z. Alisultanov*^{2,3}
 1. *Laboratory of Low Temperature Physics and Magnetism, Amirkhanov Institute of Physics of Dagestan Federal Research Centre of RAS, Makhachkala, Russian Federation;*
 2. *Amirkhanov Institute of Physics of Dagestan Federal Research Centre RAS, Makhachkala, Russian Federation;*
 3. *Abrikosov Center for Theoretical Physics, MIPT — Moscow Institute of Physics and Technology, Dolgoprudnyi, Russian Federation*
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9:15

- FG-03. Hysteresis and Kinetics of the First-Order Phase Transition: Losses in Magnetocaloric Effect Illustrated on the Ni-Mn-Ga-Cu.** *E. Dilmieva*¹, *Y. Koshkid'ko*², *A.P. Kamantsev*³, *D. Zhao*⁴, *J. Liu*⁵ and *S. Krämer*⁶
 1. *High Field Magnet Laboratory, Radboud University, Nijmegen, Netherlands;*
 2. *Institute of Low Temperature and Structure Research of Polish Academy of Sciences, Wroclaw, Poland;*
 3. *Kotelnikov Institute of Radioengineering and Electronics of Russian Academy of Sciences, Moscow, Russian Federation;*
 4. *Hebei Key Laboratory of Photophysics Research and Application, College of Physics, Hebei Normal University, Shijiazhuang, China;*
 5. *CAS Key Laboratory of Magnetic Materials and Devices, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, Ningbo, China;*
 6. *Laboratoire National des Champs Magnétiques Intenses, CNRS, Univ Grenoble Alpes, Univ Toulouse, Grenoble, France*
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9:30

- FG-04. Reducing Energy Waste by Tuning Martensite in Heusler Alloys.** *A.A. Mendonça*¹, *L. Ghivelder*², *P. Bernardo*³, *L.F. Cohen*⁴ and *A. Gomes*²
 1. *Instituto de Física Gleb Wataghin, Universidade Estadual de Campinas, Campinas, Brazil;*
 2. *Instituto de Física, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil;*
 3. *Instituto de Física, Universidade Estadual Norte Fluminense Darcy Ribeiro, Campos dos Goytacazes, Brazil;*
 4. *Department of Physics, Imperial College London, London, United Kingdom*
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9:45

- FG-05. Simultaneous Multi-Property Analysis of Magneto-Structural Transitions at ESRF ID12.** *A. Aubert*¹, *K. Skokov*¹, *G. Gomez*^{2,3}, *F. Wilhelm*², *H. Wende*³, *A. Rogalev*², *K. Ollefs*³ and *O. Gutfleisch*¹
 1. *Technische Universität Darmstadt, Darmstadt, Germany;*
 2. *ESRF, Grenoble, France;*
 3. *Faculty of Physics, University of Duisburg-Essen, Duisburg, Germany*
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10:00

- FG-06. Long-time aging of $\text{La}(\text{Fe,Si,Mn})_{13}\text{H}_2$ microparticles using different fluids for magnetic refrigeration systems.** A.M. Döring^{2,1}, D.D. Reif², M.A. Rosa³, G. Fidelis Peixer³, F. Maccari¹, K. Skokov¹, O. Gutfleisch¹, P.A. Wendhausen³, J.A. Lozano³, J. Riso Barbosa Jr.³ and C.D. Teixeira²
1. TU Darmstadt, Darmstadt, Germany; 2. Universidade Federal de Santa Catarina, Blumenau, Brazil;
3. Universidade Federal de Santa Catarina, Florianópolis, Brazil
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10:15

- FG-07. Design of Magnetic Circuits for Magnetocaloric Refrigeration via Topology Optimization.** L.P. Cattelan¹, G. Fidelis Peixer¹, M. da Luz², J. Riso Barbosa Jr.¹ and J.A. Lozano¹ *1. Department of Mechanical Engineering, Federal University of Santa Catarina, Polo, Florianópolis, Brazil; 2. Department of Electrical Engineering, Federal University of Santa Catarina, Florianópolis, Brazil*
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10:30

- FG-08. Performance Evaluation of TRL-6 Magnetic Refrigeration Prototypes.** G. Fidelis Peixer¹, A.T. Dias Nakashima¹, N. Maleski de Sá¹, Y. Azeredo¹, A. Lorenzoni¹, G. Melo da Luz¹, R. Sawaya Sucaria¹, A. Marciel Döring², P. Vitor de Faria¹, B. Peressoni Vieira¹, C. Silva Teixeira², J.A. Lozano¹ and J. Riso Barbosa Jr.¹ *1. Department of Mechanical Engineering, Federal University of Santa Catarina, Polo, Florianópolis, Brazil; 2. Department of Materials Engineering, Federal University of Santa Catarina, Lab3M, Blumenau, Brazil*
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10:45

- FG-09. Magnetic and Calorimetric Properties in EuSe and $\text{EuSe}_{0.93}\text{S}_{0.07}$ Compounds.** J. Caro Patiño¹, D. Neto² and A. Gomes² *1. Instituto de Física, Universidade do Estado do Rio de Janeiro, Rio de Janeiro, Brazil; 2. Instituto de Física, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil*
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11:00

- FG-10. On the magnetic and magnetocaloric features of $\text{La}_{2/3}\text{Sr}_{1/3}\text{MnO}_3$ -based materials: from bulk to nano.** M. Balli^{1,2}, O. Chdil¹, M. Abbasi² and P. Fournier²
1. International University of Rabat, Rabat, Morocco;
2. Institut Quantique, Université de Sherbrooke, Sherbrooke, QC, Canada
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- FG-11. **Topological Nernst effect of Skyrmions in the Filled β -Mn-type $\text{Fe}_{2-x}\text{Pd}_x\text{Mo}_3\text{N}$ Chiral Magnetic Epitaxial Thin Films.** *B. Qiang*¹, K. Yamamoto¹, H. Asano¹, T. Miyamachi¹ and M. Mizuguchi¹ *I. Nagoya University, Nagoya, Japan*
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OCEANIA IV & V

Session GA**MAGNETIC SENSOR STANDARDIZATION**

Philip Keller, Chair

Metrolab Technology S.A., Plan-les-Ouates, Switzerland

2:00

- GA-01. **Withdrawn**

2:00

- GA-02. **Low-field, small footprint field magnetoresistive sensors compatible with large scale process integration.** *(Invited)* *S. Cardoso de Freitas*^{1,2}, R. Macedo¹, P. Araujo^{1,2}, E. Bastiana², M. Silva^{1,2} and P. Freitas^{1,2} *I. INESC Microsistemas e Nanotecnologias, Lisboa, Portugal; 2. Department of Physics, Instituto Superior Tecnico/Universidade de Lisboa, Lisboa, Portugal*
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2:30

- GA-03. **Magnetic measurement system and environmental magnetic field compensation at CEM.** *(Invited)* *S. Moltó González*¹, Y.A. Sanmamed¹ and J. Díaz de Aguilar¹ *I. Department of Electricity and Energy, Centro Español de Metrología, Tres Cantos, Spain*
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3:00

- GA-04. **Tunable TMR sensors with magnetically-engineered – order/disorder – sensing layers.** *(Invited)* *M. Rasly*^{1,2,3}, T. Nakatani¹ and Y. Sakuraba¹ *I. Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science (NIMS), Tsukuba, Japan; 2. Nano-scale Electron Devices Lab, Electronics for Informatics, Hokkaido University, Sapporo, Japan; 3. Electronic and Magnetic Materials Department, Central Metallurgical Research and Development Institute, Helwan, Egypt*
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3:30

- GA-05. **Flexible, printed and eco-sustainable magnetic field sensors. (Invited)** *Y. Zabala*¹, L. Guo¹, E. Oliveros-Mata¹, R. Xu¹ and D. Makarov¹ *1. HZDR, Dresden, Germany*
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4:00

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

Session GB
MULTILAYERS, SURFACE AND INTERFACE PHENOMENA

Kleber Pirota, Chair
University of Campinas, Campinas, Brazil

2:00

- GB-01. **Doped surfaces: a synthetic route to low damping in ferromagnetic transition metal thin films. (Invited)** *S. Azzawi*^{1,2}, A. Umerski³, L. Sampaio⁴, S. Bunyaev⁵, G.N. Kakazei⁵ and D. Atkinson¹ *1. Durham University, Durham, United Kingdom; 2. Meters and Custody Transfer Department, Technical Directorate, Ministry of Oil, Baghdad, Iraq; 3. School of Mathematics and Statistics, Open University, Milton Keynes, United Kingdom; 4. Centro Brasileiro de Pesquisas Físicas (CBPF), Rio de Janeiro, Brazil; 5. IFIMUP/Department of Physics and Astronomy, Universidade do Porto, Porto, Portugal*
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2:30

- GB-03. **The impact of Fe²⁺ and Fe³⁺ segregation on the structural and magnetic properties of ZnO/Fe multilayers deposited via sputtering: a study using EELS and EDS.** *R. Checca*¹, D. Franceschini², E.M. Saitovitch¹ and Y. Xing² *1. Brazilian Center for Research in Physics, Rio de Janeiro, Brazil; 2. Instituto de Física, Universidade Federal Fluminense, Niteroi, Brazil*
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- GB-04. Thermal stability of FeCo-Ag multilayer thin films for use in magnetoelectric heterostructures.** *T.R. Mion*¹, *M. Staruch*², *K. Bussmann*² and *P. Finkel*² *1. Nova Research, Alexandria, VA, United States; 2. Material Science & Technology Division, US Naval Research Laboratory, Washington, DC, United States*
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3:00

- GB-05. Antiferromagnetic Interlayer Exchange Coupled Multilayers.** *E. Darwin*¹, *R. Tomasello*², *P. Shepley*³, *N. Satchell*⁴, *M. Carpentieri*², *G. Finocchio*⁵, *B.J. Hickey*³ and *H.J. Hug*^{1,6} *1. EMPA, Zurich, Switzerland; 2. Politecnico di Bari, Bari, Italy; 3. University of Leeds, Leeds, United Kingdom; 4. Texas State University, San Marcos, TX, United States; 5. Università di Messina, Messina, Italy; 6. University of Basel, Basel, Switzerland*
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3:15

- GB-06. Magnetic Properties Dependence on Geometrical Parameters of Electroless-plated Ni-based Rhombohedral Nanotubes.** *F. Muench*¹, *S. Schaefer*¹, *M. Mendez*², *J. Fernández-Roldán*², *A.S. Gonzalez*², *V. Vega*², *U. Kunz*¹, *W. Ensinger*¹, *J. Garcia*² and *V.M. Prida*² *1. Technical University of Darmstadt, Darmstadt, Germany; 2. Departamento Física, Universidad de Oviedo, Oviedo, Spain*
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3:30

- GB-07. Comparison of techniques for the quantitative determination of the interfacial Dzyaloshinskii-Moriya interaction in ultrathin magnetic films. (Invited)** *M. Kuepferling*¹, *C.H. Back*², *A. Casiraghi*¹, *L. Chen*², *A. Di Pietro*^{1,3}, *G. Durin*¹, *F. García Sánchez*⁴, *B.J. Hickey*⁵, *C. Hwang*⁶, *G. Jakob*⁷, *M. Kläui*⁷, *M. Madami*⁸, *A. Magni*¹, *C. Marrows*⁵, *H. Nembach*^{11,9}, *V. Puliafito*¹⁰, *J.M. Shaw*⁹, *G. Soares*¹, *S. Tacchi*¹² and *G. Carlotti*⁸ *1. INRIM, Istituto Nazionale di Ricerca Metrologica, Torino, Italy; 2. Technische Universität München, Garching, Germany; 3. Politecnico di Torino, Torino, Italy; 4. Departamendo de Física Aplicada, Universidad de Salamanca, Salamanca, Spain; 5. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 6. KRISS, Korea Reserach Institute of Standards and Science, Daejeon, The Republic of Korea; 7. Institute of Physics, Johannes Gutenberg University, Mainz, Germany; 8. Dipartimento di Fisica e Geologia, University of Perugia, Perugia, Italy; 9. Applied Physics Division, National Institute of Standards and Technology, Boulder, CO, United States; 10. Dipartimento di Ingegneria Elettrica e dell'Informazione, Politecnico di Bari, Bari, Italy; 11. Department of Physics, University of Colorado at Colorado Springs, Colorado Springs, CO, United States; 12. CNR, Istituto Officina dei Materiali, Perugia, Italy*
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4:00

- GB-08. Bridging Simulation and Experiment: Tuning Dimensional Order in FeCo Magnetic Nanostructures.** *Y. Chen*¹, *H. Zhang*² and *A. El-Ghazaly*³ *1. Department of Materials Science and Engineering, Cornell University, Ithaca, NY, United States; 2. School of Applied and Engineering Physics, Cornell University, Ithaca, NY, United States; 3. Department of Electrical and Computer Engineering, Cornell University, Ithaca, NY, United States*
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4:15

- GB-09. Electronic and magnetic properties of atomically-thin epitaxially-grown van der Waals ferromagnet Cr₂Te₃. (Invited)** *S. Mo*¹ *1. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA, United States*
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OCEANIA IX & X

Session GC

HIGH FREQUENCY, MICROWAVE AND MILLIMETER WAVE MATERIALS AND DEVICES

Andrei Slavin, Co-Chair

Oakland University, Rochester Hills, MI, United States

Alexey Ustinov, Co-Chair

St. Petersburg Electrotechnical University, St.Petersburg, Russian Federation

2:00

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

- GC-02. IoT-Oriented Single-Transmitter Multiple-Receiver Wireless Charging Systems Using Hybrid Multi-Frequency Pulse Modulation.** *Y. Gong*¹, *Z. Zhang*^{1,2}, *Y. Wu*¹ and *Y. Gu*¹ *1. School of Electrical and Information Engineering, Tianjin University, Tianjin, China; 2. International Institute for Innovative Design and Intelligent Manufacturing of Tianjin University, Shaoxing, China*
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- GC-03. Self-induced magnetic anisotropy in 3D printed ferromagnetic composites.** A. Le Saos-Kauten^{1,2}, A. Chevalier¹, A. Maalouf¹, A. Hoesz¹, J. Ville², J. Mattei¹ and V. Laur¹ *1. Lab-STICC / University of Brest, Brest, France; 2. IRDL / University of Brest, Brest, France*
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- GC-04. Magnonic Physical Reservoir Computing. (Invited)** M. Kostylev¹ and S. Watt¹ *1. University of Western Australia, Crawley, WA, Australia*
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- GC-10. Complex permeability of noise suppression sheets up to 40 GHz evaluated with the improved shielded loop coil type permeameter.** T. Nakamura¹, Y. Sato¹, A. Itagaki¹, Y. Miyazawa², S. Yabukami³ and M. Yamaguchi²
1. R&D Department, Ryowa Electronics Inc., Sendai, Japan; 2. New Industry Creation Hatchery Center, Tohoku University, Sendai, Japan; 3. Department of Biomedical Engineering, Tohoku University, Sendai, Japan
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- GC-07. Realization of a Current-Controlled Magnonic Physical Reservoir.** A.B. Ustinov¹, R.V. Haponchyk¹ and M. Kostylev²
1. Dept. of Physical Electronics and Technology, St. Petersburg Electrotechnical University, St.Petersburg, Russian Federation; 2. Department of Physics, University of Western Australia, Perth, WA, Australia
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- GC-08. Tri-layered Nanohollowspheres: An Interesting Approach to Superior Electromagnetic Wave Absorption.** A. Gorai¹ and K. Mandal¹ *1. Department of Condensed Matter and Materials Physics, Satyendra Nath Bose National Centre for Basic Sciences, Kolkata, India*
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- GC-09. Ka to V Microwave band tunable Barium Hexaferrite based Band-Stop Notch Filter.** V. Sharma¹ and B.K. Kuanr²
1. Department of Physics, Northeastern University, Boston, MA, United States; 2. Special Centre for Nanoscience, Jawaharlal Nehru University, New Delhi, India
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- GC-05. Parallel line type permeameter for thick magnetic material to reduce the error of demagnetizing field.** *S. Yabukami*^{1,2}, *A. Mashiko*¹ and *K. Okita*² *1. Tohoku University, Sendai, Japan; 2. Tohoku-TMIT, Sendai, Japan*
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OCEANIA I & II

Session GD**ANTIFERROMAGNETIC SPINTRONICS WITH SKYRMIONS AND TEXTURES**

Kun-Rok Jeon, Chair

Chung-Ang University (CAU), Seoul, The Republic of Korea

2:00

- GD-01. Progress and Perspectives on Silicon-compatible Antiferromagnetic Memory Devices. (Invited)** *P. Khalili*¹
1. Northwestern University, Evanston, IL, United States
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2:30

- GD-02. From Magnetostatics to Topology: Antiferromagnetic Vortex States in NiO-Fe Nanostructures.** *M. Slezak*¹, *T. Wagner*², *O. Gomonay*², *V. Bharadwaj*², *A. Koziol Rachwal*¹, *T.O. Mentis*³, *A. Locatelli*³, *M. Zajac*⁴, *D. Wilgocka-Slezak*⁵, *P. Drozd*⁶ and *T. Slezak*¹ *1. AGH University of Science and Technology, Krakow, Poland; 2. Institute of Physics, Johannes Gutenberg-University, Mainz, Germany; 3. Elettra - Sincrotrone Trieste S.C.p.A., Basovizza, Trieste, Italy; 4. National Synchrotron Radiation Centre SOLARIS, Jagiellonian University, Krakow, Poland; 5. Jerzy Haber Institute of Catalysis and Surface Chemistry PAS, Krakow, Poland; 6. Institute of Physics, Maria Curie-Skłodowska University, Lublin, Poland*
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2:45

- GD-03. Antiferromagnetic exchange coupling across transition metal films alloyed with ferromagnetic elements.** *D. Legut*^{1,2}, *S. Arapan*¹, *K. Winther*³, *Z.R. Nunn*³, *J. Lisik*³, *F. Schulz*⁴, *E. Goering*⁴, *T. Mckinnon*³, *S. Myrtle*³ and *E. Girt*³
1. IT4Innovations, VSB - Technical University of Ostrava, Ostrava, Czechia; 2. Charles University in Prague, Prague, Czechia; 3. Simon Fraser University, Burnaby, BC, Canada; 4. Max Planck Institute for Intelligent Systems, Stuttgart, Germany
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- GD-04. Electrical full switching of non-collinear antiferromagnetic order. (Invited)** K. Kondou¹, T. Higo², T. Nomoto², M. Shiga³, S. Sakamoto³, X. Chen³, D. Nishio-Hamane³, R. Arita², Y. Otani³, S. Miwa³ and S. Nakatsuji² *1. RIKEN, Wako, Japan; 2. The University of Tokyo, Bunkyo-ku, Japan; 3. Institute for Solid State Physics, University of Tokyo, Kashiwa, Japan*
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- GD-05. Antiferromagnetic Spin Structures beyond Skyrmions: antiferromagnetic merons and antimerons in synthetic antiferromagnets.** M. Bhukta¹, T. Dohi^{1,2}, V. Bharadwaj¹, R. Zarzuela¹, M. Syskaki¹, M. Foerster³, M. Angel³, J. Sinova¹, R. Frömter¹ and M. Kläui¹ *1. Universität Mainz, Mainz, Germany; 2. RIEC, Tohoku University, Sendai, Japan; 3. ALBA, Barcelona, Spain*
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- GD-06. Anomalous Hall effect in Altermagnetic RuO₂ Thin Films.** R.D. Gonzalez Betancourt^{1,2}, T. Tschirner^{1,3}, P. Kessler^{3,4}, T. Kotte⁵, D. Kriegner^{2,6}, B. Buchner^{1,3,6}, J. Dufouleur¹, M. Kamp⁸, V. Jovic⁹, L. Smejkal^{2,7}, J. Sinova^{2,7}, R. Claessen^{3,4}, T. Jungwirth^{2,10}, S. Moser^{3,4}, H. Reichlova^{2,6} and L. Veyrat^{1,3,4} *1. Leibniz Institute for Solid State and Materials Research (IFW) Dresden, Dresden, Germany; 2. Institute of Physics of the Czech Academy of Sciences, Prague, Czechia; 3. Würzburg-Dresden Cluster of Excellence ct.qmat, Würzburg, Germany; 4. Physikalisches Institut, Universität Würzburg, Würzburg, Germany; 5. HLD-EMFL, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 6. Institute of Solid State and Materials Physics, Technische Universität Dresden, Dresden, Germany; 7. Johannes Gutenberg Universität of Mainz, Mainz, Germany; 8. Physikalisches Institut, Universität Würzburg, Würzburg, Germany; 9. Earth Resources and Materials, Institute of Geological and Nuclear Science, Lower Hutt, New Zealand; 10. School of Physics and Astronomy, University of Nottingham, Nottingham, United Kingdom*
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- GD-07. Narrowband THz Emission from a Single Antiferromagnetic Cycloid BiFeO₃ Thin Film.** S. Massabeau¹, A. Abdelsamie^{1,2}, P. Dufour¹, A. Finco², M. Viret³, K. Bouzouane¹, V. Jacques², J. Chauleau³, J. George¹, H. Jaffrès¹, S. Fusil¹, R. Lebrun¹ and V. Garcia¹ *1. Laboratoire Albert Fert, CNRS, University of Paris-Sud, Paris, France; 2. Laboratoire Charles Coulomb, Université de Montpellier, CNRS, Montpellier, France; 3. SPEC, CEA, CNRS, Université Paris-Saclay, Gif-sur-Yvette, France*
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- GD-08. Anomalous Nernst effect of altermagnetic Mn_5Si_3 .**
*A. Badura*¹, *W. Campos*², *V. Bharadwaj*², *J. Rial*³, *I. Kounta*⁴,
*L. Michez*⁴, *J. Zemen*⁵, *F. Krizek*¹, *S. Sailler*⁶, *M. Leiviskä*¹,
*V. Baltz*³, *D. Kriegner*¹, *T. Jungwirth*¹, *L. Smejkal*²,
*S. Goennenwein*⁶ and *H. Reichlova*¹ *1. Institute of Physics
 ASCR, v. v. i., Prague, Czechia; 2. Institut für Physik,
 Johannes Gutenberg Universität, Mainz, Germany;
 3. Univ. Grenoble Alpes, CNRS, CEA, Grenoble INP, Spintec,
 Grenoble, France; 4. Aix-Marseille University, CNRS,
 CINaM, Marseille, France; 5. Faculty of Electrical
 Engineering, Czech Technical University, Prague, Czechia;
 6. Universität Konstanz, Fachbereich Physik, Konstanz,
 Germany*
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- GD-09. Antiferromagnetic Skyrmions: from enhancing
 deterministic motion control to boosting thermal
 skyrmion diffusion.** *M. Kläui*¹, *T. Dohi*^{1,2}, *M. Bhukta*¹,
*F. Kammerbauer*¹, *M. Syskaki*¹, *K. Raab*¹, *M. Weissenhofer*³,
*S. Wintz*⁴, *R. Frömter*¹, *G. Jakob*¹ and *U. Nowak*³
*1. Universität Mainz, Mainz, Germany; 2. RIEC, Tohoku
 University, Sendai, Japan; 3. University of Konstanz,
 Konstanz, Germany; 4. HZB, Berlin, Germany*
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- GD-10. First-Order Reversal Curve (FORC) Features of
 Ferrimagnetic and Antiferromagnetic Coupled
 Skyrmions.** *L.S. Palhares*^{1,2}, *J. Brandao*² and *F. Béron*¹
*1. Instituto de Física Gleb Wataghin, Universidad Estadual
 de Campinas, Campinas, Brazil; 2. Laboratório Nacional de
 Luz Síncrotron, Centro Nacional de Pesquisa em Energia e
 Materiais, Campinas, Brazil*
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Session GE
**PERMANENT MAGNET, HIGH-SPEED,
 WOUND-FIELD, INDUCTION AND
 RELUCTANCE MACHINES**

Min-Fu Hsieh, Co-Chair
 National Cheng Kung University, Tainan, Taiwan
 Po-Wei Huang, Co-Chair
 National Cheng Kung University, Tainan, Taiwan

2:00

- GE-02. Relationship between Temperature Control and Iron Loss Reduction by Secondary Current Heating Method.**
Y. Tsuchida¹ and T. Yano¹ 1. Oita University, Oita, Japan
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2:15

- GE-05. Transverse Flux Topology for High Efficiency Solutions.**
C. Schmitz¹ and D. Schmitz¹ 1. Research and Product Development – R&D, WEG, Jaraguá do Sul, Brazil
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2:30

- GE-08. Design and Analysis of a High-Speed Slotless Permanent Magnet Synchronous Motor Considering Air-Gap Airflow.** *M. Guo¹, G. Cao¹, H. Hu¹, S. Huang¹, H. Wang¹ and J. He² 1. Guangdong Key Laboratory of Electromagnetic Control and Intelligent Robots, College of Mechatronics and Control Engineering, Shenzhen University, Shenzhen, China; 2. Department of Electrical and Computer Engineering, University of Kentucky, Lexington, KY, United States*
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2:45

- GE-09. Development of Magneto-Thermo-Mechanical Analytical Models for High-Speed Induction Machine.** *L. Dahnoun^{1,2}, J. Fontchastagner¹, C. Viguier² and N. Takorabet¹ 1. GREEN, Université de Lorraine, Nancy, France; 2. Safran Tech, Magny-lès-Hameaux, France*
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- GE-11. **Hybrid Three-Layer Sub-Harmonic Synchronous Machine using Consequent Pole Permanent Magnets.** S. Rafin¹, Q. Ali², F. Zhao³ and O.A. Mohammed¹
 1. Department of Electrical and Computer Engineering, Florida International University, Miami, FL, United States; 2. Department of Electrical Engineering, Sukkur IBA University, Sukkur, Pakistan; 3. School of Mechanical Engineering and Automation, Harbin Institute of Technology, Shenzhen, China
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EUROPA II

Session GF
AMORPHOUS AND NANOCRYSTALLINE SOFT
MAGNETIC MATERIALS

Massimo Pasquale, Chair
 INRIM, Torino, Italy

2:00

- GF-01. **Impact of conventional and ultra-rapid annealing on microstructure and coercivity of Ni-rich nanocrystalline Fe-Ni-Nb-B alloys. (Invited)** I. Skorvanek¹, J. Marcin¹, B. Kunca¹ and P. Svec² 1. Institute of Experimental Physics, Slovak Academy of Sciences, Kosice, Slovakia; 2. Institute of Physics, Slovak Academy of Sciences, Bratislava, Slovakia
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2:30

- GF-02. **The Effects of B/Si Ratio on the Surface Crystals and Magnetic Properties of Fe₈₀(B_aSi_b)₁₅C₁Cu₁Nb₃ Nanocrystal Soft Magnetic Alloys.** S. An^{1,2}, H. Im^{1,2}, K. Kim¹, S. Yang¹, J. Lee² and J. Jeong¹ 1. Metal Powder Department, Korea Institute of Materials Science, Changwon, The Republic of Korea; 2. Department of Materials Science and Engineering, Pusan National University, Pusan, The Republic of Korea
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2:45

- GF-03. **Effect of Nb/ Zr co-adding on the microstructures and soft magnetic properties of Fe_{77.5}Si_{11.5}B₇Nb_xZr_{3-x}Cu₁ nanocrystalline Alloys.** H. Im^{1,2}, S. An^{1,2}, J. Lee², K. Kim¹, S. Yang¹ and J. Jeong¹ 1. Korea Institute of Materials Science, Changwon-si, The Republic of Korea; 2. Pusan National University, Pusan, The Republic of Korea
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3:00

- GF-04. Magnetic and structural properties of nanocrystalline FeCuNbSiB thin films.** *J.M. Alves¹, N. Checca¹, D. Gonzalez-Chavez¹, B.G. Silva¹ and R.L. Sommer¹*
1. Centro Brasileiro de Pesquisas Fisicas, Rio de Janeiro, Brazil
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3:15

- GF-05. Local Magnetization Processes at Constricted Regions in Amorphous Fe₈₀B₂₀ Stripes with Nanometric Thicknesses.** *J.M. González¹, U. Urdirroz¹, M. Alonso¹, F. Palomares¹, R. Fernandez-Jimenez¹, J. Soler-Morala¹, F. Cebollada², M. Sánchez-Agudo², A. Gómez³, M. Magaz³, I. Soldatov⁴ and R. Schäffer⁴*
1. Nanoscience and Nanotechnology, ICMM-CSIC, Madrid, Spain; 2. POEMMA-CEMDATIC, ETSIT-UPM, Madrid, Spain; 3. Centro de Astrobiología, CSIC-INTA, Torrejón de Ardoz, Spain; 4. Leibniz Institute for Solid State and Materials Research (IFW), Dresden, Germany
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3:30

- GF-06. Effect of Magnetostatic Interaction on the Single Domain Wall Propagation in Magnetic Microwires.** *P. Corte-Leon^{1,2,3}, A. Gonzalez Villegas^{1,2,3}, J. Blanco^{2,3}, V. Zhukova^{1,2,3}, M. Ipatov^{1,2} and A. Zhukov^{1,4,2}*
1. Dept. Polymers and Advanced Materials, University of Basque Country, UPV/EHU, San Sebastian, Spain; 2. Dept. Applied Physics, University of Basque Country, EIG, UPV/EHU, San Sebastian, Spain; 3. EHU Quantum Center, University of the Basque Country, UPV/EHU, San Sebastian, Spain; 4. Ikerbasque, Basque Foundation for Science, San Sebastian, Spain
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3:45

- GF-07. Measurement of Magnetic Barkhausen Noise on Alloy Foils Used for Inductor Core in Power Electronics Applications.** *S. Tamaru¹ and T. Yamazaki²*
1. RCECT, Sangyo Gijutsu Sogo Kenkyujo Tsukuba Chuo, Tsukuba, Japan; 2. Department of Materials Science and Technology, Tokyo University of Science, Katsushika, Japan
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4:00

- GF-08. The Study the Characteristics the Magnetic Response of Microspirals Made of an Amorphous Magnetic Alloy.** *L. Shendrikova¹, Y. Alekhina¹, A. Shalygin¹ and N.S. Perov¹*
1. Lomonosov Moscow State University, Moscow, Russian Federation
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- GF-10. Magnetic Properties of Amorphous Fe-Si-Cr-B-C Alloy by Melt-spinning and Selective Laser Melting for Electrical Machines.** *P. Tiberto*¹, *P. Sharangi*¹, *G. Barrera*¹, *E. Ferrara*¹, *A. Ghavimi*², *R. Busch*², *I. Gallino*^{3,2}, *M. Rodriguez*⁴, *M. Perez Prado*⁴, *L. Thorsson*⁵ and *H. Wachter*⁵ *1. INRIM, Torino, Italy; 2. Saarland University, Saarbrücken, Germany; 3. TU Berlin, Berlin, Germany; 4. IMDEA, Madrid, Spain; 5. AMLOY GmbH, Karlstein, Germany*
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4:30

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

Session GG**THIN FILMS AND SURFACE EFFECTS**

Juliano Denardin, Chair
 Universidad de Santiago, Santiago, Chile

2:00

- GG-01. Voltage-controlled Spintronics Heterostructures for Magnetoelectric Memory and Stochastic Computing Applications. (Invited)** *K. Wang*^{1,2} *1. Department of Electrical and Computer Engineering, University of California, Los Angeles, Los Angeles, CA, United States; 2. Department of Physics and Astronomy, University of California, Los Angeles, Los Angeles, CA, United States*
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2:30

- GG-02. Engineering nanocolumnar magnetic films with temperature.** *M. Garrido-Segovia*^{1,2}, *E. Navarro*^{2,3}, *A. Espinosa*⁴ and *J. García-Martín*¹ *1. Instituto de Micro y Nanotecnología, CSIC, Tres Cantos, Spain; 2. Física de Materiales, Universidad Complutense de Madrid, Madrid, Spain; 3. Instituto de Magnetismo Aplicado, Las Rozas, Spain; 4. Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain*
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- GG-03. Room Temperature Covalent 2D Magnet FeSe_x.** C. Huai¹, M. Bian¹, R. Sabirianov² and H. Zeng¹ *1. Department of Physics, University at Buffalo, Buffalo, NY, United States; 2. Department of Physics, University of Nebraska-Omaha, Omaha, Omaha, NE, United States*
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3:00

- GG-04. Direct Observation of Domain Configurations in Elongated Antidots Lattices at Different Applied Fields.** J.L. Palma^{1,6}, A. Pereira², R. Alvaro³, S. Michea⁴, J. Garcia-Martin³ and J. Escrig^{5,6} *1. Engineering School, Universidad Central de Chile, Santiago, Chile; 2. Universidad Adolfo Ibañez, Santiago, Chile; 3. IMN-CNM, Instituto de Micro y Nanotecnología, Madrid, Spain; 4. Institute of Applied Sciences, Universidad Autónoma de Chile, Santiago, Chile; 5. Departamento de Física, Universidad de Santiago, Santiago, Chile; 6. CEDENNA, Center for the Development of Nanoscience and Nanotechnology, Santiago, Chile*
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3:15

- GG-05. Magnetic and transport properties in ion-irradiated Cr₂AlC.** J. Salgado Cabaco^{1,2}, U. Kentsch¹, F. Long¹, F. Ganss¹, J. Lindner¹, J. Fassbender^{1,3}, C. Leyens², R. Bali¹ and R. Boucher² *1. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. Technische Universität Dresden, Institute of Materials Science, Dresden, Germany; 3. Technische Universität Dresden, Institute of Solid State and Materials Physics, Dresden, Germany*
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- GG-06. Hard-axis collapse and recoil-curve overshoot in thin magnetic films.** A. M. H. de Andrade¹, L. F. S. Azeredo^{1,2}, H. Acosta¹ and J. Geshev¹ *1. Institute of Physics, UFRGS, Porto Alegre, Brazil; 2. Instituto Federal Sul-rio-grandense, Santana do Livramento, Brazil*
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- GG-07. Monitoring Iron Oxide Thin Film Growth by Plasma Emission Spectrometry in Reactive Sputtering Process.** R. Minami¹, E. Kita¹, S. Sharmin¹ and H. Yanagihara^{1,2} *1. University of Tsukuba, Tsukuba, Japan; 2. Tsukuba Research Center for Energy Materials Science (TREMS), University of Tsukuba, Tsukuba, Japan*
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- GG-08. Structural and magnetic properties of ultrathin films calculated from first-principles.** J.N. Rychly-Gruszecka¹, J. Marciniak¹, J. Snarski-Adamski¹, J. Meixner¹, W. Marciniak¹, J. Rusz² and M. Werwinski¹ *1. Department of Theory of Nanostructures and Quantum Materials, Institute of Molecular Physics, Polish Academy of Sciences, Poznan, Poland; 2. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden*
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- GG-09. Thin film epitaxial [111] Co₅₀Pt₅₀: structure, magnetization, and spin polarization.** N. Satchell^{1,2}, S. Gupta², M. Maheshwari², P. Shepley², M. Rogers², O. Cespedes² and G. Burnell² *1. Department of Physics, Texas State University, San Marcos, TX, United States; 2. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom*
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- GG-11. Spin-triplet supercurrent optimization in ferromagnetic Josephson junctions.** R.M. Klaes¹ and N.O. Birge¹
1. Department of Physics and Astronomy, Michigan State University, East Lansing, MI, United States
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Session VP1

**FIELD MODULATED MACHINES
(Poster Virtual Session)**

Mohamed Ibrahim, Co-Chair
 University of Ghent, Ghent, Belgium

Metin Aydin, Co-Chair
 Kocaeli University, Umuttepe, Izmit, Turkey

- VP1-01. Research on Stator Loss Suppression of a Dual-Rotor Flux-Modulated PM Motor based on Harmonic Directional Reduction.** Z. Xiang¹ and H. Qian¹
1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China
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- VP1-02. A New Dual Stator Field Modulation Machine with Tangential Excitation Permanent Magnet.** F. Bian¹, M. LI¹ and Z. Li¹ *1. Zhongyuan University of Technology, Zhengzhou, China*
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- VP1-03. A New Radial Hybrid Consequent-Pole Permanent Magnet Vernier Machine.** R. Yao¹, H. Wang¹, Y. Sha¹, Y. Xu¹ and C. Feng¹ *1. Nanjing Normal University, Nanjing, China*
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- VP1-04. Improvement of Torque and Loss Characteristics for an In-Wheel Permanent Magnet Motor Based on Featured-Airgap-Harmonic.** J. Ren¹, L. Quan¹ and Z. Xiang¹ *1. Department of Electrical Engineering, School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*
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- VP1-05. Design and Analysis of a High Torque Performance Dual-Side PM Vernier Motor with Synergetic Modulation Enhancement.** Z. Xiang¹ and S. Gui¹ *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*
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- VP1-06. Torque Quality Improvement Design and Analysis of Bi-Directional Magnetic Field Modulation PM Motor By Multi-Harmonic Flux-Barrier Modulator.** H. Tian¹, D. Fan¹, X. Zhu¹, W. Shan¹ and Z. Xiang¹ *1. Jiangsu University, Zhenjiang, China*
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- VP1-07. Comparative analysis Between Split Stator Permanent Magnet Machine and Flux Reverse Machine.** C. Zhang¹, H. Wang¹ and C. He¹ *1. Nanjing Normal University, Nanjing, China*
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- VP1-08. A Multi-Modular Magnetic Millirobot with a Variable Equilibrium Posture Capability.** Y. Lee¹, J. Lee¹ and S. Jeon^{1,2} *1. MESL, Department of Mechanical and Automotive Engineering, Kongju National University, Cheonan, The Republic of Korea; 2. GITECH, Cheonan, The Republic of Korea*
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- VP1-09. Parametric Sensitivity Analysis and Efficiency improvement of Electromagnetic Repulsion Mechanism based on Orthogonal Experiment Design.** W. Yang¹, F. Meng¹ and D. Wu¹ *1. Harbin Institute of Technology, Harbin, China*
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- VP1-10. Research on the Performance of Bidirectional Field Modulation Machine with Separated Type PM Excitation with Different slot-pole Combinations.** Y. Zhang¹, H. Wang¹, C. He¹ and H. Zhu² *1. Nanjing Normal University, Nanjing, China; 2. State Grid Anqing Power Supply Company, Anqing, China*
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- VP1-11. A Flux Reversal Permanent Magnet Motor with Uneven Magnetomotive Force Shift.** H. Chen¹, F. Xiao¹, Y. Du¹ and X. Zhu¹ *1. Jiangsu University, Zhenjiang, China*
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- VP1-12. Performance Improvement of Five-Phase Hybrid Excited Flux Switching Machine using Dual Stator Configuration.** S. Bukhari¹, M. Ali², J. Ikram², U. Bin Farooq² and S. Abbas²
1. Department of Electrical Engineering, Tampere University, Tampere, Finland; 2. COMSATS Institute of Information Technology, Islamabad, Pakistan
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- VP1-13. Design of Winding Configuration for E-Core FSPM Motor Based on Synthesis EMF Vectors.** Y. Mao¹, F. Xiao¹, Y. Du¹, X. Zhu¹, L. Quan¹ and C. Zhang¹ 1. Jiangsu University, Zhenjiang, China
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- VP1-14. Power factor Improvement Design and Investigation of V-Shaped PM Vernier Motor by Multiple Flux Modulation.** D. Pang¹, X. Zhu¹ and D. Fan¹ 1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China
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- VP1-15. Analysis of Air-gap Field Modulation in Asymmetric Stator Tooth Bilateral-Excitation Flux Modulation Machine.** F. Zhao¹, K. Yang¹, R. Liu¹, J. Yu¹, S. Rafin², Q. Ali⁴ and D. Chen³ 1. Harbin Institute of Technology, Shenzhen, China; 2. Florida International University, Miami, FL, United States; 3. Shenyang University of Technology, Shenyang, China; 4. Sukkur IBA University, Sukkur, Pakistan
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Session VP2

HARD MAGNETIC MATERIALS IV (Poster Virtual Session)

Imants Dirba, Chair
TU Darmstadt, Darmstadt, Germany

- VP2-01. Efficient Grain Boundary Diffusion Technology in Sintered Nd-Fe-B Magnets: Nano-TbF₃ Powders Electrophoretic Suspension Preparation via Sand-Milling.** M. Ji¹, W. Liu¹, Z. Wang¹, H. Wu¹, Y. Li¹, D. Zhang¹ and M. Yue¹ 1. Beijing University of Technology, Beijing, China
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- VP2-02. Preparation of Nd-Fe-B films via a low-temperature process.** K. Higashi¹, G. Tahara¹, I. Fukuda¹, A. Yamashita¹, T. Yanai¹, H. Fukunaga¹, K. Nagai², T. Shinshi² and M. Nakano¹ 1. Nagasaki University, Nagasaki City, Japan; 2. Tokyo Institute of Technology, Tokyo, Japan
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- VP2-03. Optimization of the Performance of Permanent Magnet Motor by Selected Grain Boundary Diffusion with Different Dy and Tb Ratio.** X. Lu¹, W. Li¹, L. Zeng² and R. Pei^{1,2} 1. Department of Electrical Engineering, Shenyang University of Technology, Shenyang, China; 2. Suzhou Inn-mag New Energy Ltd., Suzhou, China
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- VP2-04. Short-time annealing enhancing the magnetic properties and microstructure uniformity of melt-spun (Nd,Pr)-Fe-B ribbons.** *L. Liu¹, Y. Li¹, J. Wang¹, L. Liu¹, M. Bian¹, H. Zhang¹ and M. Yue¹* *1. Beijing University of Technology, Beijing, China*
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Session VP3
HIGH-SPEED, WOUND-FIELD, INDUCTION AND
RELUCTANCE MACHINES II
(Poster Virtual Session)

Shuangxia Niu, Chair

The Hong Kong Polytechnic University, Kowloon, Hong Kong

- VP3-01. Analysis of Air-gap Field Modulation Effect on Torque for 6-Slot 4-Pole High-Speed Permanent Magnet Machine.** *K. Li¹, C. Wang^{1,2}, Y. Li³ and Z. Zhang⁴* *1. School of Electrical Engineering, Anhui Polytechnic University, WuHu, China; 2. Aote Langbo Elevator Co., Ltd, Huzhou, China; 3. School of Electrical Engineering and Automation, Anhui University, Hefei, China; 4. College of Automation Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing, China*
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- VP3-02. Electromagnetic Vibration Improvement for a High-Speed Flat Wire PM Motor based on Optimal Magnetic-Pole-Boundary.** *J. Bai¹, X. Zhu¹ and Z. Xiang¹* *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*
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- VP3-03. Design Considerations of High-speed PMSM with Nonuniform Two-Segment Halbach Magnet Array.** *X. Xie¹, C. Liao¹ and Z. Zhang¹* *1. Department of Automation Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing, China*
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- VP3-04. Novel Self-Excited Brushless Topology for Wound Field Vernier Machine.** *S. Bukhari¹* *1. Department of Electrical Engineering, Tampere University, Tampere, Finland*
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- VP3-05. Design and Analysis of New Beveling Consequent Pole Hybrid Magnet Dual Stator Machines.** *Y. Sha¹, H. Wang¹, R. Yao¹, Y. Xu¹ and J. Yang¹* *1. Nanjing Normal University, Nanjing, China*
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- VP3-06. Analysis and Comparison between Pole-Changing and Hybrid-Excited Flux Switching Motors.** *Z. He¹, F. Xiao¹, Y. Du¹ and X. Zhu¹* *1. Jiangsu University, Zhenjiang, China*
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- VP3-07. Performance Improvement of the Brushless Wound-Rotor Vernier Machine by One-Fourth Sub-Harmonic Components of the Frequency.** *S. Bukhari*¹, *U. Bin Farooq*², *J. Ikram*², *L. Khan*² and *T. Bashir*² *1. Department of Electrical Engineering, Tampere University, Finland, Tampere, Finland; 2. COMSATS Institute of Information Technology, Islamabad, Pakistan*
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- VP3-08. Performance Analysis of Axial Flux Brushless Wound Rotor Synchronous Machine Utilizing Third Harmonic.** *S. Bukhari*¹, *S. Abbas*², *J. Ikram*², *Z. Ayub*² and *A. Khan*² *1. Department of Electrical Engineering, Tampere University, Finland, Tampere, Finland; 2. COMSATS Institute of Information Technology, Islamabad, Pakistan*
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- VP3-09. Rotor Inter-Turn Short Detection Based on the Stator Current Vector Modulus of the Excitation Machine.** *L. Shi*¹, *Z. Zhang*¹, *J. Ma*¹, *W. Li*¹, *R. Li*¹, *X. Wu*¹ and *X. He*¹ *1. School of Electrical and Mechanical Engineering, Xuchang University, Xuchang, China*
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- VP3-10. Rotor Barrier Shape Design Optimization of a Novel Synchronous Reluctance Machine with Grain-Oriented Electrical Steel.** *S. Zhang*¹, *C. Liu*¹, *Y. Wang*¹ and *J. Zhu*² *1. Hebei University of Technology, Tianjin, China; 2. University of Sydney, Sydney, NSW, Australia*
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- VP3-11. Research on the Relationship between the Distribution of High-Permeability Materials in Rotor and Characteristics of Magnetic Field in Machines.** *X. Liang*¹, *M. Wang*¹, *Y. Liu*¹, *P. Zheng*¹ and *W. Li*¹ *1. Harbin Institute of Technology, Harbin, China*
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- VP3-12. Suppression of External Alternating Field of HTS Excitation Coil in Homopolar Inductor Machine.** *Y. Pan*¹, *J. Yang*¹, *Q. Li*¹, *S. Huang*¹ and *J. Ma*² *1. Hunan University, Changsha City, China; 2. University of Bristol, Bristol, United Kingdom*
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- VP3-13. Analysis Method of Squirrel Cage Induction Motor for Traction Applications considering Slot Harmonics.** *C. Song*¹, *D. Park*¹ and *M. Lim*¹ *1. Hanyang University, Seoul, The Republic of Korea*
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- VP3-14. A Two-State Autonomous Resonant Coordinated Electromagnetic Speed Limiting System for Wind Power.** *J. Ma*¹, *Z. Zhang*¹, *L. Shi*¹, *W. Li*¹, *X. Wu*¹ and *Y. Liang*¹ *1. School of Electrical and Mechanical Engineering, Xuchang University, Xuchang, China*
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- VP3-15. Advanced Lumped Parameter Thermal Network for Modeling of Cooling Solutions in Electric Vehicle Motor Applications.** *A.J. Bourgault¹, O. Taqavi¹, Z. Li¹, G. Byczynski² and N. Kar¹* *1. Department of Electrical Engineering, University of Windsor, Windsor, ON, Canada; 2. Nemark, Windsor, ON, Canada*
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- VP3-16. Performance Improvement of Brushless Exciter for Aircraft Wound Rotor Synchronous Machine Based on Magnetic Slot Wedge.** *W. Bian¹, Z. Zhang¹, L. Li¹, J. Li¹ and Y. Li¹* *1. College of Automation Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing, China*
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Session VP4

INTERDISCIPLINARY TOPICS IN MAGNETICS II (Poster Virtual Session)

Bruno Silva, Chair

Centro Brasileiro de Pesquisas Fisicas, Rio de Janeiro, Brazil

- VP4-01. Local adjustment of the mechanical properties of a magnetically controlled airway stent by laser powder bed fusion.** *K. Schäfer^{1,2}, M. Lutzi^{1,2}, M. Khan^{1,2}, L. Schäfer^{1,2}, I. Dirba^{1,2}, S. Bruns^{3,2}, I. Valizadeh^{4,2}, O. Weeger^{4,2}, C. Hartmann⁵, M. Kupnik⁵, E. Adabifiroozjaei⁶, L. Molina-Luna⁶, K. Skokov^{1,2} and O. Gutfleisch^{1,2}*
1. Functional Materials, TU Darmstadt, Darmstadt, Germany; 2. Additive Manufacturing Center, Darmstadt, Germany; 3. Physical Metallurgy, Darmstadt, Germany; 4. Cyber-Physical Simulation, Darmstadt, Germany; 5. Measurement and Sensor Technology Group, Darmstadt, Germany; 6. Advanced Electron Microscopy, Darmstadt, Germany
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- VP4-02. Magnetic Nanoparticles (MNPs) Based 2-Phase Memory Devices.** *R.A. Mendonsa¹, S. Liang² and J. Wang^{1,2}*
1. Department of Electrical Engineering, University of Minnesota, Edina, MN, United States; 2. Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN, United States
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- VP4-03. Magnetization mechanisms for the non-destructive evaluation of early-stage low temperature thermal oxidation in low-carbon steels.** *A. Mongshi*¹, *Y. Tene Deffo*¹, *N. Mary*², *P. Tsafack*¹, *J. Mognotte*^{3,4} and *B. Ducharne*^{3,5}
1. Laboratory of Electrical Engineering and Computing (LEEC), University of Buea, P.O. Box 63, Buea, Cameroon, Buea, Cameroon; 2. Univ Lyon, INSA Lyon, UCBL1, CNRS, MATEIS UMR5510, F-69621 Villeurbanne, France, Villeurbanne, France; 3. Univ Lyon, INSA Lyon, LGEF EA682, 69621 Villeurbanne, France, Villeurbanne, France; 4. Hybria Institute of Business and Technologies, Ecully CAMPUS, 69130 Ecully, France, Ecully, France; 5. Univ Lyon, INSA Lyon, Centrale Lyon, UCBL1, Tohoku University, ELYTMaX IRL3757, Sendai 980-8577, Japan, Sendai, Japan
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- VP4-04. Dynamics of the Shape of Magnetic Fluid Droplets under the Influence of a Magnetic Field: Experiment and Lattice Boltzmann Simulation.** *D. Kalyuzhnaya*¹, *E. Sokolov*¹, *A. Pribylov*¹, *G. Zhukov*¹, *R. Politov*¹ and *P. Ryapolov*¹
1. Southwest State University, Kursk, Russian Federation
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- VP4-05. Calculation of Mutual Inductance between Trapezoidal and Rectangular Coils with Angular Misalignment.** *D. Kim*¹, *S. Lee*¹ and *D. Kim*¹ *1. Department of Automotive Engineering, Yeungnam University, Gyeongsan, The Republic of Korea*
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- VP4-06. Wave-Driven Magnetic Levitation-Based Energy Harvesting.** *J. Park*¹, *Y. Choi*¹, *N. Wereley*¹ and *A. Flatau*¹
1. Department of Aerospace Engineering, University of Maryland at College Park, College Park, MD, United States
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- VP4-07. Research on Wireless Power Transfer Coil for Real-Time Body Temperature Telemetry System.** *T. Omori*¹, *F. Sato*¹, *Y. Furuya*² and *S. Sasaki*² *1. Graduate School of Engineering, Tohoku-Gakuin University, Tagajo, Japan; 2. Hikaridenshi Co., Ltd., Osaki, Japan*
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- VP4-08. A Comprehensive Study of Structural, Magnetic and Dielectric Properties in Fe³⁺ and Y³⁺ Substituted NiCr₂O₄.** *J. Barman*¹, *S. Verma*¹ and *S. Ravi*¹ *1. Department of Physics, Indian Institute of Technology Guwahati, Guwahati, India*
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- VP4-09. Comparative study of structural and magnetic properties of Nd₂CoMnO₆ compound.** *N. Nayak*¹ and *S. Ravi*¹
1. Department of Physics, Indian Institute of Technology Guwahati, Guwahati, India
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- VP4-10. Lateral modulation of magnetic anisotropy in multilayer by grayscale lithography followed by ion irradiation.** *D. Oshima*² and *T. Kato*^{2,1} *1. Institute of Materials and Systems for Sustainability, Nagoya University, Nagoya, Japan; 2. Department of Electronics, Nagoya University, Nagoya, Japan*
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- VP4-11. Energy of a Fully Spin-Polarized Two-Dimensional Electron Gas Separated from its Jellium Neutralizing Background.** *O. Ciftja*¹ 1. *Department of Physics, Prairie View A&M University, Prairie View, TX, United States*
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- VP4-13. Field-induced self-assembly and subsequent disaggregation of superparamagnetic iron oxide nanoparticles: insights from an image-based experimental approach.** *S. Ciannella*¹, *B. Dodge*¹, *K. Wu*², *J. Wang*³ and *J. Gomez-Pastora*¹ 1. *Department of Chemical Engineering, Texas Tech University, Lubbock, TX, United States;* 2. *Department of Electrical and Computer Engineering, Texas Tech University, Lubbock, TX, United States;* 3. *Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States*
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- VP4-14. The Critical Behavior of Magnetization near the Curie Temperature in Highly Spin-Polarized Heusler Alloy $\text{Co}_2\text{TiGa}_{0.3}\text{Sn}_{0.7}$.** *H. Aoshima*¹, *I. Shigeta*¹, *A. Nomura*², *K. Yubuta*², *T. Yamauchi*³, *R. Umetsu*², *T. Kanomata*⁴ and *M. Hiroi*¹ 1. *Department of Physics and Astronomy, Kagoshima University, Kagoshima, Japan;* 2. *Tohoku University, Sendai, Japan;* 3. *The University of Tokyo, Kashiwa, Japan;* 4. *Tohoku Gakuin University, Tagajo, Japan*
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- VP4-16. Restoration of Magnetic Order in Heavy Metal Doped Spin Glass.** *S. Samatham*¹, *A.K. Patel*⁴, *P. Khandelwal*², *S. Shravan Kumar Reddy*¹, *G. Babbadi*⁵, *C.S. M*¹, *M. Patwari*³ and *K. G. Suresh*² 1. *Department of Physics, Chaitanya Bharathi Institute of Technology, Hyderabad, Hyderabad, India;* 2. *Department of Physics, Indian Institute of Technology Bombay, Mumbai, India;* 3. *Department of Chemistry, Chaitanya Bharathi Institute of Technology, Hyderabad, India;* 4. *Research Centre for Magnetic and Spintronic Materials, National Institute for Materials Science (NIMS), Tsukuba, Japan;* 5. *Department of Physics, Government College (Autonomous), Rajahmundry, India*
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- VP4-17. Magnetic Properties of Fe-doped MnO Nanoparticles.** *A. Soares de Brito*¹, *M. Valerio-Cuadros*¹, *A. Alves Oliveira*¹, *L. Felipe Silva Tupan*¹, *R. Barco*¹, *F. Ivashita*¹, *J. de Araújo*², *M. Morales Torres*² and *A. Paesano Jr*^{2,1} 1. *Universidade Estadual de Maringá, Assis Chateaubriand, Brazil;* 2. *Universidade Federal do Rio Grande do Norte, Natal, Brazil*
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- VP4-18. Relating structural sensitivities and helical magnetic order of MnSi.** *S. Samatham*¹, *A.K. Patel*², *S. Kumar A*¹, *A. K. Sinha*³, *M. Singh*³, *S. Shravan Kumar Reddy*¹, *N. Gandla*¹ and *K. G. Suresh*⁴ 1. *Department of Physics, Chaitanya Bharathi Institute of Technology, Hyderabad, India;* 2. *Research Centre for Magnetic and Spintronic Materials, National Institute for Materials Science, Tsukuba, Japan;* 3. *Synchrotrons Utilization Section, Raja Ramanna Center for Advanced Technology, Indore, India;* 4. *Department of Physics, Magnetic Materials Laboratory, Indian Institute of Technology Bombay, Mumbai, India*
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VP4-19. Magnetic Hysteresis Models for 3D Printed Composite Materials. M. Ralchev¹, V. Mateev¹ and I. Marinova¹
1. Department of Electrical Apparatus, Technical University of Sofia, Sofia, Bulgaria
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VP4-20. Effect of oxygen vacancies on the structural and magnetic properties of Fe-doped ITO studied by first-principles DFT calculations. C.A. Vilca Huayhua¹
1. Instituto de Física, Universidade de Brasília, Brasília, Brazil
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Session VP5

LINEAR MACHINES AND MAGNETIC GEARING (Poster Virtual Session)

Noureddine Takorabet, Chair
Université de Lorraine, Vandoeuvre-lès-Nancy, France

VP5-01. Cycloidal Magnetic Gear Utilizing Magnetic Repulsion Characteristics. P. Liao¹, H. Lu², M. Tsai¹, P. Huang² and T. Chang²
1. Department of Mechanical Engineering, National Cheng Kung University, Tainan, Taiwan;
2. Department of Electrical Engineering, National Cheng Kung University, Tainan, Taiwan
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VP5-02. A Novel Continuously Variable Magnetic Geared Dual Stator Hub-Motor for an E-Bike. S.K. Warsi¹ and S. Sampathirao¹
1. School of Electrical Sciences, Indian Institute of Technology Goa, Ponda, India
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VP5-03. An Energy-saving Series Elastic Actuator with Variable Torque-speed Characteristics Using Reconfigurable Epicyclic-Driven Actuation. T. Wang^{1,2}, Z. Dong^{1,2}, H. Wen^{1,2}, B. Zhang^{1,2} and C. Liu^{1,2}
1. Shenzhen Research Institute, City University of Hong Kong, Shenzhen, China;
2. School of Energy and Environment, City University of Hong Kong, Hong Kong
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VP5-04. Suppressing the Three-Phase Flux Linkage Asymmetry of Modular Flux-Switching Permanent-Magnet Linear Machine by Rearranging Windings. Z. Ke¹, H. Lin¹ and J. Xu²
1. School of Electrical Engineering, Southeast University, Nanjing, China;
2. Naval University of Engineering, Wuhan, China
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VP5-05. Optimization Design of Tubular Permanent Magnet Synchronous Linear Motors Considering Machining and Assembly Errors. Q. Wu¹, G. Yang¹ and W. Li¹
1. Nanjing University of Science and Technology, Nanjing, China
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- VP5-06. A Tubular Flux-Reversal Transverse Flux Permanent Magnet Linear Generator Used in Direct Drive Wave Energy Converter.** *M. Chen*^{1,2}, *L. Huang*², *Y. Li*², *G. Meng*¹ and *T. Xia*¹ *1. Nanjing Institute of Technology, Nanjing, China; 2. Southeast University, Nanjing, China*
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- VP5-07. Vibration Analysis of Permanent Magnet Linear Synchronous Motor Considering Force-Magnetic Coupling.** *B. Ji*¹, *B. Zhang*¹, *T. Dong*¹, *R. Fu*¹ and *W. Feng*¹ *1. Shenyang University of Technology, Shenyang, China*
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- VP5-08. Effect of Magnetostriction on the Vibrations of Permanent Magnet Linear Synchronous Motors.** *R. Fu*¹, *B. Zhang*¹, *T. Dong*¹, *W. Feng*¹ and *B. Ji*¹ *1. Shenyang University of Technology, Shenyang, China*
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- VP5-09. Sensorless Magnetization Current Control for Stable Connection and Separation of Electropermanent Magnet.** *M. Kato*¹ and *F. Kitayama*¹ *1. Ibaraki University, Hitachi-shi, Japan*
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- VP5-10. Design and Quantitative Analysis of Asymmetric Flux Reversal Permanent Magnet Linear Machine with Reduced Leakage Flux.** *Z. Chen*¹, *Z. Li*³ and *Y. Shen*² *1. College of Electrical Engineering, Zhejiang University, Hangzhou, China; 2. School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore; 3. KTH Royal Institute of Technology, Stockholm, Sweden*
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Session VP6 MAGNETIZATION DYNAMICS AND MICROMAGNETICS II (Poster Virtual Session)

Myoung-Woo Yoo, Chair

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

- VP6-02. Anisotropy Dependent Spin-Orbit-Torque Switching in Crystalline Ferromagnetic Semiconductor.** *A.K. Jana*¹ and *S. Lee*¹ *1. Department of Physics, Korea University, Seoul, The Republic of Korea*
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- VP6-04. Development of a TR-MOKE Setup for the Investigation of Ultrafast Magnetization Dynamics in Magnetic Thin Films.** *C. Dolai*¹, *D. Ghosh*¹, *S.S. Bodra*¹, *B. Nayak*², *P. Sahoo*² and *P. Datta*² *1. Department of Physics, Indian Institute of Technology Kharagpur, Kharagpur, India; 2. Materials Science Centre, Indian Institute of Technology, West Bengal, India*
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- VP6-05. Study on the effect of structural scale of hollow particles and core-shell particles on the properties of magnetorheological fluids.** *W. Shun*^{1,2}, *W. Han*^{1,2} and *B. He*^{1,2} 1. *Institute of Launch Dynamics, Nanjing University of Science and Technology, Nanjing, China*; 2. *National Key Laboratory of Complex Multibody Systems Dynamics, Nanjing University of Science and Technology, Nanjing, China*
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- VP6-06. Skyrmion generation from domain wall dynamics.** *S. Jeong*³, *D. Jung*³, *H. Han*¹, *G. Kim*³, *M. Im*⁴ and *K. Lee*^{3,2} 1. *Department of Materials Science and Engineering, Korea National University of Transportation, Chungju, The Republic of Korea*; 2. *Graduate School of Semiconductor Materials and Devices Engineering, Ulsan National Institute of Science and Technology (UNIST), Ulsan, The Republic of Korea*; 3. *Department of Materials Science and Engineering, Ulsan National Institute of Science and Technology (UNIST), Ulsan, The Republic of Korea*; 4. *Lawrence Berkeley National Laboratory, Berkeley, CA, United States*
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- VP6-07. Static and Dynamic Magnetic Properties in Layered Synthetic Antiferromagnets.** *Y. Rong*^{1,2}, *L. Sun*^{1,2}, *F. Liu*^{1,2}, *T. Wu*^{1,2} and *Y. Yang*^{1,2} 1. *School of Information Science and Technology, ShanghaiTech University, Shanghai, China*; 2. *Shanghai Engineering Research Center of Energy Efficient and Custom AI IC, ShanghaiTech University, Shanghai, China*
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- VP6-08. Investigation of the dynamic magnetic properties in RuO₂/Co-Fe-B stack film.** *T. Nguyen*^{1,2}, *Y. Saito*², *H. Naganuma*^{2,3,4}, *S. Ikeda*^{2,1} and *T. Endoh*^{2,1,5} 1. *Tohoku University, CSIS, Sendai, Japan*; 2. *Tohoku University, CIES, Sendai, Japan*; 3. *Nagoya University, NAIAS, Nagoya, Japan*; 4. *Nagoya University, IMASS, Nagoya, Japan*; 5. *Tohoku University, ECEI, Sendai, Japan*
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- VP6-09. Study of Curvature Effects in Corrugated Nanostrips.** *J. Fernandez-Roldan*¹, *S. Shakeel*¹, *M. Quintana*^{1,2}, *O.M. Volkov*¹, *O. Pylypovskyi*¹, *E. Oliveros-Mata*¹, *F. Kronast*³, *M. Mohamad-Assaad*³, *C. Abert*⁴, *D. Suess*⁴, *D. Erb*¹ and *D. Makarov*¹ 1. *Helmholtz-Zentrum Dresden-Rossendorf e.V., Dresden, Germany*; 2. *CIC nanoGUNE BRTA, Donostia—San Sebastián, Spain*; 3. *Helmholtz-Zentrum Berlin für Materialien und Energie, Berlin, Germany*; 4. *University of Vienna, Vienna, Austria*
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- VP6-10. Variations in Spin Seebeck Voltage in Polycrystalline Bulk Y₃Fe₅O₁₂ Due to Diverse Annealing Processes.** *H. Ok*¹ and *K. Lee*¹ 1. *Ulsan National Institute of Science and Technology (UNIST), Ulsan, The Republic of Korea*
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- VP6-11. Micromagnetic aspects of the magneto-impedance response of the FM-I-NM-I-FM multilayer film driven by a high-frequency current.** *G.D. Demin*¹, *A.D. Fedina*¹ and *N.A. Djuzhev*¹ 1. *R&D Center “MEMSEC”, National Research University of Electronic Technology (MIET), Moscow, Russian Federation*
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Session VP7
MAGNETORESISTANCE AND RELATED
PHENOMENA II
(Poster Virtual Session)

Jakub Zelezny, Chair

FZU - Institute of Physics, Czech Academy of Sciences,
Prague, Czechia

- VP7-01. High-Resolution Flaw Detection Using Eddy-Current Probe Array Based on Giant Magnetoresistance Sensors.** *L. Bui¹, J. Jeng¹, H. Huang¹, H. Nguyen², V. Doan³ and T. Nguyen¹* *1. National Kaohsiung University of Science and Technology, Kaohsiung, Taiwan; 2. Thai Nguyen University of Technology, Thai Nguyen, Vietnam; 3. University of Technology and Education, The University of Danang, Da Nang, Vietnam*
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- VP7-02. Enhanced Electrical Modelling of Spin Transfer Torque Magnetic Tunnel Junctions with Temperature Dependent Magnetic Parameters.** *A.C. Venu¹ and N. Kumar¹* *1. Department of Electronics and Communications Engineering, National Institute of Technology Calicut, Calicut, India*
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- VP7-03. Effect of Deposition Parameters on the Performances of Magnetic Tunnel Junction Multilayer Structure.** *C. Ghemes¹, O.G. Dragos-Pinzaru¹, M. Tibu¹, G. Stoian¹, G. Ababei¹, N. Lupu¹ and H. Chiriac¹* *1. National Institute of Research and Development for Technical Physics, Iasi, Romania*
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- VP7-04. Investigation of Partially Oxidized Cu Capping Effect on CoFeB/Pt/CuO_x Multilayers by Electrical and Optical Methods.** *Y. Ma^{1,2}, N. Zhang^{1,3}, H. Xie¹, L. Ke³ and Y. Wu^{1,2}* *1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore; 2. National University of Singapore (Chong Qing) Research Institute, Chongqing, China; 3. Institute of Materials Research and Engineering, Agency for Science, Technology and Research, Singapore*
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- VP7-05. Efficient spin-orbit torque magnetization switching with low current density in crystalline ferromagnetic semiconductor.** *K. Lee¹, S. Lee¹, X. Liu², M. Dobrowolska² and J. Furdyna²* *1. Department of Physics, Korea University, Seoul, The Republic of Korea; 2. Department of Physics, University of Notre Dame, Notre Dame, IN, United States*
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- VP7-06. Robust Field-Free Current-Induced Magnetization Switching via Oscillatory Interlayer Dzyaloshinskii–Moriya Interaction.** C. Lin¹, P. Wang¹, Y. Huang¹, W. Liao¹, M. Song², X. Bao² and C. Pai¹ *1. Department of Materials Science and Engineering, National Taiwan University, Taipei, Taiwan; 2. Corporate Research, Taiwan Semiconductor Manufacturing Company, Hsinchu, Taiwan*
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- VP7-09. Ferromagnetism of Cobalt Intercalated Molybdenum Ditelluride.** W. Kim^{1,2}, Y. Shin³ and W. Yu³ *1. Department of Semiconductor and Display Engineering, Sungkyunkwan University, Suwon, The Republic of Korea; 2. Semiconductor R&D Center, Samsung Electronics, Hwaseong, The Republic of Korea; 3. Department of Electrical and Computer Engineering, Sungkyunkwan University, Suwon, The Republic of Korea*
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- VP7-10. Nanoribbon of Zigzag Silicene for Spin Field Effect Transistor with Low Voltage Bias.** A. Shah¹ and A. Kashyap² *1. SCEE, IIT Mandi, Mandi, India; 2. SPS, IIT Mandi, Mandi, India*
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- VP7-11. Improvement of SP Decoding Considering the Influence of Recording Patterns by Neural Network in SMR.** M. Nishikawa¹, Y. Nakamura¹, Y. Kanai² and Y. Okamoto¹ *1. Ehime University, Matsuyama, Japan; 2. Niigata Institute of Technology, Kashiwazaki, Japan*
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- VP7-12. A Study of Iterative Signal Processing Schemes for Double-Layered Bit-Patterned Recording.** A. Khametong¹ and C. Warisarn¹ *1. College of Advanced Manufacturing Innovation, King Mongkut's Institute of Technology Ladkrabang (KMUTL), Bangkok, Thailand*
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- VP7-13. Magnetic random-access memory based physical unclonable functions.** J. Lee¹, J. Kwon¹, S. Noh¹, H. Lee¹, Y. Kim¹, J. Kang², D. Han², S. Lee², B. Park² and C. Park³ *1. Hyundai Motor Company, Hwaseong-si, The Republic of Korea; 2. Korea Advanced Institute of Science and Technology (KAIST), Daejeon-si, The Republic of Korea; 3. Applied Materials, Inc., Santa Clara, CA, United States*
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- VP7-14. MTJ Based NV-SRAM Macro with Enhanced Read Margin and Low Static Power in FDSOI process.** J. Su¹ and H. Cai¹ *1. Southeast University, Nanjing, China*
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- VP7-15. Electrical Manipulation of Noncollinear Antiferromagnetic State via Orbital Hall Effect.** H. Xie¹, N. Zhang^{1,2}, Y. Ma^{1,3}, X. Chen¹, L. Ke² and Y. Wu^{1,3} *1. Department of Electrical and Computer Engineering, National University of Singapore, Singapore; 2. Institute of Materials Research and Engineering, Agency for Science, Technology and Research, Singapore; 3. National University of Singapore (Chong Qing) Research Institute, Chongqing, China*
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- VP7-16. Thickness Dependence of Unidirectional Magnetoresistance in Co₂MnGa Films.** *B. Rong*^{1,6}, *L. Ren*², *H. Zheng*^{1,6}, *L. Liu*^{3,4,5} and *Y. Yang*^{1,6} *1. School of Information Science and Technology, ShanghaiTech University, Shanghai, China; 2. Department of Electrical and Computer Engineering, National University of Singapore, Singapore; 3. Key Laboratory of Artificial Structures and Quantum Control (Ministry of Education), TD Lee institute, School of Physics and Astronomy, Shanghai Jiao Tong University, Shanghai, China; 4. Hefei National Laboratory, Hefei, China; 5. Shanghai Research Center for Quantum Sciences, Shanghai, China; 6. Shanghai Engineering Research Center of Energy Efficient and Custom AI IC, ShanghaiTech University, Shanghai, China*
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- VP7-17. Characterization of transition metal alloys-based trilayers for magnetic field sensors.** *A. Lo Giudice*^{1,2}, *A. Román*^{1,2} and *L. Steren*^{1,2} *1. Instituto de Nanociencia y Nanotecnología CNEA/CONICET - Constituyentes, General San Martín, Argentina; 2. Consejo Nacional de Investigaciones Científicas y Técnicas, Buenos Aires, Argentina*
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- VP7-18. Withdrawn**
- VP7-19. A Random Number Generator Based on a Spin-orbit Torque Device with Magnetic Entropy.** *M. Yang*¹, *H. Chang*¹ and *C. Yang*¹ *1. Department of Materials Science and Engineering, National Yang Ming Chiao Tung University, Hsinchu, Taiwan*
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- VP7-20. Enhancement of Voltage-Controlled Magnetic Anisotropy in Orthogonally-Magnetized CoFeB/MgO/CoFeB.** *P. Huang*¹, *A. Chen*², *X. Cai*¹, *D. Wu*³, *X. Zhang*² and *X. Kou*¹ *1. ShanghaiTech University, Shanghai, China; 2. King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia; 3. Suzhou Inston Technology Co. Ltd., Suzhou, China*
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Session VP8
MOTOR DRIVES, BEARING, TESTING
AND CONTROL
(Poster Virtual Session)

Zhu Ke, Chair
China Three Gorges University, Hubei, China

- VP8-01. A Novel Hierarchical Controller for Enhanced Responsiveness in Robotic Electric Actuators.** *G. Zhao*¹, *R. Huang*¹ and *C. Liu*¹ *1. School of Energy and Environment, City University of Hong Kong, Hong Kong, China*
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- VP8-02. Measurement of magnetization curves of soft magnetic materials in the highly saturated state by the pulsed magnetic field method.** X. Zhao^{1,2}, Y. Jiang^{1,2}, D. Wang^{1,2} and J. Chen^{1,2} *1. Naval University of Engineering, Wuhan, China; 2. National Key Laboratory of Electromagnetic Energy, Wuhan, China*
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- VP8-04. Flux Waveforms Control Using Fuzzy Neural Network PID for Magnetic Measurement Under Arbitrary Magnetization.** L. Chen¹, X. Liu¹, T. Ben¹, D. Yan¹ and X. Zhang² *1. China Three Gorges University, Yichang, China; 2. Hebei University of Technology, Tianjin, China*
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- VP8-06. Design and Analysis of Levitation Region of Fixed-bias Modular Bearingless Motor for Ultra Clean Application.** S. Noh¹, H. Muhammad², J. Park¹, D. Lee² and H. Cho^{2,1} *1. Department of Convergence System Engineering, Chungnam National University, Daejeon, The Republic of Korea; 2. Department of Electrical, Electronics, and Communication Engineering Education, Chungnam National University, Daejeon, The Republic of Korea*
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- VP8-07. Differential Model based Parameter Estimation of IPMSMs from Multi-state Measurements.** H. Cheng¹, U. Deshpande² and N. Kar¹ *1. University of Windsor, Windsor, ON, Canada; 2. D&V Electronics Ltd, Toronto, ON, Canada*
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- VP8-08. Effect of Tube Thicknesses on Electromagnetic Drag and Guidance Forces for Hyperloop with HTS Magnets.** S. Choi¹, Y. Oh¹, C. Lee¹ and J. Choe¹ *1. Korea Railroad Research Institute, Uiwang, The Republic of Korea*
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Session VP9
MULTI-FUNCTIONAL MAGNETIC MATERIALS
AND APPLICATIONS II
(Poster Virtual Session)

Alberto Mendonça, Co-Chair
Universidade Estadual de Campinas, Campinas, Brazil

Jia-Yan Law, Co-Chair
University of Seville, Seville, Spain

- VP9-01. On the saturation of the magnetocaloric effect in $\text{Ni}_{37}\text{Co}_{13}\text{Mn}_{34.5}\text{Ti}_{15.5}$ all-d Heusler alloys.** B. Beckmann¹, A. Taubel¹, T. Gottschall², L. Pfeuffer¹, D. Koch¹, F. Scheibel¹, K. Skokov¹ and O. Gutfleisch¹ *1. Institute of Materials Science, Technical University of Darmstadt, Darmstadt, Germany; 2. Dresden High Magnetic Field Laboratory, Helmholtz-Zentrum Dresden-Rossendorf (HZDR), Dresden, Germany*
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- VP9-02. Magnetocaloric effect of uniformly packed ferromagnetic Gd nanoparticle clusters.** *A.S. Freitas², C.M. Souza³, A.L. Dantas^{1,2} and A.S. Carriço³* 1. *Department of Science and Technology, State University of Rio Grande do Norte, Natal, Brazil*; 2. *Department of Physics, State University of Rio Grande do Norte, Mossoro, Brazil*; 3. *Department of Physics, Federal University of Rio Grande do Norte, Natal, Brazil*
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- VP9-03. Electronic Structure and Magnetic Properties of the Full Heusler Alloys Mn₂YAl (Y = Fe, Co, Ni).** *E.D. Chernov¹ and A.V. Lukoyanov^{1,2}* 1. *M.N. Miheev Institute of Metal Physics UB of RAS, Ekaterinburg, Russian Federation*; 2. *Ural Federal University named after the first President of Russia, B. N. Yeltsin, Ekaterinburg, Russian Federation*
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- VP9-04. Magnetically Actuated Compliant Soft Robotic Gripper for Grasping Delicate Food Items.** *Y. Choi¹, C. Hartzell¹ and N. Wereley¹* 1. *University of Maryland at College Park, College Park, MD, United States*
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- VP9-05. Theoretical Study of the AFM-FM Transition in GdNiSi_{1-x}Al_x.** *R.D. Mukhachev¹ and A. Lukoyanov^{1,2}* 1. *Metal Optics Laboratory, M.N. Mikheev Institute of Metal Physics of Ural Branch of Russian Academy of Sciences, Yekaterinburg, Russian Federation*; 2. *Institute of Physics and Technology, Ural Federal University, Yekaterinburg, Russian Federation*
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- VP9-06. Voltage-Controlled Anisotropic Magnetoresistance in Ferromagnetic-Piezoelectric Heterostructures.** *Y. Wang^{1,2,3}, M. Du^{1,2,3}, J. Li^{1,2,3}, D. Luo¹ and T. Wu^{1,2,3}* 1. *Shanghaiitech University, Shanghai, China*; 2. *Shanghai Institute of Microsystem and Information Technology, Shanghai, China*; 3. *University of Chinese Academy of Sciences, Beijing, China*
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- VP9-07. Measurement and Analysis of Magnetostriction of Electrical Steel Sheet Considering Grain Structure.** *T. Chen^{1,2}, Q. Yang^{1,2}, C. Zhang^{1,2}, Y. Li^{1,2}, Y. Dou^{1,2} and X. Liu^{1,2}* 1. *State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China*; 2. *Key Laboratory of Electromagnetic Field and Electrical Apparatus Reliability of Hebei Province, Hebei University of Technology, Tianjin, China*
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- VP9-08. Influence of trace rare earth elements Pr and annealing process on texture evolution and magnetostriction behavior of Fe₈₁Al₁₉ alloys.** *W. Li^{1,2,3}* 1. *School of Materials Science and Engineering, Shenyang University of Technology, Shenyang, China*; 2. *Shenyang Key Laboratory of Advanced Structural Materials and Applications, Shenyang University of Technology, Shenyang, China*; 3. *State Key Laboratory of Baiyunobo Rare Earth Resource Researches and Comprehensive Utilization, Baotou Research Institute of Rare Earths, Baotou, China*
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- VP9-09. **Impact of Ho-doping on the magnetic and electrical properties of $Y_{3-x}Ho_xFe_5O_{12}$ ($x=0, 0.1, 0.5, 0.7$) ceramics.** *O. Morán¹*. *Department of Physics, National University of Colombia, Medellin, Colombia*
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Session VP10

NUMERICAL, SEMI-ANALYTICAL AND ANALYTICAL ANALYSIS METHODS III (Poster Virtual Session)

Abdelmounaim Tounzi, Co-Chair
Univ. Lille, Arts et Metiers Institute of Technology,
Villeneuve d'Ascq, France
Smail Mezani, Co-Chair
Université de Lorraine, Vandoeuvre lès Nancy, France

- VP10-01. **An Accurate Multi-objective Optimization Strategy for Surface-Mounted Permanent-Magnet Machines Based on Nonlinear Finite-Permeability Subdomain Model.** *C. Sun¹, Y. Fang¹ and P. Pfister¹*. *Zhejiang University, Hangzhou, China*
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- VP10-02. **Modeling of hysteresis motors based on equivalent circuit.** *Y. Du¹, L. Yuan¹ and F. Xiao¹*. *Jiangsu University, Zhenjiang, China*
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- VP10-03. **Analytical Optimization and Comparison of Internal and External Rotor Permanent Magnet Motors by Coupled Electromagnetic-Thermal Model for Robotics Application.** *A. Liu¹, X. Huang¹ and Z. Chen¹*. *Zhejiang University, Hangzhou, China*
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- VP10-04. **Analytical Calculation Model for Inductance of Brushless DC Motor under Bearing Fault.** *G. Chen¹, B. Zhang¹, T. Dong¹, S. Ma² and H. Huang³*. *1. School of Electrical Engineering, Shenyang University of Technology, Shenyang, China; 2. School of Information Technology, Shenyang Institute of Engineering, Shenyang, China; 3. State Grid Corporation of China, Anshan, China*
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- VP10-05. **Parameter Estimation Method for Dual Stator Permanent Magnet Synchronous Motor based on Incremental Inductance.** *C. Song¹, J. Lee¹ and M. Lim¹*. *Hanyang University, Seoul, The Republic of Korea*
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- VP10-06. **Real-Time Current Monitoring for the Diagnosis of Faults in Fixed Geometry Thrust Bearing: A Rigorous Quantitative Approach.** *B. Guan¹, S. Wang¹, Q. Zhu² and X. Bao¹*. *1. School of Electrical Engineering and Automation, Hefei University of Technology, Hefei, China; 2. Hefei Hengda Jianghai Pump Industry Co., Ltd., Hefei, China*
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- VP10-07. The Harmonic-Balanced Finite Element Method With Laplace Transform for Transient State Nonlinear Problems.** *S. Gao*^{1,2}, *X. Zhao*¹, *Y. Gao*², *K. Muramatsu*³ and *T. Todaka*² *1. North China Electric Power University, Baoding, China; 2. Oita University, Oita, Japan; 3. Saga University, Saga, Japan*
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- VP10-08. Comparison of Wideband Loss Separation Technology Considering the Impact of Skin Effect.** *L. Chen*¹, *Z. Zhang*¹, *T. Ben*¹, *X. Wen*¹ and *C. Liu*² *1. China Three Gorges University, Yichang, China; 2. Hebei University of Technology, Tianjin, China*
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- VP10-09. Air-gap Region Topology Optimization of a Hairpin PM Motor for Electromagnetic Vibration Reduction.** *J. Wu*¹ and *X. Zhu*¹ *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*
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- VP10-10. Loss Analysis in Spoke Dual-Stator Permanent Magnet Vernier Machine Considering Stator Mutual Effect.** *W. Mi*^{1,2}, *J. Yu*¹, *F. Zhao*¹, *Z. Cai*¹ and *H. Zhao*² *1. Harbin Institute of Technology, Shenzhen, China; 2. The Hong Kong University of Science and Technology, Guangzhou, China*
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- VP10-11. Design Study on Consequent Pole Motor for Mitigation of Shaft Voltage Considering Shaft Leakage Flux.** *H. Yoon*¹, *S. Jun*⁴, *J. Lee*², *Y. Kim*³, *S. Jung*¹ and *S. Jung*¹ *1. Department of Electrical and Computer Engineering, Sungkyunkwan University, Suwon, The Republic of Korea; 2. Department of Electrical Engineering, Chonnam National University, Gwangju, The Republic of Korea; 3. Department of Electrical Engineering, Chosun University, Gwangju, The Republic of Korea; 4. Hyundai Motor Company, eP System Engineering Design Team, Hwaseong, The Republic of Korea*
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- VP10-12. A Simple PM Eddy Current Loss Model for Axial Flux Permanent Magnet Machine.** *Y. Liu*^{2,1}, *C. Wang*^{2,1}, *D. Chen*³ and *G. Li*³ *1. School of Electrical Engineering, Anhui Polytechnic University, Wuhu, China; 2. Key Laboratory of Electric Drive and Control of Anhui Province, Wuhu, China; 3. Hangzhou Zonhow Electric Technologies Co., Ltd., Hangzhou, China*
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- VP10-13. Analysis of Axial Flux Generator Losses and Thermal Management Based on Mixed Flow Fan.** *Y. Li*¹, *L. Huang*¹, *M. Chen*¹ and *M. Hu*¹ *1. Southeast University, Nanjing, China*
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- VP10-14. Variable Cross-Section End-transposed Rectangular Windings Based on Additive Manufacturing Technology for AC Loss Suppression in Electrical Machines.** *J. Zhang*¹, *X. Gui*¹, *Q. Deng*¹, *J. He*¹, *Z. Zhu*¹ and *Z. Zhang*¹ *1. Nanjing University of Aeronautics and Astronautics, Nanjing, China*
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- VP10-15. Multi-Objective Optimization Design of a Five-Phase Flux-Intensifying Fault-Tolerant Permanent Magnet Motor Based on Influence of Inverse-Salient Characteristic.** X. Li¹, L. Zhang¹, S. Deng¹, C. Zhang¹ and Y. Wang² *1. Jiangsu University, Zhengjiang, China; 2. State Grid Zhenjiang Power Supply Company, Zhenjiang, China*
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- VP10-16. Design and Analysis of a Partitioned-Stator Hybrid Excited Permanent Magnet Arc Motor.** Z. Pan¹, J. Zhao¹, S. Fang², Z. Yu¹ and P. Xu³ *1. School of Electrical Engineering and Automation, Hefei University of Technology, Hefei, China; 2. School of Electrical Engineering, Southeast University, Nanjing, China; 3. Department of Motor Technology, Whirlpool (China) Co., Ltd, Hefei, China*
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- VP10-17. Design and Analysis of a Novel Asymmetric PM-Assisted Synchronous Reluctance Machine Used for Electric Vehicles.** W. Wang¹, S. Wang¹, L. Zhu¹, X. Zhao¹ and J. Wei¹ *1. College of Computer and Control Engineering, Northeast Forestry University, Harbin, China*
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- VP10-18. Harmonic-Oriented Design and Analysis of a Dual-Air-Gap Flux-Modulated Permanent Magnet Motor for Torque Improvement.** X. Cai¹, X. Zhu¹ and D. Fan¹ *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*
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- VP10-19. Multi-Material Topology Optimization of Permanent Magnet Synchronous Motor Considering Manufacturing Constraints.** M. Xia¹, J. Li¹ and S. Yang² *1. Hangzhou City University, Hangzhou, China; 2. Zhejiang University, Hangzhou, China*
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- VP10-20. Comparative Analysis of a Novel Flux-Switching Arc Permanent Magnet Machine With Flux-Reversal Effect.** X. Lin¹ and S. Fang¹ *1. School of Electrical Engineering, Southeast University, Nanjing, China*
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- VP10-21. An Improved Machine Design Method Considering Armature Reaction and Comparison with Conventional Method.** X. Liang¹, M. Wang¹, P. Zheng¹, Y. Liu¹ and J. Gao¹ *1. Harbin Institute of Technology, Harbin, China*
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- VP10-22. Two-Reaction Theory Analysis of Homopolar Inductor Machine With Rotor Tooth Offset at any Angle.** Q. Li¹, J. Yang¹, Y. Pan¹ and S. Huang¹ *1. Hunan University, College of Electrical and Information Engineering, Changsha, China*
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- VP10-23. Multi-Operated Points Optimization of Interior Permanent Magnet Synchronous Machine Considering Driving Cycle.** Q. Zhou¹, Y. Li¹, S. Ding¹, J. Hang¹ and W. Li¹ *1. School of Electrical Engineering and Automation, Anhui University, Hefei, China*
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- VP10-24. Torque Ripple Reduction of New Dual-Stator Machines Using Squirrel Stator Teeth in Uneven Distribution.** R. Yao¹, H. Wang¹, Y. Xu¹, Y. Sha¹ and C. Feng¹
1. Nanjing Normal University, Nanjing, China
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- VP10-25. Effect of deep-sea high-pressure environments on iron loss in motors.** Y. Xu¹, J. Huang¹, L. Xiao¹, G. Yu¹ and J. Zou¹
1. Harbin Institute of Technology, Harbin, China
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- VP10-26. Withdrawn**
- VP10-27. Structural Design and Thermal Management Efficiency Study of a High-Stability Doubly-Excited Synchronous Generator.** D. Li¹, Y. Cao¹ and W. Liu² *1. Northeast Forestry University, Harbin, China; 2. Tsinghua University, Beijing, China*
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- VP10-28. MMF Harmonic Analysis of Multi-M-Phase Fractional-Slot Permanent-Magnet Machines With Partial Operating Winding Sets.** W. Wang¹ and L. Wu¹ *1. Zhejiang University, Hangzhou, China*
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- VP10-29. The Scalable Analytical Model for Predicting the Performance of SPM Machine with Arbitrary Magnet Shape.** Z. Li^{1,2}, B. Liu², P. Fransson² and L. Peretti¹
1. KTH Royal Institute of Technology, Stockholm, Sweden; 2. ABB Corporate Research, Vasteras, Sweden
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- VP10-30. Determination Method of Nonlinear Reluctance Matrix Considering Saturation Differences for Three-phase Transformers.** Y. Wang¹, Z. Liang¹ and B. Jin¹
1. School of Mechanical and Electrical Engineering, China University of Mining and Technology, Beijing, Beijing, China
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- VP10-31. Flux-driven Nonlinear Transient Model for Single Phase Transformers.** Y. Wang¹, J. Yu¹, B. Jin¹ and Z. Liang¹
1. School of Mechanical and Electrical Engineering, China University of Mining and Technology, Beijing, Beijing, China
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- VP10-32. An Improved Analytical Model for the Novel Counter-Rotating Axial-Flux Hybrid-Excitation Permanent Magnet Machine.** K. Huang¹, Y. Feng¹, C. Xia¹, B. Long¹, Y. Gao¹ and S. Huang¹ *1. Hunan University, Changsha, China*
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Session VP11
PERMANENT MAGNET MACHINES II
(Poster Virtual Session)

Konstantin Boynov, Chair
 Eindhoven University of Technology, Eindhoven, Netherlands

- VP11-01. Comparative Analysis of Dual-Stator Permanent Magnet Machines With Inner Stator Teeth Designed in Hypotenuse for Electric Vehicle.** Y. Xu¹, H. Wang¹, Y. Sha¹ and R. Yao¹ *1. School of Electrical and Automation Engineering, Nanjing Normal University, Nanjing, China*
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- VP11-02. Research on Air-gap Field Modulation Effect of Torque Enhanced Hybrid Permanent Magnet Motor.** Y. Chen¹, X. Zhou¹, M. Lu¹ and Z. Li¹ *1. Yangzhou University, Yangzhou, China*
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- VP11-03. Influence of Stator Core Manufacturing Displacement on the Electromagnetic Performance of Modular Permanent Magnet Machine.** H. Liu¹, J. Yang¹, J. Yu¹ and S. Huang¹ *1. College of Electrical and Information Engineering, Hunan University, Changsha, China, Changsha, China*
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- VP11-04. Electromagnetic Field Analysis and of Axial Flux Permanent Magnet Motor Considering Slotting Effect Based on Three-Dimensional Analytical Approach.** M. Koo¹, H. Shin² and H. Lee³ *1. Automotive Materials & Components R&D Group, Korea Institute of Industrial Technology, Gwangju, The Republic of Korea;*
2. Smart Agricultural Machinery R&D Group, Korea Institute of Industrial Technology, Gimje, The Republic of Korea;
3. H&A Fundamental Technology R&D Lab, LG Electronics, Seoul, The Republic of Korea
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- VP11-05. Partial Demagnetization Fault Diagnosis Method for Permanent Magnet Synchronous Machines Considering Topology Structures.** S. Ding¹, Z. Wu¹, Y. Li¹, J. Hang¹ and W. Li¹ *1. School of Electrical Engineering and Automation, Anhui University, Hefei, China*
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- VP11-06. Design of a Novel Transverse Flux Machine with Axial-Radial Permanent Magnet.** B. Zhang^{1,2}, R. Huang^{1,2}, Y. Liu^{1,2} and C. Liu^{1,2} *1. Shenzhen Research Institute, City University of Hong Kong, Shen Zhen, China;*
2. School of Energy and Environment, City University of Hong Kong, Kowloon Tong, Hong Kong
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- VP11-07. Design and Analysis of a New Consequent-Pole Hybrid Excited Permanent Magnet Machine with DC-biased Current.** G. Qu¹, J. Yu¹, Y. Liu¹ and W. Liu¹ *1. College of Nuclear Technology and Automation Engineering, Chengdu University of Technology, Chengdu, China*
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- VP11-08. Fast Prediction of No-Load Back EMF in IPMSMs Based on Small-Sample Surrogate Model.** W. Jiang¹, S. Liu¹ and L. Bai¹ *1. Nanjing University of Aeronautics and Astronautics, Nanjing, China*
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- VP11-09. Design of a New Consequent-Pole Hybrid Excited Machine with Segmented Stator.** G. Qu¹, Y. Liu¹, J. Yu¹ and W. Liu¹ *1. College of Nuclear Technology and Automation Engineering, Chengdu University of Technology, Chengdu, China*
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- VP11-10. Performance Analysis of Single-Phase Inverter-Fed Permanent Magnet Synchronous Motor with Ladder-Connected Winding.** M. Kato¹ and K. Ito¹ *1. Ibaraki University, Hitachi-shi, Japan*
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- VP11-11. Design of Radial Flux C-Gen Machine with Interior Permanent Magnets.** H. Guo¹, R. Huang¹, B. Zhang¹ and C. Liu¹ *1. School of Energy and Environment, City University of Hong Kong, Hong Kong*
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- VP11-12. High-Efficiency-Region Broadening Design and Analysis of a Variable-Leakage-Flux Permanent Magnet Motor from the Perspective of Losses Replacement.** M. Jiang¹ and X. Zhu¹ *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*
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Session VP12
PERMANENT MAGNET MACHINES III
(Poster Virtual Session)

Yukihiro Yoshida, Co-Chair
Akita University, Akita, Japan

Sho Sakurai, Co-Chair
Akita University, Akita, Japan

- VP12-01. AC Loss Analysis and Suppression of a Flat-Wire Permanent Magnet Motor Based on Slot-Leakage-Flux Variation Improvement.** X. Wang¹, L. Quan¹ and Z. Xiang¹ *1. Department of Electrical Engineering, School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*
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- VP12-02. Low Vibration Research and Design of In-Wheel V-shaped PM Motor from the Perspective of Winding Magnetomotive Force.** T. Liu¹, L. Quan¹ and X. Zhu¹ *1. Department of Electrical Engineering, School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*
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- VP12-03. Low Loss design method based on response surface algorithm considering multi-operation states.** L. Yin², Y. Wang², R. Sun², L. Wu² and X. Xu¹ 1. *Nanjing University of Posts and Telecommunications, Nan Jiang, China;* 2. *Lianyungang Power Supply Company, Lianyungang, China*
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- VP12-04. Virtual Shorted Coil Model for Six-Phase PMSM Inter-Turn Short Fault Detection.** Z. Yuan¹, M. Wang^{2,1}, W. Liu¹, M. Wang¹ and P. Zheng¹ 1. *Harbin Institute of Technology, Harbin, China;* 2. *State Key Laboratory of Robotics and Systems (HIT), Harbin, China*
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- VP12-05. Withdrawn**
- VP12-06. Analysis of the Overload Capability of Shaftless Propulsion Motor for Autonomous Underwater Vehicle with Wide Speed Range.** X. Jiang^{1,2,3}, Y. Jiang^{2,3}, H. Wang^{2,3}, S. He^{2,3} and J. Chen^{2,3} 1. *School of Electrical Engineering, Southeast University, Nanjing, China;* 2. *Naval University of Engineering, Wuhan, China;* 3. *National Key Laboratory of Electromagnetic Energy, Wuhan, China*
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- VP12-07. Analysis of Output Characteristics According to IPMSM Lightweight Design by Pole/Slot Combination.** J. Choi^{1,2}, K. Lee¹, J. Lee¹, J. Park³ and J. Lee² 1. *Intelligent Mechatronics Research Center, Korea Electronics Technology Institute, Gyeonggi-do, The Republic of Korea;* 2. *Department of Electrical Engineering, Hanyang University, Seoul, The Republic of Korea;* 3. *Power Control System Research Center, Korea Electronics Technology Institute, Gyeonggi-do, The Republic of Korea*
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- VP12-08. Characterization of Permanent Magnet Demagnetization in Surface-mounted Synchronous Motors Based on the Stator Current Vector Modulus.** W. Li^{1,3}, X. Lu¹, Y. Li¹, L. Zeng² and R. Pei^{1,2} 1. *Department of Electrical Engineering, Shenyang University of Technology, Shenyang, China;* 2. *Suzhou Inn-mag New Energy Ltd., Suzhou, China;* 3. *School of Electrical and Mechanical Engineering, XuChang University, XuChang, China*
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- VP12-09. Deep Transfer Learning-Based Performance Prediction Method of Outer Rotor IPMSM Considering Axial Leakage Flux and Overhang Effect according to Design Variables.** M. Sung¹, K. Cha², S. Park³, Y. Jung⁴, J. Sim⁵, S. Kwon² and M. Lim¹ 1. *Hanyang University, Seongdong-gu, The Republic of Korea;* 2. *Advanced Mobility Group, Korea Institute of Industrial Technology, Daegu, The Republic of Korea;* 3. *Dongguk University, Seoul, The Republic of Korea;* 4. *Yeungnam University, Gyeongsan, The Republic of Korea;* 5. *LG Electronics, Seoul, The Republic of Korea*
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- VP12-10. Two-Stage Optimal Design of Concentric Ferrite PM layer IPMSM for Micro-EV Traction Considering Driving Characteristics.** K. Kim¹, D. Park¹, S. Im¹, Y. Choi² and M. Lim¹ 1. *Automotive Engineering, Hanyang University, Seoul, The Republic of Korea*; 2. *Drivetech, Bucheon, The Republic of Korea*
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- VP12-11. Research on Power Factor Improvement of a Variable-Leakage-Flux PM Motor based on Regulated-Flux-Barrier Topology.** W. Zhu¹, X. Zhu¹ and Z. Xiang¹ 1. *School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*
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- VP12-12. Design of a Novel Simplified Modular Flux Switching Permanent Magnet Resolver.** W. Mi^{1,2}, J. Yu¹, F. Zhao¹, Z. Cai¹ and H. Zhao² 1. *Harbin Institute of Technology, Shenzhen, China*; 2. *The Hong Kong University of Science and Technology, Guangzhou, China*
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- VP12-13. A Novel Speed Estimation Algorithm for a Permanent Magnet Linear Synchronous Motor Using Extended Kalman Filter with Multiple Fading Factors.** X. Liu¹, J. Zhang¹, H. Xie¹ and C. Hu² 1. *College of Electrical and Information Engineering, Hunan University, Changsha, China*; 2. *State Grid Ningbo Power Supply Company, Ningbo, China*
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- VP12-14. A Novel Counter-rotating Axial-flux Permanent Magnet Memory Machine with Dual-rotor.** C. Xia¹, Y. Feng¹, Y. Gao¹ and S. Huang¹ 1. *Hunan University, Changsha, China*
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- VP12-15. A Novel Axial-field Juxtaposed Magnetic Circuit Variable Flux Memory Machine.** Y. Gao¹, Y. Feng¹, C. Xia¹, B. Long¹ and S. Huang¹ 1. *College of Electrical and Information Engineering, Hunan University, Changsha, China*
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- VP12-16. Position Estimation Method of a Permanent Magnet Synchronous Motor Based on Moving Horizon Estimation EKF algorithm.** G. Cao¹, H. Zhou¹, S. Huang¹, H. Hu¹ and J. He² 1. *Guangdong Key Laboratory of Electromagnetic Control and Intelligent Robots, Shenzhen University, Shenzhen, China*; 2. *Department of Electrical and Computer Engineering, University of Kentucky, Lexington, KY, United States*
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- VP12-17. Design Optimization of Spoke-type Flux-intensifying PM Motor with Asymmetric Rotor Configuration for Improved Performance.** M. Hsieh¹, A.T. Huynh^{2,1}, V. Do¹, D. Gerada² and C. Gerada² 1. *Department of Electrical Engineering, National Cheng Kung University, Tainan, Taiwan*; 2. *Power Electronics and Machines Centre, Faculty of Engineering, University of Nottingham, Nottingham, United Kingdom*
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VP12-18. Comparative Study on Litz Wire and Hairpin Windings of 1MW Class Permanent Magnet Machines for Aircraft Propulsion Applications. *A.T. Huynh¹, J. Jiang¹, H. Huang¹, D. Gerada¹ and C. Gerada¹* *1. Power Electronics and Machines Centre, Faculty of Engineering, University of Nottingham, Nottingham, United Kingdom*
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VP12-19. Investigation of High Torque Density Yokeless-Rotor PMSM with Large Diameter to Axial Length Ratio for Aircraft Propulsion. *Q. Lin¹, Z. Zhang¹, H. Xue¹ and H. Gao¹* *1. Nanjing University of Aeronautics and Astronautics, Nanjing, China*
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VP12-20. Analysis of Dual-Airgap Yokeless-Stator Permanent Magnet Motor With Non-Oriented or Grain-Oriented Steels for Aircraft Propulsion. *H. Xue¹, Z. Zhang¹, Y. Liu², H. Gao¹ and Q. Lin¹* *1. College of Automation Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing, China; 2. Nanjing Normal University, Nanjing, China*
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VP12-21. A Control Strategy Minimizing PM Loss of Phase-Shifted Dual-Winding PMSM for Aviation Electric Propulsion Application. *Y. Zhu¹, Z. Zhang¹, J. Lu¹ and H. Xue¹* *1. Nanjing University of Aeronautics and Astronautics, Nanjing, China*
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Session VP13

SENSORS AND HIGH-FREQUENCY DEVICES II (Poster Virtual Session)

Yajie Chen, Chair
Rogers Corp., Burlington, MA, United States

VP13-01. Localization of a crack in moving cylindrical ferromagnetic rods by measuring the Fourier coefficients of the leakage magnetic flux. *K. Shiku¹, M. Kuromizu², Y. Gotoh² and T. Nara¹* *1. The University of Tokyo, Bunkyo-ku, Japan; 2. Oita University, Oita, Japan*
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VP13-02. CO₂ Detector Powered by a Rectenna. *Ú.C. Resende¹, F. Fernandes dos Santos Ramalho¹, T.H. Mello¹ and I.O. Souza¹* *1. Electrical Engineering, Centro Federal de Educação Tecnológica de Minas Gerais, Belo Horizonte, Brazil*
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- VP13-03. The effect of CoFeB Electrodes Compositions on Bias Voltage Dependence of Sensitivity in Tunneling Magnetoresistance Sensors.** P. Wisniowski¹, L. Fusnik¹, S. Cardoso de Freitas², P. Freitas² and J. Wrona³
1. Department of Electronics, AGH University of Krakow, Krakow, Poland; 2. INESC Microsystems and Nanotechnologies and IN, Lisbon, Portugal; 3. Singulus Technologies AG, Kahl am Main, Germany
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- VP13-04. Bright Envelope Solitons in a Double Negative Medium Based on Nonlinear Ferromagnetic Metamaterial Layer.** M. Amelchenko¹, S.V. Grishin¹ and F. Ogrin^{2,3}
1. Institute of Physics, Saratov State University, Saratov, Russian Federation; 2. School of Physics and Astronomy, University of Exeter, Exeter, United Kingdom; 3. MaxLLG Ltd., Exeter, United Kingdom
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- VP13-05. Analysis of Inductive Angular Position Sensor Considering the Effect of Air Gap.** D. Xu¹, Y. Zhao¹, S. Fang¹, F. Zeng² and S. Hwang³
1. School of Mechatronic Engineering and Automation, Shanghai University, Shanghai, China; 2. Shanghai Zenidrive Technology Co., Shanghai, China; 3. Engineering School of Mechanical System Design, Pusan National University, Busan, The Republic of Korea
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- VP13-06. Study and Development of a Sensor for Touchless Capacitive Computer Interface.** G. Bacon Carvalho¹ and G.A. Pizo¹
1. Faculdade do Gama, Universidade de Brasília, Guara I, Brazil
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- VP13-07. Defect Evaluation in Mild Steel Plate Using Harmonic Ratio Induced by Square Wave Excitation Field and Nonlinear Magnetization.** M. Saari^{1,2}, M. Zaini¹, M. Sulaiman¹, A. Samsudin³ and T. Kiwa⁴
1. Faculty of Electrical & Electronics Engineering Technology, Universiti Malaysia Pahang Al-Sultan Abdullah, Pekan, Malaysia; 2. Centre for Advanced Industrial Technology, Universiti Malaysia Pahang Al-Sultan Abdullah, Pekan, Malaysia; 3. Faculty of Industrial Sciences and Technology, Universiti Malaysia Pahang Al-Sultan Abdullah, Kuantan, Malaysia; 4. Graduate School of Interdisciplinary Science and Engineering in Health System, Okayama University, Okayama, Japan
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- VP13-08. Investigation of the Efficiency of Large Area and Low Aspect Ratio GMR Sensors in Biomedical Diagnostics: A Simulation Study.** R.A. Mendonsa¹, S. Liang², D. Tonini¹ and J. Wang^{1,2}
1. Department of Electrical Engineering, University of Minnesota, Edina, MN, United States; 2. Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN, United States
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- VP13-09. THz Sensor Design with Graphene Infused Metamaterial for Material Analysis.** A. Eroglu¹ and T. Islam²
1. ECE, University of Massachusetts Boston, Boston, MA, United States; 2. ECE, North Carolina A&T State U, Greensboro, NC, United States
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- VP13-10. Angle-Dependent In-Plane Magnetic Field Detection by MEMS Resonant Sensor.** Y. Wang^{1,2,3}, M. Du^{1,2,3}, J. Li^{1,2,3}, D. Luo¹ and T. Wu^{1,2,3} *1. Shanghaiitech University, Shanghai, China; 2. Shanghai Institute of Microsystem and Information Technology, Shanghai, China; 3. University of Chinese Academy of Sciences, Beijing, China*
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- VP13-11. Design of Magnetic Material Constituted Pyramidal Absorber for 5G Applications Using Chaos Game Optimization.** R.P. Bhadoriya¹, V. Bajaj¹ and R. Panwar²
1. Department of Electronics & Communication Engineering, PDPM IIITDM Jabalpur, Jabalpur, India; 2. High-Frequency Structures and Materials Laboratory, School of Material Science and Technology, Indian Institute of Technology (BHU), Varanasi, India
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- VP13-12. Wireless Power Transmission Using an Intelligent Metamaterial Array and Resonant Coils.** I.O. Souza¹, Ú.C. Resende¹ and M.D. Almeida¹ *1. Centro Federal de Educação Tecnológica de Minas Gerais (CEFET-MG), Belo Horizonte, Brazil*
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- VP13-13. Study on Using Magnetodielectric Ferrite for Impedance Matching to Improve the Transmission-Range of Implantable Antenna.** Y. Li¹ and Q. Feng¹
1. Southwest Jiaotong University, Chengdu, China
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Session VP14 SOFT MAGNETIC MATERIALS (Poster Virtual Session)

Samuel Dobák, Chair
P. J. Šafárik University, Kosice, Slovakia

- VP14-01. Improved 2-D Magnetic Properties Measurement of Silicon Steel Based on a Novel B-H Sensor.** J. Zhou^{2,1}, Y. Li^{2,1}, S. Yue^{2,1} and Z. Li^{2,1} *1. Province-Ministry Joint Key Laboratory of EFEAR, Hebei University of Technology, Tianjin, China; 2. State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China*
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- VP14-02. Estimation of core loss in Fe-Ni powder cores.** *M. Nguyen*⁵, *S. Yoshida*¹, *S. Okamoto*^{1,2,3}, *T. Miyazaki*⁴ and *Y. Endo*^{5,2}
1. Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan; 2. Center for Science and Innovation in Spintronics, Tohoku University, Sendai, Japan; 3. National Institute for Material Science (NIMS), Tsukuba, Japan; 4. Faculty of Engineering, Tohoku University, Sendai, Japan; 5. Department of Electrical Engineering, Tohoku University, Sendai, Japan
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- VP14-03. Evolution of crystallographic texture and its impact on magnetic losses of non-oriented electrical steel.** *M.B. Alvim*^{1,2}, *L.C. Matos*¹, *M.P. Arruda*² and *D.L. Rocco*¹
1. Programa de Pós-Graduação em Engenharia de Materiais, Centro Federal de Educação Tecnológica de Minas Gerais (CEFET-MG), Timóteo, Brazil; 2. Usiminas Research and Development Center, Usiminas, Ipatinga, Brazil
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- VP14-04. Effect of binder content on structure and magnetic properties of Fe-Si powder cores.** *M. Nguyen*¹, *S. Yoshida*², *S. Okamoto*^{2,3,4}, *T. Miyazaki*⁵ and *Y. Endo*^{1,3}
1. Department of Electrical Engineering, Graduate School of Engineering, Tohoku University, Sendai, Japan; 2. Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan; 3. Center for Science and Innovation in Spintronics, Tohoku University, Sendai, Japan; 4. National Institute for Materials Science (NIMS), Tsukuba, Japan; 5. Faculty of Engineering, Tohoku University, Sendai, Japan
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- VP14-05. Coercive force as an indicator of structural changes in the heat treatment of amorphous and nanocrystalline alloys on the example of fast-quenched Fe-Cu-Nb-Si-B tapes.** *I. Sapovskii*¹, *N. Ilyin*¹, *G. Krainova*¹, *T. Rakhmatullaev*¹ and *V. Plotnikov*¹
1. General and Experimental Physics, Far Eastern Federal University, Vladivostok, Russian Federation
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- VP14-06. Additive Manufacturing for High-Inductance Power Inductor.** *T. Chang*¹, *P. Huang*¹, *C. Shih*¹, *A. Hung*¹, *C. Wang*², *H. Ko*² and *M. Tsai*^{3,1}
1. Electric Motor Technology Research Center, National Cheng Kung University, Tainan, Taiwan; 2. Chung Yo Materials Co., Ltd., Kaohsiung, Taiwan; 3. Department of Mechanical Engineering, National Cheng Kung University, Tainan, Taiwan
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- VP14-07. Investigation of Structural, Magnetic and Complex Impedance studies of High Entropy Garnet Ceramics.** *S. Verma*¹ and *S. Ravi*¹
1. Department of Physics, Indian Institute of Technology, Guwahati, Guwahati, India
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- VP14-08. Comprehensive Investigation on Iteration Algorithms for Solving Nonlinear Magnetic Field Problems.** *J. Yin*¹, *Y. Li*¹ and *S. Yue*¹
1. Hebei University of Technology, Tianjin, China
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- VP14-09. Study of High-Speed Motor Rotors Based on the Local Carburization Strengthening Mechanism of Non-Grain Oriented Silicon Steel.** *Y. Li¹, C. Sun³, A. Wang¹, Y. Li³ and R. Pei^{1,2}* 1. *Electrical Engineering, Shenyang University of Technology, Shenyang, China;* 2. *Suzhou Inn-mag New Energy Ltd., Suzhou, China;* 3. *Ansteel Iron & Steel Research Institute, Ansteel, Anshan, Liaoning Province, China*
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- VP14-10. Analysis of Magneto-Mechanical Properties at the Tooth-Yoke Embedding Position in Grain-Oriented Electrical Steel Electric Motors.** *Z. Li¹, Y. Li¹, Y. Qin¹, L. Zeng², J. Li¹ and R. Pei^{1,2}* 1. *Department of Electric Engineering, Shenyang University of Technology, Shenyang, China;* 2. *Suzhou Inn-mag New Energy Ltd., Suzhou, China*
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- VP14-11. Effect of Cutting Process on the Magnetic Properties of Electrical Steels with Different Si Contents.** *D. Ma¹, B. Tian¹, L. Zeng² and R. Pei^{1,2}* 1. *Department of Electrical Engineering, Shenyang University of Technology, Shenyang, China;* 2. *Suzhou Inn-Mag New Energy Ltd., Suzhou, China*
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- VP14-12. Research on Magnetic-thermal Coupling of High Permeability Soft Magnets in SynRM.** *J. Li¹, J. Ge¹, Y. Li¹, Z. Li¹, L. Zeng² and R. Pei^{1,2}* 1. *Department of Electrical Engineering, Shenyang University of Technology, Shenyang, China;* 2. *Suzhou Inn-Mag New Energy Ltd., Suzhou, China*
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- VP14-13. Effect of Si Content on Magnetostrictive properties of Electrical Steel Sheet Considering Tensile Stress.** *D. Ma¹, B. Tian¹, L. Zeng² and R. Pei^{1,2}* 1. *Department of Electrical Engineering, Shenyang University of Technology, Shenyang, China;* 2. *Suzhou Inn-Mag New Energy Ltd., Suzhou, China*
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- VP14-14. Magnetic Measurement and Analysis of Nanocrystalline Laminates with Different Dimensions by An Improved Tester.** *W. Meng¹, C. Zhang¹, Y. Li¹, H. Sun¹ and Z. Wan¹* 1. *Hebei University of Technology, Tianjin, China*
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- VP14-15. Characteristic Analysis and Motor Application of Continuous Casting Slab with High Saturation Magnetic Flux Density.** *Y. Li¹, C. Yan¹, S. Xie², L. Zeng³ and R. Pei^{1,3}* 1. *Department of Electrical Engineering, Shenyang University of Technology, Shenyang, China;* 2. *Shagang Iron & Steel Ltd, Suzhou, China;* 3. *Suzhou Inn-Mag New Energy Ltd., Suzhou, China*
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- VP14-16. Iron Core Loss Calculate Method for Soft Magnetic Materials by Physics-Informed Neural Networks.** *Z. Li¹, Y. Qin¹, Y. Li¹, R. Pei^{1,2}, J. Li¹, J. Li¹ and L. Zeng²* 1. *Department of Electric Engineering, Shenyang University of Technology, Shenyang, China;* 2. *Suzhou Inn-Mag New Energy Ltd., Suzhou, China*
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VP14-17. Dependence of the cut region on the magnetic losses of a non-grain-oriented Fe-Si steel. *J.C. Ferreira¹, L.C. Matos¹, T. Pereira de Abreu¹, E.M. Alves², G.A. Mendonça², L. Muniz Meireles¹, A.S. Neto¹, D.L. Rocco¹ and L.F. Costa¹*
1. CEFETMG, Timóteo, Brazil; 2. Aperam, Timóteo, Brazil
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VP14-18. Augmented Exchange Bias and Interfacial Pinning in FeCo alloy Nanoparticles. *V. Rajeevan¹, L.S. Billgates¹ and R. Joseyphus¹*
1. Department of Physics, National Institute of Technology, Tiruchirappalli, India
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Session VP15 TRANSFORMERS AND WIRELESS POWER TRANSFER (Poster Virtual Session)

Sandro Rubino, Chair
Politecnico di Torino, Torino, Italy

VP15-01. Research on Low-frequency Electromagnetic Transient Model of Shell-Type Transformers Based on Dynamic Jiles-Atherton Hysteresis Model. *Y. Ren¹ and Y. Wang¹*
1. Hebei University of Technology, Tianjin, China
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VP15-02. A Novel Diagonal-Laminated Fe-based Nanocrystalline Ribbon Magnetic Core Structure in Wireless Power Transfer Systems. *D. Wang¹, J. Zhang¹, S. Cui¹, Z. Bie² and C. Zhu¹*
1. School of Electrical Engineering and Automation, Harbin Institute of Technology, Harbin, China; 2. Harbin Institute of Technology Zhengzhou Research Institute, Zhengzhou, China
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VP15-03. Magnetic Interoperability of DD Coils for Inductive Power Transfer. *H. Wang¹ and K. Cheng¹*
1. Electrical and Electronic Engineering, The Hong Kong Polytechnic University, Kowloon, Hong Kong
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VP15-04. A Multi-Output Wireless Power Transfer System with Non-Overlapping Self-Decoupling Magnetic Couplers. *W. Pan¹, R. Xie¹, Y. Zhuang¹, X. Mao¹ and Y. Zhang¹*
1. Fuzhou University, Fuzhou, China
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VP15-05. Using Solenoid Coils to Enhance the Anti-offset Capability of the Bipolar Coil in Wireless Power Transfer Systems. *R. Xie¹, W. Pan¹, X. Chen¹, X. Mao¹ and Y. Zhang¹*
1. Fuzhou University, Fuzhou, China
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- VP15-06. A Family of Hybrid Topologies for Efficient Constant-Current and Constant-Voltage Output of Magnetically Coupled Wireless Power Transfer Systems.** Y. Zheng¹, R. Xie¹, X. Chen¹, X. Mao¹ and Y. Zhang¹
1. Fuzhou University, Fuzhou, China
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- VP15-07. A Novel Characterization Method for Transformer Interturn Short-Circuit Faults Based on Arc-Induced Transients.** H. Liu¹, C. Yan¹, H. Yang¹, X. Yang¹, P. Zhang¹ and B. Zhang¹ *1. Xi'an Jiaotong University, Xi'an, China*
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- VP15-08. Wireless Power Transfer with Approximately Uniform Mutual Inductance in Misaligned Systems with Small Receiver Coil.** M.D. Almeida¹, Ú.C. Resende¹ and I.O. Souza¹ *1. Department of Electrical Engineering, Federal Center for Technological Education of Minas Gerais, Contagem, Brazil*
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- VP15-09. Fundamental study on cancellation coil system design for application to infrastructure.** M. Yokosawa¹, F. Sato¹, S. Miyahara¹, H. Matsuki⁴, K. Inada², T. Abe² and S. Sasaki³
1. Graduate School of Engineering, Tohoku-Gakuin University, Tagajo, Japan; 2. NITTOKU, Fukushima, Japan; 3. Hikaridenshi, Osaki, Japan; 4. Tohoku University, Sendai, Japan
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- VP15-10. The Vibration Calculation Method For Gapped Cores Based On The Electric-magnetic-mechanical Coupling Model.** H. Li¹, X. Zhao¹, J. Zhang¹, Y. Yu¹, L. Liu² and Z. Du²
1. Department of Electrical Engineering, North China Electric Power University, Baoding, China; 2. Hebei Provincial Key Laboratory of Electromagnetic and Structural Performance of Power Transmission and Transformation Equipment, Baoding, China
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- VP15-11. Investigation of Vibration and Noise of High-frequency Transformer Cores of Different Shapes Under Non-Sinusoidal Excitation.** Y. Li^{1,2}, X. Liu^{1,2}, Y. Dou^{1,2} and T. Chen^{1,2} *1. State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China; 2. Province-Ministry Joint Key Laboratory of EFEAR, Hebei University of Technology, Tianjin, China*
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- VP15-12. Characteristics of Normal Magnetic Flux in Composite materials Transformer Core.** B. Jiang¹, B. Zhang¹, T. Dong¹, S. Ma² and M. Zhang³ *1. School of Electrical Engineering, Shenyang University of Technology, Shenyang, China; 2. School of Information Technology, Shenyang Institute of Engineering, Shenyang, China; 3. State Grid Corporation of China, Songyuan, China*
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- VP15-13. Characteristics of Losses in Composite Material Transformer Cores.** *T. Chen*¹, *B. Zhang*¹, *T. Dong*¹, *S. Ma*² and *M. Zhang*³ *1. School of Electrical Engineering, Shenyang University of Technology, Shenyang, China; 2. School of Information Technology, Shenyang Institute of Engineering, Shenyang, China; 3. State Grid Corporation of China, Songyuan, China*
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- VP15-14. A Study on the Transmission Side Coil Configuration Focusing on the Characteristics of Continuous Repeater Coils in a Continuous Repeater Coil in a Running Wireless Power Transfer System for EVs.** *A. Saito*¹, *S. Miyahara*¹, *F. Sato*¹ and *H. Matsuki*² *1. Graduate School of Engineering, Tohoku Gakuin University, Sendai, Japan; 2. New Industry Creation Hatchery Center (NICHe), Tohoku University, Sendai, Japan*
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- VP15-15. An Electromagnetic Wave Energy Harvester with Ultra-Low Frequency and Multi-Directional Response Using Constrained Dual Pendulum System and Cantilever Structur.** *J. Qiu*¹, *Z. Zhang*¹, *Y. Li*¹, *S. Zhang*¹, *S. Huang*¹ and *H. Sun*¹ *1. College of Optoelectronic Engineering, Chongqing University, Chongqing, China*
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- VP15-16. Substantial Reduction of Solenoidal Ferrite Rod Coil Losses through Winding Geometry Modification.** *M. Wolf*^{1,2} and *D. Shmilovitz*² *1. Soreq, Petah-Tikva, Israel; 2. Tel-Aviv University, Tel-Aviv, Israel*
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- VP15-17. Vibration and Noise Characterization of Medium-High Frequency Cores Under Non-Sinusoidal Excitation.** *Y. Dou*¹, *Y. Li*¹ and *J. Zhu*² *1. Hebei University of Technology, Tianjin, China; 2. The University of Sydney, Sydney, NSW, Australia*
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- VP15-18. Experiment and Analysis of Transformer Under DC Bias Considering Tank.** *M. Zou*¹, *Z. Wang*¹, *M. Yang*¹ and *D. Yan*¹ *1. School of Automation, Chongqing University of Posts and Telecommunications, Chongqing, China*
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- VP15-19. Nonlinear Inductance Matrix Modeling Method for Multi-winding Transformers.** *Y. Wang*¹, *B. Jin*¹, *Z. Liang*¹ and *J. Yu*¹ *1. School of Mechanical and Electrical Engineering, China University of Mining and Technology, Beijing, Beijing, China*
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Fabris, F. (BR-12)	39
Fagan, P. (EF-05)	94
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Fan, D. (VP10-18)	148
Fan, Y. (AR-04)	19
Fang, B. (CC-10)	47
Fang, S. (VP10-16)	148
Fang, S. (VP10-20)	148
Fang, S. (VP13-05)	155
Fang, Y. (ES-11)	104
Fang, Y. (ES-14)	104
Fang, Y. (VP10-01)	146
Fangohr, H. (AE-09)	10
Fangohr, H. (AE-11)	11
Fangohr, H. (EC-09)	89
Faramarzi, S. (BA-04)	23
Farias, R. (DE-09)	72
Farkhani, H. (CC-04)	46
Fassatoui, A. (BG-01)	34
Fassbender, J. (GG-05)	129
Faupel, F. (EB-07)	86
Favarato, L. (AR-01)	19
Favaro, D. (AC-09)	6
Fawal, T. (EB-01)	85
Fazzio, A. (CP-06)	57
Fecher, G. (AQ-09)	17
Fedina, A.D. (VP6-11)	140
Felipe Silva Tupan, L. (VP4-17)	137
Felix, J. (DG-03)	75
Feng, C. (VP1-03)	131
Feng, C. (VP10-24)	149
Feng, Q. (VP13-13)	156
Feng, W. (VP5-07)	139
Feng, W. (VP5-08)	139
Feng, Y. (CP-07)	57
Feng, Y. (VP10-32)	149
Feng, Y. (VP12-14)	153
Feng, Y. (VP12-15)	153
Fernandes dos Santos Ramalho, F. (VP13-02)	154
Fernandes, L. (AS-02)	21
Fernandes, T. (AP-06)	15
Fernández de Luis, R. (AF-10)	13
Fernandez Outon, L. (ES-13)	104
Fernandez-Jimenez, R. (GF-05)	127
Fernández-Roldán, J. (GB-06)	119
Fernandez-Roldan, J. (VP6-09)	140
Fernandez, E. (EB-08)	86
Ferrara, E. (DF-09)	74
Ferrara, E. (GF-10)	128
Ferreira Flores Filho, A. (DP-03)	77
Ferreira Flores Filho, A. (DP-04)	77
Ferreira, A. (CQ-03)	59

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García-Arribas, A. (AF-10)	13	Gómez-Cordoba, H. (DR-04)	81
García-Arribas, A. (EB-08)	86	Gomez-Iriarte, G.A. (CB-08)	45
García-Basabe, Y. (CP-06)	57	Gomez-Pastora, J. (VP4-13)	137
García-Gómez, A. (DF-08)	74	Gomez-Polo, C. (AF-08)	12
García-Martín, J. (GG-02)	128	Gómez, A. (GF-05)	127
García-Martín, J. (GG-04)	129	Gomez, G. (DR-03)	80
García-Rubio, I. (EC-10)	89	Gomez, G. (FG-05)	115
García, C. (AQ-06)	17	Gomez, J. (BF-09)	33
García, C. (AQ-15)	18	Gomez, J. (CG-07)	55
García, F. (AS-06)	21	Gomez, J. (EG-10)	98
García, F. (CR-03)	61	Gomonay, O. (GD-02)	122
García, F. (DG-03)	75	Gonçalves Tobias	
García, I. (AB-07)	3	dos Santos, L. (DP-04)	77
García, J. (BC-08)	27	Gonçalves, R. (BC-09)	27
García, J. (DD-01)	68	Gonçalves, S.T. (DS-02)	82
García, J. (GB-06)	119	Gong, Y. (AR-12)	20
García, J.H. (BG-10)	35	Gong, Y. (AR-13)	20
García, V. (GD-07)	123	Gong, Y. (AR-14)	20
Gardingo, M.O. (FB-02)	105	Gong, Y. (AR-15)	20
Garello, K. (ER-05)	101	Gong, Y. (BS-01)	40
Garg, A. (AE-02)	9	Gong, Y. (DP-01)	77
Garrido-Segovia, M. (GG-02)	128	Gong, Y. (GC-02)	120
Gartside, J. (AA-01)	1	Gonzalez	
Gasser, M. (AB-08)	3	Betancourt, R.D. (GD-06)	123
Gassmann, J. (ES-07)	103	Gonzalez Villegas, A. (GF-06)	127
Gaudin, G. (BG-01)	34	Gonzalez-Chavez, D. (AQ-01)	16
Gaufrès, E. (CG-04)	55	Gonzalez-Chavez, D. (BB-11)	25
Ge, J. (VP14-12)	158	Gonzalez-Chavez, D. (CB-08)	45
Ge, X. (DB-08)	66	Gonzalez-Chavez, D. (CQ-09)	60
Geelen, S. (FE-08)	112	Gonzalez-Chavez, D. (CR-07)	61
Genezini, F.A. (AS-03)	21	Gonzalez-Chavez, D. (GF-04)	127
George, J. (AC-05)	5	Gonzalez-Fuentes, C. (CQ-10)	60
George, J. (CD-06)	48	Gonzalez-Fuentes, C. (FD-04)	110
George, J. (FF-08)	114	González-Hernández, R. (AC-04)	4
George, J. (GD-07)	123	Gonzalez, A.S. (BC-08)	27
Gerada, C. (VP12-17)	153	Gonzalez, A.S. (GB-06)	119
Gerada, C. (VP12-18)	154	Gonzalez, C. (AQ-06)	17
Gerada, D. (VP12-17)	153	Gonzalez, J.L. (CQ-08)	60
Gerada, D. (VP12-18)	154	González, J.M. (GF-05)	127
Gerhards, P. (CC-07)	47	González, M.I. (DF-06)	73
Geshev, J. (AQ-02)	16	González, T.F. (DF-06)	73
Geshev, J. (GG-06)	129	Gorai, A. (GC-08)	121
Geslin, P. (DF-03)	73	Gorchon, J. (BD-03)	28
Gestoso, G. (EB-08)	86	Gorobtsov, O. (CF-02)	52
Geuchies, J. (DG-02)	75	Gotlieb, K. (EB-01)	85
Ghanbaja, J. (AP-10)	15	Goto, T. (AF-03)	11
Ghanbaja, J. (CG-07)	55	Goto, T. (DB-04)	66
Ghavimi, A. (GF-10)	128	Gotoh, Y. (VP13-01)	154
Ghemes, C. (VP7-03)	141	Gottschall, T. (VP9-01)	144
Ghising, P. (AP-04)	15	Gouveia, G.L. (CS-07)	63
Ghivelder, L. (FG-04)	115	Goya, G.F. (DD-01)	68
Ghosh, D. (ER-10)	102	Goyal, A. (BA-04)	23
Ghosh, D. (VP6-04)	139	Grayson, M.A. (AD-04)	7
Ghosh, S. (AC-04)	4	Greaves, S. (AD-10)	8
Giblin, S.R. (BA-06)	23	Greaves, S. (BP-11)	36
Giesen, U. (CE-07)	50	Greca, I.R. (CQ-11)	60
Giner-Planas, J. (EC-10)	89	Grezes, C. (ER-05)	101
Giorgione, E. (BF-03)	32	Griffin, D. (AA-01)	1
Girt, E. (GD-03)	122	Griggs, W. (BP-07)	35
Giuliano, D. (FD-07)	110	Griggs, W. (DQ-03)	79
Gkouzia, G. (EE-04)	92	Grigoras, M. (ES-10)	103
Glownia, J.M. (CF-02)	52	Grimaldi, A. (CC-06)	46
Go, D. (EA-05)	84	Grishin, S.V. (AS-13)	22
Godel, F. (CG-04)	55	Grishin, S.V. (CR-05)	61
Godel, F. (CP-10)	58	Grishin, S.V. (VP13-04)	155
Godel, F. (CP-12)	58	Grivel, J. (DR-01)	80
Goennenwein, S. (GD-08)	124	Grochot, K. (BG-05)	34
Goering, E. (GD-03)	122	Grollier, J. (AC-02)	4
Goijman, D. (BF-09)	33	Grosz, A. (EB-10)	87
Goijman, D. (CQ-06)	59	Gruber, R. (EC-09)	89
Golebiewski, M. (BB-05)	25	Grundler, D. (BB-10)	25
Gomes Filho, J. (AQ-01)	16	Grundler, D. (CB-02)	43
Gomes, A. (AQ-11)	18	Grundler, D. (DB-03)	65
Gomes, A. (FG-04)	115	Grundler, D. (DB-04)	66
Gomes, A. (FG-09)	116	Gruszczyk, K. (CE-01)	49
Gomez Quispe, J.R. (DQ-04)	79	Gruszecki, P. (BB-05)	25

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Gu, K. (BP-05)	35	Han, H. (EG-05)	97
Gu, K. (CP-01)	56	Han, H. (VP6-06)	140
Gu, R. (AR-15)	20	Han, H.S. (BS-03)	41
Gu, Y. (GC-02)	120	Han, R. (AR-12)	20
Gualdi, A.J. (AS-01)	20	Han, R. (AR-13)	20
Gualdi, A.J. (CS-07)	63	Han, R. (AR-14)	20
Guan, B. (VP10-06)	146	Han, R. (BS-01)	40
Guan, Y. (BP-05)	35	Han, R. (DP-01)	77
Gubert, G. (BC-09)	27	Han, S. (EA-01)	84
Guedas, R. (FD-08)	110	Han, S. (EC-03)	88
Gueneau, C. (BG-01)	34	Han, W. (VP6-05)	140
Guerra, J.A. (BR-07)	39	Han, X. (CR-02)	61
Guettinger, J. (EC-08)	88	Han, X. (ER-04)	101
Guettinger, J. (EC-09)	89	Han, X. (FA-03)	105
Gui, S. (VP1-05)	131	Hane, Y. (BE-04)	30
Gui, X. (VP10-14)	147	Hane, Y. (BE-06)	30
Guillet, T. (FF-06)	113	Hang, J. (VP10-23)	148
Guimarães, A.M. (AS-16)	22	Hang, J. (VP11-05)	150
Guimarães, A.O. (CS-03)	62	Hanke, M. (DG-06)	76
Guimarães, A.P. (AP-02)	15	Hanna, F. (AB-05)	3
Guina, M. (CQ-01)	59	Hanson, A. (EF-12)	95
Gunduz Akdogan, N. (BC-04)	26	Hanstorp, D. (FB-04)	106
Gungordu, B. (BC-04)	26	Haponchyk, R.V. (GC-07)	121
Günzing, D. (EE-04)	92	Harmon, S. (DF-09)	74
Guo, H. (BB-10)	25	Harmon, S. (GA-06)	118
Guo, H. (DB-03)	65	Harpel, A. (DD-04)	69
Guo, H. (VP11-11)	151	Harrison, G. (FB-06)	106
Guo, L. (GA-05)	118	Hartmann, C. (VP4-01)	135
Guo, M. (GE-08)	125	Hartzell, C. (VP9-04)	145
Guo, Z. (AD-05)	7	Hasan, M. (ED-03)	90
Guo, Z. (BQ-01)	36	Hasan, M. (ES-07)	103
Gupta, R. (EA-05)	84	Hase, T. (CS-04)	62
Gupta, R. (EB-02)	85	Hasidim, N. (EB-10)	87
Gupta, S. (CC-08)	47	Hassan, M. (AG-05)	14
Gupta, S. (DR-09)	81	Hatakeyama, H. (CE-12)	51
Gupta, S. (GG-09)	130	Hauback, B.C. (DR-01)	80
Guruwatta Vidanalage, B. (BE-12)	31	Hauback, B.C. (DR-05)	81
Gusenbauer, M. (CF-11)	53	Hauback, B.C. (EE-05)	92
Gusliyenko, K. (AG-03)	13	Hayes, P. (BF-01)	31
Gutfleisch, O. (DE-02)	71	Hayward, T. (AA-01)	1
Gutfleisch, O. (DE-05)	71	Hazra, B. (BP-05)	35
Gutfleisch, O. (DR-03)	80	He, B. (DQ-10)	79
Gutfleisch, O. (DR-05)	81	He, B. (VP6-05)	140
Gutfleisch, O. (DR-11)	82	He, C. (VP1-07)	131
Gutfleisch, O. (ED-05)	90	He, C. (VP1-10)	131
Gutfleisch, O. (EE-02)	92	He, J. (GE-08)	125
Gutfleisch, O. (ES-01)	102	He, J. (VP10-14)	147
Gutfleisch, O. (ES-07)	103	He, J. (VP12-16)	153
Gutfleisch, O. (FG-01)	114	He, S. (VP12-06)	152
Gutfleisch, O. (FG-05)	115	He, X. (VP3-09)	134
Gutfleisch, O. (FG-06)	116	He, Z. (VP3-06)	133
Gutfleisch, O. (VP4-01)	135	Healey, A. (FB-06)	106
Gutfleisch, O. (VP9-01)	144	Hehn, M. (BD-03)	28
Gutiérrez, J. (AF-10)	13	Heigl, M. (AG-05)	14
Guyomarch, F. (EQ-02)	99	Heinz, B. (CB-07)	44
Guzman, V. (EB-01)	85	Heinz, B. (DB-08)	66
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Habelok, K. (CE-01)	49	Helbig, S. (AB-11)	4
Hadimani, R.L. (AB-05)	3	Helbig, S. (EB-02)	85
Hadimani, R.L. (DR-09)	81	Helden, D. (BA-04)	23
Hadimani, R.L. (ED-06)	91	Herfort, J. (DG-06)	76
Hadimani, R.L. (EP-01)	98	Hermosilla, J. (CQ-13)	60
Hakam, A. (AA-03)	1	Herper, H.C. (DE-03)	71
Hakam, A. (BP-08)	36	Hersam, M.C. (AD-04)	7
Hakkarainen, T. (CQ-01)	59	Hicken, R. (DG-04)	76
Hallal, A. (CP-10)	58	Hicken, R. (EG-04)	96
Haltz, E. (CA-02)	42	Hickey, B.J. (GB-05)	119
Hamadeh, A. (CF-05)	52	Hickey, B.J. (GB-07)	119
Hamasaki, H. (DS-09)	83	Higashi, K. (VP2-02)	132
Hamdi, M. (AD-04)	7	Higo, T. (DG-01)	75
Hamzehbahmani, H. (BE-01)	29	Higo, T. (GD-04)	123
Hamzehbahmani, H. (BE-11)	31	Hillard, B. (EF-07)	96
Han, D. (VP7-13)	142	Hillebrands, B. (BB-04)	24
		Hippert, F. (CD-08)	49
		Hiraoka, Y. (AP-09)	15
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Ito, K. (VP11-10)	151
Ivashita, F. (VP4-17)	137
Iyer, L. (CE-04)	50
Izquierdo, R. (FD-08)	110

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J. Lopes, J. (DG-06)	76
Jaafar, M. (EG-08)	97
Jacobs, S. (EF-03)	94
Jacques, V. (GD-07)	123
Jaffrès, H. (AC-05)	5
Jaffrès, H. (CD-06)	48
Jaffrès, H. (FF-08)	114
Jaffrès, H. (GD-07)	123
Jaimés-Gómez, D.C. (DR-04)	81
Jaimés, K.S. (BP-03)	35
Jakob, G. (EA-05)	84
Jakob, G. (EB-02)	85
Jakob, G. (GB-07)	119
Jakob, G. (GD-09)	124
Jamet, M. (CG-08)	55
Jamet, M. (CQ-10)	60
Jami, M.A. (EE-10)	93
Jamilpanah, L. (EC-01)	87
Jana, A.K. (VP6-02)	139
Jander, A. (DF-02)	73
Jang, I. (DP-02)	77
Janssens, W. (AD-02)	7
Jansson, M. (AS-05)	21
Janzen, C. (FB-08)	107
Jaramillo, G. (EB-01)	85
Je, S. (AP-03)	15
Jeng, J. (VP7-01)	141
Jenkins, A. (AA-02)	1
Jenkins, A. (AA-03)	1
Jenkins, A. (BP-08)	36
Jenkins, A. (CC-04)	46
Jenkins, A. (CF-06)	53
Jenkins, A. (EB-09)	87
Jenkins, A. (FD-05)	110
Jeon, K. (CD-04)	48
Jeon, S. (VP1-08)	131
Jeong, J. (EF-11)	95
Jeong, J. (GF-02)	126
Jeong, J. (GF-03)	126
Jeong, S. (AP-03)	15
Jeong, S. (EG-05)	97
Jeong, S. (VP6-06)	140
Jesenovec, J. (AS-05)	21
Jhuria, K. (BD-03)	28
Ji, B. (VP5-07)	139
Ji, B. (VP5-08)	139
Ji, M. (VP2-01)	132
Ji, X. (EP-08)	99
Jian, Y. (AD-03)	7
Jian, Y. (AD-11)	8
Jiang, B. (VP15-12)	160
Jiang, C. (AR-04)	19
Jiang, C. (AR-05)	19
Jiang, J. (VP12-18)	154
Jiang, J.S. (AD-04)	7
Jiang, M. (VP11-12)	151
Jiang, W. (VP11-08)	151
Jiang, X. (VP12-06)	152
Jiang, Y. (FA-05)	105
Jiang, Y. (VP8-02)	144
Jiang, Y. (VP12-06)	152
Jiao, Y. (BD-01)	28
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Jin, B. (VP10-30)	149
Jin, B. (VP10-31)	149
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Jin, C. (BS-05)	41
Jin, Z. (EB-04)	86
Jin, Z. (EC-03)	88

Jin, Z. (FC-04)	108
Jo, C. (BS-05)	41
Jo, C. (BS-13)	42
Jo, C. (EQ-12)	100
Jo, D. (EA-03)	84
Jo, N. (BS-06)	41
Jocher, A. (FE-01)	111
Joglekar, S. (CB-02)	43
Johansson, C. (BA-06)	23
Joisten, H. (DD-03)	69
Joisten, H. (ED-01)	89
Jonkman, R. (DC-05)	68
Joo, S. (DF-03)	73
Joseyphus, R. (VP14-18)	159
Joshi, S. (CS-16)	64
Joumard, I. (BG-01)	34
Jovic, V. (GD-06)	123
Jun, S. (VP10-11)	147
Jung, D. (BS-02)	40
Jung, D. (BS-03)	41
Jung, D. (BS-13)	42
Jung, D. (EG-05)	97
Jung, D. (VP6-06)	140
Jung, E. (EQ-07)	100
Jung, S. (VP10-11)	147
Jung, Y. (VP12-09)	152
Jungwirth, T. (GD-06)	123
Jungwirth, T. (GD-08)	124
Junior, A.C. (AR-02)	19
Junior, G.R. (AQ-08)	17
Junior, N.V. (ES-05)	103
Junior, P.O. (ES-02)	102
Jyothilal, H. (FB-06)	106

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K. Sangwan, V. (AD-04)	7
K. Sinha, A. (VP4-18)	137
Kahourzade, S. (DC-04)	67
Kakazei, G.N. (AQ-15)	18
Kakazei, G.N. (GB-01)	118
Kaltenbacher, M. (EQ-05)	100
Kalyuzhnaya, D. (VP4-04)	136
Kamantsev, A.P. (FG-03)	115
Kammerbauer, F. (CC-07)	47
Kammerbauer, F. (EA-05)	84
Kammerbauer, F. (EB-02)	85
Kammerbauer, F. (GD-09)	124
Kamp, M. (GD-06)	123
Kanai, S. (DA-04)	65
Kanai, Y. (AD-10)	8
Kanai, Y. (DS-05)	82
Kanai, Y. (VP7-11)	142
Kandazoglou, A. (BP-01)	35
Kandazoglou, A. (CD-08)	49
Kandazoglou, A. (ER-02)	101
Kandazoglou, A. (ER-05)	101
Kang, B. (BS-13)	42
Kang, J. (VP7-13)	142
Kang, M. (AP-03)	15
Kang, M. (EE-06)	93
Kanomata, T. (VP4-14)	137
Kantartzis, N.V. (DS-05)	82
Kantorovich, S. (AB-11)	4
Kar, N. (BE-12)	31
Kar, N. (BS-09)	41
Kar, N. (DP-08)	78
Kar, N. (EQ-06)	100
Kar, N. (VP3-15)	135
Kar, N. (VP8-07)	144
Karatzidis, D.I. (DS-05)	82
Karki, S. (EB-01)	85
Karnaushenko, D. (DS-08)	83
Karri, M. (CS-16)	64
Kashyap, A. (VP7-10)	142
Kataev, V. (AB-02)	2

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Kato, M. (VP5-09)	139	Kioussis, N. (CA-05)	43
Kato, M. (VP11-10)	151	Kirsch, M. (EB-02)	85
Kato, T. (CQ-14)	60	Kiselev, N. (AG-05)	14
Kato, T. (EB-03)	85	Kita, E. (GG-07)	129
Kato, T. (VP4-10)	136	Kitayama, F. (VP5-09)	139
Katz, J. (EB-01)	85	Kiwa, T. (VP13-07)	155
Kaur, D. (BF-02)	32	Klaes, R.M. (GG-11)	130
Kaushik, B.K. (CC-01)	45	Kläui, M. (CC-07)	47
Kaushik, B.K. (CC-04)	46	Kläui, M. (CP-02)	57
Kazakova, O. (DG-04)	76	Kläui, M. (DG-02)	75
Ke, L. (VP7-04)	141	Kläui, M. (EA-05)	84
Ke, L. (VP7-15)	142	Kläui, M. (EB-02)	85
Ke, Z. (VP5-04)	138	Kläui, M. (EC-09)	89
Keatley, P.S. (DG-04)	76	Kläui, M. (GB-07)	119
Keatley, P.S. (EG-04)	96	Kläui, M. (GD-05)	123
Keerthi, A. (FB-06)	106	Kläui, M. (GD-09)	124
Keirstead, S. (BA-04)	23	Klaue, R. (CG-11)	56
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