MMM2020

Virtual Conference

65th Annual Conference on Magnetism and Magnetic Materials

PROGRAM

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Session T1
TUTORIAL: NEUTRON AND X-RAY TECHNIQUES TO STUDY MAGNETISM

Brian Kirby, Chair
NIST, National Institute of Standards and Technology, Gaithersburg, MD, US, govt, Gaithersburg, MD, United States

9:30

T1-01. **Neutron and X-Ray Techniques for Probing Magnetism.** ***(Invited)*** *S.G. te Velthuis[1] 1. Materials Science Division, Argonne National Laboratory, Lemont, IL, United States*

10:20

T1-02. **Illuminating the Invisible: X-Rays as Probes for Time-Resolved Magnetic Imaging.** ***(Invited)*** *S. Wintz[1] 1. Max-Planck-Institut für Intelligente Systeme, Stuttgart, Germany*

11:10

T1-03. **Oxide Interfaces Studied by Polarized Neutron Reflectometry.** ***(Invited)*** *E. Guo[1] 1. Institute of Physics, Chinese Academy of Sciences, Beijing, China*

Session A1
3D MAGNETIC STRUCTURES

Maria Jose Martinez-Perez, Chair
University of Zaragoza, Zaragoza, Spain

A1-01. **Curvature-Driven Chiral Effects in Nanomagnetism.** ***(Invited)*** *O. Volkov[1] 1. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany*

A1-02. **Creating and Interfacing Chiral Spin Textures Using 3D Geometries.** ***(Invited)*** *D. Sanz-Hernandez[1,2]*, A. Hierro-Rodriguez[3], C. Donnelly[2], J. Pablo Navarro[4], A. Sorrentino[5], E. Pereiro[5], C. Magen[4,6], S. McVitie[3], J. de Teresa[4,6], S. Ferrer[5], P. Fischer[7,8] and A. Fernandez-Pacheco[2,3] *1. Unité Mixte de Physique, CNRS, Thales, Université Paris-Saclay, Palaiseau, France; 2. Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom; 3. SUPA, School of Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom; 4. Laboratoria de Microscopias Avanzadas, Instituto de Nanociencia de Aragón, Universidad de Zaragoza, Zaragoza, Spain; 5. ALBA Synchrotron, Cerdanyola del Vallès, Spain; 6. Instituto de Ciencia de Materiales de Aragón, Universidad de Zaragoza-CSIC, Zaragoza, Spain; 7. Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 8. Physics Department, University of California Santa Cruz, Santa Cruz, CA, United States*

A1-03. **Control of Vortex Structures in Individual Cylindrical Magnetic Nanowires by Simultaneous Action of Applied Magnetic Field and an Electric Current.** *J. Fernandez-Roldan*[1,2], R. Pérez del Real[2], C. Bran[2], M. Vazquez[2] and O. Chubykalo-Fesenko[2] *1. Universidad de Oviedo, Oviedo, Spain; 2. Instituto de Ciencia de Materiales de Madrid, Madrid, Spain*

A1-04. **The Dynamics of Composite Tube-Like Domain Walls.** *X. Chen*[1], T.J. Hayward[2], W. Liu[1] and M.T. Bryan[1] *1. Electronic Engineering, Royal Holloway University of London, Egham, United Kingdom; 2. Materials Science and Engineering, The University of Sheffield, Sheffield, United Kingdom*

A1-05. **Magnetostatics-Induced Symmetry Breaking Effects in Curvilinear Shells.** D. Sheka[1], *O. Pylypovskyi*[2], P. Landeros[3,4], A. Kákay[2] and D. Makarov[2] *1. Taras Shevchenko National University of Kyiv, Kyiv, Ukraine; 2. Helmholtz-Zentrum Dresden-Rossendorf e.V., Dresden, Germany; 3. Universidad Tecnica Federico Santa Maria Departamento de Fisica, Valparaiso, Chile; 4. Center for the Development of Nanoscience and Nanotechnology, Santiago, Chile*

A1-06. **Ferromagnetic Liquid Droplets.** ***(Invited)*** *P. Fischer*[1,2], X. Liu[3,1], N. Kent[1,2], A. Ceballos[4], R. Streubel[1], Y. Jiang[1], Y. Chai[1], P. Kim[1], J. Forth[1], F. Hellman[1,4], S. Shi[3], D. Wang[3], B. Helms[1], P. Ashby[1] and T. Russell[1,5] *1. E O Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 2. University of California Santa Cruz, Santa Cruz, CA, United States; 3. Beijing University of Chemical Technology, Beijing, China; 4. University of California Berkeley, Berkeley, CA, United States; 5. University of Massachusetts Amherst, Amherst, MA, United States*

A1-07. **Nickel Nanotubes With low Resistivity and Coherent Magnetization Dynamics for 3D Spintronics and Magnonics Prepared by Atomic Layer Deposition.** *D. Grundler*[1], M. Giordano[1], K. Baumgaertl[1], S. Escobar-Steinvall[2], J. Gay[1], M. Vuichard[1] and A. Fontcuberta-Morral[2] *1. IMX-LMGN, Ecole Polytechnique Federale de Lausanne Faculte des Sciences et Techniques de l'Ingenieur, Lausanne, Switzerland; 2. IMX-LMSC, Ecole Polytechnique Federale de Lausanne Faculte des Sciences et Techniques de l'Ingenieur, Lausanne, Switzerland*

A1-08. **Multimaterial and Flexible 3D Printed Magnets With sub-Millimeter Resolution.** *D.K. Patel*[1], C. Velez[1], Z. Fortune[2] and S. Bergbreiter[1] *1. Mechanical Engineering, Carnegie Mellon University, Pittsburgh, PA, United States; 2. Mechanical Engineering, University of Pittsburgh, Pittsburgh, PA, United States*

A1-09. **Advanced Fabrication and Magnetometry of Nanostructures With Complex 3D Geometries.** *L. Skoric*[1], D. Sanz-Hernandez[3], C. Donnelly[1], F. Meng[1] and A. Fernandez-Pacheco[2] *1. Physics, University of Cambridge, Cambridge, United Kingdom; 2. School of Physics & Astronomy, University of Glasgow, Glasgow, United Kingdom; 3. UMPhy CNRS-Thales, Univ. Paris-Saclay, Palaiseau, France*

A1-10. **Controlling Magnetic Properties of 3D-Printed Magnetic Elastomer Structures via Fused Deposition Modeling.**
T. Calascione[1], N.A. Fischer[1], T. Lee[1], H. Thatcher[1] and B. Nelson-Cheeseman[1] *1. Mechanical Engineering, University of Saint Thomas, Saint Paul, MN, United States*

WEDNESDAY MORNING 12:00

LIVE Q&A 1

Session A2
FRUSTRATED MAGNETIC SYSTEMS

Shalabh Gupta, Chair
Ames Laboratory, Ames, IA, United States

A2-01. **High Magnetic Field Induced Dynamics in the Frustrated Quantum Spin Chain Linarite.** ***(Invited)*** L. Heinze[1], *K.C. Rule*[2], M. Le[3], S. Nishimoto[4,5], S. Drechsler[5], U. Roessler[5], R. Mole[2], A. Wolter[4] and S. Suellow[1] *1. Institute for Condensed Matter Physics, TU Braunschweig, Braunschweig, Germany; 2. Australian Centre for Neutron Scattering, Australian Nuclear Science and Technology Organisation - Lucas Heights Campus, Kirrawee, NSW, Australia; 3. Rutherford Appleton Laboratory, Didcot, United Kingdom; 4. Leibniz Institute for Solid State and Materials Research, IFW Dresden, Dresden, Germany; 5. Institute for Solid State Physics, Technische Universitat Dresden, Dresden, Germany*

A2-02. **Withdrawn**

A2-03. **THz Magneto-Optical Investigation of Quadrupolar Spin-Lattice Effects in Magnetically Frustrated $Tb_2Ti_2O_7$.**
Y. Alexanian[1], K. Amelin[2], U. Nagel[2], T. Rõõm[2], E. Constable[3], C. Decorse[4], Z. Wang[5,6], J. Debray[1], V. Simonet[1], J. Robert[1], R. Ballou[1] and S. De Brion[1] *1. Institut NEEL, CNRS-Université Grenoble Alpes, Grenoble, France; 2. Keemilise ja Bioloogilise Fuusika Instituut, Tallinn, Estonia; 3. Technische Universitat Wien Institut fur Festkorperphysik, Wien, Austria; 4. Institut de Chimie Moleculaire et des Materiaux d'Orsay, Université Paris-Sud, Orsay, France; 5. Institut für Strahlenphysik, Helmoltz-Zentrum Dresden-Rossendorf, Dresden, Germany; 6. Universitat zu Koln II Physikalisches Institut, Koln, Germany*

A2-04. **Critical Exponents and Simulation Methods of Frustrated Spin Systems.** *D. Kapitan*[1], A. Rybin[1], P. Andriushchenko[2], E. Vasiliev[1], K. Nefedev[1] and V.Y. Kapitan[1] *1. Dal'nevostocnyj federal'nyj universitet, Vladivostok, Russian Federation; 2. Nacional'nyj issledovatel'skij universitet ITMO, Sankt-Peterburg, Russian Federation*

A2-05. **Micromagnetic Route Towards the Coulomb Phase Physics of Artificial Frustrated Magnets.** V. Schanilec[1,2], O. Brunn[1,3], Y. Perrin[1], V. Uhlir[2], B. Canals[1] and *N. Rougemaille*[1] *1. CNRS - Institut NEEL, Grenoble, France; 2. Stredoevropsky technologicky institut, Brno, Czechia; 3. Inst. Sci. Instruments, Brno, Czechia*

A2-06. **Multipolar Degree of Freedom and Metamagnetism of the Quantum Spin Ice Candidate $Pr_2Zr_2O_7$.** *N. Tang*[1], A. Sakai[2], K. Kimura[5], M. Fu[1], S. Nakamura[4], Y. Matsumoto[6], T. Sakakibara[1] and S. Nakatsuji[2,3] *1. University of Tokyo, ISSP, Chiba, Japan; 2. Department of Physics, University of Tokyo, Graduate School of Science, Tokyo, Japan; 3. Johns Hopkins University, Baltimore, MD, United States; 4. Department of physics, Nagoya Institute of Technology, Aichi, Japan; 5. Department of advanced materials, University of Tokyo, Graduate school of frontier science, Chiba, Japan; 6. Max-Planck-Institute for solid state research, Stuttgart, Germany*

A2-07. **Quantum Spin Nematic Liquid in the S=1 Antiferromagnetic Chain With the Biquadratic Interaction.** *T. Sakai*[1,2] *1. University of Hyogo, Kamigori, Japan; 2. National Institues for Quantum and Radiological Science and Technology (SPring-8), Sayo, Japan*

A2-08. **Bypassing Dynamical Freezing and Accessing Low-Energy Microstates in Artificial Kagome Ice.** *V. Schánilec*[1,2], B. Canals[1], V. Uhlir[2], L. Flajšman[2], J. Sadílek[2], T. Sikola[2,3] and N. Rougemaille[1] *1. CNRS - Institut NEEL, Grenoble, France, Grenoble, France; 2. CEITEC BUT, Brno, Czechia, Brno, Czechia; 3. Brno University of Technology, Institute of Physical Engineering, Brno, Czechia, Brno, Czechia*

A2-09. **New Approaches to the Nearest Neighbour Ising Antiferromagnet on the Kagome Lattice.** *J. Colbois*[1], K. Hofhuis[2,3], Z. Luo[2,3], X. Wang[2,3], A. Hrabec[2,3], L. Heyderman[2,3] and F. Mila[1] *1. Institute of physics, Ecole polytechnique fédérale de Lausanne, 1015 Lausanne, Switzerland; 2. Laboratory for Mesoscopic Systems, Department of Materials, Eidgenossische Technische Hochschule Zurich, 8093 Zurich, Switzerland; 3. Laboratory for Multiscale Materials Experiments, Paul Scherrer Institut, 5232 Villigen PSI, Switzerland*

A2-10. **Nonequilibrium Quasistationary Spin Disordered State in the Kitaev-Heisenberg Magnet α-$RuCl_3$.** *R.B. Versteeg*[1], A. Chiocchetta[2], F. Sekiguchi[1], R. Aldea[1], A. Sahasrabudhe[1], K. Budzinauskas[1], Z. Wang[1], V. Tsurkan[3,4], A. Loidl[3], D. Khomskii[1], S. Diehl[2] and P.H. van Loosdrecht[1] *1. Institute of Physics 2, Universitat zu Koln, Koln, Germany; 2. Institute for Theoretical Physics, Universitat zu Koln, Koln, Germany; 3. Experimental Physics V, Center for Electronic Correlations and Magnetism, Universitat Augsburg, Augsburg, Germany; 4. Institute of Applied Physics Moldova, Chisinau, Moldova (the Republic of)*

A2-11. **Incipient Antiferromagnetic Order in Metallic Ti_4MnBi_2 Containing Linear Mn Chains of Spin S = 1/2.** *A. Pandey*[1] *1. School of Physics, University of the Witwatersrand, Johannesburg-Braamfontein, South Africa*

A2-12. **Withdrawn**

Session A3
MAGNETIZATION DYNAMICS AND DAMPING I: DAMPING AND FERROMAGNETIC RESONANCE

Andreas Ney, Chair
Johannes Kepler Universitat Linz, Linz, Austria

A3-01. **Conductivity-Like Gilbert Damping due to Intraband Scattering in Epitaxial Iron.** ***(Invited)*** *S. Emori*[1] *1. Virginia Polytechnic Institute and State University, Blacksburg, VA, United States*

A3-02. **Ultra-low Magnetic Damping in Epitaxial $Li_{0.5}Fe_{2.5}O_4$ Thin Films.** *X. Zheng*[1], L.J. Riddiford[1], J. Wisser[1], S. Emori[2] and Y. Suzuki[1] *1. Applied Physics, Stanford University, Stanford, CA, United States; 2. Physics, Virginia Polytechnic Institute and State University, Blacksburg, VA, United States*

A3-03. **Low Damping and Linewidth in Magnetostrictive Epitaxial FeGa Thin Films Using Ferromagnetic Resonance.** *A. Sapkota*[1], S. Budhathoki[1], B. Nepal[1], K. Law[1], S. Ranjit[1], S. KC[1], A.J. Hauser[1], C. Mewes[1] and T. Mewes[1] *1. Physics and Astronomy, The University of Alabama System, Tuscaloosa, AL, United States*

A3-04. **Magnetic Damping in Epitaxial Fe Alloyed With Low-Atomic-Number Elements.** *D.A. Smith*[1], A. Rai[2], Y. Lim[1], T. Hartnett[3], A. Sapkota[2], A. Srivastava[2], C. Mewes[2], Z. Jiang[1], M. Clavel[1], M. Hudait[1], D. Viehland[1], J. Heremans[1], P. Balachandran[3], T. Mewes[2] and S. Emori[1] *1. Virginia Polytechnic Institute and State University, Blacksburg, VA, United States; 2. University of Alabama, Tuscaloosa, AL, United States; 3. University of Virginia, Charlottesville, VA, United States*

A3-05. **Two-Magnon Scattering in Polycrystalline Fe and FeV Alloy Thin Films.** *S. Wu*[1], D.A. Smith[1], A. Rai[2], M. Clavel[3], M. Hudait[3], T. Mewes[2] and S. Emori[1] *1. Department of Physics, Virginia Polytechnic Institute and State University, Blacksburg, VA, United States; 2. Department of Physics and Astronomy, The University of Alabama, Tuscaloosa, AL, United States; 3. Department of Electrical and Computer Engineering, Virginia Polytechnic Institute and State University, Blacksburg, VA, United States*

A3-06. **Higher-Order Contribution to Perpendicular Anisotropy and Interfacial Damping of Co/Ni Multilayers.** *A. Rai*[1], A. Sapkota[1], A. Pokhrel[1], M.P. Li[2], M.D. Graef[2], C. Mewes[1], V. Sokalski[2] and T. Mewes[1] *1. Physics and Astronomy, The University of Alabama, Tuscaloosa, AL, United States; 2. Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, PA, United States*

A3-07. **Perpendicular Anisotropy and Damping of MgO/Fe/Au Trilayers With Broken Inversion Symmetry.** N. Kamiya[1], *T. Kato*[2], D. Oshima[2] and S. Iwata[2] *1. Department of Electronics, Nagoya University, Nagoya, Japan; 2. Institute of Materials and Systems for Sustainability, Nagoya University, Nagoya, Japan*

A3-08. **Experimental Realization of Linearly Polarized x-ray Detected Ferromagnetic Resonance.** *C. Klewe*[1], S. Emori[2], Q. Li[3], M. Yang[3], B. Gray[5], H. Jeon[4], B.M. Howe[5], Y. Suzuki[6,7], Z.Q. Qiu[3], P. Shafer[1] and E. Arenholz[8] *1. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 2. Physics, Virgina Tech, Blacksburg, VA, United States; 3. Physics, University of California Berkeley, Berkeley, CA, United States; 4. Sensors Directorate, Air Force Research Lab, Wright Patterson Air Force Base, Dayton, OH, United States; 5. Materials and Manufacturing Directorate, Air Force Research Lab, Wright Patterson Air Force Base, Dayton, OH, United States; 6. Geballe Laboratory for Advanced Materials, Stanford University, Stanford, CA, United States; 7. Applied Physics, Stanford University, Stanford, CA, United States; 8. Cornell High Energy Synchrotron Source, Cornell University, Ithaca, NY, United States*

A3-09. **Structural and Magnetic Properties of $Co_{1.5}Ti_{0.5}FeAl$ Heusler Alloy Epitaxial Thin Films.** *S. Budhathoki*[1], A. Rai[1], K. Law[1], R. Nahar[1], A. Stewart[1], S. Ranjit[1], S. KC[1], P. LeClair[1], C. Mewes[1], T. Mewes[1] and A.J. Hauser[1] *1. Department of Physics and Astronomy, The University of Alabama, Tuscaloosa, AL, United States*

A3-10. **A Systematic Ferromagnetic Resonance Study of Deposition Conditions in NiFe Thin Films for Shielding Applications.** *M.R. McMaster*[1], W. Hendren[1], J.N. Scott[1] and R. Bowman[1] *1. Queen's University Belfast, Belfast, United Kingdom*

A3-11. **High-Temperature Ferromagnetic Resonance in FePt Thin Films.** *C. Liu*[1], K. Srinivasan[2], A. Ajan[2], E. McCollum[1] and M. Wu[1] *1. Physics department, Colorado State University, Fort Collins, CO, United States; 2. Western Digital Corp, San Jose, CA, United States*

A3-12. **Two-Magnon Frequency Pulling Effect in Ferromagnetic Resonance.** *W. Peria*[2], H. Yu[1], S. Lee[1], I. Takeuchi[1] and P.A. Crowell[2] *1. Department of Materials Science and Engineering, University of Maryland at College Park, College Park, MD, United States; 2. School of Physics and Astronomy, University of Minnesota, Minneapolis, MN, United States*

A3-13. **The Effect of Temporal Evolution of Magnetic Anisotropy Parameters on the Magnetization Precession in Ferromagnetic Films.** *P. Gerevenkov*[1], A.W. Rushforth[2], A. Kalashnikova[1] and N. Khokhlov[1] *1. Ioffe Institute, St. Petersburg, Russian Federation; 2. School of Physics and Astronomy, The University of Nottingham, Nottingham, United Kingdom*

Session A4
MAGNETO-ELASTIC AND MAGNETO-CALORIC MATERIALS I

Radhika Barua, Co-Chair
Virginia Commonwealth University, Richmond, VA, United States
Suok-Min Na, Co-Chair
Naval Surface Warfare Center Carderock Division, West Bethesda, MD, United States

A4-01. **Estimation of Magnetocaloric Effect and Critical Exponents in Fe Doped Mn_5Ge_3 Compound.** *S. S*[1], A. K[1], R. U D[1], A. Dzubinska[2], M. Reiffers[3] and N. Ramamoorthi[1]
1. Deaprtment of Physics, National Institute of Technology, Tiruchirappalli, Tiruchirappalli, India; 2. Center for Progressive Materials-Technology and Innovation Park, University of Pavol Jozef Šafárik, Kosice, Slovakia; 3. Faculty of Humanities and Natural Sciences, University of Presov, Presov, Slovakia

A4-02. **Effect of Magnetic Proximity on Magnetocaloric Properties of $Ni_{80}Fe_{20}/Ni_xCu_{1-x}/Co_{90}Fe_{10}$ Stacks.** M.A. Kuznetsov[1,2], I.Y. Pashenkin[1], *N.I. Polushkin*[1], M.V. Sapozhnikov[1] and A.A. Fraerman[1] *1. Institut fiziki mikrostruktur Rossijskoj akademii nauk, Niznij Novgorod, Russian Federation; 2. Faculty of Physics, Lobachevsky State University of Nizhniy Novgorod, Nizhniy Novgorod, Russian Federation*

A4-03. **The Antiferro to Ferrimagnetic Phase Transition in $Mn_2Sb_{1-x}Bi_x$ Compounds.** *Q. Shen*[1], I. Batashev[1], N.v. van Dijk[1] and E. Brück[1] *1. Fundamental Aspects of Materials and Energy, Technische Universiteit Delft Faculteit Technische Natuurwetenschappen, Delft, Netherlands*

A4-04. **Quasi-1D Magnetism in Lanthanide Calcium Oxyborates $Ca_4LnO(BO_3)_3$.** *N. Kelly*[1] and S. Dutton[1] *1. Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom*

A4-05. **Fe Addition in six-Element Ferromagnetic Shape Memory Alloys: Paving the way Towards High-Temperature Magnetic Actuation.** *J. Porro*[1,2], A. Pérez-Checa[3,1], J.F. feuchtwanger[4], P. Lazpita[1,4], T. Hansen[5], C. Mondelli[6], A. Sozinov[7], J. Barandiarán[4], K. Ullakko[7] and V. Chernenko[1,2] *1. Fundacion BCMaterials - Basque Center for Materials Applications and Nanostructures, Leioa, Spain; 2. Ikerbasque, Basque foundation for science, Bilbao, Spain; 3. TECNALIA, Basque Research and Technology Alliance (BRTA), Donostia-San Sebastián, Spain; 4. Universidad del Pais Vasco, Bilbao, Spain; 5. Institut Laue-Langevin, Grenoble, France; 6. CNR-IOM, Institut Laue-Langevin, Grenoble, France; 7. Material Physics Laboratory, LUT University, Lappeenranta, Finland*

A4-06. **Magnetocaloric Effect in the $(Mn,Fe)_2(P,Si)$ System: From Bulk to Nano.** *F. Zhang*[1], X. You[1], N.v. van Dijk[1] and E. Brück[1] *1. Faculty of Applied Sciences, Delft University of Technology, Delft, Netherlands*

A4-07. **Calculating the Magnetocaloric Effect in Second-Order-Type Material by Micromagnetic Simulations.** *D. Ohmer*[1], M. Yi[2], B. Xu[1], O. Gutfleisch[1] and M. Fries[1] *1. Materials Science, Technische Universität Darmstadt Materialwissenschaft, Darmstadt, Germany; 2. College of Aerospace Engineering, Nanjing University of Aeronautics & Astronautics, Nanjing, China*

A4-08. **Phase Field Model for Ferromagnetic Domain Evolution During Martensitic Transformation of Heusler Alloys.** *D. Ohmer*[1], M. Yi[2], B. Xu[1] and O. Gutfleisch[1] *1. Materials Science, Technische Universität Darmstadt Materialwissenschaft, Darmstadt, Germany; 2. College of Aerospace Engineering, Nanjing University of Aeronautics & Astronautics, Nanjing, China*

A4-09. **Setting the Basis for the Interpretation of Temperature First Order Reversal Curve (TFORC) Distributions of Magnetocaloric Materials.** *L.M. Moreno-Ramírez*[1] and V. Franco[1] *1. Condensed Matter Physics, Sevilla University, Sevilla, Spain*

A4-10. **The Effect of Ionic Radii of the Rare-Earth Ion on the Magnetocaloric Effect of Rare-Earth Chromites.** *J. Shi*[1,3] and M. Jain[2,3] *1. Department of Materials Science and Engineering, University of Connecticut, Storrs, CT, United States; 2. Department of Physics, University of Connecticut, Storrs, CT, United States; 3. Institute of Materials Science, University of Connecticut, Storrs, CT, United States*

A4-11. **Magnon Polarons Induced by a Magnetic Field Gradient.** *N. Vidal-Silva*[1], E. Aguilera[2], A. Roldán-Molina[3], R. Duine[4] and A. Nunez[2] *1. Universidad de La Frontera, Temuco, Chile; 2. Universidad de Chile Facultad de Ciencias Fisicas y Matematicas, Santiago, Chile; 3. Universidad de Aysen, Coyhaique, Chile; 4. Institute for Theoretical Physics, Universiteit Utrecht, Utrecht, Netherlands*

A4-12. **Effect of Particle Permeability on Macroscopic Behavior of Magnetorheological Elastomers.** *W.M. Kiarie*[1] and D.C. Jiles[2,1] *1. Materials Science and Engineering, Iowa State University, Ames, IA, United States; 2. Electrical and Computer Engineering, Iowa State University, Ames, IA, United States*

A4-13. **Multiscale Modeling of Magnetorheological Elastomers With a Twist.** *D. Marchfield*[1], T. Dang[2,1], A.T. Clark[2], J. Li[2,3], X. Cheng[2] and K. Buchanan[1] *1. Physics, Colorado State University, Fort Collins, CO, United States; 2. Physics, Bryn Mawr College, Bryn Mawr, PA, United States; 3. Physics, Fudan University, Shanghai, China*

A4-14. **Strain Engineered Domain Structure and Their Relaxation in Perpendicularly Magnetized Co/Pt Deposited on Flexible Polyimide.** *E. Pandey*[1], B.B. Singh[1], P. Sharangi[1] and S. Bedanta[1] *1. School of Physical Sciences, National Institute of Science Education and Research (NISER), Bhubaneswar, Bhubaneswar, India*

A4-15. **Magneto-Mechanical Response of Supracolloidal, Magnetic, Polymer-Like Structures.** *D. Mostarac*[1], P.A. Sánchez[1,2] and S. Kantorovich[1,2] *1. Computational and Soft Matter Physics, Universitat Wien, Wien, Austria; 2. Ural'skij federal'nyj universitet imeni pervogo Prezidenta Rossii B N El'cina, Ekaterinburg, Russian Federation*

A4-16. **Theoretical Modelling of Hybrid Magnetic Elastomers.** *P.A. Sánchez*[1,2], O. Stolbov[3] and Y. Raikher[3] *1. Ural'skij federal'nyj universitet imeni pervogo Prezidenta Rossii B N El'cina, Ekaterinburg, Russian Federation; 2. Wolfgang Pauli Institute, Universitat Wien, Wien, Austria; 3. FGBUN Institut mehaniki splosnyh sred Ural'skogo otdelenia Rossijskoj akademii nauk, Perm, Russian Federation*

A4-17. **Tuning the Magnetocaloric Properties in $(Gd,Tb)_6(Fe,Mn)Bi_2$ Intermetallics.** *A. Oleaga*[1], A. Herrero[1], A. Salazar[1], A.V. Garshev[2], V.O. Yapaskurt[3] and A.V. Morozkin[2] *1. Fisica Aplicada I, University of the Basque Country UPV/EHU, Bilbao, Spain; 2. M.N. Department of Chemistry, Moscow State University, Moscow, Russian Federation; 3. Department of Petrology, Moscow State University, Moscow, Russian Federation*

A4-18. **Structure, Magnetocaloric Properties and Critical Behavior in Novel Intermetallic Materials R_3CoNi (R = Tb, Dy, Ho, Er, Tm, Lu).** A. Herrero[1], *A. Oleaga*[1], A. Provino[2,3], I.R. Aseguinolaza[1], A. Salazar[1] and P. Manfrinetti[2,4] *1. Fisica Aplicada I, University of the Basque Country UPV/EHU, Bilbao, Spain; 2. Department of Chemistry, University of Genova, Genova, Italy; 3. Rutgers The State University of New Jersey, New Brunswick, NJ, United States; 4. Institute SPIN-CNR, Genova, Italy*

WEDNESDAY
MORNING
12:00

LIVE Q&A 1

Session A5
NEUROMORPHIC COMPUTING WITH DOMAIN WALLS AND CHIRAL SPIN TEXTURES

Seonghoon Woo, Chair
IBM T. J. Watson Research Center, Yorktown Heights, NY, United States

A5-01. **Modeling Biological Behavior in Domain Wall-Magnetic Tunnel Junction Artificial Neurons and Synapses for Energy-Efficient Neuromorphic Computing.** ***(Invited)*** *J.C. Incorvia*[2], J.S. Friedman[3], M.J. Marinella[1], O.G. Akinola[2], C. Cui[2], N. Hassan[3], C.H. Bennett[1], X. Hu[3], L. Jiang-Wei[3], W.H. Brigner[3], F. Garcia-Sanchez[4] and M. Pasquale[5] *1. Sandia National Laboratories, Albuquerque, NM, United States; 2. Electrical and Computer Engineering, The University of Texas at Austin, Austin, TX, United States; 3. Electrical and Computer Engineering, The University of Texas at Dallas, Richardson, TX, United States; 4. Universidad de Salamanca, Salamanca, Spain; 5. Istituto Nazionale di Ricerca Metrologica, Torino, Italy*

A5-02. **Online Training of Spiking Neural Networks Using Domain Wall Magnetic Tunnel Junction Synapses.** *O.G. Akinola*[1], B. Mendawar[1], C.H. Bennett[2], X. Hu[3], J.S. Friedman[3], M.J. Marinella[2] and J.C. Incorvia[1] *1. Electrical and Computer Engineering, The University of Texas at Austin, Austin, TX, United States; 2. Sandia National Laboratories, Albuquerque, NM, United States; 3. Electrical and Computer Engineering, The University of Texas at Dallas, Richardson, TX, United States*

A5-03. **Purely Spintronic Multilayer Perceptron Enabled by Four-Terminal Domain Wall-Magnetic Tunnel Junction Neuron.** *N. Hassan*[1], W.H. Brigner[1], C.H. Bennett[2], A. Velasquez[3], X. Hu[1], O.G. Akinola[4], F. Garcia-Sanchez[5], M.J. Marinella[2], J.C. Incorvia[4] and J.S. Friedman[1] *1. Electrical & Computer Engineering, The University of Texas at Dallas, Richardson, TX, United States; 2. Sandia National Laboratories, Albuquerque, NM, United States; 3. Air Force Research Laboratory, Rome, NY, United States; 4. Electrical & Computer Engineering, The University of Texas at Austin, Austin, TX, United States; 5. Universidad de Salamanca, Salamanca, Spain*

A5-04. **Harnessing Stochastic Domain Wall Pinning for Machine Learning.** *M.O. Ellis*[1], A. Welbourne[2], S.J. Kyle[2], T.J. Hayward[2], D. Allwood[2] and E. Vasilaki[1] *1. Department of Computer Science, The University of Sheffield, Sheffield, United Kingdom; 2. Department of Material Science and Engineering, The University of Sheffield, Sheffield, United Kingdom*

A5-05. **Maximized Lateral Inhibition in Paired Magnetic Domain Wall Racetracks for Neuromorphic Computing.** *C. Cui*[1], O.G. Akinola[1], N. Hassan[2], C.H. Bennett[3], M.J. Marinella[3], J.S. Friedman[2] and J.C. Incorvia[1] *1. Electrical and Computer Engineering, The University of Texas at Austin, Austin, TX, United States; 2. Electrical and Computer Engineering, The University of Texas at Dallas, Richardson, TX, United States; 3. Sandia National Laboratory, Albuquerque, NM, United States*

A5-06. **Linear Intrinsic Leaking in a Domain-Wall Magnetic Tunnel Junction Neuron.** *W.H. Brigner*[1], N. Hassan[1], X. Hu[1], C.H. Bennett[2], F. Garcia-Sanchez[3,4], M.J. Marinella[2], J.C. Incorvia[5] and J.S. Friedman[1] *1. Electrical and Computer Engineering, University of Texas at Dallas, Richardson, TX, United States; 2. Sandia National Laboratories, Albuquerque, NM, United States; 3. Department of Applied Physics, University of Salamanca, Salamanca, Spain; 4. Istituto Nazionale di Ricerca Metrologica, Turin, Italy; 5. Electrical and Computer Engineering, University of Texas at Austin, Austin, TX, United States*

A5-07. **Magnetic Whirls for Unconventional Computing.** ***(Invited)*** *K. Everschor-Sitte*[1] *1. Institute of Physics, Johannes Gutenberg Universitat Mainz, Mainz, Germany*

Session B1
ARTIFICIAL SPIN ICE

Jose M. Porro, Chair
BCMaterials, Leioa, Spain

B1-01. **Tailoring Spin Wave Channels in a Reconfigurable Artificial Spin Ice.** ***(Invited)*** *E. Iacocca*[1], S. Gliga[2] and O. Heinonen[3] *1. Northumbria University, Newcastle upon Tyne, United Kingdom; 2. Paul Scherrer Institut, Villigen, Switzerland; 3. Argonne National Laboratory, Lemont, IL, United States*

B1-02. **Switching Barriers in Artificial Square ice.** *N. Leo*[1], S. Koraltan[2], M. Pancaldi[3], P. Villalba[1], C. Abert[2], C. Vogler[2], K. Hofhuis[4,5], F. Slanovc[2], F. Bruckner[2], P. Heistracher[2], M. Menniti[1], D. Suess[2] and P. Vavassori[1,6] *1. CIC nanoGUNE, Donostia - San Sebastián, Spain; 2. Universitat Wien, Wien, Austria; 3. Stockholms Universitet, Stockholm, Sweden; 4. Paul Scherrer Institut, Villigen, Switzerland; 5. Eidgenossische Technische Hochschule Zurich, Zurich, Switzerland; 6. Ikerbasque, Bilbao, Spain*

B1-03. **Role of Higher-Order Magnetostatic Interactions for the Directional Injection of Monopole Currents.** *E.Y. Vedmedenko*[1] *1. Universitat Hamburg, Hamburg, Germany*

B1-04. **A Magnon Approach to Thermal Fluctuations in Ising-Like Mesospins.** *S. Slöetjes*[1], B. Hjörvarsson[1] and V. Kapaklis[1] *1. Physics and Astronomy, Uppsala Universitet, Uppsala, Sweden*

B1-05. **Long-Range Magnetic Ordering in Artificial Kagome Spin Ice.** *K. Hofhuis*[1,2], A. Hrabec[1,2], H. Arava[1,2], N. Leo[2,3], S.H. Skjærvø[1,2], Y. Huang[4], R.V. Chopdekar[5], S. Parchenko[1,2], A. Kleibert[6], S. Koraltan[7], C. Abert[7], C. Vogler[7], D. Suess[7], P. Derlet[8,1] and L. Heyderman[1,2] *1. Department of Materials, ETH Zurich, Zurich, Switzerland; 2. Laboratory for Multiscale Materials Experiments, Paul Scherrer Institute, Villigen, Switzerland; 3. CIC nanoGUNE, San Sebastian, Spain; 4. Department of Materials Science and Engineering, University of California Berkeley, Berkeley, CA, United States; 5. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 6. Swiss Light Source, Paul Scherrer Institute, Villigen, Switzerland; 7. Christian Doppler Laboratory, Advanced Magnetic Sensing and Materials, University of Vienna, Wien, Austria; 8. Condensed Matter Theory Group, Paul Scherrer Institute, Villigen, Switzerland*

B1-06. **The Formation of Complex Spin Textures in $La_{0.7}Sr_{0.3}MnO_3$ Artificial Spin Ice Arrays.** *D.Y. Sasaki*[1], R.V. Chopdekar[2], S. Retterer[3], D.Y. Jiang[4], J. Mason[1], M.S. Lee[1] and Y. Takamura[1] *1. Department of Materials Science and Engineering, University of California Davis, Davis, CA, United States; 2. Advanced Light Source, E O Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 3. Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN, United States; 4. Department of Chemical Engineering, University of California Davis, Davis, CA, United States*

B1-07. **Withdrawn**

B1-08. **Ferromagnetic Antidot Arrays With Complex Geometries.** *D. Navas*[1], D.G. Trabada[1] and M. Vazquez[1] *1. Instituto de Ciencia de Materiales de Madrid (ICMM-CSIC), Madrid, Spain*

B1-09. **Magnetic Properties of Novel 3D Antidot Matrix Created by Stepwise Nanosphere Lithography.** *B. Myint*[1] and V. Ng[1] *1. Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore*

B1-10. **Magnetic Tunability of Permalloy Artificial Spin Ice Structures.** *A. Talapatra*[1], N. Singh[2] and A. Adeyeye[1,3] *1. Department of Electrical and Computer Engineering, National University of Singapore - Kent Ridge Campus, Singapore, Singapore; 2. Institute of Microelectronics, Singapore, Singapore; 3. Physics, Durham University, Durham, United Kingdom*

B1-11. **Tunability in the Dynamics of a Bicomponent Artificial Spin Ice.** *S. Lendinez*[1], M. Taghipour Kaffash[1] and M. Jungfleisch[1] *1. Department of Physics and Astronomy, University of Delaware, Newark, DE, United States*

B1-12. **Collective Magnetic Dynamics in Artificial Spin Ice Probed by AC Susceptibility.** *M. Pohlit*[1], G. Muscas[1], I. Chioar[1], H. Stopfel[1], A. Ciuciulkaite[1], E. Östman[1], S.D. Pappas[1], A. Stein[2], B. Hjörvarsson[1], P.E. Jönsson[1] and V. Kapaklis[1] *1. Physics and Astronomy (Material Physics), Uppsala University, Uppsala, Sweden; 2. Center of Functional Nanomaterials, Brookhaven National Laboratory, Upton, NY, United States*

B1-13. **FORC Investigations of Large-Scale NiFe Nano-Ellipses Arrays.** *H. Brueckl*[1], A. Shoshi[1], L. Breth[1], J. Fischbacher[1], T. Schrefl[1], M.J. Haslinger[2], T. Mitteramskogler[2], S. Schrittwieser[3] and J. Schotter[3] *1. Department for Integrated Sensor Systems, Donau-Universitat Krems, Wiener Neustadt, Austria; 2. Profactor GmbH, Steyr-Gleink, Austria; 3. Austrian Institute of Technology GmbH, Wien, Austria*

B1-14. **Magnetization Reversal Studies of Building Blocks of Square Artificial Spin Ice Probed by 2-DEG Based Micro-Hall Magnetometry.** *N. Keswani*[1], Y. Nakajima[2], N. Chauhan[2], T. Ukai[2], H. Chakraborti[3], K. Das Gupta[3], T. Hanajiri[2], S. Kumar[2], Y. Ohno[4], H. Ohno[5] and P. Das[1] *1. Physics, Indian Institute of Technology Delhi, New Delhi, India; 2. Bio Nano Electronics Research Centre, Toyo University, Saitama, Kawagoe, Saitama, Japan; 3. Physics, Indian Institute of Technology Bombay, Mumbai, India; 4. Tsukuba Daigaku Daigakuin Suri Busshitsu Kagaku Kenkyuka, Tsukuba, Japan; 5. Tohoku Daigaku, Sendai, Japan*

B1-15. **Magnetic Charge Propagation Upon a 3D Artificial Spin-ice.** M.O. Hunt[1], *A. May*[1], M.D. Saccone[2], J. Askey[1], A. van den Berg[1] and S. Ladak[1] *1. School of Physics and Engineering, Cardiff University College of Physical Sciences and Engineering, Cardiff, United Kingdom; 2. Physics Department, University of California, Santa Cruz, Santa Cruz, CA, United States*

Session B2
INTERDISCIPLINARY APPLICATIONS I

Michalis Charilaou, Co-Chair
University of Louisiana at Lafayette, Lafayette, LA, United States
Yuko Ichiyanagi, Co-Chair
Yokohama National University, Yokohama, Japan

B2-01. **Magnetic-Based Tactile Sensors for Dexterous Robotic Manipulation.** ***(Invited)*** *L. Jamone*[1] *1. Queen Mary University of London, London, United Kingdom*

B2-02. **Storage and Retrieval of Microwave Pulses With Molecular Spin Ensembles.** ***(Invited)*** *C. Bonizzoni*[1,2], A. Ghirri[1] and M. Affronte[2,1] *1. Istituto Nanoscienze Consiglio Nazionale delle Ricerche Sede secondaria di Modena, Modena, Italy; 2. Physics, Informatics and Mathematics, Università di Modena e Reggio Emilia, Modena, Italy*

B2-03. **Inelastic Neutron Scattering Spectrum of a Cr_{10} Molecular Ring Compound With Unusual $S = 9$ Ground State.** *J. Rubín*[1,6], E. Bartolome[2], T. Guidi[3], J. Bartolome[1,7], A. Arauzo[1,7], F. Sedona[4], M. Rancan[4], M. Sambi[4], E. Garlatti[5], S. Carretta[5] and F. Bartolome[1,7] *1. Instituto de Ciencia de Materiales de Aragón (CSIC-Universidad de Zaragoza), Zaragoza, Spain; 2. Escola Universitaria Salesiana de Sarria, Barcelona, Spain; 3. ISIS Facility, Rutherford Appleton Laboratory, Chilton, United Kingdom; 4. Dipartimento di Scienze Chimiche, Università di Padova, Padova, Italy; 5. Dipartimento di Science Matematiche, Fisiche e Informatiche, Università di Parma, Parma, Italy; 6. Dpto. Ciencia y Tecnología de Materiales y Fluidos, Universidad de Zaragoza, Zaragoza, Spain; 7. Dpto. de Física de la Materia Condensada, Universidad de Zaragoza, Zaragoza, Spain*

B2-04. **Structure and Magnetism of FePc/Ag(110) Monolayer Phases Under Oxygen Dosing.** *E. Bartolome*[1], J. Bartolome[2], F. Sedona[3], J. Lobo-Checa[2], D. Forrer[3], J. Herrero-Albillos[4], M. Piantek[2,5], J. Herrero-Martin[6], D. Betto[7], E. Velez-Fort[7], L.M. Garcia[2], J. Rubín[2], M. Panighel[8], A. Mugarza[9,10], M. Sambi[3] and F. Bartolome[2] *1. Escola Universitària Salesiana de Sarrià (EUSS), Barcelona, Spain; 2. ICMA, CSIC, Consejo Superior de Investigaciones Cientificas, Zaragoza, Spain; 3. CNR-ICMATE, Department of Chemical Sciences, University of Padova, Padova, Italy; 4. Centro Universitario de la Defensa, Academia General Militar, Zaragoza, Spain; 5. Instituto de Nanociencia de Aragón, Universidad de Zaragoza, Zaragoza, Spain; 6. ALBA Synchrotron, Barcelona, Spain; 7. ESRF, Grenoble, France; 8. Laboratorio TASC, CNR-IOM, Trieste, Italy; 9. Catalan Institute of Nanoscience and Nanotechnology, CSIC + BIST, Barcelona, Spain; 10. ICREA, Institucio Catalana de Recerca i Estudis Avancats, Barcelona, Spain*

B2-05. **Tuning the Magnetic Properties of Oleic Acid Coated Co Ferrite Nanoparticles by Varying the Surfactant Coverage: a Multiscale Numerical Approach.** *K.N. Trohidou*[1], N. Ntallis[1] and M. Vasilakaki[1] *1. Institute of Nanoscience and Nanotechnology, Ethniko Kentro Ereunas Physikon Epistemon Demokritos, Athens, Greece*

B2-06. **Synthesis of Magneto-Responsive Micro Swimmers for Biomedical Applications.** *H.A. Alshammari*[1], N. Gunduz Akdogan[2] and O. Akdogan[1] *1. Engineering and Natural Sciences, Bahcesehir University, Istanbul, Turkey; 2. Piri Reis University, Istanbul, Turkey*

B2-07. **Self-Propelled Dipolar Nanocubes.** *M. Kaiser*[1], S. Kantorovich[1,2], Y. Martinez[3] and A. Schmidt[3] *1. Universitat Wien Fakultat fur Physik, Wien, Austria; 2. Ural'skij federal'nyj universitet imeni pervogo Prezidenta Rossii B N El'cina, Ekaterinburg, Russian Federation; 3. Universitat zu Koln, Koln, Germany*

B2-08. **Withdrawn**

B2-09. **Alignment of Magnetic Particles in Functionalized Magnetic 3D Printer.** *A. Sarkar*[1], P. Paranthaman[2] and I.C. Nlebedim[1] *1. Critical Materials Institute, Ames Laboratory, Ames, IA, United States; 2. Oak Ridge National Laboratory, Oak Ridge, TN, United States*

B2-10. **Ferrofluid Thermomagnetic Convection Based Magnetic Cooling Devices for Large Scale Cooling.** M.S. Pattanaik[1,2], V.B. Varma[1,2], S.K. Cheekati[1,2] and *R. Ramanujan*[1,2] *1. School of Materials Science & Engineering, Nanyang Technological University, Singapore 639798, Singapore; 2. Singapore-HUJ Alliance for Research and Enterprise (SHARE), Nanomaterials for Energy and Energy-Water Nexus (NEW), Campus for Research Excellence And Technological Enterprise, Singapore 138602, Singapore*

B2-11. **Withdrawn**

B2-12. **Spin-Torque-Induced Chaos in Antiferromagnets.** *A. Parthasarathy*[1] and S. Rakheja[2] *1. Electrical and Computer Engineering, New York University, New York, NY, United States; 2. Holonyak Micro and Nanotechnology Laboratory, University of Illinois at Urbana-Champaign, Urbana, IL, United States*

B2-13. **Optimizing the Thermoelectric Behavior of Ferrofluid Based Nanomaterials: a Theoretical Study.** *M. Vasilakaki*[1], I. Chikina[2], V.S. Shikin[3], N. Ntallis[1], D. Peddis[4,5], A.A. Varlamov[6] and K.N. Trohidou[1] *1. Institute of Nanoscience and Nanotechnology, Ethniko Kentro Ereunas Physikon Epistemon Demokritos, Athens, Greece; 2. CEA-CNRS, IRAMIS, LIONS, CEA-Saclay, France; 3. Institute of Solid State Physics, Chernogolovka, Moscow, Russian Federation; 4. Dipartimento di Chimica e Chimica Industriale, Università di Genova, Genova, Italy; 5. Istituto di Struttura della Materia-CNR, Rome, Italy; 6. CNR-SPIN, Rome, Italy*

B2-14. **Wastewater and Leachate Treatment Using Magnetic Particles and Magnetic Separation.** *P.A. Augusto*[1,2], T. Castelo-Grande[2], J. Rico[1], R. Iglesias[1], J. Marcos[1], L. Merchán[1], L. Hernández[1] and D. Barbosa[2] *1. Universidad de Salamanca, Salamanca, Spain; 2. Faculty of Engineering, University of Porto, Porto, Portugal*

WEDNESDAY AFTERNOON 12:30

LIVE Q&A 2

Session B3
SPIN-TORQUE OSCILLATORS

Christopher Safranski, Chair
IBM T. J. Watson Research Center, Yorktown Heights, NY, United States

B3-01. **Precession Coupled Spin Current in Spin-Torque Driven Magnetic Tunnel Junctions.** *J. Sun*[1] *1. IBM Research, Yorktown Heights, NY, United States*

B3-02. **Bipolar Spin Hall Nano-Oscillators.** *T. Hache*[1,2], Y. Li[3], T. Weinhold[4], B. Scheumann[1], F.J. Gonçalves[1], O. Hellwig[1,2], J. Fassbender[1,4] and H. Schultheiss[1,4] *1. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. Technische Universitat Chemnitz, Chemnitz, Germany; 3. Johns Hopkins University, Baltimore, MD, United States; 4. Technische Universitat Dresden, Dresden, Germany*

B3-03. **Programmable Two Channel Frequency Detector Based on a Vortex Nano-Oscillator.** *L. Martins*[2,1], J. Borme[2], A. Jenkins[2], J. Ventura[1] and R. Ferreira[2] *1. Institute of Physics for Advanced Materials, Nanotechnology and Photonics (IFIMUP), Porto, Portugal; 2. International Iberian Nanotechnology Laboratory, Braga, Portugal*

B3-04. **Vortex Dynamics in Magnetic Tunnel Junctions as the Basis of a Novel Modulation and Demodulation Transmission Scheme.** *A. Jenkins*[1], L. San Emeterio Alvarez[1], P. Freitas[1] and R. Ferreira[1] *1. Spintronics, International Iberian Nanotechnology Laboratory, Braga, Portugal*

B3-05. **Enhanced Amplitude Noise in Synchronized Spin Torque Nano Oscillators.** *S. Wittrock*[1], S. Tsunegi[2], K. Yakushiji[2], A. Fukushima[2], H. Kubota[2], P. Bortolotti[1], U. Ebels[3], R. Ferreira[4], S. Yuasa[2], G. Cibiel[5], S. Galliou[6], E. Rubiola[6] and V. Cros[1] *1. Unité Mixte de Physique CNRS, Thales, Palaiseau, France; 2. National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan; 3. Univ. Grenoble Alpes, CEA, INAC-SPINTEC, CNRS, SPINTEC, Grenoble, France; 4. International Iberian Nanotechnology Laboratory (INL), Braga, Portugal; 5. Centre National d'Etudes Spatiales (CNES), Toulouse, France; 6. FEMTO-ST Institute, CNRS, Univ. Bourgogne Franche Comté, Besancon, France*

B3-06. **Dynamic C-State Beyond the Gyrotropic Motion in the Vortex Dynamics of a Spin Torque Nano Oscillator.** *S. Wittrock*[1], P. Talatchian[1,2], M. Romera[1,3], M. Jotta Garcia[1], R. Ferreira[4], R. Lebrun[1], P. Bortolotti[1], U. Ebels[5], J. Grollier[1] and V. Cros[1] *1. Unite Mixte de Physique CNRS/Thales, Palaiseau, France; 2. Institute for Research in Electronics and Applied Physics, Univ. of Maryland, College Park, MD, United States; 3. NGFMC, Departomento de Fisica de Materiales, Univ. Complutense de Madrid, Madrid, Spain; 4. International Iberian Nanotechnology Laboratory (INL), Braga, Portugal; 5. Univ. Grenoble Alpes, CEA, INAC-SPINTEC, CNRS, SPINTEC, Grenoble, France*

B3-07. **Withdrawn**

B3-08. **Origin of Nonlinear Damping due to Mode Coupling in Auto-Oscillatory Modes Strongly Driven by Spin-Orbit Torque.** *I. Lee*[1], C. Zhang[1], S. Singh[1], B. McCullian[1] and P. Hammel[1] *1. Ohio State University, Columbus, OH, United States*

B3-09. **Ultra-Fast Spectrum Analysis at GHz Frequencies Using Spin-Torque Nano-Oscillators.** *A. Litvinenko*[1], A. Sidi El Valli[1], V. Iurchuk[1], P. Sethi[1], S. Louis[2], V. Tyberkevych[2], A. Jenkins[3], R. Ferreira[3], R. Sousa[1], L. Vila[1], S. Auffret[1], L. Prejbeanu[1], B. Dieny[1], A.N. Slavin[2] and U. Ebels[1] *1. Spintec, University Grenoble Alpes, CEA, CNRS, IRIG, Grenoble, France; 2. Oakland University, Rochester, MI, United States; 3. International Iberian Nanotechnology Laboratory, Braga, Portugal*

B3-10. **Physical Reservoir Computing by Spin-Torque Oscillator at the Edge of Chaos.** *A. Kamimaki*[1], S. Tsunegi[1], T. Taniguchi[1], N. Akashi[2], K. Nakajima[2], A. Fukushima[1], S. Yuasa[1], V. Cros[3], J. Grollier[3] and H. Kubota[1] *1. Spintronics Research Center, AIST, Tsukuba, Japan; 2. Graduate School of Information Science and Technology, University of Tokyo, Tokyo, Japan; 3. Unité Mixte de Physique, CNRS/Thales, Palaiseau, France*

Session B4
COMPLEX OXIDE, HEUSLER ALLOY, AND 2D SYSTEMS
(Poster Session)

Christianne Beekman, Chair
Florida State University/NHMFL, Tallahassee, FL, United States

B4-01. **Bose-Einstein Condensation of Triplons Close to the Quantum Critical Point in the Quasi-One-Dimensional Spin-1/2 Antiferromagnet $NaVOPO_4$.** *P.K. Mukharjee*[1], K. Ranjith[2], B. Koo[2], J. Sichelschmidt[2], M. Baenitz[2], Y. Skourski[3], Y. Inagaki[4,5], Y. Furukawa[5], A. Tsirlin[6] and R. Nath[1] *1. Physics, Indian Institute of Science Education Research Thiruvananthapuram, Thiruvananthapuram, India; 2. Physics of Quantum Materials, Max-Planck-Institut fur Chemische Physik fester Stoffe, Dresden, Germany; 3. Dresden High Magnetic Field laboratory, Dresden, Germany; 4. Department of Applied Quantum Physics, Faculty Of Engineering, Kyushu Daigaku, Fukuoka, Japan; 5. Ames Laboratory, Iowa State University, Ames, IA, United States; 6. Experimental physics VI, Centre for Electronic Correlations and Magnetism, Institute of Physics, University Of Augsberg, Augsberg, Germany*

B4-02. **First-Principles Studies of Quantum Magnetism in Mo_3O_8 Cluster Systems.** *S.A. Nikolaev*[2], I. Solovyev[1] and S. Streltsov[3] *1. Busshitsu Zairyo Kenkyu Kiko Kokusai Nanoarchitectonics Kenkyu Kyoten, Tsukuba, Japan; 2. Tokyo Kogyo Daigaku, Meguro-ku, Japan; 3. Institut fiziki metallov imeni M N Miheeva Ural'skogo otdelenia Rossijskoj akademii nauk, Ekaterinburg, Russian Federation*

B4-03. **Withdrawn**

B4-04. **Study of Structural, Transport and Magneto-Crystalline Anisotropic Properties in $La_{1-x}Sr_xMnO_3$ ($0.30 \leq x \leq 0.40$) Perovskite Manganite.** *G. Channagoudra*[1], S. Gupta[2], V.K. Pecharsky[2] and V. Dayal[1] *1. Department of Physics, Maharaja Institute of Technology Mysore, Mandya, India; 2. Division of Materials Science and Engineering, Ames Laboratory, US Dept. of Energy, Ames, IA, United States*

B4-05. **Withdrawn**

B4-06. **Effect of the Y Element on the Structural, Electronic and Magnetic Properties of Heusler Compounds Co_2YIn (Y=Nb, Ti). an a*b Initio* Study.** *Z.W. Muthui*[1], R.J. Musembi[2], J.M. Mwabora[2] and A. Kashyap[3] *1. Physical Sciences, Chuka University, Chuka, Kenya; 2. Physics, University of Nairobi, Nairobi, Kenya; 3. Basis Sciences, Indian Institute of Technology, Mandi, Mandi, India*

B4-07. **Evidence for Slow Magnetic Relaxation and Memory Effects in the Spin Glass Phase of a $BiFeO_3$-Based Multiferroic Solid Solution System Having Aquasi-2D Magnetic Correlations.** *P. Singh*[1] and D. Pandey[1] *1. School of Materials Science and Technology, Indian Institute of Technology Banaras Hindu University, Varanasi, India*

B4-08. **Magnetic and Structural Properties of MnCoNiSn.** *Y. Khatri*[1], R. Skomski[2], D.J. Sellmyer[2] and A. Kashyap[1] *1. Indian Institute of Technology Mandi, Mandi, India; 2. Department of Physics and Astronomy & NCMN, University of Nebraska, Lincoln, NE, United States*

B4-09. **Withdrawn**

MONDAY
EVENING
7:00

LIVE Q&A 3

Session C1
FERRITES AND GARNETS I

Tianxiang Nan, Chair
Institute of Microelectronics, Tsinghua University, Beijing, China

C1-01. **A new way to Determine the Magneto-Crystalline Anisotropy of Li-Zn Ferrites.** *J. Saied*[1,2], R. Lebourgeois[1] and V. Laur[2] *1. Thales Research and Technology France, Palaiseau, France; 2. LABSTICC, Universite de Bretagne Occidentale, Brest, France*

C1-02. **Low Damping BiYIG and BiYIG/TmIG Heterostructures for Spintronics.** *T. Fakhrul*[1], G.A. Riley[2], E. Rosenberg[1], S. Huang[1], L.M. Caretta[1], J. M. Shaw[2], G. Beach[1], H. Nembach[2] and C. Ross[1] *1. Massachusetts Institute of Technology, Cambridge, MA, United States; 2. National Institute of Standards and Technology, Gaithersburg, MD, United States*

C1-03. **Nanoscale U-Type Hexaferrites as Microwave Absorbers.** ***(Invited)*** *R. Chatterjee*[1] and S. Kumar[2] *1. Physics, Indian Institute of Technology Delhi, New Delhi, India; 2. Physics, University of Delhi, New Delhi, India*

C1-04. **Permeability Spectra of Planar M-Type Barium Hexaferrites With High Snoek's Product by Two-Step Sintering.** *Q. Li*[1], Y. Chen[2], C. Yu[1], K. Qian[1] and V. Harris[1] *1. Department of Electrical and Computer Engineering, Northeastern University, Boston, MA, United States; 2. Innovation Center, Rogers Corporation, Burlington, MA, United States*

C1-05. **Epsilon Iron Oxide Based Nanomagnets Exhibiting Large Magnetic Hysteresis Loop.** *M. Yoshikiyo*[1], A. Namai[1] and S. Ohkoshi[1] *1. Department of Chemistry, The University of Tokyo, Tokyo, Japan*

C1-06. **Hexagonal Nano-Ferrites Used on a v-Band Self-Bias on-Chip Circulator for CMOS.** W. Quan[1], *M.N. Afsar*[1] and V. Koomson[1] *1. Tufts University, Medford, MA, United States*

C1-07. **Origin of Magnetic Anistropy and Damping in Spinel Ferrites.** *J. Lumetzberger*[1], M. Buchner[1], S. Pile[1], V. Ney[1], W. Gaderbauer[2], N. Daffe[3], M.V. Moro[4], D. Primetzhofer[4], K. Lenz[5] and A. Ney[1] *1. Institute of Semiconductor and Solid State Physics, Johannes Kepler University Linz, Linz, Austria; 2. Center for Surface and Nanoanalytics, Christian Doppler Laboratory for Nanoscale Phase Transformations, Johannes Kepler University Linz, Linz, Austria; 3. Paul Scherrer Institut, Swiss Light Source (SLS), Villigen, Switzerland; 4. Department of Physics and Astronomy, Angström Laboratory, Uppsala University, Uppsala, Sweden; 5. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany*

C1-08. **Switching Field, Orientation and Shape Anisotropy Contribution on the Magnetic Heating of Fe_3O_4 Nanodisc.** *G. Niraula*[1], J.A. Antonio Coaquira[3], F.H. Aragon[3], F. Garcia[2], A. Mello[2], A.F. Bakuzis[4], D. Muraca[5] and S.K. Sharma[1] *1. Physics, Federal University of Maranhao, Sao Luiz, Brazil; 2. Brazilian Center for Physics Research, Rio de Janerio, Brazil; 3. Physics, University of Brasilia, Brasília, Brazil; 4. Physics, Federal University of Goais, Goiania, Brazil; 5. Institute of Physics "Gleb Wataghin" (IFGW), Physics, University of Campinas, Campinas, Brazil*

C1-09. **Improved Residual Flux Measurement Method Based on Transient Current Characteristics Used in Single-Phase Power Transformer.** *S. Wu*[1], Y. Wang[1], H. Cailing[1] and C. Liu[1] *1. Hebei University of Technology, Tianjin, China*

C1-10. **Narrow Ferromagnetic Resonance Linewidth in Perpendicularly Magnetized $Tm_3Fe_5O_{12}$ Thin Films Grown by Pulsed Laser Deposition.** *D. Gouéré*[1], H. Merbouche[1], C. Carrétero[1], R. Lebrun[1], P. Bortolotti[1], V. Cros[1] and A. Anane[1] *1. Unité Mixte de Physique CNRS, Thales, Université Paris-Saclay, 91767 Palaiseau, France., Palaiseau, France*

C1-11. **Cation-Specific Magnetic Depth Profiles of Ultrathin Fe_3O_4 Films Obtained by X-Ray Resonant Magnetic Reflectivity (XRMR).** T. Pohlmann[1,2], T. Kuschel[3], J. Rodewald[1], J. Thien[1], K. Ruwisch[1], F. Bertram[2], E. Weschke[4], P. Shafer[5], J. Wollschläger[1] and *K. Küpper*[1] *1. Physics, University of Osnabruck, Osnabruck, Germany; 2. Photon Science, DESY, Deutsches Elektronen-Synchrotron, Hamburg, Germany; 3. Center for Spintronic Materials and Devices, Department of Physics, Universitat Bielefeld, Bielefeld, Germany; 4. Wilhelm-Conrad-Röntgen-Campus BESSY II, Helmholtz-Zentrum Berlin fur Materialien und Energie, Berlin, Germany; 5. Lawrence Berkeley National Laboratory, Berkeley, CA, US, Berkeley, CA, United States*

C1-12. **Magnetic Properties of PLD-Grown TmYIG Thin Films.** *E.R. Rosenberg*[1], J. M. Shaw[2], G.A. Riley[2], S. Ngo[1], H. Nembach[2] and C. Ross[1] *1. Massachusetts Institute of Technology, Cambridge, MA, United States; 2. National Institute of Standards and Technology, Boulder, CO, United States*

C1-13. **The Impact of the Solvent tanδ on the Magnetic Characteristics of Nanostructured NiZn-Ferrite Film Deposited by Microwave-Assisted Solvothermal Technique.** *R.R. Kahmei*[1], S. Arackal[1], S. Shivashankar[1], N. Bhat[1] and R. Sai[1] *1. Centre for Nanoscience and Engineering, Indian Institute of Science, Bangalore, India*

MONDAY EVENING 7:00

LIVE Q&A 3

Session C2
RARE EARTH TRANSITION METAL BORIDES I

Tanjore Jayaraman, Chair
University of Michigan, Dearborn, MI, United States

C2-01. **Finite-Temperature Dynamical and Static Properties of the Nd Magnet Studied by an Atomistic Modeling.** ***(Invited)*** *M. Nishino*[1,2], I.E. Uysal[2], T. Hinokihara[3,2] and S. Miyashita[3,2] *1. Research Center for Advanced Measurement and Characterization, National Institute for Materials Science, Tsukuba, Japan; 2. Elements Strategy Initiative Center for Magnetic Materials, National Institute for Materials Science, Tsukuba, Japan; 3. Institute for Solid State Physics, the University of Tokyo, Kashiwanoha, Japan*

C2-02. **Revisiting, Understanding, and Predicting Magnetism and Magnetic Anisotropy of $RE_2Fe_{14}B$ (RE = Rare Earth) From Electronic Structure.** H. Ucar[1], R. Choudhary[2] and *D. Paudyal*[2] *1. Chemical and Materials Engineering, California State Polytechnic University Pomona, Pomona, CA, United States; 2. Ames Laboratory, Ames, IA, United States*

C2-03. **Application of Systems Level Modeling for Addressing Criticality in Rare Earth Permanent Magnets.** *I.C. Nlebedim*[1], X. Liu[1] and A. Sarkar[1] *1. Critical Materials Institute, Ames Laboratory, Ames, IA, United States*

C2-04. **Nucleation and Coercivity Analyses on the Atomistic Spin Model of Permanent Magnets.** ***(Invited)*** *Y. Toga*[1,2] *1. Institute for Solid State Physics, The University of Tokyo, Kashiwa, Japan; 2. Elements Strategy Initiative Center for Magnetic Materials (ESICMM), Tsukuba, Japan*

C2-05. **Cold Spray Additive Manufacturing of Permanent Magnets.** *A. Baker*[1], R. Thuss[2], N. Woollett[1], E. Stavrou[1], S. Mccall[1] and H. Radousky[1] *1. Lawrence Livermore National Laboratory, Livermore, CA, United States; 2. TTEC LLC, Berryville, VA, United States*

C2-06. **Upscaling of the Novel 2 Powder Method for the Manufacturing of Heavy Rare Earth-Lean Permanent Magnets.** *K. Opelt*[1], T. Ahmad[1], O. Diehl[1], M. Schönfeldt[1], E. Brouwer[1], J.D. Rossa[1], J. Gassmann[1] and O. Gutfleisch[1,2] *1. Magnetic Materials, Fraunhofer-Einrichtung fur Wertstoffkreislaufe und Ressourcenstrategie IWKS, Hanau, Germany; 2. Functional Materials, Technische Universität Darmstadt Fachbereich Material- und Geowissenschaften, Darmstadt, Germany*

C2-07. **Nd-Fe-B Based Permanent Magnetic Materials Design for Additive Manufacturing: 3DREMAG.** *S. Riegg*[1], J. Reijonen[2], O. Tosoni[3], J. Gassmann[4], K. Skokov[1] and O. Gutfleisch[1] *1. Material and Geo science, Functional Materials, Technische Universität Darmstadt Fachbereich Material- und Geowissenschaften, Darmstadt, Germany; 2. VTT Technical Research Centre of Finland Ltd, Espoo, Finland; 3. Commissariat a l'energie atomique et aux energies alternatives Laboratoire d'Innovation pour les Technologies des Energies Nouvelles et les Nanomateri, Grenoble, France; 4. Fraunhofer-Einrichtung fur Wertstoffkreislaufe und Ressourcenstrategie IWKS, Hanau, Germany*

C2-08. **Understanding the Enhancement in Hard Magnetic Properties of Rapidly Solidified (Nd, Pr)-Fe-B Melt-Spun Ribbons.** *K. Gandha*[1], X. Liu[1], W. Tang[2] and I.C. Nlebedim[1] *1. Critical Materials Institute, Ames Laboratory, Ames, IA, United States; 2. Ames Laboratory, Ames, IA, United States*

C2-09. **Magnetic Properties of $R_2Fe_{14}B$ Sintered Magnets Substituted 50 at Substitution of Nd With Y and Ce.** *Y. Enokido*[1], A. Koda[1], Y. Umeda[1], D. Tanaka[2] and Y. Kitamoto[3] *1. Technology and Intellectual Property HQ, TDK Corportion, Chiba, Japan; 2. Production Engineering HQ, TDK Corportion, Chiba, Japan; 3. Department of Materials Science and Engineering, Tokyo Institute of Technology, Yokohama, Japan*

C2-10. **Manifestation of Initial Crystallization and c-Axis Texture in Pr-Fe-B Thin Films Grown on Glass Substrates.** L.T. Tran[1], *C. Chang*[1] and A. Sun[1] *1. Yuan Ze University, Chung-Li, Taiwan*

MONDAY EVENING 7:00

LIVE Q&A 3

Session C3
INTERDISCIPLINARY APPLICATIONS II (Poster Session)

Feodor Ogrin, Chair
University of Exeter, Exeter, United Kingdom

C3-01. **Intrinsic Magnetic Properties of Individual Magnetite Nanoparticles With Different Sizes and Shapes.** *H. Mamiya*[2], H. Fukumoto[1], J. Cuya Huaman[1], K. Suzuki[1], H. Miyamura[1] and B. Jeyadevan[1] *1. Shiga Kenritsu Daigaku Kobakugu Daigakuin Kogaku Kenkyuka, Hikone, Japan; 2. National Institute for Materials Science, Tsukuba, Japan*

C3-02. **Ab Initio Calculation of Hubbard Parameter (U) for Alpha-MnO_2.** *R. Mahajan*[1] and A. Kashyap[1] *1. Indian Institute of Technology Mandi, Mandi, India*

C3-03. **Oleic Acid Functionalized Fe_3O_4 Magnetic Nanoparticles and its Adsorption Capability of oil for Potential Biomedical Applications.** *G.C. Hermosa*[1], K. Chen[1] and A. Sun[1] *1. Yuan Ze University, Chung-Li, Taiwan*

C3-04. **Weak Magnetic Anomaly Signal Detection Based on Entropy of Coherent Differential Signal.** *Z. Wang*[1], J. Qiu[1], D. Xie[1], J. Ou[1] and Q. Xu[1] *1. Key Laboratory of Optoelectronic Technology & System of Ministry of Education, College of Optoelectronic Engineering, Chongqing University, Chongqing, China, Chongqing, China*

C3-05. **Conceptual Design of Magnetic Force Control System Using Wedge Mechanism.** A. Wang[1], S. Park[1], M. Noh[1] and *Y. Park*[1] *1. Chungnam National University, Daejeon, The Republic of Korea*

C3-06. **Investigation of the Graphitization Process of a Highly Oriented Graphite Precursor by a Magnetic Field.** *A. Hamasaki*[1], A. Sadohara[1], Y. Takeuchi[3], A. Katsuki[2] and S. Ozeki[1] *1. Faculty of Science, Shinshu University, Matsumoto, Japan; 2. School of General Education, Shinshu University, Matsumoto, Japan; 3. Muroran Institute of Technology, Muroran, Japan*

C3-07. **Withdrawn**

C3-08. **Sensorless Control Scheme for PMSM Based on High-Frequency Square-Wave Voltage Injection Considering Non-Linear Change of Inductance in D-Q Axis.** W. Cui[1], *S. Zhang*[1] and Y. Feng[1] *1. Department of Automation, Shanghai University, Shanghai, China*

C3-09. **Regeneration and Reuse of Magnetic Particles for Wastewater Treatment.** *L. Hernández García*[2], P.A. Augusto[2], T. Castelo-Grande[1] and D. Barbosa[1] *1. Laboratory for Process Engineering, Environment, Biotechnology and Energy, Universidade de Porto, Faculdade de Engenharia, Porto, Portugal; 2. Ingeniería Química y Textil, Universidad de Salamanca, Facultad de Ciencias Químicas, Salamanca, Spain*

C3-10. **Micromagnetic Analysis of Exchange-Coupled $Nd_2Fe_{14}B/\alpha$-Fe Multilayers and Their Applications in Micro-Scale Devices.** *P. Pathak*[1], V.K. Yadav[1] and D. Mallick[1] *1. Department of Electrical Engineering, Indian Institute of Technology Delhi, New Delhi, India*

C3-11. **Effect of Direct Exchange Coupling via the Insulator on the Magnetic Tunnel Junction Based Molecular Spintronics Devices With Pre-Existing Strong Molecule Induced Antiferromagnetic Coupling.** *H. Brown*[1], A. Grizzle[1], C. DAngelo[1] and P. Tyagi[1,2] *1. Center for Nanotechnology Research and Education, University of the District of Columbia, Washington, DC, United States; 2. Mechanical Engineering, University of the District of Columbia, Washington, DC, United States*

C3-12. **Monte Carlo Simulation Study of the Effect of Inter-Molecular Coupling on the Magnetic Properties of Magnetic Tunnel Junction Based Molecular Spintronics Devices.** *P. Suh*[1] and P. Tyagi[1] *1. Center for Nanoscale Research and Education (CNRE), University of the District of Columbia, Washington, DC, United States*

C3-13. **Influence of Cerium Dioxide Content on Degradation Efficiency and Iron Oxide Transformations in CeO_2/Fe_2O_3 Sorbents.** *O. Zivotsky*[1], J. Lunacek[1], Y. Jiraskova[2], J. Ederer[3], P. Janos[3] and K. Cabanova[4] *1. Department of Physics, Vysoka skola banska-Technicka univerzita Ostrava Fakulta elektrotechniky a informatiky, Ostrava, Czechia; 2. Ustav fyziky materialu Akademie ved Ceske republiky, Brno, Czechia; 3. Univerzita Jana Evangelisty Purkyne v Usti nad Labem Fakulta zivotniho prostredi, Usti nad Labem, Czechia; 4. Vysoka skola banska-Technicka univerzita Ostrava, Ostrava, Czechia*

C3-14. **Magneto-Elastic Coupling in Multiferroic Metal-Organic Framework $[(CH_3)_2NH_2]Co(HCOO)_3$ Complex.** *K. Thirunavukkuarasu*[1,2], R. Richardson[1], Z. Lu[2], N. Huang[3], D. Smirnov[2] and D. Mandrus[3] *1. Department of Physics, Florida Agricultural and Mechanical University, Tallahassee, FL, United States; 2. National High Magnetic Field Laboratory, Tallahassee, FL, United States; 3. University of Tennessee Knoxville, TN, US, Knoxville, TN, United States*

MONDAY
EVENING
7:00

LIVE Q&A 3

Session C4
MAGNETIC NANOSTRUCTURED MATERIALS (Poster Session)

Karine Chesnel, Chair
Brigham Young University, Provo, UT, United States

C4-01. **Subharmonic Return Point Memory in Artificial Spin Ice.** *A. Vanstone*[1], J.C. Gartside[1], K. Stenning[1], D. Arroo[2] and W. Branford[1] *1. Imperial College London, Imperial College London, London, London, GB, London, United Kingdom; 2. University College London, London, United Kingdom*

C4-02. **Magnetic Hysteresis of Blocked Ferrihydrite Nanoparticles.** *S. Komogortsev*[1], D. Balaev[1], A. Krasikov[1], S. Stolyar[1], R. Yaroslavtsev[1], V. Ladygina[1] and R. Iskhakov[1] *1. Kirensky Institute of Physics, Federal Research Center KSC SB RAS, Krasnoyarsk, Russian Federation*

C4-03. **Evidence of Two Dimensional Dilute Antiferromagnet Mediated Exchange Bias and Giant Vertical Shift in $LaFeO_3$ - NiO Nanocomposite.** *P. Sharma*[1] and R. Chatterjee[1] *1. Physics, Indian Institute of Technology, Delhi, Hauz Khas, India*

C4-04. **Withdrawn**

C4-05. **Magnetic Hysteresis Scaling of Fe_3O_4 Nanoparticles With Controlled Interparticle Distance.** *K. Oyanagi*[1], S. Kobayashi[1] and J. Choi[2] *1. Faculty of Science and Engineering, Iwate University, Morioka, Japan; 2. Hanbat National University, Daejeon, The Republic of Korea*

C4-06. **Directional Dependence of Magnetic Nanodiscs Placed on a Square Lattice.** *N. Strandqvist*[1], B. Skovdal[1], H. Stopfel[2], R. Rowan-Robinson[3], V. Kapaklis[1] and B. Hjörvarsson[1] *1. Physics and Astronomy, Uppsala Universitet, Uppsala, Sweden; 2. Engineering Sciences, Uppsala Universitet, Uppsala, Sweden; 3. Materials Science and Engineering, The University of Sheffield, Sheffield, United Kingdom*

C4-07. **Magnetization Reversal Mechanism of Magnetic Ring Nanostructures With Varying Widths Under Different Magnetic Field Directions.** *T. Huang*[1], K. Wu[1], Y. Lin[1], W. Peng[1], P. Chen[1] and M. Chen[1] *1. National Applied Research Laboratories, Hsinchu, Taiwan*

C4-08. **Magnetic Configurations in Nanoscale Epitaxial Iron Cuboids.** *S. Guo*[1], M. Henschel[1], V. Neu[1], T. Blon[2] and K. Leistner[1] *1. Leibniz IFW Dresden, Dresden, Germany; 2. Laboratoire de Physique et Chimie des Nano-Objets, UMR 5215 INSA, CNRS, UPS, Université de Toulouse, Toulouse, France*

C4-09. **Effects of Infill Orientation and Percentage on the Mechanical and Magnetoactive Properties of 3D-Printed Magnetorheological Elastomer Structures.** *H. Thatcher*[1], T. Calascione[1], N.A. Fischer[1], A. Robinson[1] and B. Nelson-Cheeseman[1] *1. Mechanical Engineering, University of Saint Thomas, Saint Paul, MN, United States*

C4-10. **Use of two-Photon Lithography With a Negative Resist and Processing to Realise Cylindrical Magnetic Nanowires.** *J. Askey*[1], M.O. Hunt[1], W. Langbein[1] and S. Ladak[1] *1. School of Physics and Astronomy, Cardiff University, Cardiff, United Kingdom*

C4-11. **Fabrication of 3D Magnetic Nanocomposite Materials Using Inkjet Printing.** *M. Cannamela*[1,2], J. Stasiak[3] and P. Dhagat[4] *1. School of Mechanical, Industrial and Manufacturing Engineering, Oregon State University, Corvallis, OR, United States; 2. HP, Inc., Corvallis, OR, United States; 3. HP Labs, HP, Inc., Corvallis, OR, United States; 4. School of Electrical Engineering and Computer Science, Oregon State University, Corvallis, OR, United States*

C4-12. **Fabrication of Hydroelectric Cells Using Ferrites and Stannic Oxide for the Production of Green Energy.** *P. Kumar*[1,2] and V.K. Verma[2] *1. Department of Physics and Astrophysics, University of Delhi, New Delhi, India; 2. Department of Physics, Hindu College New Delhi, New Delhi, India*

Session C5
SPIN INJECTION AND NEUROMORPHIC COMPUTING
(Poster Session)

Rahul Mishra, Chair
National University of Singapore, Singapore, Singapore

C5-01. **Spin Injection Characteristics of Py/Graphene/Pt by Means of THz Measurement and Spin Pumping.** *H. Idzuchi*[1,2], S. Iihama[1], M. Shimura[1], A. Kumatani[1,3], S. Mizukami[1] and Y.P. Chen[2,1] *1. Tohoku University, Sendai, Japan; 2. Purude University, West Lafayette, IN, United States; 3. National Institute for Material Science, Tsukuba, Japan*

C5-02. **Efficient Control of Magnon Population by Injecting Spin Current Generated Using Naturally-Oxidized Copper Film.** *G. Okano*[1] and Y. Nozaki[2] *1. CEMS, RIKEN, Wako, Japan; 2. Dept. of Physics, Keio University, Yokohama, Japan*

C5-03. **Sensing Stray Fields From Magnetic Nanocircuits With Nitrogen-Vacancy Defects.** *A. Solyom*[1], M. Caouette-Mansour[1], B. Ruffolo[1], P.M. Braganca[2], M. Pioro-Ladrière[3,4], L. Childress[1] and J. Sankey[1] *1. Physics, McGill University, Montreal, QC, Canada; 2. Western Digital Corp, San Jose, CA, United States; 3. Institut Quantique and Département de Physique, Universite de Sherbrooke, Sherbrooke, QC, Canada; 4. Quantum Information Science Program, Canadian Institute for Advanced Research, Toronto, ON, Canada*

C5-04. **The Structure and Dynamics of Magnetic Vortices and Solitons in Multilayer Ferromagnetic Nanostructures.** *K. Samsonov*[1], S. Stepanov[3], G. Antonov[5], A. Ekomasov[3], R. Kudryavtsev[2], A. Gumerov[3], K. Zvezdin[4] and E. Ekomasov[3,1] *1. Department of Physical Processes and Systems Modeling, University of Tyumen, Tyumen, Russian Federation; 2. Institute of Molecule and Crystal Physics UFRC RAS, Ufa, Russian Federation; 3. Department of theoretical physics, Baskirskij Gosudarstvennyj Universitet, Ufa, Russian Federation; 4. Institut obsej fiziki imeni A M Prohorova RAN, Moskva, Russian Federation; 5. Baskirskij Gosudarstvennyj Universitet, Ufa, Russian Federation*

C5-05. **Mutual Synchronization of Spin-Torque Oscillators With a Perpendicular Polarizer.** *M. Castro*[1,2], D. Mancilla[1], N. Strelkov[2], A. Litvinenko[2], M. Ibarra[2], S. Allende[1], B. Dieny[2], U. Ebels[2] and L. Buda-Prejbeanu[2] *1. Universidad de Santiago de Chile, Santiago de Chile, Chile; 2. Univ. Grenoble Alpes, CEA, CNRS, Grenoble INP, IRIG-SPINTEC, 38000, Grenoble, France*

C5-06. **Numerical Simulation of Artificial Spin ice for Reservoir Computing.** *K. Hon*[1], Y. Kuwabiraki[2], M. Goto[1,3], H. Nomura[1,3], R. NAKATANI[2] and Y. Suzuki[1,3] *1. Graduate School of Engineering Science, Osaka University, Toyonaka, Japan; 2. Department of Materials Science and Engineering, Graduate School of Engineering, Osaka University, Suita, Japan; 3. Center for Spintronics Research Network (CSRN), Osaka University, Toyonaka, Japan*

C5-07. **A Spintronic Neuron Based on Spin-Orbit Torque Induced Stochastic Switching of a Nanomagnet.** *S. Zhang*[1], J. Zhang[1], S. Li[1], J. Hong[1] and L. You[1] *1. School of Optical and Electronic Information, Huazhong University of Science and Technology, Wuhan, China*

C5-08. **Spike Time Dependent Plasticity Based Spin-Neuromorphic Computing for Pattern Recognition Application.** *A. Lone*[1], S. Amara[1] and H. Fariborzi[1] *1. Computer, Electrical and Mathematical Science and Engineering Division, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia*

MONDAY EVENING 7:30

LIVE Q&A 4

Session D1
EXCHANGE BIAS AND OTHER NOVEL EXCHANGE IN THIN FILMS

Patrick Quarterman, Chair
NIST Center for Neutron Research, Gaithersburg, MD, United States

D1-01. **Exchange Bias due to Dipolar Interactions in Heterostructures.** ***(Invited)*** *F. Torres*[1,2], I. Montoya[4], C. Redondo[4], M. Kiwi[1], R. Morales[4] and I.K. Schuller[3] *1. Physics, Universidad de Chile, Santiago de Chile, Chile; 2. CEDENNA, Centro para el Desarrollo de la Nanocienciay la Nanotecnología CEDENNA, Santiago, Chile; 3. Physics, University of California San Diego, La Jolla, CA, United States; 4. Department of Physical-Chemistry, Universidad del Pais Vasco, Bilbao, Spain*

D1-02. **Exchange Bias in $Fe/Ir_{20}Mn_{80}$ Bilayers: Role of Spin-Glass Like Interface and 'Bulk' Antiferromagnet Spins.** *S. Nayak*[1], P.K. Manna[1], V. Thiruvengadam[1], B.B. Singh[1], J.A. Chelvane[2] and S. Bedanta[1] *1. National Institute of Science Education and Research, Bhubaneswar, India; 2. Advanced Magnetics Group, Defence Metallurgical Research Laboratory (DMRL), Hyderabad, India*

D1-03. **Demonstration and Characterization of Effective Random Exchange Fields in Ferromagnet/Antiferromagnet Bilayers.** *G. Chen*[1], D. Collette[1] and S. Urazhdin[1] *1. physics, Emory University, Atlanta, GA, United States*

D1-04. **Microscopic Origin of Magnetization Reversal in Exchange-Coupled Ferro-/Ferrimagnetic Bilayers.** *M. Heigl*[1], C. Vogler[2], A. Mandru[3], X. Zhao[3], H.J. Hug[3,4], D. Suess[2] and M. Albrecht[1] *1. Institute of Physics, University of Augsburg, Augsburg, Germany; 2. Faculty of Physics, University of Vienna, Vienna, Austria; 3. Empa-Swiss Federal Laboratories for Materials Science and Technology, Dübendorf, Switzerland; 4. Department of Physics, University of Basel, Basel, Switzerland*

D1-05. **Tuning of the Magnetization Direction in Cr_2O_3-Based Exchange-Coupled Systems.** I. Hontecillas[1] and *R. Ranchal*[1,2] *1. Universidad Complutense de Madrid, Madrid, Spain; 2. Universidad Complutense de Madrid Instituto de Magnetismo Aplicado, Madrid, Spain*

D1-06. **Atomistic Spin Dynamics Simulations of Exchange Bias in Polygranular IrMn/CoFe Bilayers and the Origin of the Athermal Training Effect.** *S. Jenkins*[1], R.F. Evans[1] and R. Chantrell[1] *1. Department of Physics, University of York, York, United Kingdom*

D1-07. **π – Anisotropy: a Magneto-Electric Explanation for Molecular Exchange Bias.** *T. Moorsom*[3,1], S. Alghamdi[1,2], S. Stansill[1], E. Poli[4], G. Teobaldi[4,5], M. Beg[6], H. Fangohr[6], M.D. Rogers[1], Z. Aslam[1], M. Ali[1], B. Hickey[1] and O. Cespedes[1] *1. University of Leeds, Leeds, United Kingdom; 2. Taibah University, Madinah, Saudi Arabia; 3. University of Glasgow College of Science and Engineering, Glasgow, United Kingdom; 4. Science and Technology Facilities Council, Swindon, United Kingdom; 5. University of Liverpool, Liverpool, United Kingdom; 6. European XFEL GmbH, Schenefeld, Germany*

D1-08. **Is Exchange Bias at the Hybrid Organic/Ferromagnet Interface an Intrinsic Effect?** *G. Avedissian*[1], J. Arabski[1], J. Wytko[2], J. Weiss[2], V. Papaefthimiou[3], E. Beaurepaire[1] and C. Meny[1] *1. Institut de Physique et Chimie des Materiaux de Strasbourg, Strasbourg, France; 2. Institut de Chimie de Strasbourg, Strasbourg, France; 3. Institut de Chimie et Procedes pour l'Energie, l'Environnement et la Sante, Université De Strasbourg, Strasbourg, France*

D1-09. **Emrgence and Disappearance of Exchange Bias in Ni-Mn/Fe-Ni Thin Films Due to Structural Transformations.** *M. Moskalev*[1], E. Kudyukov[1], E. Kravtsov[2,1], V. Lepalovskij[1] and V. Vas'kovskiy[1,2] *1. Department of magnetism and magnetic nanomaterials, Ural'skij federal'nyj universitet imeni pervogo Prezidenta Rossii B N El'cina, Ekaterinburg, Russian Federation; 2. Institut fiziki metallov imeni M N Miheeva Ural'skogo otdelenia Rossijskoj akademii nauk, Ekaterinburg, Russian Federation*

D1-10. **Mini Magnetic Propellers: Stability Considerations in Twisted Magnetic Structures.** *B.R. McGrath*[1], K. Livesey[1,2] and R. Camley[1] *1. Physics, University of Colorado at Colorado Springs, Colorado Springs, CO, United States; 2. School of Mathematical and Physical Sciences, The University of Newcastle, Callaghan, NSW, Australia*

D1-11. **Ferromagnetic SmN/GdN Superlattices.** *E.M. Anton*[1], W. Holmes-Hewett[1], J. McNulty[1], F. Natali[1], S. Granville[2], F. Bramley[1], B. Ruck[1] and H. Trodahl[1] *1. School of Chemical and Physical Sciences, Victoria University of Wellington, Wellington, New Zealand; 2. Robinson Research Institute, Victoria University of Wellington, Lower Hutt, New Zealand*

D1-12. **Critical Magnetic Behavior in [$Ag_8/Co_{0.5}$]x64, [Ag_{16}/Co_1]x32 and [Ag_8/Co_1]x32 Epitaxial Multilayers.** E. Navarro[2], M. Alonso[2], A. Ruiz[2], C. Magen[3], U. Urdiroz[2], F. Cebollada[1], L. Balcells[4], B. Martínez[4], *J.M. González*[2] and F. Palomares[2] *1. Universidad Politécnica de Madrid, Madrid, Spain; 2. Instituto de Ciencia de Materiales de Madrid - CSIC, Madrid, Spain; 3. Instituto de Ciencia de Materiales de Aragón - CSIC, Zaragoza, Spain; 4. Instituto de Ciencia de Materiales de Barcelona - CSIC, Barcelona, Spain*

D1-13. **Investigation of the Spin Glass Density of States Using a Combination of Monte Carlo Method and Neural Network.** *A.O. Korol*[1], K. Makarova[1,2], D. Kapitan[1,2], A. Rybin[1,2], E. Vasiliev[1,2], A. Makarov[1,2], K. Soldatov[1,2], Y. Shevchenko[1,2] and V.Y. Kapitan[1,2] *1. Computer Systems, Dal'nevostocnyj federal'nyj universitet, Vladivostok, Russian Federation; 2. Institut prikladnoj matematiki DVO RAN, Vladivostok, Russian Federation*

D1-14. **The Effect of x-ray Illumination on Magnetic Domain Memory in [Co/Pd] / IrMn Multilayers.** *C.S. Walker*[1], M. Parkes[1], D. Keavney[2], E. Fullerton[3] and K. Chesnel[1] *1. Physics, Brigham Young University, Provo, UT, United States; 2. Argonne National Laboratory Advanced Photon Source, Lemont, IL, United States; 3. Center for Memory and Recording Research, UCSD, San Diego, CA, United States*

MONDAY EVENING 7:30

LIVE Q&A 4

Session D2
MAGNETIC INTERACTIONS AND STRUCTURES

Kirrily Rule, Chair
Australian Nuclear Science and Technology Organisation, Kirrawee DC, NSW, Australia

D2-01. **Unveiling Phonons in a Molecular Qubit With Four-Dimensional Inelastic Neutron Scattering and Density Functional Theory.** *E. Garlatti*[1,2], L. Tesi[3,4], A. Lunghi[5], M. Atzori[3,6], D. Voneshen[7], P. Santini[1,2], S. Sanvito[5], T. Guidi[7], R. Sessoli[3,2] and S. Carretta[1,2] *1. Department of Mathematical, Physical and Computer Sciences, Universita degli Studi di Parma, Parma, Italy; 2. Consorzio Interuniversitario Nazionale per la Scienza e Tecnologia dei Materiali, Firenze, Italy; 3. Department of Chemistry U. Schiff, Universita degli Studi di Firenze, Firenze, Italy; 4. Institute of Physical Chemistry, Universitat Stuttgart, Stuttgart, Germany; 5. School of Physics, CRANN and AMBER, University of Dublin Trinity College, Dublin, Ireland; 6. Laboratoire National des Champs Magnétiques Intenses, Grenoble, France; 7. ISIS Neutron and Muon Source, Science and Technology Facilities Council, Didcot, United Kingdom*

D2-02. **Molecular Nanomagnets as Qubits With Embedded Quantum-Error Correction.** *A. Chiesa*[1,2], E. Macaluso[1], F. Petiziol[1,2], S. Wimberger[1,3], P. Santini[1,2] and S. Carretta[1,2] *1. Universita degli Studi di Parma, Parma, Italy; 2. UdR Parma, INSTM, Parma, Italy; 3. Istituto Nazionale di Fisica Nucleare Sezione di Trieste, Sezione Milano Bicocca, Gruppo Collegato di Parma, Italy*

D2-03. **A Heterometallic [LnLn'Ln] Lanthanide Complex as a Qubit With Embedded Quantum Error Correction.** *E. Macaluso*[3,4], M. Rubin[1,2], D. Aguilà[5,6], A. Chiesa[3,4], L. Barrios[5,6], J. Martínez[1,2], P. Alonso[1,2], O. Roubeau[1,2], F. Luis[1,2], G. Aromì[5,6] and S. Carretta[3,4] *1. Instituto de Ciencia de Materiales de Aragón (ICMA), CSIC and Universidad de Zaragoza, Zaragoza, Spain; 2. Departament de Física de la Materia Condensada, Universidad de Zaragoza, Zaragoza, Spain; 3. Dipartimento di Scienze Matematiche, Fisiche e Informatiche, Universita degli Studi di Parma, Parma, Italy; 4. UdR Parma, INSTM, Consorzio Interuniversitario Nazionale per la Scienza e Tecnologia dei Materiali, Parma, Italy; 5. Departament de Química Inorgànica, Universitat de Barcelona, Barcelona, Spain; 6. Institute of Nanoscience and Nanotechnology of the University of Barcelona (IN2UB), Barcelona, Spain*

D2-04. **Observation of a Superparamagnetic Breakdown in Gadolinium Chloride Filled Double-Walled Carbon Nanotubes.** *S. Ncube*[1], C. Coleman[2], E. Flahaut[3], S. Bhattacharrya[2], A. Prinsloo[1] and C. Sheppard[1] *1. Physics, University of Johannesburg, Auckland Park, South Africa; 2. Physics, University of the Witwatersrand, Johannesburg-Braamfontein, South Africa; 3. Materials Science and Engineering, Universite Paul Sabatier Toulouse III Faculte de Chirurgie Dentaire, Toulouse, France*

D2-05. **Coupling Nanostructured CsNiCr Prussian Blue Analogue to Resonant Microwave Fields.** *A. Ghirri*[1], T. Mallah[3] and M. Affronte[2,1] *1. Istituto Nanoscienze - Consiglio Nazionale delle Ricerche, Modena, Italy; 2. Dipartimento di Scienze Fisiche, Informatica e Matematica, Universita di Modena e Reggio Emilia, Modena, Italy; 3. Institut de Chimie Moleculaire et des Materiaux d'Orsay CNRS, Universite Paris Sud, Universite Paris Saclay, Orsay, France*

D2-06. **Realization of Random Exchange Interactions and Spin on a Square Lattice With Entropy Stabilization Synthesis.** *A.R. Mazza*[1], E. Skoropata[1], T.R. Charlton[1] and T.Z. Ward[1] *1. Oak Ridge National Laboratory, Oak Ridge, TN, United States*

D2-07. **Withdrawn**

D2-08. **Orbital Magnetization in Magnetic Neutron Scattering.** *H. Chen*[1,2] *1. Physics, Colorado State University, Fort Collins, CO, United States; 2. School of Advanced Materials Discovery, Colorado State University, Fort Collins, CO, United States*

D2-09. **Antiferromagnetic Fluctuations in One-Dimensional Hubbard Model.** *V. Janiš*[1], A. Klíč[1] and J. Yan[1] *1. Institute of Physics, The Czech Academy of Sciences, Praha, Czechia*

D2-10. **Theoretical Framework for Calculating Heisenberg Exchange and Dzyaloshinskii-Moriya Interaction in Correlated Magnetic Materials With Significant Spin-Orbit Coupling.** *V. Borisov*[1], Y. Kvashnin[1], D. Thonig[2], P. Thunström[1], M. Pereiro[1], A. Bergman[1], E. Sjöqvist[1], A. Delin[1,3], L. Nordström[1] and O. Eriksson[1,2] *1. Department of Physics and Astronomy, Uppsala University, Box 516, SE-75120 Uppsala, Sweden; 2. School of Science and Technology, Örebro University, SE-70182 Örebro, Sweden; 3. Department of Applied Physics, School of Engineering Sciences, KTH Royal Institute of Technology, Electrum 229, SE-16440 Kista, Sweden*

D2-11. **Atomic Cooperation in Enhancing Magnetism: (Fe, Cu)-Doped CeCo5.** R. Choudhary[1] and *D. Paudyal*[1] *1. Iowa State University, Ames Laboratory, Ames, IA, United States*

D2-12. **Withdrawn**

D2-13. **Is it Time to Sideline the Renowned Heisenberg Hamiltonian?** *N. Bykovetz*[1] *1. Physics, Temple University, Philadelphia, PA, United States*

D2-14. **Helimagnetic Correlations Close to the Quantum Critical Points of MnSi Under Mechanical and Chemical Pressure.** ***(Invited)*** *C. Pappas*[1], A.O. Leonov[2], L.J. Bannenberg[1], R. Sadykov[3], R.M. Dalgliesh[4], C. Goodway[4], D.L. Schlagel[5], T.A. Lograsso[5], E. Lelièvre-Berna[6], P. Falus[6], P. Fouquet[6], T. Wolf[7] and F. Weber[7] *1. Technische Universiteit Delft Faculteit Technische Natuurwetenschappen, Delft, Netherlands; 2. Chiral Research Center, Hiroshima Daigaku, Higashihiroshima, Japan; 3. Institut adernyh issledovanij RAN, Moskva, Russian Federation; 4. ISIS, Rutherford Appleton Laboratory, Didcot, United Kingdom; 5. Ames Laboratory, Iowa State University, Ames, IA, United States; 6. Institut Laue-Langevin, Grenoble, France; 7. Karlsruher Institut fur Technologie, Karlsruhe, Germany*

D2-15. **Withdrawn**

D2-16. **Ab Initio Study of Magnetocrystalline Anisotropy in Antiferromagnetic Fe_2as.** *K. Kang*[1], K. Yang[2], D. Cahill[1] and A. Schleife[1] *1. Department of Materials Science and Engineering, University of Illinois at Urbana-Champaign College of Engineering, Urbana, IL, United States; 2. Department of Physics, University of Illinois at Urbana-Champaign College of Engineering, Urbana, IL, United States*

Session D3
APPLIED AND POWER MAGNETICS (Poster Session)

Christopher Olson, Chair
NVE Corporation, Eden Prairie, MN, United States

D3-01. **Cryogenic Motor With Two Radial AMBs in Liquid Nitrogen.** *M. Komori*[1], H. Kato[1], K. Asami[1] and N. Sakai[1] *1. Electrical and Electronic Engineering, Kyushu Institute of Technology, Kitakyushu, Japan*

D3-02. **Withdrawn**

D3-03. **Detailed Analytical Technique for Characteristic Analysis of Actively Shielded Superconducting Machine.** K. Shin[1], *T. Bang*[2], H. Cho[2], J. Choi[2] and K.S. Haran[3] *1. Chonnam National University, Yeosu, The Republic of Korea; 2. Chungnam National University, Daejeon, The Republic of Korea; 3. University of Illinois at Urbana-Champaign, Urbana, IL, United States*

D3-04. **Analysis and Comparison of Magnetic Planetary Gear With Halbach Permanent Magnet Arrays.** L. Quan[1], *K. Zhang*[1], Y. Du[1] and X. Zhu[1] *1. School of Electrical and Information Engineering, Jiangsu University, Zhenjiang, China*

D3-05. **An Improved Jiles-Atherton Hysteresis Model With a Sixth Parameter to Represent the Frequency-Dependent Characteristics.** *S. He*[1], J. Li[1] and J. Zhu[2] *1. electrical engineering, xian jiaotong university, XIAN, China; 2. School of Electrical and Information Engineering, University of Sydney, Sydney, NSW, Australia*

D3-06. **Withdrawn**

D3-07. **A Study on Leakage Magnetic Field Reduction Configuration for High Power Contactless Power Transfer for Industrial Moving Systems.** *T. Abe*[1], M. Yokosawa[1], S. Miyahara[1], f. sato[1], H. Matsuki[2] and K. Inada[3] *1. Electrical Engineering, Tohoku gakuin University, Tagajo, Japan; 2. Tohoku University, Sendai, Japan; 3. NITTOKU Co., Ltd., Saitama, Japan*

D3-08. **Development of a Position-Based Precise Magnetic Torque and Force Generation Method Using a Triad of Electromagnetic Coils for Biomedical Magnetic Robot Applications.** *H. Lee*[1], B. Kim[1], J. Shin[1] and S. Jeon[1] *1. Kongju National University, Gongju, The Republic of Korea*

D3-09. **Magnetization and Thickness Dependent Microwave Attenuation Behavior of Ferrite-PANI Composites and Embedded Composite-Fabrics Prepared by in-Situ Polymerization.** *S. Kumar*[1], V. Verma[2] and R. Walia[3] *1. Department of Physics and Astrophysics, University of Delhi, New Delhi, India; 2. Department of Physics, Hindu College, University of Delhi, New Delhi, India; 3. Department of Physics, Deen Dayal Upadhyaya Gorakhpur University, Gorakhpur, India*

D3-10. **Construction of Wireless Power Transfer System Assuming Drone Operation and Examination of Booster Coil Size.** *T. Sawa*[1], f. sato[1], S. Miyahara[1], H. Matsuki[2] and S. Sasaki[3] *1. Division of Engineering, Program in Electrical Engineering, Tohoku Gakuin University, Tagajo, Japan; 2. Tohoku University, Sendai, Japan; 3. Hikaridenshi Corporation, Osaki, Japan*

MONDAY
EVENING
7:30

LIVE Q&A 4

Session D4
HARD MAGNETIC MATERIALS: NANOSTRUCTURES AND OTHERS (Poster Session)

Bin Ma, Chair
University of Minnesota, Minneapolis, MN, United States

D4-01. **Magnetic Properties of Ternary $Fe_{49}Ni_{49}X_2$ (X = Ti, Al) Alloys After Severe Plastic Deformation.** *M.N. Ulyanov*[1,2], S.V. Taskaev[2], M.Y. Bogush[2] and M.A. Gavrilova[2] *1. Immanuel Kant Baltic Federal University, Baltijskij federal'nyj universitet imeni Immanuila Kanta, Kaliningrad, Russian Federation; 2. Chelyabinsk State University, Chelyabinsk, Russian Federation*

D4-02. **Structural and Magnetic Properties of Iodide-Mediated Chemically Synthesized $FePt_3$ Nanoparticles.** *V. Deepchand*[1], V. Tzitzios[2] and G.C. Hadjipanayis[1] *1. Physics and Astronomy, University of Delaware, Newark, DE, United States; 2. Institute of Nanoscience and Nanotechnology National Centre for Scientific Research Demokritos, Athens, Greece*

D4-03. **Withdrawn**

D4-04. **Critical Particle Size of α''-$Fe_{16}N_2$ Nanoparticles Prepared by Low-Temperature Nitriding.** *B. Ma*[1], J. Liu[1], G. Guo[1] and J. Wang[1] *1. University of Minnesota, Minneapolis, MN, United States*

D4-05. **Magnetocrystalline Anisotropy of $Fe_{16}N_2$ Under Various DFT Approaches.** *P. Stoeckl*[1], P. Swatek[2] and J. Wang[2] *1. Department of Physics, University of Minnesota Twin Cities, Minneapolis, MN, United States; 2. Department of Electrical and Computer Engineering, University of Minnesota Twin Cities, Minneapolis, MN, United States*

D4-06. **Withdrawn**

D4-07. **Size-Dependent Magnetic Properties of Barium Hexaferrite Platelets Synthesized Using a Salt Assisted Sol-Gel Technique.** *N. Joseph*[1] and S. Thomas[1] *1. Department of Physics, Cochin University of Science and Technology, Kochi, India*

D4-08. **Local Inspection of Magnetic Properties in GdMnIn by Measuring Hyperfine Interactions.** G. Cabrera-Pasca[1], J.F. Magno[1], W. Ferreira[2], A.C. Campos[2], *B. Bosch-Santos*[3], T.S. Sales[2], L.F. Pereira[2], A. Burimova[2], R.N. Saxena[2], R.S. Freitas[4] and A.W. Carbonari[2] *1. Faculdade de Ciências Exatas e Tecnologia (FACET), Universidade Federal do Para, Abaetetuba, Brazil; 2. CERPQ, Instituto de Pesquisas Energeticas e Nucleares - IPEN-CNEN/SP, Sao Paulo, Brazil; 3. Material Measurement Laboratory, National Institute of Standards and Technology, Gaithersburg, MD, United States; 4. Instituto de Física, Universidade de Sao Paulo, Sao Paulo, Brazil*

D4-09. **Crystallographic Texture and Magnetic Anisotropy of $CeCo_5$ Nanomagnets With Functional Gradient Prepared *via* a Simple Melt-Spinning Route.** *L. Zha*[1], F. Wang[1], Z. Lin[1] and J. Yang[1] *1. Department of Physics, Peking University, Beijing, China*

D4-10. **First-Principles Prediction of the Enhanced Uniaxial Magnetic Anisotropy and Thermal Stability in α''-$Fe_{16}N_2$.** *T. Ochirkhuyag*[1], S. Cheol Hong[2] and D. Odkhuu[1] *1. Department of Physics, Incheon National University, Incheon, The Republic of Korea; 2. Department of Physics, University of Ulsan, Ulsan, The Republic of Korea*

D4-11. **Improved Stability and Magnetic Anisotropy in $L1_0$ -FeNi by Interstitial Doping: a First-Principles Prediction.** *T. Dorjsuren*[1], S. Cheol Hong[2] and D. Odkhuu[1] *1. Department of Physics, Incheon National University, Incheon, The Republic of Korea; 2. Department of Physics, University of Ulsan, Ulsan, The Republic of Korea*

D4-12. **Artificially Produced Rare Earth Free $L1_0$-FeNi Phase Through Annealing of the FeNiPC Amorphous Alloy.** *J. Han*[1] and H.C. Yim[1] *1. Physics, Sookmyung Women's University, Yongsan-gu, The Republic of Korea*

D4-13. **Magnetic Properties of (Sm,Zr)Fe_5 Alloys and Their Nitrides.** *T. Saito*[1] *1. Chiba Institute of Technology, Narashino, Japan*

D4-14. **In-Situ Crystallization and Magnetic Measurement of Hexaferrite Glass-Ceramics.** *A.J. Lere-Adams*[1], M. Ahmadzadeh[1], N. Smith-Gray[1] and J. McCloy[1] *1. Washington State University, Pullman, WA, United States*

Session S1
WEYL SEMIMETALS FOR SPINTRONICS

Axel Hoffmann, Chair
University of Illinois at Urbana-Champaign, Urbana, IL, United States

8:00

S1-01. **Fermi-arc Diversity on Surface Terminations of the Magnetic Weyl Semimetal $Co_3Sn_2S_2$.** ***(Invited)*** *N. Avraham*[1], N. Morali[1], R. Batabyal[1], P. Kumar Nag[1], E. Liu[2], Q. Xu[2], Y. Sun[2], B. yan[1], C. Felser[2] and H. Beidenkopf[1] *1. Condensed matter physics, The Weizmann Institute of Science, Rehovot, Israel; 2. Max Planck Institute for Chemical Physics of Solids, Dresden, Germany*

8:36

S1-02. **Spin-to-Charge Conversion in Magnetic Weyl Semimetals.** ***(Invited)*** *S. Zhang*[1,3], A. Burkov[2], I. Martin[1] and O. Heinonen[1] *1. Argonne National Laboratory Materials Science Division, Lemont, IL, United States; 2. Deptartment of Physics and Astronomy, University of Waterloo, Waterloo, ON, Canada; 3. Department of Physics, Case Western Reserve University, Cleveland, OH, United States*

9:12

S1-03. **Evidence for Pseudogravitational Fields in Antiferromagnetic FeRh.** ***(Invited)*** *J. Sklenar*[1], J.S. Shim[2], H. Saglam[3], J. Oh[2], A. Hoffmann[2], B. Bradlyn[2], N. Mason[2] and M. Gilbert[2] *1. Wayne State University, Detroit, MI, United States; 2. University of Illinois at Urbana-Champaign, Urbana, IL, United States; 3. Yale University, New Haven, CT, United States*

9:48

S1-04. **Large and Robust Charge-to-Spin Conversion in Sputtered Disordered WTe_x.** ***(Invited)*** *X. Li*[1], P. Li[1], V.D. Hou[2], M. DC[1], C. Nien[2], F. Xue[1], D. Yi[1], C. Bi[1], C. Lee[2], S. Lin[2], W. Tsai[2], Y. Suzuki[1] and S. Wang[1] *1. Stanford University, Stanford, CA, United States; 2. Taiwan Semiconductor Manufacturing Co Ltd, Hsinchu, Taiwan*

10:24

S1-05. **Electrical Manipulation of a Topological Weyl Antiferromagnet.** ***(Invited)*** *S. Nakatsuji*[1,2] *1. Department of Physics, University of Tokyo, Tokyo, Japan; 2. Trans-scale Quantum Science Institute, University of Tokyo, Tokyo, Japan*

Session S2
ADVANCED STATIC AND DYNAMIC SPIN DEPTH PROFILING

Timo Kuschel, Co-Chair
Bielefeld University, Bielefeld, Germany
Christoph Klewe, Co-Chair
Lawrence Berkeley National Laboratory, Berkeley, CA, United States

9:00

S2-01. **Surface Versus Bulk Characterization of 3D Skyrmion Lattices in Chiral Magnets.** ***(Invited)*** *G. van der Laan*[1], S. Zhang[2] and T. Hesjedal[3] *1. Diamond Light Source Ltd, Didcot, United Kingdom; 2. ShanghaiTech University, Shanghai, China; 3. University of Oxford, Oxford, United Kingdom*

9:36

S2-02. **Coherent AC Spin Transport Across Antiferromagnetic Insulators Detected by Element-Resolved and Time-Resolved x-ray Magnetic Dichroism.** ***(Invited)*** *Z.Q. Qiu*[1] *1. Physics, Univ. of California at Berkeley, Berkeley, CA, United States*

10:12

S2-03. **Scaling of Proximity Induced Magnetism in Pt With Magnetism of Ferromagnet Using Pt/CoFeTaB/Pt.** ***(Invited)*** *O.A. Inyang*[1,2], L. Bouchenoire[3,4], M. Tokac[1], R. Rowan-Robinson[1], B. Nicholson[1], C. Kinane[5] and A. Hindmarch[1] *1. Department of Physics, Durham University, Durham, United Kingdom; 2. Department of Physics, Akwa Ibom State University, Mkpat Enin, Nigeria; 3. XMaS beam line, ESRF, Grenoble, France; 4. Department of Physics, University of Liverpool, Liverpool, United Kingdom; 5. ISIS Neutron Facility, Rutherford Appleton Laboratory, Didcot, United Kingdom*

10:48

S2-04. **Probing Quantum Materials and Devices With Next-Generation Neutron Reflectometry.** ***(Invited)*** *A.J. Grutter*[1] *1. NIST Center for Neutron Research, Gaithersburg, MD, United States*

11:24

S2-05. **Enabling Atomic Resolution in Electron Magnetic Circular Dichroism (EMCD) Measurements.** ***(Invited)*** *J. Rusz*[1], D. Negi[2], E. Rotunno[3], P. Zeiger[1], L. Jones[4], M. Zanfrognini[3], J. Idrobo[5], V. Grillo[3] and P. van Aken[2] *1. Department of Physics and Astronomy, Uppsala Universitet, Uppsala, Sweden; 2. Max Planck Institute for Solid State Research, Stuttgart, Germany; 3. CNR-NANO, Modena, Italy; 4. University of Dublin Trinity College, Dublin, Ireland; 5. Oak Ridge National Laboratory, Oak Ridge, TN, United States*

Session E1
HALF-METALLIC MATERIALS

Peter Wadley, Co-Chair
University of Nottingham, Nottingham, United Kingdom
Arjun Pathak, Co-Chair
Ames National Laboratory, Ames, IA, United States

E1-01. **Magneto-Thermal Transport in Weyl Semimetal Co_2MnGa Thin Films.** ***(Invited)*** *H. Reichlova*[1], G. Park[3], P. Ritzinger[1], A. Markou[2], R. Schlitz[1], M. Lammel[3], K. Vyborny[4], D. Kriegner[2,4], P. Swekis[2], J. Noky[2], Y. Sun[2], J. Gayles[2], A. Thomas[3], C. Felser[2] and S. Goennenwein[1] *1. Technische Universitat Dresden, Dresden, Germany; 2. MPI Dresden, Dresden, Germany; 3. Leibniz-Institut fur Festkorper- und Werkstoffforschung Dresden eV, Dresden, Germany; 4. FZU, Academy of Science, Prague, Czechia*

E1-02. **Investigation of non-Collinearity in Mn_2Ru_xGa Compensated Ferrimagnetic Half-Metallic Thin Films.** *K.E. Siewierska*[1], D. Betto[2], N. Teichert[1], Z. Gercsi[1], G. Atcheson[1], N.B. Brookes[3], M. Coey[1] and K. Rode[1] *1. Physics, University of Dublin Trinity College, Dublin, Ireland; 2. Max Planck Institute for Solid State Research, Stuttgart, Germany; 3. ESRF, Grenoble, France*

E1-03. **Possible Half-Metallic Behavior of $Co_{2-x}Cr_xFeGe$ Heusler Alloys: Theory and Experiment.** *R. Mahat*[1], S. KC[1], D. Wines[2], S. Regmi[1], U. Karki[1], F. Ersan[2,3], J. Law[4], C. Ataca[2], V. Franco[4], A. Gupta[5] and P. LeClair[1] *1. Physics and Astronomy, The University of Alabama, Tuscaloosa, AL, United States; 2. Physics, University of Maryland Baltimore County, Baltimore, MD, United States; 3. Physics, Aydin Adnan Menderes University, Aydin, Turkey; 4. Dpto. Física de la Materia Condensada ICMSE-CSIC, Universidad de Sevilla, Sevilla, Spain; 5. Chemistry and Biochemistry, The University of Alabama, Tuscaloosa, AL, United States*

E1-04. **Manipulation of Gilbert Damping in Ultrathin Half-Metallic Co_2FeAl_{1+x} by Composition-Deficiency-Compensation.** Y. Xu[1], *Q. Gao*[1], X. Lu[1] and L. He[1] *1. York-Nanjing Joint Center, Nanjing University, Nanjing, China*

E1-05. **Prediction of Structural, Electronic and Magnetic Properties of Full Heusler Alloys Ir_2YSi (Y= Sc, Ti, v, Cr, Mn, Fe, Co & Ni) via First -Principles Calculation.** *R. Prakash*[1] and G. Kalpana[1] *1. Physics, Anna University Chennai, Chennai, India*

E1-06. **Interplay Between Mn, Fe, and Co in the Co_2FeGe Alloy to Design Novel Singe-Phase Compounds With Potential Spintronic Application.** *S. KC*[1], R. Mahat[1], S. Budhathoki[1], J. Law[2], V. Franco[2], W.H. Butler[1], A. Gupta[3] and P. LeClair[1] *1. Physics and Astronomy, The University of Alabama, Tuscaloosa, AL, United States; 2. Departmento de Fisica de la Materia Condensada ICMSE-CSIC, Universidad de Sevilla, Sevilla, Spain; 3. Department of Chemistry and Biochemistry, The University of Alabama, Tuscaloosa, AL, United States*

E1-07. **Direct Light–Induced Spin Transfer Between Different Elements in a Spintronic Heusler Material via Femtosecond Laser Excitation.** ***(Invited)*** *P.M. Tengdin*[2,1], C. Gentry[2], D. Zusin[2], M. Gerrity[2], L. Hellbrück[3], M. Hofherr[3], J. M. Shaw[4], Y. Kvashnin[5], E.K. Delczeg-Czirjak[5], H. Nembach[4], T. Silva[4], S. Mathias[3], M. Aeschlimann[3], H. Kapteyn[2], D. Thonig[5], K. Kompouras[5], O. Eriksson[5] and M. Murnane[2] *1. Ecole Polytechnique Federale de Lausanne, Lausanne, Switzerland; 2. University of Colorado Boulder, Boulder, CO, United States; 3. Research Center OPTIMAS, University of Kaiserslautern, Kaiserslautern, Germany; 4. Quantum Electromagnetics Division, National Institute of Standards and Technology, Boulder, CO, United States; 5. Uppsala Universitet, Uppsala, Sweden*

E1-08. **Probing Dynamic Magnetization in Ferrimagnetic Sr_2FeMoO_6 With a Lock-in Broadband Spectrometer.** R. Das[1], U. Chaudhuri[1] and *R. Mahendiran*[1] *1. Physics, National University of Singapore, Singapore, Singapore*

E1-09. **Creating Half-Metallicity in two-Dimensional Magnetoelectric Materials.** *C. Gong*[1], S. Gong[2,3], A. Rappe[4] and X. Zhang[5,6] *1. University of Maryland, College Park, College Park, MD, United States; 2. East China Normal University, Shanghai, China; 3. Fudan University, Shanghai, China; 4. University of Pennsylvania, Philadelphia, PA, United States; 5. University of California, Berkeley, Berkeley, CA, United States; 6. University of Hong Kong, Hong Kong, China*

E1-10. **Anomalous Nernst Effect in Co_2MnSi Thin Films.** *C. Cox*[1], A. Caruana[2], m. cropper[1] and K. Morrison[1] *1. Physics, Loughborough University, Loughborough, United Kingdom; 2. ISIS Neutron and Muon Source, Didcot, United Kingdom*

E1-11. **Scaling of Quadratic and Linear Magneto-Optic Kerr Effect Spectra With $L2_1$ Ordering of Co_2MnSi Heusler Compound.** *R. Silber*[2,1], D. Král[3], O. Stejskal[3], T. Kubota[4], Y. Ando[6], J. Pištora[2,1], M. Veis[3], J. Hamrle[3] and T. Kuschel[5] *1. IT4Innovations, VSB-Technical University of Ostrava, Ostrava, Czechia; 2. Nanotechnology Centre, VSB-Technical University of Ostrava, Ostrava, Czechia; 3. Faculty of Mathematics and Physics, Charles University, Praha, Czechia; 4. Institute for Materials Research, Tohoku University, Sendai, Japan; 5. Center for Spinelectronic Materials and Devices, Department of Physics, Bielefeld University, Bielefeld, Germany; 6. Department of Applied Physics, Tohoku University, Sendai, Japan*

E1-12. **Giant Enhancement of Perpendicular Magnetic Anisotropy and Induced Quantum Anomalous Hall Effect in the Graphene/NiI_2 Heterostructure via Tuning the van der Waals Interlayer Distance.** *Q. Cui*[1,2], J. liang[1] and H. Yang[1] *1. Ningbo Institute of Materials Technology and Engineering, Ningbo, China; 2. University of Nottingham Ningbo China, Ningbo, China*

E1-13. **Co_2Mn-Based Heusler Compounds in Thin Films for Spintronic Applications.** C. Guillemard[1,2], S. Petit-Watelot[1], P. Le Fevre[2], F. Bertran[2] and *S. Andrieu*[1] *1. institut jean lamour, universite de lorraine, Nancy, France; 2. synchrotron SOLEIL, Gif-sur-Yvette, France*

Session E2
NANOPARTICLE AND NANOWIRE ARRAYS AND SELF-ASSEMBLY

Dedalo Sanz-Hernandez, Chair
Unité Mixte de Physique CNRS/Thales, Palaiseau, France

E2-01. **Multi-Shaped Individual Nanoparticles Investigated by NanoSQUID Magnetometry at Variable Temperature.** ***(Invited)*** *M. Martinez-Perez*[1,2], J. Pablo Navarro[1], B. Mueller[3,4], J. Lin[3,4], R. Kleiner[3,4], C. Magen[1], J. de Teresa[1], J. Sese[1] and D. Koelle[3,4] *1. ICMA, CSIC - Universidad de Zaragoza, Zaragoza, Spain; 2. ARAID foundation, Zaragoza, Spain; 3. Physikalisches Institut, Universität Tübingen, Tübingen, Germany; 4. LISA+, Universität Tübingen, Tübingen, Germany*

E2-02. **Spin Ordering in Bi-Magnetic (Core / Shell) Nanoparticles With Varying Anisotropy.** *C. Kons*[1], K.L. Krycka[2], J.A. Borchers[2], N. Ntallis[3], M. Pereiro[3], E. Sjöqvist[3], A. Delin[4], D. Thonig[5], O. Eriksson[3], A. Bergman[3], J. Robles[1], M. Phan[1], H. Srikanth[1] and D.A. Arena[1] *1. Univ. of South Florida, Tampa, FL, United States; 2. National Institute of Standards and Technology, Gaithersburg, MD, United States; 3. Uppsala University, Uppsala, Sweden; 4. KTH Royal Institute of Technology, Stockholm, Sweden; 5. Örebro Universitet, Orebro, Sweden*

E2-03. **Quantitative Understanding of Superparamagnetism in Ni Nanoparticle Assemblies.** *B. Das*[1], J. Batley[1], C. Korostynski[1], M. Nguyen[1], I. Kamboj[1], E.S. Aydil[1,2] and C. Leighton[1] *1. Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN, United States; 2. Department of Chemical and Bimolecular Engineering, New York University Tandon School of Engineering, Brooklyn, NY, United States*

E2-04. **Magnetic Correlations and Time Fluctuations in Assemblies of Fe_3O_4 Nanoparticles.** *K. Chesnel*[1], J. Rackham[1], D. McPhearson[1], B. Newbold[1], D. Griner[1], M. Transtrum[1], R. Harrison[1], A. Reid[2] and J. Kortright[3] *1. Brigham Young University, Provo, UT, United States; 2. SLAC, SIMES, Menlo Park, CA, United States; 3. E O Lawrence Berkeley National Laboratory, Berkeley, CA, United States*

E2-05. **Modeling Magnetic Correlations in Magnetite Nanoparticle Assemblies Using x-ray Magnetic Scattering Data.** *J. Rackham*[1], B. Newbold[1], S. Kotter[1], D. Smith[1], D. Griner[1], A. Reid[3], R. Harrison[2], M. Transtrum[1] and K. Chesnel[1] *1. Physics and Astronomy, Brigham Young University, Provo, UT, United States; 2. Chemistry and Biochemistry, Brigham Young University, Provo, UT, United States; 3. SIMES, SLAC National Accelerator Laboratory, Menlo Park, CA, United States*

E2-06. **Berry Curvature and Topological Hall Effect in Quasi-Coherent Nanoparticles.** *A. Ullah*[1], B. Balasubramanian[1], R. Pahari[1], D.J. Sellmyer[1] and R. Skomski[1] *1. Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE, United States*

E2-07. **Grain Growth Study in Sequentially-Sputtered Co-HfO_2 Granular Films.** *A.K. Toh*[1] and V. Ng[1] *1. Electrical and Computer Engineering, National University of Singapore, Singapore, Singapore*

E2-08. **Fabrication of Thick and Stable Nanoparticle Films via Electrophoretic Deposition on Substrates Functionalized With Chelating Agents.** *S.C. Mills*[1], N.E. Starr[1], N.J. Bohannon[1] and J. Andrew[1] *1. University of Florida, Gainesville, FL, United States*

E2-09. **Withdrawn**

E2-10. **Atomic-Level Analysis of Oxidation Pathways in Fe/Fe Oxide Magnetic Nanoparticles.** *T. Bird*[1], S. Aktas[2,1], S. Alotaibi[1], L. Lari[3,1], D. Kepaptsoglou[4,1], R. Kröger[1] and A. Pratt[1] *1. Department of Physics, University of York, York, United Kingdom; 2. Mechanical Engineering, Giresun Universitesi, Giresun, Turkey; 3. York JEOL Nanocentre, University of York, York, United Kingdom; 4. SuperSTEM, Warrington, United Kingdom*

E2-11. **Withdrawn**

E2-12. **Size-Dependent Magnetism and Skyrmionic Properties in CoSi Nanoclusters.** *R. Pahari*[1], B. Balasubramanian[1], P. Manchanda[2], A. Ullah[1], P. Dev[2], R. Skomski[1] and D.J. Sellmyer[1] *1. Department of Physics and Astronomy and Nebraska Center for Materials and Nanoscience, University of Nebraska, Lincoln, NE, United States; 2. Department of Physics and Astronomy, Howard University, Washington DC, DC, United States*

E2-13. **Colossal Heating Efficiency for Nearly Zero Magnetostrictive Amorphous Microwires via Eddy Currents at Radiofrequency Fields.** I. Morales[1], D. Archilla[1], *P. de la Presa*[1,3], A. Hernando[1,2] and P. Marin[1,3] *1. Instituto de Magnetismo Aplicado, Universidad Complutense de Madrid, Madrid, Spain; 2. Nanoscience, Instituto Madrileno de Estudios Avanzados, Madrid, Spain; 3. Materials Physics, Universidad Complutense de Madrid, Madrid, Spain*

E2-14. **Insights on the Heating Characteristics of Mn and Co-Doped Fe_3O_4.** *S. J*[1] and R.J. Joseyphus[1] *1. Deaprtment of Physics, National Institute of Technology Tiruchirappalli, Tiruchirappalli, India*

Session E3
NEW PROBING TECHNIQUES FOR SPIN TORQUES

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

E3-01. **Real-Time Measurements of Field-Free Spin-Orbit Torque Switching in 3-Terminal Magnetic Tunnel Junctions.** ***(Invited)*** *V. Krizakova*[1], E. Grimaldi[1], G. Sala[1], F. Yasin[2], S. Couet[2], G.S. Kar[2], K. Garello[2] and P. Gambardella[1] *1. ETH Zurich, Zurich, Switzerland; 2. imec, Leuven, Belgium*

E3-02. **All-Optical Probe of Magnetization Precession Frequency Modulated by Spin-Orbit Torque.** *K. Ishibashi*[1,2], S. Iihama[3,4], Y. Takeuchi[5], K. Furuya[5], S. Kanai[5,4], S. Fukami[5,4] and S. Mizukami[2,4] *1. Department of Applied Physics, Graduate School of Engineering, Tohoku University, Sendai, Japan; 2. WPI Advanced Institute for Materials Research, Tohoku University, Sendai, Japan; 3. Frontier Research Institute for Interdisciplinary Sciences, Tohoku University, Sendai, Japan; 4. Center for Spintronics Research Network, Tohoku University, Sendai, Japan; 5. Labratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University, Sendai, Japan*

E3-03. **Optical Spin-Torque in FeCo / Pt Bilayer Thin Films.** *S. Iihama*[1,2] and S. Mizukami[3,2] *1. Frontier Research Institute for Interdisciplinary Sciences (FRIS), Tohoku University, Sendai, Japan; 2. Center for Spintronics Research Network (CSRN), Tohoku University, Sendai, Japan; 3. Advanced Institute for Materials Research (AIMR), Tohoku University, Sendai, Japan*

E3-04. **Magneto-Optical Detection of Spin-Orbit Torque Phenomena Using Sagnac Interferometer Microscope.** *Z. Huang*[1], E. Vetter[1,2], Y. Xiong[3], W. Zhang[3] and D. Sun[1,4] *1. Department of Physics, North Carolina State University, Raleigh, NC, United States; 2. Department of Materials Science and Engineering, North Carolina State University, Raleigh, NC, United States; 3. Department of Physics, Oakland University, Rochester, MI, United States; 4. Organic and Carbon Electronics Lab (ORaCEL), North Carolina State University, Raleigh, NC, United States*

E3-05. **Sensing Stray Fields From Spin-Hall-Controlled Magnetic Nanowires With Nitrogen-Vacancy Centers in Diamond.** ***(Invited)*** *J. Sankey*[1], A. Solyom[1], M. Caouette-Mansour[1], B. Ruffolo[1] and L. Childress[1] *1. Physics, McGill University, Montreal, QC, Canada*

E3-06. **Withdrawn**

E3-07. **Spin-Orbit Torque in a Low Moment Ferrimagnet at High Current Density.** *A. Jha*[1], S. Lenne[1], G. Atcheson[1], K. Rode[1] and P.S. Stamenov[1] *1. School of Physics and CRANN, University of Dublin Trinity College, Dublin, Ireland*

E3-08. **Helium Ion Microscopy for Reduced Spin Orbit Torque Switching Currents.** P. Dunne[1,2], C. Fowley[3], G. Hlawacek[3], *J. Kurian*[1], G. Atcheson[4], S. Colis[1], N. Teichert[4], B. Kundys[1], M. Venkatesan[4], J. Lindner[3], A. Deac[3], T.M. Hermans[2], M. Coey[4] and B. Doudin[1] *1. Université de Strasbourg, CNRS, IPCMS UMR 7504, Strasbourg, France; 2. Université de Strasbourg, CNRS, ISIS, Strasbourg, France; 3. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden, Dresden, Germany; 4. AMBER and School of Physics, Trinity College, Dublin, Ireland*

TUESDAY MORNING 12:00

LIVE Q&A 5

Session E4
SPIN WAVE I: SPATIAL AND NONLINEAR BEHAVIOR

Stefano Bonetti, Co-Chair
Stockholm University, Stockholm, Sweden
Giovanni Finocchio, Co-Chair
University of Messina, Messina, Italy

E4-01. **Magnetization Dynamics in Topological Spin Structures Revealed by Diffractive Ferromagnetic Resonance (DFMR).** ***(Invited)*** *D. Burn*[1], S. Zhang[3,2], G. van der Laan[1] and T. Hesjedal[2] *1. Magnetic Spectroscopy Group, Diamond Light Source, Didcot, United Kingdom; 2. Department of Physics, University of Oxford, Oxford, United Kingdom; 3. ShanghaiTech University School of Physical Science and Technology, Shanghai, China*

E4-02. **Demonstration of *k*-Vector Selective Microscopy for Nanoscale Mapping of Higher Order Spin Wave Modes.** *N. Träger*[1], P. Gruszecki[2,3], F. Lisiecki[3], F. Gross[1], J. Förster[1], M. Weigand[4], H. Glowinski[3], P. Kuswik[3], J. Dubowik[3], M. Krawczyk[2] and J. Gräfe[1] *1. Modern Magnetic Systems, Max Planck Institute for Intelligent Systems, Stuttgart, Germany; 2. Faculty of Physics, Adam Mickiewicz University, Poznan, Poland; 3. Institute of Molecular Physics, Polish Academy of Sciences, Poznan, Poland; 4. Helmholtz-Zentrum Berlin, Berlin, Germany*

E4-03. **Non-Standing Spin-Waves in Confined Micron-Sized Structures Imaged With Time-Resolved STXM.** *S. Pile*[1], T. Schaffers[1,2], S. Stienen[3], M. Buchner[1], S. Wintz[4], S. Mayr[5], J. Förster[4], V. Ney[1], R. Narkowicz[3], K. Lenz[3], M. Weigand[6], J. Lindner[3] and A. Ney[1] *1. Johannes Kepler Universitat Linz, Linz, Austria; 2. Aalto-yliopisto Perustieteiden korkeakoulu, Aalto, Finland; 3. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 4. Max-Planck-Institut fur Intelligente Systeme, Stuttgart, Germany; 5. Paul Scherrer Institut, Villigen, Switzerland; 6. Helmholtz-Zentrum Berlin fur Materialien und Energie GmbH, Berlin, Germany*

E4-04. **Nonreciprocal Behavior in Ferromagnets With Spatially Varying Exchange.** *R. Macedo*[3], A.S. Kudinoor[1,2], K. Livesey[4,1] and R. Camley[1] *1. Physics, University of Colorado at Colorado Springs, Colorado Springs, CO, United States; 2. Physics, Columbia University, New York, NY, United States; 3. James Watt School of Engineering, University of Glasgow, Glasgow, United Kingdom; 4. School of Mathematical and Physical Sciences, The University of Newcastle, Callaghan, NSW, Australia*

E4-05. **Spatially Resolved Magnon Modes in Kagome Artificial Spin Ice With Topological Defects.** ***(Invited)*** *V.S. Bhat*[1,2], S. Watanabe[1], K. Baumgaertl[1] and D. Grundler[1,3] *1. Institute of Materials, Laboratory of Nanoscale Magnetic Materials and Magnonics, School of Engineering, Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland; 2. International Research Centre MagTop, Institute of Physics, Polish Academy of Sciences, Warsaw, Poland; 3. Institute of Microengineering, Laboratory of Nanoscale Magnetic Materials and Magnonics, School of Engineering, Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland*

E4-06. **Nonlocal Stimulation of Three-Magnon Splitting in a Magnetic Vortex.** *L. Körber*[1,2], K. Schultheiss[1], T. Hula[1,3], R.V. Verba[4], J. Fassbender[1,2], A. Kákay[1] and H. Schultheiss[1,2] *1. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. Fakultät Physik, Technische Universitat Dresden, Dresden, Germany; 3. Institut für Physik, Technische Universitat Chemnitz, Chemnitz, Germany; 4. Institute of Magnetism, Kyiv, Ukraine*

E4-07. **Emission and Conversion of Ultra-Short Spin Waves.** *F. Gross*[1], M. Zelent[3], N. Träger[1], U. Sanli[1], R. Sauter[1], J. Förster[1], M. Weigand[2], K. Keskinbora[1], M. Krawczyk[3] and J. Gräfe[1] *1. Max Planck Institute for Intelligent Systems, Stuttgart, Germany; 2. Helmholtz-Zentrum Berlin fur Materialien und Energie, Berlin, Germany; 3. Adam Mickiewicz University, Poznan, Poland*

E4-08. **Nonreciprocal Propagation of Spin Waves in a Ni Film Excited Using Shear Strain Component of Rayleigh-Type Surface Acoustic Wave.** *S. Tateno*[1] and Y. Nozaki[1,2] *1. Physics, Keio University, Yokohama, Japan; 2. Center for Spintronics Research Network, Keio University, Yokohama, Japan*

E4-09. **Non-Linearities Induced by Surface Acoustic Waves in Magnetization Dynamics.** *L. Thevenard*[1,2], M. Kraimia[3,1], P. Kuszewski[1,2], A. Lemaître[4,5], F. Margaillan[1,2], J. Duquesne[1,2] and C. Gourdon[1,2] *1. Institut des Nanosciences de Paris, Sorbonne Université, Paris, France; 2. Centre National de la Recherche Scientifique, Paris, France; 3. LR01ES15 Laboratoire de Physique des Matériaux, Faculté des Sciences de Bizerte, Bizerte, Tunisia; 4. Centre de Nanosciences et de Nanotechnologies, CNRS, Palaiseau, France; 5. Université Paris-Saclay, Palaiseau, France*

E4-10. **Generation and Tuning of a Spin Wave Frequency Comb.** *T. Hula*[1], L. Flacke[2,3], M. Copus[4], L. Liensberger[2,3], K. Schultheiss[1], A. Buzdakov[1], F.J. Gonçalves[1], A. Kákay[1], M. Weiler[2,3], R. Camley[4] and H. Schultheiss[1] *1. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. Walther-Meißner-Institute, Bayerische Akademie der Wissenschaften, Garching, Germany; 3. Physik-Department, Technische Universität München, Munich, Germany; 4. Center for Magnetism and Magnetic Nanostructures, University of Colorado, Colorado Springs, CO, United States*

E4-11. **Electrical Spectroscopy of Forward Volume Spin Waves in Perpendicularly Magnetized Materials.** M. Sushruth[1], M.G. Grassi[2], K. Ait-Oukaci[3,4], D. Stoeffler[2], Y. Henry[2], D. Lacour[3], M. Hehn[3], U. Bhaskar[1], M. Bailleul[2], T. Devolder[1] and *J. Adam*[1] *1. Universite Paris-Saclay, Saint-Aubin, France; 2. Universite de Strasbourg, Strasbourg, France; 3. Institut Jean Lamour, Nancy, France; 4. Synchrotron SOLEIL, Gif-sur-Yvette, France*

E4-12. **Amplification of Propagating Spin Waves by Rapid Cooling.** *M. Schneider*[1], D. Breitbach[1], B. Lägel[1], C. Dubs[2], H. Musiienko-Shmarova[1], D.A. Bozhko[5], A.A. Serga[1], A.N. Slavin[3], V. Tyberkevych[3], P. Pirro[1], B. Hillebrands[1] and A. Chumak[4] *1. Fachbereich Physik and Landesforschungszentrum OPTIMAS, TU Kaiserslautern, Kaiserslautern, Germany; 2. Innovent e.V. Technologieentwicklung, Jena, Germany; 3. Department of Physics, Oakland University, Rochester, MI, United States; 4. Faculty of Physics, University of Vienna, Vienna, Austria; 5. Department of Physics and Energy Science, University of Colorado at Colorado Springs, Colorado Springs, CO, United States*

E4-13. **Investigation of Spin Wave - Skyrmion Interactions for Magnonic Information Processing.** *Z. Hu*[1], Y. Shao[1], V. Lopez Dominguez[1] and P. Khalili Amiri[1] *1. Northwestern University, Evanston, IL, United States*

E4-14. **Magnon Diffusion Lengths in Bulk and Thin Film Fe_3O_4 for Spin Seebeck Applications.** *K. Morrison*[1], G. Venkat[1,2], C. Cox[1], D. Voneshen[3], A. Caruana[3], A. Piovano[4] and m. cropper[1] *1. Physics, Loughborough University, Loughborough, United Kingdom; 2. Materials Science and Engineering, The University of Sheffield, Sheffield, United Kingdom; 3. ISIS Neutron and Muon Source, Didcot, United Kingdom; 4. Institut Laue-Langevin, Grenoble, France*

Session E5
DOMAIN WALLS AND THE DZYALOSHINSKII-MORIYA INTERACTION I
(Poster Session)

Jun-young Kim, Co-Chair
Johannes Gutenberg University of Mainz, Mainz, Germany
Luis Lopez-Diaz, Co-Chair
University of Salamanca, Salamanca, Spain

E5-01. **Ultrafast Domain Wall Propagation due to the Interfacial Dzyaloshinskii-Moriya Interaction.** *D. Mancilla*[1], R. Jaeschke-Ubiergo[2], A. Núñez[2] and S. Allende[1] *1. Universidad de Santiago de Chile, Santiago de Chile, Chile; 2. Universidad de Chile, Santiago de Chile, Chile*

E5-02. **Ta/CoFeB/MgO Analysis for Low Power Nanomagnetic Devices.** *F. Riente*[2], S. Mendisch[1], L. Gnoli[2], V. Ahrens[1], M. Ruo Roch[2] and M. Becherer[1] *1. Technische Universitat Munchen, Munchen, Germany; 2. Politecnico di Torino, Torino, Italy*

E5-03. **Phase Transitions Induced by Concentration and Thermodynamic Magnetic Fluctuations in Chiral Ferromagnets $Fe_{1-x}Co_xSi$.** A. Povzner[1], A. Volkov[1], T. Nogovitsyna[1] and *S. Bessonov*[1] *1. Ural'skij federal'nyj universitet imeni pervogo Prezidenta Rossii B N El'cina, Ekaterinburg, Russian Federation*

E5-04. **Withdrawn**

E5-05. **Design of Giant DMI and its Microscopic Origin in Magnetic Bilayers.** *P. Jadaun*[1], L.F. Register[1] and S.K. Banerjee[1] *1. Electrical and Computer Engineering, The University of Texas at Austin, Austin, TX, United States*

E5-06. **Density Functional Theory and Machine Learning Aided Design of Novel B20 Alloys.** *P. Balachandran*[1,2] *1. Materials Science and Engineering, University of Virginia, Charlottesville, VA, United States; 2. Mechanical and Aerospace Engineering, University of Virginia, Charlottesville, VA, United States*

E5-07. **Effect of the Temperature Annealing-Driven Structural Modification on the Interfacial Dzyaloshinskii-Moriya Interaction in Ru/Co/W/Ru Films.** *A. Samardak*[1], A. Kolesnikov[1], M. Stebliy[1], A. Gerasimenko[2], A. Sadovnikov[3], S. Nikitov[4], A. Ognev[1] and A.S. Samardak[1] *1. Far Eastern Federal University, Vladivostok, Russian Federation; 2. Institute of Chemistry, Far Eastern Branch of Russian Academy of Sciences, Vladivostok, Russian Federation; 3. Laboratory "Metamaterials", Saratov State University, Saratov, Russian Federation; 4. Kotel'nikov Institute of Radioengineering and Electronics, Russian Academy of Sciences, Moscow, Russian Federation*

E5-08. **Experimental Correlation of Interfacial Dzyaloshinskii-Moriya Interaction Amplitude and Work Function in Magnetic Multilayers.** *F. Ajejas*[1], W. Legrand[1], Y. Sassi[1], S. Collin[1], A. Vecchiola[1], K. Bouzehouane[1], S. Pizzini[2], N. Reyren[1], V. Cros[1] and A. Fert[1] *1. Unite Mixte de Physique CNRS/Thales, Palaiseau, France; 2. Institut NEEL, Grenoble, France*

E5-09. **Withdrawn**

E5-10. **Investigation of Interfacial Dzyaloshinskii-Moriya Interaction and Ferromagnetic Resonance of MBE Grown W/Co/Pt Heterostructures.** *S.K. Jena*[1], R. Islam[2], E. Milinska[1], M. Jakubowski[1], A. Pietruczik[1], R. Minikayev[1], W. Paszkowicz[1], S. Lewinska[1], A. Lynnyk[1], R. Puzniak[1], I. Sveklo[3], P. Aleshkevych[1], C. Autieri[2], A. Maziewski[3] and A. Wawro[1] *1. Institute of Physics, Polish Academy of Sciences, Warsaw, Poland; 2. International Research Centre MagTop, Institute of Physics, Polish Academy of Sciences, Warsaw, Poland; 3. Faculty of Physics, University of Bialystok, Bialystok, Poland*

E5-11. **Withdrawn**

E5-12. **Magneto-Transport Studies in Gd-Fe Thin Films.** *H.N. Mohanty*[1], A.K. Sahoo[1], J.A. Chelvane[2] and J.R. Mohanty[1] *1. Physics, Nanomagnetism and Microscopy Laboratory, Department of Physics, Indian Institute of Technology Hyderabad, Kandi, Sangareddy 502285, Telangana, India, Hyderabad, India; 2. Defence Metallurgical Research Laboratory, Hyderabad 500058, India, Hyderabad, India*

E5-13. **FORC-Based Study of the Magnetization Reversal in Synthetic Antiferromagnets With the Interfacial Dzyaloshinskii-Moriya Interaction.** A. Ognev[1], *A. Kolesnikov*[1], M. Stebliy[1], I. Soldatov[2] and A.S. Samardak[1] *1. School of Natural Sciences, Far Eastern Federal University, Vladivostok, Russian Federation; 2. Leibniz Institute for Solid State and Materials Research, Dresden, Germany*

E5-14. **Magnetic Properties of Intercalated Transition Metal Dichalcogenides: $v_{1/3}NbS_2$ and $Cr_{1/3}NbS_2$.** *A. Hall*[1], D. Mayoh[1], S.J. Holt[1], M. Lees[1], O. Petrenko[1] and G. Balakrishnan[1] *1. Department of Physics, University of Warwick, Coventry, United Kingdom*

Session F1
DMI & PROXIMITY EFFECTS IN THIN FILMS

Andoni Lasheras, Chair
University of the Basque Country (UPV/EHU), Bilbao, Spain

F1-01. **Large Dzyaloshinskii–Moriya Interaction Induced by Chemisorbed Species on Ferromagnets.** ***(Invited)*** *G. Chen*[1], A. Mascaraque[3], H. Jia[2], B. Zimmermann[2], M. Robertson[1], R. Lo Conte[4,5], C. Ophus[6], A. Fernandes Cauduro[6], M. Hoffmann[2], M.A. Barrio[3], H. Ding[7], R. Wiesendanger[5], E.G. Michel[8], S. Bluegel[2], A.K. Schmid[6] and K. Liu[9,1]
1. Physics Department, University of California, Davis, Davis, CA, United States; 2. Peter Grünberg Institute, Julich, Germany; 3. Depto. Física de Materiales, Universidad Complutense de Madrid, Madrid, Spain; 4. Department of Materials Science & Engineering, University of California, Berkeley, Berkeley, CA, United States; 5. Department of Physics, University of Hamburg, Hamburg, Germany; 6. Molecular Foundry, Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 7. Department of Physics, Nanjing University, Nanjing, China; 8. Depto. de Física de la Materia Condensada, Universidad Autónoma de Madrid, Madrid, Spain; 9. Physics Department, Georgetown University, Washington, DC, United States

F1-02. **Temperature Dependence of the Dzyaloshinskii-Moriya Interaction in Ultrathin Films.** *Y. Zhou*[1], R. Mansell[1], S. Valencia[2], F. Kronast[2] and S. van Dijken[1] *1. NanoSpin, Department of Applied Physics, Aalto University School of Science, P.O. Box 15100, FI-00076 Aalto, Finland; 2. Helmholtz-Zentrum Berlin für Materialien und Energie, Albert-Einstein Str. 15, 12489, Berlin, Germany*

F1-03. **Experimental Observation of Interlayer Dzyaloshinskii-Moriya Interaction in Synthetic Antiferromagnets.** *A. Fernandez-Pacheco*[2,5], E.Y. Vedmedenko[1], F. Ummelen[3], R. Mansell[4], M. Cascales Sandoval[2], N. Jaouen[6], S. Stanescu[6], D. Petit[5] and R. Cowburn[5] *1. Universitat Hamburg, Hamburg, Germany; 2. University of Glasgow, Glasgow, United Kingdom; 3. Technische Universiteit Eindhoven, Eindhoven, Netherlands; 4. Aalto-yliopisto, Aalto, Finland; 5. University of Cambridge, Cambridge, United Kingdom; 6. Synchrotron SOLEIL, Gif-sur-Yvette, France*

F1-04. **Temperature Dependence of the Magnetic Proximity Effect in Magnetic Insulator/Platinum Heterostructures by Polarized Neutron Reflectometry.** *J. Bauer*[1], P. Quarterman[2], A.J. Grutter[2], B. Kirby[2], J.A. Borchers[2] and C. Ross[1]
1. Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, United States; 2. NIST Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD, United States

F1-05. **Quantitative Determination of the Pt Magnetic Moment in Proximity to Ferromagnetic Material.** *T. Kuschel*[1] *1. Bielefeld University, Bielefeld, Germany*

F1-06. **Microscopic Study of Magnetic Anisotropy Modification in Nanoscale Heavy Metal/Ferromagnetic Insulator Heterostructures.** *G. Wu*[1], S. White[1], W. Ruane[1], Y. Cheng[1], J. Brangham[1], D. Pelekhov[1], F. Yang[1] and P. Hammel[1] *1. physics, The Ohio State University, Columbus, OH, United States*

F1-07. **Withdrawn**

F1-08. **Detection of Interfacial Effects in Rare Earth Metal Doped Ferrimagnet Layer / Heavy Metal Layer Using Magneto-Optical Kerr Effect.** *K. Matsumoto*[1], S. Sumi[1], K. Tanabe[1] and H. Awano[1] *1. Toyota Kogyo Daigaku, Nagoya, Japan*

F1-09. **Transport and Magnetic Properties of TiN Thin Films.** *M. Roy*[1], N. Mucha[1] and D. Kumar[1] *1. Mechanical Engineering, North Carolina Agricultural and Technical State University, Greensboro, NC, United States*

F1-10. **Revealing the Morphology and Magnetic Properties of Single Hybrid Interfaces Embedded in Co/ZnTPP and ZnTPP/Co by FNR.** *G. Avedissian*[1], J. Arabski[1], J. Wytko[2], J. Weiss[2] and C. Meny[1] *1. Institut de Physique et Chimie des Materiaux de Strasbourg, Strasbourg, France; 2. Institut de Chimie de Strasbourg, Strasbourg, France*

F1-11. **Magnetic Domain Patterns of Multilayered [Co/Pt] Thin Films.** *A. Gentillon*[1], C. Richards[1], H. McGhie[1] and O. Hellwig[2] *1. Brigham Young University, Provo, UT, United States; 2. Helmholtz Zentrum Dresden Rossendorf, Dresden, Germany*

TUESDAY
AFTERNOON
12:30

LIVE Q&A 6

Session F2
MAGNETO-ELASTIC AND MAGNETO-CALORIC MATERIALS II

Jia Yan Law, Co-Chair
Sevilla University, Sevilla, Spain
Nirmala R, Co-Chair
Indian Institute of Technology Madras, Chennai, India

F2-01. **Giant Anisotropic Magnetocaloric Effect in all-Sputtered Epitaxial Terbium Thin Films.** *M. El Hadri*[1], V. Polewczyk[2], Y. Xiao[1], S. Mangin[2] and E. Fullerton[1] *1. Center for Memory and Recording Research, University of California San Diego, La Jolla, CA, United States; 2. Institut Jean Lamour, Universite de Lorraine, Nancy, France*

F2-02. **Giant Anisotropy of the Magnetocaloric Effect in the Orthovanadate $TbVO_4$ Single Crystals.** *M. Balli*[3,5], S. Mansouri[5], D. Dimitrov[1,2], P. Fournier[5,4], S. Jandl[5] and J. Juang[2] *1. Institute of Solid State Physics, Bulgarian Academy of Science, Sofia, Bulgaria; 2. Department of Electrophysics, National Chiao Tung University, Hsinchu, Taiwan; 3. LERMA, ESIE, International University of Rabat, Rabat, Morocco; 4. Canadian Institute for Advanced Research, Toronto, ON, Canada; 5. Institut quantique, Université de Sherbrooke, Sherbrooke, QC, Canada*

F2-03. **Tailoring Magnetocaloric Effect in all-d-Metal Ni-Co-Mn-Ti Heusler Alloys: a Combined Experimental and Theoretical Study.** *A. Taubel*[1], B. Beckmann[1], L. Pfeuffer[1], N. Fortunato[1], F. Scheibel[1], S. Ener[1], T. Gottschall[2], K. Skokov[1], H. Zhang[1] and O. Gutfleisch[1] *1. Materials Sciences, Technical University of Darmstadt, Darmstadt, Germany; 2. Dresden High Magnetic Field Laboratory, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany*

F2-04. **Influence of the Martensite Transformation Dynamics on the Magnetocaloric Effect in NiMn-Based Heusler Compounds.** *L. Pfeuffer*[1], T. Gottschall[2], T. Faske[1], A. Taubel[1], F. Scheibel[1], A.Y. Karpenkov[1,3], K. Skokov[1] and O. Gutfleisch[1] *1. Department of Materials Sciences, Technical University of Darmstadt, Darmstadt, Germany; 2. High Magnetic Field Laboratory, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 3. National Research South Ural State University, Chelyabinsk, Russian Federation*

F2-05. **Magneto-Transport and Magnetocaloric Properties of $Al_{1.1}Fe_{2-x}M_x B_2$ (M=Mn, Cr, Co) Intermetallic Compounds.** *D. Malaviya*[1], A.K. Pathak[2], M. Himel[3] and M. Khan[3] *1. Department of Computer Information System, SUNY Buffalo State College, Buffalo, NY, United States; 2. Department of Physics, SUNY Buffalo State College, Buffalo, NY, United States; 3. Department of Physics, Miami University, Oxford, OH, United States*

F2-06. **Enhanced Magnetic and Magnetocaloric Properties of Fe Nanoparticles in TiN Thin Film Matrix.** *S. Shaji*[1], N. Mucha[1] and D. Kumar[1] *1. Mechanical Engineering, North Carolina Agricultural and Technical State University, Greensboro, NC, United States*

F2-07. **Combined Pressure and Magnetic Field Induced Caloric Effects in Fe_7Se_8 Single Crystals.** *Y. Konopelnyk*[1], I. Radelytskyi[1], P. Iwanowski[1], D. Gawryluk[1], M. Berkowski[1], R. Diduszko[2,1], J. Fink-Finowicki[1], R. Puzniak[1] and H. Szymczak[1] *1. Institute of Physics, Polish Academy of Sciences, Warsaw, Poland; 2. Tele and Radio Research Institute, Warszawa, Poland*

F2-08. **Use of the Scaling Laws of the Magnetocaloric Effect to Deconvolute Overlapping Phase Transitions in Biphasic Composites.** *Á. Díaz-García*[1], J. Law[1], P. Gebara[2] and V. Franco[1] *1. Condensed Matter Physics, Universidad de Sevilla, Sevilla, Spain; 2. Physics, Czestochowa University of Technology, Czestochowa, Poland*

F2-09. **Withdrawn**

F2-10. **Applying Materials Informatics Insights to Magnetocaloric Materials Screening and Discovery.** *A.N. Tantillo*[1,2] and K.G. Sandeman[1,2] *1. Physics, The Graduate Center at CUNY, New York, NY, United States; 2. Physics, Brooklyn College, Brooklyn, NY, United States*

F2-11. **Withdrawn**

F2-12. **Bulk-Like First-Order Phase Transition in Mechanochemically Fabricated FeRh Particles.** *D. Clifford*[1], S. Gupta[2], R. Barua[1], A. Biswas[2], R.L. Hadimani[1], Y. Mudryk[2] and V.K. Pecharsky[2,3] *1. Mechanical and Nuclear Eng., Virginia Commonwealth University, Richmond, VA, United States; 2. Division of Materials Science, Ames Laboratory, Ames, IA, United States; 3. Dept. of Materials Science and Engineering, Iowa State University, Ames, IA, United States*

F2-13. **Withdrawn**

F2-14. **Dysprosium-Yttrium Solid Solutions as Magnetocaloric Materials for Nitrogen gas Liquefaction.** S.V. Taskaev[1,3], K. Skokov[4], *V. Khovaylo*[2], M.N. Ulyanov[1], D. Bataev[1], D. Plakhotskiy[1], M. Kononova[1,2] and Z. Hu[5] *1. Chelyabinsk State University, Chelyabinsk, Russian Federation; 2. National University of Science and Technology "MISIS", Moscow, Russian Federation; 3. National Research South Ural State University, Chelyabinsk, Russian Federation; 4. Material Science, Technische Universität Darmstadt, Darmstadt, Germany; 5. University of Science and Technology Beijing, Beijing, China*

F2-15. **Decoupling of Magnetic Sublattices in NiMn-Based Heusler Compounds.** *F. Cugini*[1,2], S. Chicco[1], G. Cavazzini[1,2], F. Orlandi[3], G. Allodi[1], V. Vezzoni[1], M. Gruner[4], L. Righi[5], S. Fabbrici[2], F. Albertini[2] and M. Solzi[1,2] *1. SMFI Department, Universita degli Studi di Parma, Parma, Italy; 2. IMEM-CNR Institute, Parma, Italy; 3. ISIS Facility STFC, Didcot, United Kingdom; 4. Department of Physics, Universitat Duisburg-Essen, Duisburg, Germany; 5. SCVSA department, Universita degli Studi di Parma, Parma, Italy*

F2-16. **Designing Multicaloric Materials for Novel Multi-Stimuli Cooling Cycle.** *F. Scheibel*[1], A. Taubel[1], L. Pfeuffer[1], B. Beckmann[1], W. Liu[1], T. Gottschall[2], K. Skokov[1] and O. Gutfleisch[1] *1. Materials Sciences, Technical University of Darmstadt, Darmstadt, Germany; 2. Dresden High Magnetic Field Laboratory, elmholtz-Zentrum Dresden- Rossendorf, Dresden, Germany*

F2-17. **Withdrawn**

F2-18. **Temperature Dependence of the Magnetic Interactions Taking Place in Monodisperse Magnetite Nanoparticles Having Different Morphologies.** E. Navarro[1], Y. Luengo[1], S. Veintemillas-Verdaguer[1], M.P. Morales[1], F. Palomares[1], U. Urdiroz[1], F. Cebollada[2] and *J.M. González*[1] *1. Instituto de Ciencia de Materiales de Madrid - CSIC, Madrid, Spain; 2. Universidad Politécnica de Madrid, Madrid, Spain*

Session F3
NOVEL SENSORS I

Hendrik Ohldag, Co-Chair
Lawrence Berkeley National Laboratory, Berkeley, CA, United States
Tom Thomson, Co-Chair
University of Manchester, Manchester, United Kingdom

F3-01. **Magnetic Domain Behavior up to the GHz Regime in Magnetic Sensors With PicoTesla Sensitivity – Magnetic Noise and Domain Optimization.** ***(Invited)*** *J. McCord*[1], C. Müller[1], M. Jovičević Klug[1], E. Golubeva[1], N. Urs[1] and D. Schiewitz[1] *1. Institute for Materials Science, Kiel University, Kiel, Germany*

F3-02. **Detection Limit Normalization and Study of TMR Magnetic Field Sensors.** *E. Monteblanco*[1], C. Chopin[1], J. Moulin[1], P. Belliot[2], N. Belin[2], C. Fermon[1], M. pannetier-lecoeur[1] and A. Solignac[1] *1. SPEC, Commissariat a l'energie atomique et aux energies alternatives Institut rayonnement-matiere de Saclay, Gif-sur-Yvette, France; 2. CrivaSense Technologies SAS, 91190 Saint Aubin, France, Saint Aubin, France*

F3-03. **Withdrawn**

F3-04. **Withdrawn**

F3-05. **Magnetic Noise due to Asymmetric Oscillations in Magnetic Tunneling Readers.** ***(Invited)*** *A. Stankiewicz*[1] *1. Seagate Recording Head Operations, Bloomington, MN, United States*

F3-06. **FeAlSi Thin Films With low Magnetic Anisotropy for the Free Layer of Magnetic Tunnel Junction Based Sensors.** *S. Akamatsu*[1], M. Oogane[1], M. Tsunoda[1] and Y. Ando[1] *1. Engineering, Tohoku Daigaku, Sendai, Japan*

F3-07. **Highly Sensitive Magnetic Sensor for Detecting Magnetic Nanoparticles Based on Magnetic Tunnel Junctions at a Static Field.** *Z. Jin*[1], T. Koo[2], M. Kim[5], M. Al-Mahdawi[3,4], M. Oogane[1,3], Y. Ando[1,4] and Y. Kim[2,5] *1. Department of Applied Physics, Tohoku University, Sendai, Japan; 2. Department of Materials Science and Engineering, Korea University, Seoul, The Republic of Korea; 3. Center for Science and Innovation in Spintronics (Core Research Cluster) Organization for Advanced Studies, Tohoku University, Sendai, Japan; 4. Center for Spintronics Research Network, Tohoku University, Sendai, Japan; 5. The Institute for High Technology Materials and Devices, Korea University, Seoul, The Republic of Korea*

F3-08. **Analysis of 1/f Low-Frequency Noise in Vortex-Based Spin-Torque Nano-Oscillators for Magnetic Sensing Applications.** *M. Jotta Garcia*[1], J. Moulin[2], S. Wittrock[1], S. Tsunegi[3], K. Yakushiji[3], H. Kubota[3], S. Yuasa[3], U. Ebels[4], M. pannetier-lecoeur[2], C. Fermon[2], P. Bortolotti[1], A. Solignac[2] and V. Cros[1] *1. Unité Mixte de Physique, CNRS, Thales, Université Paris-Saclay, 91767 Palaiseau, France; 2. SPEC, CEA-Saclay, CNRS, Université Paris-Saclay, 91191 Gif-sur-Yvette, France; 3. National Institute of Advanced Industrial Science and Technology, Spintronics Research Center, Tsukuba, Ibaraki 305-8568, Japan; 4. SPINTEC, CEA-Grenoble, CNRS and Université Grenoble Alpes, 38054 Grenoble, France*

F3-09. **2D Magnetrode for Local Neuronal Magnetic Recording.** *C. Chopin*[1], E. Paul[1], C. Fermon[1], A. Solignac[1] and M. pannetier-lecoeur[1] *1. Service de Physique de l'Etat Condense, Gif Sur Yvette, France*

F3-10. **Anomalous Hall Sensors With High Sensitivity and Stability for Microsensing.** *K. Wang*[1], Y. Zhang[1] and G. Xiao[1] *1. Brown University, Providence, RI, United States*

F3-11. **Curvature Effects on Magnetic Field Sensitivity of Magnetoelectric Nano-Plate Resonators.** *A. Matyushov*[1,2], B. Spetzler[3], M. Zaeimbashi[1], J. Zhou[1], Z. Qian[1], E. Golubeva[3], C. Tu[1], Y. Guo[1], B. Chen[1], D. Wang[1], A. Will-Cole[1], H. Chen[1], M. Rinaldi[1], J. McCord[3], F. Faupel[3] and N.X. Sun[1] *1. ECE, Northeastern University, Boston, MA, United States; 2. Physics, Northeastern University, Boston, MA, United States; 3. Institute of Material Science, Kiel University, Christian-Albrechts-Universitat zu Kiel, Kiel, Schleswig-Holstein, DE, Kiel, Germany*

F3-12. **Flexible Highly Compliant Magnetoelectronics.** G. Canon Bermudez[1], J. Ge[1], M. Kaltenbrunner[2], J. Fassbender[1] and *D. Makarov*[1] *1. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. Johannes Kepler Universitat Linz, Linz, Austria*

TUESDAY AFTERNOON 12:30

LIVE Q&A 6

Session F4
INTERDISCIPLINARY APPLICATIONS III (Poster Session)

Claudio Bonizzoni, Chair
Istituto Nanoscienze Consiglio Nazionale delle Ricerche Sede secondaria di Modena, Modena, Italy

F4-01. **Monte Carlo Simulation to Study the Effect of Molecular Spin State on the Spatio-Temporal Evolution of Equilibrium Magnetic Properties of Magnetic Tunnel Junction Based Molecular Spintronics Devices.** *A. Grizzle*[1] and P. Tyagi[1] *1. Center for Nanoscale Research and Education (CNRE), University of the District of Columbia, Washington, DC, United States*

F4-02. **Optimization of Cobalt Concentration & Cation Distribution for Improved Magnetic Characteristics and Stability of $Co_xFe_{3-x}O_4$ Mixed Ferrite Magnetic Fluids.** *P. Kumar*[1,3], S. Pathak[1,4], A. Singh[1,2], K. Singh[1,3], H. Khanduri[1], G. Basheed[1,3] and R. Pant[1,3] *1. Indian Reference Materials Division, National Physical Laboratory CSIR, New Delhi, India; 2. Indian Institute of Technology Jammu, Jammu, India; 3. Academy of Scientific and Innovative Research, Ghaziabad, India; 4. RMIT University College of Science Engineering and Health, Melbourne, VIC, Australia*

F4-03. **Equilibrium Configurations in a Magnetic Fluid-Based Mapping System for Designing MagLev Devices: Experiment and Simulations.** *P. Ryapolov*[1], V. Bashtovoi[2], A. Reks[2], E. Sokolov[1] and E. Postnikov[3] *1. Natural science faculty, Southwest State University, Kursk, Russian Federation; 2. UNESCO Chair, Belarusian National Technical University, Kursk, Russian Federation; 3. Theoretical Physics, Kursk State University, Kursk, Russian Federation*

F4-04. **Passive Piezomagnetic Monitoring of Structures Subjected to in-Service Cyclic Loading: Application to the Detection of Fatigue Crack Initiation and Propagation.** *A. Ouaddi*[1,2], O. Hubert[1], J. Furtado[2], D. Gary[2] and S. He[3] *1. Laboratoire de Mecanique et Technologie, Cachan, France; 2. Air Liquide Centre de Recherche Paris-Saclay, Jouy-en-Josas, France; 3. Groupe Leonard de Vinci, Paris, France*

F4-05. **Development of Sub-mm Period Undulator With $L1_0$ Phase FePt Micromagnet Array.** *B.D. Gürel*[1,2], N. Gunduz Akdogan[3] and O. Akdogan[1] *1. Bahcesehir Universitesi, Istanbul, Turkey; 2. Sabanci Universitesi, Istanbul, Turkey; 3. Piri Reis Universitesi, Istanbul, Turkey*

F4-06. **Study of Thermo-Magnetoconvection of a Magnetofluidic Cooling Device.** *V.B. Varma*[1,2], M.S. Pattanaik[1,2], S.K. Cheekati[1,2] and R. Ramanujan[1,2] *1. School of Materials Science and Engineering, Nanyang Technological University, Singapore, Singapore; 2. Singapore-HUJ Alliance for Research and Enterprise (SHARE), Nanomaterials for Energy and Energy-Water Nexus (NEW), Campus for Research Excellence And Technological Enterprise (CREATE), Singapore, Singapore*

F4-07. **Full Scale Localization of Underwater Magnetic Sensors Using Natural Computing Algorithms.** R. Alimi[1], *E. Fisher*[1,2], K. Nahir[1] and E. Weiss[1] *1. Soreq NRC, Soreq Nuclear Research Center, Yavne, IL, Yavne, Israel; 2. Jerusalem College of Technology, Yerushalayim, Israel*

F4-08. **Enhancement for Magnetic Field Strength of a Magnetohydrodynamic Thruster Consisting of Permanent Magnets.** *Y. Li*[1], C. Zeng[1] and Y. Chen[1] *1. Mechanical and Aerospace Engineering, National Defense University Chung Cheng Institute of Technology, Taoyuan, Taiwan*

F4-09. **Electro-Permanent Magnetic Actuator for Miniaturized Well Logging Tool.** *H.R. Seren*[1], E. Buzi[1] and M. Deffenbaugh[1] *1. Aramco Research Center - Houston, Aramco Services Company, Houston, TX, United States*

F4-10. **The Underwater Ferromagnetic Target Location System Based on Gauss Meter Array.** *D. Xie*[1] and J. Qiu[1] *1. Chongqing University, Chongqing, China*

F4-11. **Withdrawn**

F4-12. **γ-Irradiation Synthesis and Characterization of Iron Oxide Nanomaterials.** *I. Marić*[3], M. Gotić[1], G. Štefanić[1], J. Grenèche[2], A. Pustak[3] and T. Jurkin[3] *1. Laboratory for molecular physics and synthesis of new materials, Institut Ruder Boskovic, Zagreb, Croatia; 2. Institut des Molecules et Materiaux du Mans, Le Mans, France; 3. Radiation chemistry and dosimetry laboratory, Institut Ruder Boskovic, Zagreb, Croatia*

F4-13. **Eddy Current Loss Analysis in Permanent Magnet Linear Gear Using Analytical Method.** *G. Jang*[1], S. Seo[1], J. Nah[1], J. Bird[2] and J. Choi[1] *1. Chungnam National University, Daejeon, The Republic of Korea; 2. Portland State University, Portland, OR, United States*

TUESDAY
AFTERNOON
12:30

LIVE Q&A 6

Session F5
MAGNETISM AND SUPERCONDUCTIVITY (Poster Session)

Rolando Valdes Aguilar, Chair
The Ohio State University, Columbus, OH, United States

F5-01. **Influence of Single-ion Anisotropy on the Phase States of two-Sublattice non-Heisenberg Magnet.** *E. Yarigina*[1], P. Klevets[1] and Y. Fridman[1] *1. V.I. Vernadsky Crimean federal university, Simferopol, Russian Federation*

F5-02. **MöSsbauer Studies on Magnetism in FeSe.** *H. Choi*[1], J. Seo[1], Y. Uhm[2], G. Sun[2] and C. Kim[1] *1. Department of Physics, Kookmin University, Seoul, The Republic of Korea; 2. HANARO Operation and Utilization, Korea Atomic Energy Research Institute, Daejeon, The Republic of Korea*

F5-03. **Low-Dimensional Antiferromagnets Near SU(N) Symmetry.** A. Kolezhuk[1,2] and *T. Zavertanyi*[1] *1. Taras Shevchenko National University of Kyiv, Kyiv, Ukraine; 2. Institute of Magnetism NAS and MES of Ukraine, Kyiv, Ukraine*

F5-04. **Quantum-Classical Crossover in Nanomagnets Embedded in the Josephson ϕ_0 Junction.** *G. Kim*[1] *1. Physics and Astronomy, Sejong University College of Natural Sciences, Gwangjin-gu, The Republic of Korea*

F5-05. **Fabrication and Characterization of NbN Magnetic Josephson Junctions Using non-Collinear Antiferromagnet Mn_3GaN.** *H. Kato*[1], S. Nakamura[1], K. Matsuura[1], B. Qiang[1], T. Hajiri[1] and H. Asano[1] *1. Nagoya Daigaku Kogakubu Daigakuin Kogaku Kenkyuka, Nagoya, Japan*

F5-06. **DFT-Based Calculations of the Magnetic Hyperfine Interactions at Cd Sites in RECd Compounds With the FP-LAPW ELK Code.** *L. Scalise*[1], A. Burimova[1], L.F. Pereira[1], W. Ferreira[1], T.S. Sales[1], V. Gonçalves[1], G. Cabrera-Pasca[2], R.N. Saxena[1] and A.W. Carbonari[1] *1. Instituto de Pesquisas Energeticas e Nucleares, Sao Paulo, Brazil; 2. Universidade Federal do Para - Campus Abaetetuba, Abaetetuba, Brazil*

F5-07. **Coherent Manipulation of a Vanadium-Based Molecular Qubit Coupled to a Nuclear Qudit.** *S. Chicco*[1,2], E. Garlatti[1,2], G. Allodi[1], M. Atzori[4], A. Chiesa[1,2], A. Albino[3], L. Sorace[3,2], R. De Renzi[1], R. Sessoli[3,2] and S. Carretta[1,2] *1. Mathematical, Physical and Computer sciences, Universita degli Studi di Parma, Parma, Italy; 2. Consorzio Interuniversitario Nazionale per la Scienza e Tecnologia dei Materiali, Firenze, Italy; 3. Universita degli Studi di Firenze, Firenze, Italy; 4. Laboratoire National des Champs Magnétiques Intenses, Grenoble, France*

F5-08. **Crystalline Structure and Magnetic Properties of Pyrite FeS_2.** *H. Choi*[1], J. Seo[1], Y. Uhm[2], G. Sun[2] and C. Kim[1] *1. Department of Physics, Kookmin University, Seoul, The Republic of Korea; 2. HANARO Operation and Utilization, Korea Atomic Energy Research Institute, Daejeon, The Republic of Korea*

F5-09. **Nonequilibrium Critical Behavior of the 3D Isotropic and Anisotropic Heisenberg Models.** *A.S. Lyakh*[1], P.V. Prudnikov[1] and V.V. Prudnikov[1] *1. Theoretical Physics, Dostoevsky Omsk State University, Omsk, Russian Federation*

F5-10. **Probing Majorana Fermion in Two Dimensional Noncentrosymmetric Superconductors by Using Equal-Spin Andreev Reflections.** H. Lai[1], *M. Wang*[1] and C. Chang[1] *1. Physics, National Taiwan University, Taipei, Taiwan*

F5-11. **Annealing Effect on the Structural and Local Magnetic Properties of Nickel Ferrite Nanoparticles Studied by Hyperfine Interaction Measurements.** *P.S. Rodrigues*[1], I.T. Matos[1], T.S. Sales[1], A. Burimova[1], G. Cabrera-Pasca[2], L.F. Pereira[1], R.N. Saxena[1], L. Otubo[1] and A.W. Carbonari[1] *1. Instituto de Pesquisas Energeticas e Nucleares, Sao Paulo, Brazil; 2. Universidade Federal do Para, Belem, Brazil*

F5-12. **Field-Induced Phase Transitions of Tetramer-Singlet States in Synthetic SU(4) Magnets.** *Y. Miyazaki*[1], D. Yamamoto[1] and N. Furukawa[1] *1. Department of Physics, Aoyama Gakuin University, Sagamihara, Japan*

F5-13. **Withdrawn**

Session F6
RARE EARTH TRANSITION METAL BORIDES II (Poster Session)

Hossein Sepehri Amin, Chair
National Institute for Materials Science, Tsukuba, Japan,
Tsukuba, Japan

F6-01. **Withdrawn**

F6-02. **Microstructure and Magnetic Properties of Novel Cu-Containing Sintered Nd-Fe-B Magnet.** *D. Shi*[1], Q. Lan[1], Q. Huang[2], D. Chen[2] and Y. Shi[1] *1. Institute of rare earth magnetic material, Xiamen Tungsten Co. Ltd., Xiamen, China; 2. Fujian Changting Golden Dragon Rare-Earth Co. Ltd., Longyan, China*

F6-03. **Effect of Mo Monoatomic Interlayer on Magnetic Properties of in-Plane Anisotropic Nd-Fe-B/Mo/FeCo Nanocomposite Multilayered Films.** *K. Koike*[1], K. Ohashi[2], T. Suzuki[2], C. Okita[2], N. Inaba[2], H. Kato[1], M. Itakura[3], S. Hara[4], Y. Saito[4], S. Okubo[4] and H. Ohta[4] *1. Applied Mathematics and Physics, Yamagata University, Yonezawa, Japan; 2. Informatics and Electronics, Yamagata University, Yonezawa, Japan; 3. Interdisciplinary Graduate School of Engineering Sciences, Kyushu University, Kasuga, Japan; 4. Molecular Photoscience Research Center, Kobe University, Kobe, Japan*

F6-04. **Reduction of Nd Moments and Local Magnetic Anisotropy in $Nd_2Fe_{14}B$ Single Crystals.** *H. Sato*[1], Y. Kubo[1], T. Yoshioka[2], H. Tsuchiura[2], Y. Mizuno[1], K. Koike[1], K. Takahashi[3] and H. Kato[1] *1. Graduate School of Science and Engineering, Yamagata University, Yonezawa, Japan; 2. Department of Applied Physics, Tohoku University, Sendai, Japan; 3. Institute for Materials Research, Tohoku University, Sendai, Japan*

F6-05. **Coercivity Enhancement of hot-Deformed NdFeB Magnet by Doping $R_{80}Al_{20}$ (R= La, Ce, Dy, Tb) Alloy Powders.** *Y. Wong*[1], G. Lin[1], H.W. Chang[1] and W. Chang[1] *1. National Chung Cheng University, Minhsiung, Taiwan*

F6-06. **Effect of Shape and Crystallinity of $Tb_{70}Co_{15}Cu_{15}$ Powders on the Coercivity Enhancement of the Sintered NdFeB Magnet by Grain Boundary Diffusion.** *Y. Wong*[1], W. Hsu[1], H.W. Chang[1], Y. Lee[1], W. Chang[1], C. Chiu[2] and C. Mo[3] *1. National Chung Cheng University, Minhsiung, Taiwan; 2. China Steel Corp., Kaohsiung, Taiwan, Kaohsiung, Taiwan; 3. Himag Magnetic Corporation, Pingtung, Taiwan, Pingtung, Taiwan*

F6-07. **Enhanced Magnetic Properties of Chemically Prepared NdFeB Particles by Reduction-Diffusion Method Through Optimization of Heat Treatment.** *S. Kim*[1,3], R. Kuchi[1,2] and D. Kim[1,2] *1. Korea Institute of Materials Science, Changwon, The Republic of Korea; 2. Korea Institute of Geoscience and Mineral Resources, Daejeon, The Republic of Korea; 3. Chungnam National University, Daejeon, The Republic of Korea*

F6-08. **Coercivity Mechanism of Ce-Fe-B Melt-Spinning Ribbons Crystallized by Electron Beam Exposure.** *L. Zha*[1], Z. Lin[1], F. Wang[1] and J. Yang[1] *1. Department of Physics, Peking University, Beijing, China*

Session S3
MAGNETIC NANOPARTICLES FOR BIOMEDICAL DIAGNOSTICS AND IMAGING: RECENT ADVANCES AND PERSPECTIVES

Frank Wiekhorst, Chair
Physikalisch-Technische Bundesanstalt, Berlin, Germany

3:00

S3-01. **Technology Development for Monitoring of Immune Response Signaling in Primary Brain Tumors With Magnetic Nanoparticles.** ***(Invited)*** *S. Diamond*[1,2], C. Spatarelu[1,2], C. Knopke[2] and A.B. Gaur[3] *1. Thayer School of Engineering, Dartmouth College, Hanover, NH, United States; 2. Lodestone Biomedical LLC, Lebanon, NH, United States; 3. Geisel School of Medicine, Dartmouth College, Hanover, NH, United States*

3:36

S3-02. **Hard Magnetic Microparticles in 3D-Nanoprinted Hybrid Micro-Robots for Biological Applications.** ***(Invited)*** *T. Devillers*[1], V. Vieille[1,2], R. Pétrot[1,2], O. Stephan[3], G. Delattre[3], F. Marchi[1], M. Verdier[4] and O. Cugat[2] *1. Univ. Grenoble Alpes, CNRS, Grenoble INP, Institut Néel, Grenoble, France; 2. Univ. Grenoble Alpes, CNRS, Grenoble INP, G2ELab, Grenoble, France; 3. Univ. Grenoble Alpes, CNRS, Grenoble INP, LIPhy, Grenoble, France; 4. Univ. Grenoble Alpes, CNRS, Grenoble INP, SIMAP, Grenoble, France*

4:12

S3-03. **Quantitative Magnetorelaxometry Imaging of Magnetic Nanoparticles for Monitoring Human Cancer Therapies.** ***(Invited)*** *D. Baumgarten*[1], M. Liebl[2], P. Schier[1], A. Jaufenthaler[1], U. Steinhoff[2] and F. Wiekhorst[2] *1. Institute of Electrical and Biomedical Engineering, UMIT - Private University for Health Sciences, Medical Informatics and Technology, Hall in Tirol, Austria; 2. Metrology for Magnetic Nanoparticles, Physikalisch-Technische Bundesanstalt, Berlin, Germany*

4:48

S3-04. **Advances and Perspectives in Theranostic Monitoring Using Magnetic Nanoparticles.** ***(Invited)*** *J. Leliaert*[1], A. Coene[2], P. Radon[3], U. Steinhoff[3] and F. Wiekhorst[3] *1. Dept. of Solid State Sciences, Universiteit Gent, Ghent, Belgium; 2. Department of Electronic Systems, Universiteit Gent, Ghent, Belgium; 3. Metrology of Magnetic Nanoparticles, Physikalisch-Technische Bundesanstalt, Berlin, Germany*

S3-05. **Whither Magnetic Nanoparticles in Translational Cancer Research? *(Invited)*** *D. Ortega*[1,2], A. Santana[2], J. Ortega[2] and I. Rubia-Rodríguez[2] *1. Condensed Matter Physics, Universidad de Cadiz, Campus de Puerto Real, Universidad de Cadiz Campus de Rio San Pedro, Puerto Real, Andalucía, ES, Puerto Real, Spain; 2. IMDEA Nanociencia, Madrid, Spain*

WEDNESDAY MORNING 6:00

LIVE Q&A 7

Session G1
ANTIFERROMAGNETIC SPINTRONICS I

Takahiro Moriyama, Chair
Kyoto University, Uji, Japan

G1-01. **Unconventional Dynamics of Ferrimagnets in the Vicinity of Compensation Points. *(Invited)*** *S. Kim*[1] *1. Physics, Korea Advanced Institute of Science and Technology, Daejeon, The Republic of Korea*

G1-02. **Current-Induced Magnetotransport in Epitaxial Antiferromagnetic Insulator/Heavy-Metal Heterostructures.** *A. Churikova*[1], A. Wittmann[1], N.O. Birge[3], L. Scipioni[2], A. Shepard[2], T. Newhouse-Illige[2], J.A. Greer[2] and G. Beach[1] *1. Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, United States; 2. PVD Products, Inc, Wilmington, MA, United States; 3. Michigan State University, East Lansing, MI, United States*

G1-03. **Withdrawn**

G1-04. **X-ray Magnetic Linear Dichroism Studies of Electrical Switching of Antiferromagnetic Order in α-Fe2O3 Epitaxial Films.** *E. Cogulu*[1], N.N. Statuto[1], Y. Cheng[2], S. Yu[2], F. Yang[2], R.V. Chopdekar[3], H. Ohldag[3] and A.D. Kent[1] *1. Physics Department, Center for Quantum Phenomena, New York University, New York, NY, United States; 2. Department of Physics, The Ohio State University, Columbus, OH, United States; 3. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA, United States*

G1-05. **Importance of the Ferromagnetic Moment Induced by Dzyaloshinskii-Moriya Interaction in a Canted Antiferromagnet for Electrical and Magnetic Field Control of the Néel Order.** *A. Wittmann*[1], A. Churikova[1], L. Scipioni[2], A. Shepard[2], T. Newhouse-Illige[2], J.A. Greer[2], N.O. Birge[3] and G. Beach[1] *1. Massachusetts Institute of Technology, Cambridge, MA, United States; 2. PVD Products, Wilmington, MA, United States; 3. Michigan State University, East Lansing, MI, United States*

G1-06. **Competing Magnetic Ordering in Thin Films of $SrMnO_3$ Studied by Spin Transport.** A. Das[1], *E. Vallabhaneni*[1], a. watson[1] and T. Banerjee[1] *1. faculty of science and engineering, Rijksuniversiteit Groningen Zernike Institute for Advanced Materials, Groningen, Netherlands*

G1-07. **Reversible Hydrogen-ion Control of Room Temperature Antiferromagnetic State in α-Fe_2O_3.** *H. Jani*[1] and T. Venkatesan[2] *1. Physics, National University of Singapore, Singapore, Singapore; 2. ECE, National University of Singapore, Singapore, Singapore*

G1-08. **Observation of Magnon-Polarons in a Uniaxial Antiferromagnetic Insulator Cr_2O_3.** *J. Li*[1], H.T. Simensen[2], D. Reitz[3], Q. Sun[4], C. Li[4], y. Tserkovnyak[3], A. Brataas[2] and J. Shi[1] *1. Department of Physics and Astronomy, University of California Riverside, Riverside, CA, United States; 2. Department of Physics, Norwegian University of Science and Technology, Trondheim, Norway; 3. Department of Physics and Astronomy, University of California Los Angeles, Los Angeles, CA, United States; 4. Department of Mechanical Engineering, University of California Riverside, Riverside, CA, United States*

G1-09. **Domain Walls in Antiferromagnets With Strong Magnetoelastic Coupling.** *O. Gomonay*[1] *1. Johannes Gutenberg Universitat Mainz, Mainz, Germany*

G1-10. **Electrical Control of Antiferromagnetic Domain Walls.** *O.J. Amin*[1], K.W. Edmonds[1], P. Wadley[1], A.W. Rushforth[1], R.P. Campion[1], S. Reimers[1,2], L.X. Barton[1], V. Novák[3], F. Krizek[3], S.S. Dhesi[2] and F. Maccherozzi[2] *1. Physics and Astronomy, University of Nottingham, Nottingham, United Kingdom; 2. Diamond Light Source Ltd, Didcot, United Kingdom; 3. Institute of Physics, Academy of Sciences of the Czech Republic, Praha, Czechia*

G1-11. **Efficient Magnon Transport in Insulating Antiferromagnets Governed by Domain Structures and Doping.** *A. Ross*[1,2], R. Lebrun[3], O. Gomonay[1], D. Grave[4], A. Kay[4], L. Baldrati[1], S. Becker[1], A. Qaiumzadeh[6], C. Ulloa[5], G. Jakob[1,2], F. Kronast[7], J. Sinova[1,2], R. Duine[5,6], A. Brataas[6], A. Rothschild[4] and M. Klaui[1,2] *1. Johannes Gutenberg Universitat Mainz, Mainz, Germany; 2. Johannes Gutenberg University Mainz Graduate School of Excellence Materials Science in Mainz, Mainz, Germany; 3. Unite Mixte de Physique CNRS/Thales, Palaiseau, France; 4. Technion Israel Institute of Technology, Haifa, Israel; 5. Universiteit Utrecht Departement Natuur- en Sterrenkunde, Utrecht, Netherlands; 6. Norges teknisk-naturvitenskapelige universitet, Trondheim, Norway; 7. Helmholtz-Zentrum Berlin fur Materialien und Energie GmbH, Berlin, Germany*

G1-12. **Birefringence-Like Spin Transport via Linearly Polarized Antiferromagnetic Magnons.** *J. Han*[1*], P. Zhang[1], Z. Bi[1], Y. Fan[1], T.S. Safi[1], J. Xiang[1], J. Finley[1], L. Fu[1], R. Cheng[2] and L. Liu[1] *1. Massachusetts Institute of Technology, Cambridge, MA, United States; 2. University of California Riverside, Riverside, CA, United States*

G1-13. **Voltage Control of Magnon Spin Currents in an Antiferromagnetic Insulator.** *C. Liu*[1], Y. Luo[1,2], D. Hong[1], S. Zhang[3], F. Brandon[1], J. Pearson[1], S. Jiang[1], A. Hoffmann[1,4] and A. Bhattacharya[1] *1. Argonne National Laboratory, Lemont, IL, United States; 2. Hangzhou Dianzi University, Hangzhou, China; 3. Case Western Reserve University, Cleveland, OH, United States; 4. University of Illinois at Urbana-Champaign, Urbana, IL, United States*

** - Best student presentation award finalist*

Session G2
INSTRUMENTATION AND MEASUREMENT TECHNIQUES I

Valerio Scagnoli, Chair
Paul Scherrer Institut, Villigen, Switzerland

G2-01. **Spin Dynamics of Molecular Nanomagnets With Four-Dimensional Inelastic Neutron Scattering.** ***(Invited)*** *T. Guidi*[1], E. Garlatti[2], S. Carretta[2], A. Chiesa[2], P. Santini[2], G. Timco[3] and R.E. Winpenny[3] *1. ISIS, STFC, Science and Technology Facilities Council, Didcot, United Kingdom; 2. Dipartimento di Scienze Matematiche, Fisiche e Informatiche, Universita degli Studi di Parma, Parma, Italy; 3. School of Chemistry and Photon Science Institute, University of Manchester, Manchester, United Kingdom*

G2-02. **X-ray Magnetic Circular Dichroism (XMCD) Study of FeCoMnCrSi Multi-Principal Element Alloy.** *R. Jangid*[1], J. Mehta[1], J. Li[1], A.T. N'Diaye[2] and R. Kukreja[1] *1. Materials Science and Engineering, University of California, Davis, Davis, CA, United States; 2. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA, United States*

G2-03. **Magnetization Configuration of Bi and Ga Substituted $Tm_3Fe_5O_{12}$ Probed by Proximate Anomalous Hall Effect and x-ray Magnetic Circular Dichroism.** *Y. Wang*[1], A.T. Clark[2], H. Chen[1], X. Wang[2], X. Cheng[2], J.W. Freeland[3] and J.Q. Xiao[1] *1. University of Delaware, Newark, DE, United States, Newark, DE, United States; 2. Bryn Mawr College, Bryn Mawr, PA, United States, Bryn Mawr, PA, United States; 3. Argonne National Laboratory, Lemont, IL, United States, Lemont, IL, United States*

G2-04. **Non-Standard Imaging in Magnetic Force Microscopy.** *M. Jaafar*[1,2], E. Berganza[2] and A. Asenjo[2] *1. Condensed Matter, Universidad Autonoma de Madrid, Madrid, Spain; 2. ICMM, Consejo Superior de Investigaciones Cientificas, Madrid, Spain*

G2-05. **A Position-Independent Approach to Accurate Measurement of Broadband Electromagnetic Constitutive Parameters of Magneto-Dielectric Materials.** *Q. Li*[1], Y. Chen[2], C. Caisse[3], A. Horn[3] and V. Harris[1] *1. Department of Electrical and Computer Engineering, Northeastern University, Boston, MA, United States; 2. Innovation Center, Rogers Corporation, Burlington, MA, United States; 3. Lurie R&D Center, Rogers Corporation, Rogers, CT, United States*

G2-06. **Withdrawn**

G2-07. **Laser-Free GHz Stroboscopic TEM: Deployment, Benchmarking, and Applications.** ***(Invited)*** *J.W. Lau*[1], K.B. Schliep[1], M.B. Katz[1], V.J. Gokhale[1], J.J. Gorman[1], A. Liu[2], Y. Zhao[2], C. Jing[2], A. Kanareykin[2], X. Fu[3] and Y. Zhu[3] *1. National Institute of Standards and Technology, Gaithersburg, MD, United States; 2. Euclid TechLabs, Bolingbrook, IL, United States; 3. Brookhaven National Laboratory, Upton, NY, United States*

G2-08. **Magnetic Characterization and Quantification of Magnetic Nanoparticle Endocytosis Mechanisms by Particle Tracking Velocimetry.** *A. Sannidhi*[1], P. Todd[2] and T. Hanley[1] *1. Chemical Engineering, Auburn University, Auburn, AL, United States; 2. Magnaquant, Louisville, KY, United States*

G2-09. **Withdrawn**

G2-10. **Electromagnetic Modelling of the Magnetic Needle Probe Method From Parallel Domain Structure by FD Approximation.** *Y. Tene Deffo*[2,1], P. Tsafack[2] and B. Ducharne[1] *1. Laboratoire de Génie Electrique et Ferroélectricité, INSA de Lyon, 69100, Villeurbanne, France; 2. Faculty of Engineering and Technology, University of Buea, Buea, Cameroon*

G2-11. **Mechanical Torque Vector Measurements for Micromagnets.** *K. Fast*[1], J. Thibault[1], V. Sauer[1,4], M. Dunsmore[1], A. Kav[1], J.E. Losby[1,5], Z. Diao[1,6], E. Luber[2], M. Belov[3] and M.R. Freeman[1] *1. Physics, University of Alberta, Edmonton, AB, Canada; 2. Chemistry, University of Alberta, Edmonton, AB, Canada; 3. National Research Council Canada Nanotechnology Research Centre, Edmonton, AB, Canada; 4. Wyvern Space, Edmonton, AB, Canada; 5. Physics and Astronomy, University of Calgary, Calgary, AB, Canada; 6. Physics, Florida Agricultural and Mechanical University, Tallahassee, FL, United States*

G2-12. **Effect of Field Orientation and Infill Percentage on the VSM Calibration Factor of FFM 3D Printed Samples.** *K. Dieckow*[1], C.Q. Howlader[2], T.N. Ahmed[2], M.C. Belduque[3], J. Tate[3,2] and W.J. Geerts[1,2] *1. Physics, Texas State University, San Marcos, TX, United States; 2. MSEC, Texas State University, San Marcos, TX, United States; 3. Engineering, Texas State University, San Marcos, TX, United States*

G2-13. **Prediction of Magnetic Shield Plate Performance Using Permeability in Alternating Micromagnetic Fields.** *M. Sakakibara*[2,1], G. Uehara[1], Y. Adachi[1] and T. Shinnoh[2] *1. Kanazawa Institute of Technology, Kanazawa, Japan; 2. Ohtama Co., Ltd., Tokyo, Japan*

G2-14. **An Algorithm for Radial Offset Systematic Error Correction in Second-Order Gradiometer-Based Vibrating Sample Magnetometers.** *P.S. Stamenov*[1] *1. School of Physics and CRANN, University of Dublin Trinity College, Dublin, Ireland*

Session G3
MAGNETIZATION DYNAMICS AND DAMPING II: ULTRAFAST DEMAGNETIZATION AND MAGNETO-OPTICS

André Philippi-Kobs, Chair
Deutsches Elektronen-Synchrotron, Hamburg, Germany

G3-01. **Effects of CoFe Alloy Composition on Magnetization Dynamics and Magnetic Thermal Transport.** *R. Mohan*[1], V.H. Ortiz[2], Y. Sun[2], S. Mathaudhu[2], S. Coh[2] and R. B. Wilson[1,2] *1. Material Science & Engineering, University of California, Riverside, Riverside, CA, United States; 2. Mechanical Engineering, University of California, Riverside, Riverside, CA, United States*

G3-02. **Engineering $Co_2MnAl_xSi_{1-x}$ Heusler Compounds as a Model System to Correlate Spin Polarization, Intrinsic Gilbert Damping and Ultrafast Demagnetization.** *W. Zhang*[1], C. Guillemard[1,2], C. de Melo[1], G. Malinowski[1], S. Petit-Watelot[1], J. Gorchon[1], S. Mangin[1], F. Bertran[2] and S. Andrieu[1] *1. institut jean lamour, lorraine unviersity, Nancy, France; 2. synchrotron SOLEIL, Gif-sur-Yvette, France*

G3-03. **Photon Energy Dependent fs-Demagnetization Dynamics of Thin Nickel Films.** *M. Stiehl*[1], C. Seibel[1], M. Weber[1], J. Hoefer[1], S. Ashok[1], S. Weber[1], B. Stadtmüller[1], H. Schneider[1], B. Rethfeld[1] and M. Aeschlimann[1] *1. Physics, Technische Universitat Kaiserslautern, Kaiserslautern, Germany*

G3-04. **Ultrafast Optically Induced Spin Transfer (OISTR) in Ferromagnetic Alloys.** ***(Invited)*** *M. Aeschlimann*[1] *1. Department of Physics and Research Center OPTIMAS, Technische Universitat Kaiserslautern, Kaiserslautern, Germany*

G3-05. **Ultrafast Demagnetization Excited by Extreme Ultraviolet Light From a Free-Electron Laser.** *A. Philippi-Kobs*[1,2], L. Müller[1,2], M. Berntsen[1,3], W. Roseker[1], M. Riepp[1], K. Bagschik[1,2], J. Wagner[2], R. Frömter[2], M. Danailov[4], F. Capotondi[4], E. Pedersoli[4], M. Manfredda[4], M. Kiskinova[4], M. Stransky[5], V. Lipp[6], A. Scherz[7], B. Ziaja[6,8], H. Oepen[2] and G. Grübel[1] *1. Deutsches Elektronen-Synchrotron DESY, Hamburg, Germany; 2. Universitat Hamburg, Hamburg, Germany; 3. KTH Royal Institute of Technology, Stockholm, Sweden; 4. Elettra Sincrotrone Trieste, Trieste, Italy; 5. Academy of Sciences of the Czech Republic, Praha, Czechia; 6. Center for Free Electron Laser Science, Hamburg, Germany; 7. European XFEL GmbH, Schenefeld, Germany; 8. Polish Academy of Sciences, Krakow, Poland*

G3-06. **Probing the Laser-Driven Antiferromagnetic to Ferromagnetic Phase Transition of FeRh With Femtosecond Time-Resolved Small Angle X-ray Scattering (tr-SAXS) and X-ray Absorption Spectroscopy (tr-XAS).** *N. Agarwal*[1,2], R. Carley[1], J. Ander Arregi Uribeetxebarria[3], A. Yaroslavtsev[1], V. Valmispild[2,1], L. Le Guyader[1], I. Vaskivskyi[4], R. Kurta[1], M. Izquierdo[1], L. Mercadier[1], G. Mercurio[1], R. Gort[1], N. Gerasimova[1], J. Schlappa[1], B. E. Van Kuiken[1], M. Teichmann[1], S. Molodtsov[1], D. Turenne[5], V. Uhlir[3], C. Back[6], H. Durr[5], A. Lichtenstein[2,1] and A. Scherz[1]
1. European XFEL GmbH, Schenefeld, Germany; 2. University of Hamburg, Hamburg, Germany; 3. Brno University of Technology, Brno, Czechia; 4. Jozef Stefan Institute, Ljubljana, Slovenia; 5. Uppsala University, Uppsala, Sweden; 6. Technical University of Munich, Munchen, Germany

G3-07. **Ultrafast Laser Induced Precessional Dynamics in Antiferromagnetically Coupled Ferromagnetic Films.** *J. Zhou*[1,2], S. Saha[1,2], Z. Luo[1,2], E. Kirk[1,2], V. Scagnoli[1,2] and L. Heyderman[1,2] *1. ETH Zürich, Eidgenossische Technische Hochschule Zurich, Zurich, Switzerland; 2. Paul Scherrer Institut, Villigen, Switzerland*

G3-08. **Chiral Versus Collinear Magnetic Order Dynamics: Faster Chiral Recovery After Optical Excitation Revealed by Femtosecond XUV Scattering.** *N. Kerber*[1,2], D. Ksenzov[3], F. Freimuth[4], F. Capotondi[5], E. Pedersoli[5], I. Lopez-Quintas[5], B. Seng[1,6], J. Cramer[1], K. Litzius[1], D. Lacour[6], H. Zabel[1,7], Y. Mokrousov[1,4], M. Klaui[1,2] and C. Gutt[3] *1. Institut für Physik, Johannes Gutenberg-Universität Mainz, Mainz, Germany; 2. Graduate School of Excellence Materials Science in Mainz, Mainz, Germany; 3. Department Physik, Universität Siegen, Siegen, Germany; 4. Peter Grünberg Institute and Institute for Advanced Simulation, Forschungszentrum Jülich and JARA, Jülich, Germany; 5. Elettra-Sincrotrone Trieste, Trieste, Italy; 6. Institut Jean Lamour, UMR CNRS 7198, Université de Lorraine, Nancy, France; 7. Department of Physics, Ruhr-University Bochum, Bochum, Germany*

G3-09. **Thermal Coupling Parameters Between Electron, Phonon, and Magnon of Nickel.** *K. Kang*[1] and G. Choi[1,2] *1. Department of Energy Science, Sungkyunkwan University, Suwon city, The Republic of Korea; 2. Center for Integrated Nanostructure Physics, Institute for Basic Science (IBS), Suwon city, The Republic of Korea*

G3-10. **Unification of Ultrafast Demagnetization and Switching.** *G. Zhang*[1], M. Murakami[1], Y. Bai[1], T.F. George[2] and X. Wu[3]
1. Indiana State University, Terre Haute, IN, United States; 2. University of Missouri-St Louis, St Louis, MO, United States; 3. Nanjing University, Nanjing, China

G3-11. **Role of Spin-Resolved Charge and Heat Transport in Ultrafast Demagnetization Dynamics.** *S. Ashok*[1,2], J. Hoefer[1,2], S. Weber[1,2], M. Stiehl[1,2], C. Seibel[1,2], J. Briones[1,2], B. Rethfeld[1,2], M. Aeschlimann[1,2] and B. Stadtmüller[1,2]
1. Technische Universitat Kaiserslautern Staatliches Forschungszentrum fur Optik und Materialwissenschaften, Kaiserslautern, Germany; 2. Department of Physics, Technische Universitat Kaiserslautern, Kaiserslautern, Germany

G3-12. **A Simulation Study of RKKY Exchange Mediated Ultrafast all-Optical Switching of GdCo/[Co/Pt] Heterostructures.** *D. Polley*[1,2], H. Jang[2], J. Chatterjee[2] and J. Bokor[1,2] *1. Material Science, E O Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 2. EECS, University of California Berkeley, Berkeley, CA, United States*

G3-13. **Advanced Atomistic Modelling of Magnetisation Dynamics With Spin and Lattice Degrees of Freedom.** *M.S. Strungaru*[1], M.O. Ellis[2], S. Ruta[1], O. Chubykalo-Fesenko[3], R.F. Evans[1] and R. Chantrell[1] *1. Physics, University of York, York, United Kingdom; 2. Computer Science, The University of Sheffield, Sheffield, United Kingdom; 3. Instituto de Ciencia de Materiales de Madrid, Madrid, Spain*

WEDNESDAY MORNING 6:00

LIVE Q&A 7

Session G4
NEUROMORPHIC COMPUTING WITH NANOMAGNETS
Alice Mizrahi, Chair

G4-01. **Experimental Demonstration of Probabilistic Spin Logic by Magnetic Tunnel Junctions.** *Y. Lv*[1], R.P. Bloom[1] and J. Wang[1] *1. Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States*

G4-02. **Spintronic Memristor Based on the Angular Variation of TMR.** M. Mansueto[1], A. Chavent[1], S. Auffret[1], I. Joumard[1], L. Vila[1], R. Sousa[1], *L. Buda-Prejbeanu*[1], L. Prejbeanu[1] and B. Dieny[1] *1. SPINtronique et Technologie des Composants, Grenoble, France*

G4-03. **Reservoir Computing With Planar Nanomagnet Arrays.** *P. Zhou*[1], A.J. Edwards[1], N.R. McDonald[2], L. Loomis[2], C.D. Thiem[2] and J.S. Friedman[1] *1. Department of Electrical and Computer Engineering, The University of Texas at Dallas, Richardson, TX, United States; 2. Air Force Research Laboratory Information Directorate, Rome, NY, United States*

G4-04. **Superparamagnets for Stochastic Computing.** ***(Invited)*** *S. Majetich*[1] *1. Physics, Carnegie Mellon University, Pittsburgh, PA, United States*

G4-05. **Implementation of Artificial Neural Networks Using Stochastic Computing Units Based on Magnetic Tunnel Junctions.** *Y. Shao*[1], S. Sinaga[1], I. Sunmola[1], A. Borland[1], M. Carey[2], J. Katine[2], V. Lopez Dominguez[1] and P. Khalili Amiri[1] *1. Electrical and Computer Engineering, Northwestern University, Evanston, IL, United States; 2. Western Digital Corp, San Jose, CA, United States*

G4-06. **Superparamagnetic Tunnel Junctions for Invertible Stochastic Logic Gates.** *B. Parks*[1], H. Chen[1], H. Pan[2] and S. Majetich[1] *1. Physics, Carnegie Mellon University, Pittsburgh, PA, United States; 2. University of Science and Technology of China, Hefei, China*

G4-07. **Neuromorphic Computation Using Emergent Magnetisation Dynamics.** *I.T. Vidamour*[1], R. Dawidek[1], S. Kyle[1], P.W. Fry[2], F. Maccherozzi[3], S.S. Dhesi[3], N. Steinke[4], J.F. Cooper[4], E. Vasilaki[2], D. Allwood[1] and T.J. Hayward[1] *1. Materials Science and Engineering, The University of Sheffield, Sheffield, United Kingdom; 2. The University of Sheffield, Sheffield, United Kingdom; 3. Diamond Light Source Ltd, Didcot, United Kingdom; 4. Isis Neutron and Muon Source, Didcot, United Kingdom*

WEDNESDAY MORNING 6:00

LIVE Q&A 7

Session G5
2D MAGNETIC MATERIALS: FUNDAMENTAL PROPERTIES (Poster Session)

Amber McCreary, Chair
National Institute of Standards and Technology, Gaithersburg, MD, United States

G5-01. **Observation of Semimetallic Behaviour and Resolution of Rashba Split Bands Through Shubnikov de Haas Effect in Topological Insulator Sb_2Te_3.** *J. Gretton*[1] and S. Sasaki[1] *1. Condensed Matter Physics, University of Leeds Faculty of Mathematics and Physical Sciences, Leeds, United Kingdom*

G5-02. **A First Principles Study for X-ray Spectra of 2-Dimensional Materials - Fe_3GeTe_2, CrI_3, and $CrGeTe_3$.** *Y. Lee*[1], B. Harmon[1] and L. Ke[1] *1. Ames Laboratory, Ames, IA, United States*

G5-03. **Using Atomic Hydrogen to Activate Graphene on SiC.** *P. Bentley*[1], T. Bird[1], K. Chan[2,1], A. Graham[1], J.C. Zhang[1], A. Ferreira[1] and A. Pratt[1] *1. Department of Physics, University of York, York, United Kingdom; 2. Department of Physics, Imperial College London, London, United Kingdom*

G5-04. **Effect of Magnetic and Electric Fields Work on Cr-Doped $Mo_{1-x}Cr_xSe_2$ (x=0, 0.5) Nanosheet.** Y. Lee[1], T. Tsai[1], Y. Tung[1], C. Kao[1], T. Hsu[1], W. Wu[1], *C. Yang*[1] and K. Lin[2] *1. Department of Physics, Chung Yuan Christian University, Chung Li, Taiwan; 2. Department of Chemical Engineering and Materials Science, Yuan Ze University, Chung-Li, Taiwan*

G5-05. **Enhancement of Coercive Field in van der Waals Ferromagnet Fe_5GeTe_2.** *T. Ohta*[1], K. Sakai[1], H. Taniguchi[1], B. Driesen[4], Y. Okada[4], K. Kobayashi[1,2] and Y. Niimi[1,3] *1. Department of Physics, Osaka University, Toyonaka, Japan; 2. Institute for Physics of Intelligence, University of Tokyo, Bunkyo-ku, Japan; 3. Center for Spintronics Research Network, Osaka University, Toyonaka, Japan; 4. Okinawa Institute of Science and Technology Graduate University, Kunigami-gun, Japan*

G5-06. **Self-Hybridization of Optical and Acoustic Magnon Modes in van der Waals Magnets.** *J. Sklenar*[1] and W. Zhang[2] *1. Wayne State University, Detroit, MI, United States; 2. Oakland University, Rochester, MI, United States*

G5-07. **Extended Bloch's law Description of two-Dimensional Dilute Magnetic Semiconductors.** *Y. Pham*[1], V. Ortiz Jimenez[1], V. Kalappattil[1], B. Muchharla[1], F. Zhang[2], M. Liu[2], M. Terrones[2] and M. Phan[1] *1. University of South Florida, Tampa, FL, United States; 2. The Pennsylvania State University, University Park, PA, United States*

G5-08. **Moir'e Magnons in Twisted Bilayer Magnets With Collinear Order.** *Y. Li*[1] and R. Cheng[1] *1. University of California, Riverside, Riverside, CA, United States*

G5-09. **Valley Polarization, Magnetic Anisotropy and Dzyaloshinskii-Moriya Interaction in Ferromagnetic Janus 2H-VSe*X* (*X* = S, Te) Monolayers.** *S. Qi*[1], J. Jiang[1] and W. Mi[1] *1. Tianjin University, Tianjin, China*

G5-10. **Increased Curie Temperature and Enhanced Perpendicular Magneto Anisotropy of Cr_2Ge_2Te6/NiO Heterostructures.** *H. Idzuchi*[1,2], A.E. Llacsahuanga Allcca[2], X. Pan[1], K. Tanigaki[1] and Y.P. Chen[2,1] *1. Tohoku University, Sendai, Japan; 2. Purdue University, West Lafayette, IN, United States*

G5-11. **Magnon-Phonon Hybridization in a 2D Antiferromagnet.** *T.T. Mai*[1], K. Garrity[2], A. McCreary[1], J. Argo[3], J. Simpson[4], V. Doan-Nguyen[3], R. Valdes Aguilar[5] and A. Hight Walker[1] *1. PML, National Institute of Standards and Technology, Gaithersburg, MD, United States; 2. MML, National Institute of Standards and Technology, Gaithersburg, MD, United States; 3. Materials Science and Engineering, The Ohio State University, Columbus, OH, United States; 4. Physics, Astronomy, and Geosciences, Towson University, Towson, MD, United States; 5. Physics, The Ohio State University, Columbus, OH, United States*

G5-12. **Withdrawn**

G5-13. **Robust Ferromagnetism in 2D α-Fe_2O_3 Nanosheets.** *J. Mohapatra*[1], A. Ramos[1], M. Xing[1], J. Elkins[1], J. Beatty[1] and P. Liu[1] *1. Department of Physics, The University of Texas at Arlington, Arlington, TX, United States*

Session G6
SPECIAL MAGNETIC MATERIALS (Poster Session)

Takayuki Ishibashi, Chair
Nagaoka University of Technology, Nagaoka, Japan

G6-01. **A Typology for Magnetic Field Generator Technologies.** *N. Bouda*[1], N. Prabhu Gaunkar[1], W. Theh[1] and M. Mina[1] *1. Electrical and Computer Engineering, Iowa State University, Ames, IA, United States*

G6-02. **Enhancing Magnetic and Magneto-Optical Properties of Praseodymium Substituted Bi-YIG Thin Film on the Glass Substrate by MOD Method.** T. Thi[1], V. Dongquoc[1], C. Phuoc[1], D. Viet[1], H. Ahn[1] and *J. Jeong*[1] *1. Department of Materials Science and Engineering, Chungnam National University, Daejeon, The Republic of Korea*

G6-03. **Withdrawn**

G6-04. **Withdrawn**

G6-05. **Prospects for Efficient Microwave Energy Harvesting by Thermoelectric Elements Based on the Tunnel Magneto-Seebeck Effect in Magnetic Tunnel Junctions.** *G.D. Demin*[1] and N.A. Djuzhev[1] *1. R&D Center "MEMSEC", National Research University of Electronic Technology (MIET), Moscow, Russian Federation*

G6-06. **Design of High-Speed Permanent-Magnet Synchronous Machines Considering Thermal and Mechanical Characteristics of Permanent Magnet.** *T. Bang*[1], K. Shin[3], J. Woo[1], J. Lee[1], H. Cho[1], J. Bird[2] and J. Choi[1] *1. Chungnam National University, Daejeon, The Republic of Korea; 2. Portland State University, Portland, OR, United States; 3. Chonnam National University, Yeosu, The Republic of Korea*

G6-07. **Withdrawn**

G6-08. **The Microwave Absorption Properties of $Y_2Fe_{16}Si$@MOF and $Y_2Fe_{16}Si$@GO Composites.** *Y. Wang*[1] and J. Yang[1] *1. Peking University, Beijing, China*

G6-09. **Superconducting Ferromagnet Based on Ni_2NbSn Heusler Alloy.** *S. Nalevanko*[1,2], L. Galdun[1], T. Ryba[3], M. Reiffers[4], J. Kačmarčík[5] and R. Varga[1] *1. CPM-TIP, UPJS, Trieda SNP 1, 040 11 Kosice, Slovakia, Kosice, Slovakia; 2. UFV, PF UPJS, Kosice, Park Angelinum 9, 040 01 Kosice, Kosice, Slovakia; 3. RVmagnetics, a.s., Nemcovej 30, 04001 Kosice, Slovakia, Kosice, Slovakia; 4. Inst. Phys., Fac. Hum. and Nat. Sci., UNIPO, Ul. 17. Novembra 1, 080 01 Presov, Slovakia, Presov, Slovakia; 5. UEF SAV, Watsonova 47, 04001 Kosice, Slovakia, Kosice, Slovakia*

G6-10. **Study on Structure and Magnetic Properties of $Y_2(Fe,Co)_{14}B$ Melt-Spun Ribbons.** X. Zhang[1], *J. Han*[1], P. Liu[1], S. Liu[1], C. Wang[1], X. Zhang[1], Q. Xu[1] and Y. Yang[1] *1. School of Physics, Peking University, Beijing, China*

G6-11. **High Frequency Magnetic Properties of Nanostructured $YFe_8Ni_{0.4}B_{0.6}$/Ferrits/Paraffin Composites.** *S. Liu*[1], C. Meng[2,1], W. Chang-Sheng[1] and J. Yang[1] *1. Physics, Peking University, Beijing, China; 2. School of Physical Science and Technology, Inner Mongolia University, Hohhot, China*

G6-12. **Composition Graded Materials With Different Spatial Distribution of Nanograin: Synthesis and Magnetic Properties.** *E. Denisova*[1,2], L. Chekanova[1], I. Nemtsev[1], R. Iskhakov[1], N. Shepeta[2] and L. Kuzovnikova[3] *1. Kirensky Institute of Physics, Federal Research Center KSC SB RAS, Krasnoyarsk, Russian Federation; 2. Siberian Federal University, Krasnoarsk, Russian Federation; 3. Krasnoyarsk Institute of Railways Transport, Krasnoyarsk, Russian Federation*

WEDNESDAY MORNING 6:30

LIVE Q&A 8

Session H1
AMORPHOUS AND NANOCRYSTALLINE SOFT MAGNETS

Song Lan, Chair
Chongqing Jiaotong University, Chongqing, China

H1-01. **Fe-ETM-Nb-B (ETM = Cr, Mn) Glassy Alloys for Energy Recovery.** M. Lostun[1], M. Grigoras[1], G. Ababei[1], G. Stoian[1], H. Chiriac[1] and *N. Lupu*[1] *1. Magnetic Materials and Devices, National Institute of Research and Development for Technical Physics, Iasi, Romania*

H1-02. **Investigating Hidden Devitrification Pathways in the Fe-Si-B System Without Alloying Additions.** *X. Zhang*[1], A. Jimenez[2], J. Mesa[1], R. Pérez del Real[3], M. Vazquez[3] and L. Lewis[1,2] *1. Mechanical and Industrial Engineering, Northeastern University, Boston, MA, United States; 2. Chemical Engineering, Northeastern University, Boston, MA, United States; 3. Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain*

H1-03. **Effects of Magnetostriction on Domain Wall Dynamics Inside Multi-Grains Soft Magnet Revealed by Micromagnetic Simulations.** *H. Tsukahara*[1,2], H. Imamura[2] and K. Ono[1] *1. Daigaku Kyodo Riyo Kikan Hojin Ko Energy Kasokuki Kenkyu Kiko, Tsukuba, Japan; 2. National Institute of Advanced Industrial Science and Technology Tsukuba Center Tsukuba Central, Tsukuba, Japan*

H1-04. **Iron Loss and Magnetic Properties of Amorphous and Nanocrystalline Ring Core Under Inverter Excitation on the Order of MHz.** *A. Yao*[1], F. Kato[1] and H. Sato[1] *1. Advanced Power Electronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan*

H1-05. **Local Coercivity at X-Rays Nanobeam Irradiated Regions in Amorphous $Fe_{80}B_{20}$ Stripes.** U. Urdiroz[2], E. Navarro[2], M. Sánchez-Agudo[1], F. Cebollada[1], *F. Palomares*[2], G. Martínez Criado[2] and J.M. González[2] *1. Universidad Politécnica de Madrid, Madrid, Spain; 2. Instituto de Ciencia de Materiales de Madrid - CSIC, Madrid, Spain*

H1-06. **Soft Magnetic Properties of Co-Based Supersaturated Solid Solutions by Severe Plastic Deformation.** *M. Stückler*[1], J. Zálešák[1], H. Krenn[2], L. Weissitsch[1], S. Wurster[1], C. Gammer[1] and A. Bachmaier[1] *1. Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben, Austria; 2. Institute of Physics, Karl-Franzens-Universitat Graz, Graz, Austria*

H1-07. **Tunable Magnetic Anisotropy in Amorphous-Fiber-Based Structures for Multiferroic Applications.** ***(Invited)*** *V. Rodionova*[1] *1. Laboratory of Novel Magnetic Materials, Immanuel Kant Baltic Federal University, Kaliningrad, Russian Federation*

H1-08. **Exceptional Magnetomechanical Response of Glass-Coated Amorphous Microwires.** *B. Lejeune*[1], P. Gueye[2], D. Archilla[2], E. Navarro[2], M. Vazquez[3,4], R. Pérez del Real[3,4], P. Marin[2] and L. Lewis[1,3] *1. Chemical Engineering, Northeastern University, Boston, MA, United States; 2. Departamento de Física de Materiales, Instituto de Magnetismo Aplicado, UCM-ADIF-CSIC, UCM, P.O. Box 155, Las Rozas, Madrid 28230, Spain; 3. Instituto de Ciencia de Materiales de Madrid, CSIC, Sor Juana Inés de la Cruz 3, 28049 Madrid, Spain; 4. Instituto de Magnetismo Aplicado (UCM), Unidad Asociada (CSIC), Madrid, Spain*

H1-09. **Control of the Length of $Fe_{73.5}Si_{13.5}Nb_3Cu_1B_9$ Microwires to be Used for Magnetic and Microwave Absorbing Purposes.** *P. Gueye*[1], J. Sanchez[1], E. Navarro[1], A. Serrano[2] and P. Marin[1] *1. Universidad Complutense de Madrid Instituto de Magnetismo Aplicado, Madrid, Spain; 2. Instituto de Ceramica y Vidrio, Madrid, Spain*

H1-10. **Withdrawn**

H1-11. **Depth Profiling Study of Magnetic CoFeB Thin Film.** *J. Dwivedi*[2], M. Gupta[1], V. Reddy[1], A. Mishra[2], G. Das[4] and A. Gupta[3] *1. University Grants Commission Department of Atomic Energy Consortium for Scientific Research, Indore, India; 2. School of Physics, Devi Ahilya Vishwavidyalaya, Indore, India; 3. Amity University, Noida, India; 4. KEK-High Energy Accelerator Research Organization, Tsukuba, Japan*

H1-12. **Magnetism and Transport Signatures in Amorphous Transition Metal Silicide and Transitional Metal Germanide Thin Films.** D. Bouma[1,2], J. Karel[3,4], C. Fuchs[1], P. Corbae[5], *N.D. Reynolds*[2,1] and F. Hellman[1,2] *1. Physics, University of California Berkeley, Berkeley, CA, United States; 2. Materials Science Division, E O Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 3. Materials Science and Engineering, Monash University, Clayton, VIC, Australia; 4. ARC Centre of Excellence in Future Low-Energy Electronics Technologies, Clayton, VIC, Australia; 5. Materials Science and Engineering, University of California Berkeley, Berkeley, CA, United States*

H1-13. **The Improvement of the CoZrTaB Thin Films on Different Substrates for Flexible Device Applications.** *Y. Wu*[1], I. Yeng[2] and H. Yu[1] *1. Electrical, Computer and Energy Engineering, Arizona State University, Tempe, AZ, United States; 2. Materials Science and Engineering, Arizona State University, Tempe, AZ, United States*

H1-14. **Magnetic Metal Oxide Nanoparticles for a Remote 3D Thermometry Platform.** *A.J. Biacchi*[1], T.Q. Bui[1], B. Correa[1], C. Dennis[1], S. Woods[1] and A.R. Hight Walker[1] *1. National Institute of Standards and Technology (NIST), Gaithersburg, MD, United States*

H1-15. **Temperature Dependence of the Dzyaloshinskii-Moriya Constant in Ultrathin Pt/Co(Fe)B/Ir Films.** *K.N. Alshammari*[1], L. Benito[1], R. Temple[1], M. Alyami[1], M. Ali[1], P.S. Keatley[2], T. Forrest[3], F. Maccherozzi[3], S. Cavill[4] and T. Moore[1] *1. Uinversity of Leeds, Leeds, United Kingdom; 2. Uinversity of Exeter, Exeter, United Kingdom; 3. Diamond Light Source Ltd, Diamond Light Source Ltd, Harwell, Harwell, United Kingdom; 4. University of York, York, United Kingdom*

WEDNESDAY MORNING 6:30

LIVE Q&A 8

Session H2
EMERGENT PHENOMENA IN COMPLEX OXIDES AND NITRIDES

Catherine Pappas, Chair
Delft University of technology, Delft, Netherlands

H2-01. **Colossal Acoustoelectric Effect in $La_{0.7}Sr_{0.3}MnO_3$.** *P.N. Lapa*[1], M. Lee[1], I. Chiu[2], Y. Takamura[3] and I.K. Schuller[1] *1. Department of Physics, University of California San Diego, La Jolla, CA, United States; 2. Department of Chemical Engineering, University of California Davis, Davis, CA, United States; 3. Department of Materials Science and Engineering, University of California Davis, Davis, CA, United States*

H2-02. **Rashba-Like Spin-Orbit Coupling in the Strained Ferroelectric $PbTiO_3$.** *J. Gosteau*[1], R. Arras[1], C. Paillard[2], H. Zhao[3] and L. Bellaiche[3] *1. CEMES, Centre d'Elaboration de Materiaux et d'Etudes Structurales, Toulouse, France; 2. Laboratoire SPMS, CentraleSupélec/CNRS UMR8580, Université Paris-Saclay, Gif-sur-Yvette, France; 3. Physics Department and Institute for Nanoscience and Engineering University of Arkansas, Fayetteville, AR, United States*

H2-03. **Structural and Magnetic Properties of Perovskite $LaCo_{0.5}Fe_{0.5}O_3$ Nanostructures Sintered at Various Temperatures.** *E. Sert*[1,2], M. Kaynar[2,3], C. Ünlü[4], B. Kalkan[5] and S. Özcan[2,3] *1. Physics, Cankiri Karatekin Universitesi, Cankiri, Turkey; 2. Nanotechnology and Nanomedicine, Hacettepe Universitesi, Graduate School of Science and Engineering, Ankara, Turkey; 3. Physics Engineering, SNTG Lab. Hacettepe University, Ankara, Turkey; 4. Biomedical Engineering, Pamukkale Universitesi Muhendislik Fakultesi, Denizli, Turkey; 5. Physics Engineering, Hacettepe Universitesi, Mühendislik Fakültesi, Ankara, Turkey*

H2-04. **Electronic Structure and Magnetism of Half-Metallic Quadruple Perovskite $ACu_3Fe_2Re_2O_{12}$(a=Ca, Sr, Ba, Pb, Sc, Y, La) by First Principles Theory.** *D. Wang*[1], M. Shaikh[2], S. Ghosh[2] and B. Sanyal[1] *1. Physics and Astronomy, Uppsala Universitet, Uppsala, Sweden; 2. Department of Physics and Nanotechnology & SRM Research Institute, SRM University, SRM Institute of Science and Technology, Kattankulathur, India*

H2-05. **Thermal Decomposition of $GdCrO_4$ to $GdCrO_3$: Structure and Magnetism.** *P. Mohanty*[1], S. Jacobs[1], A. Prinsloo[1] and C. Sheppard[1] *1. Physics, University of Johannesburg, Johannesburg, South Africa*

H2-06. **Withdrawn**

H2-07. **Hidden Multipolar Orders in $5d^1$ Ba_2MgReO_6.** *A. Mansouri Tehrani*[1] and N.A. Spaldin[1] *1. Eidgenossische Technische Hochschule Zurich - Campus Honggerberg, Zurich, Switzerland*

H2-08. **Clinching Experimental Evidence of "Room Temperature Ferromagnetic Behavior" in 5 mol% Mn Doped $SrTiO_3$.** *P. K R S*[1], P. Janolin[2], U. Luders[3] and K. Varma[4] *1. Materials Science, Central University of Tamil Nadu, Tiruvarur, India; 2. SPMS, CentraleSupelec Bibliotheques, Gif-sur-Yvette, France; 3. Materials Science, Laboratoire de Cristallographie et Sciences des Materiaux, Caen, France; 4. Materials Science, Indian Institute of Science, Bangalore, India*

H2-09. **Interfacial Tuning of Chiral Magnetic Interactions for Large Topological Hall Effects in $LaMnO_3$/$SrIrO_3$ Heterostructures.** ***(Invited)*** *E. Skoropata*[1], J. Nichols[1], J. Ok[1], R.V. Chopdekar[2], E. Choi[3], A. Rastogi[1], C. Sohn[1], X. Gao[1], T. Farmer[1], R. Desautels[1], Y. Choi[4], D. Haskel[4], J.W. Freeland[4], S. Okamoto[1], M. Brahlek[1] and H. Lee[1] *1. Oak Ridge National Laboratory, Oak Ridge, TN, United States; 2. E O Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 3. National High Magnetic Field Laboratory, Tallahassee, FL, United States; 4. Argonne National Laboratory Advanced Photon Source, Lemont, IL, United States*

H2-10. **Withdrawn**

H2-11. **Withdrawn**

H2-12. **Nuclear Magnetic Resonance and Relaxation in Uranium Mononitride.** *A.Y. Germov*[1], V.V. Ogloblichev[1], S.V. Verkhovskii[1], A.M. Potapov[2] and A.V. Andreev[3] *1. M N Mikheev Insititute of metal physics of the Ural Branch of the Russian Academy of Sciences, Yekaterinburg, Russian Federation; 2. The Institute of High Temperature Electrochemistry of the Ural Branch of the Russian Academy of Sciences, Yekaterinburg, Russian Federation; 3. FZU Institute of Physics, Czech Academy of Sciences, Prague, Czechia*

WEDNESDAY MORNING 6:30

LIVE Q&A 8

Session H3
HARD MAGNETIC MATERIALS: SM-BASED INTERMETALLICS AND OTHERS

Yanglong Hou, Chair
Peking University, Beijing, China

H3-01. **Intrinsic and Extrinsic Properties of $Sm(FeCo)_{12}$ With $ThMn_{12}$ Structure.** ***(Invited)*** *Y. Takahashi*[1] *1. Busshitsu Zairyo Kenkyu Kiko, Tsukuba, Japan*

H3-02. **Study on Phase Relations of Sm-Fe,Co-Ti-(Ga) System Towards Development of $SmFe_{12}$-Based Permanent Magnets.** *S. Ashok Krishnaswamy*[1,2], H. Sepehri Amin[1], X. Tang[1], P. Tozman[1], S. Kobayashi[3], T. Ohkubo[1] and K. Hono[1,2] *1. Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science, Tsukuba, Japan; 2. Graduate School of Pure and Applied Sciences, University of Tsukuba, Tsukuba, Japan; 3. Japan Synchrotron Radiation Research Institute (JASRI), Sayo, Japan*

H3-03. **Combinatorial Study of Sm-Co-Ti Amorphous Hard Magnet Thin Films.** *P. Rani*[1], E. Carneiro[1], G. Muscas[1], H. Stopfel[1], D. Primetzhofer[1], P.E. Jönsson[1] and G. Andersson[1] *1. Uppsala University, Uppsala, Sweden*

H3-04. **Micromagnetic Simulation Study on Coercivity in $CeCo_5$ Magnet.** *X. Liu*[1] and I.C. Nlebedim[1] *1. Ames Laboratory, Ames, IA, United States*

H3-05. **Design of Sm-Fe-N Magnets.** *T. Saito*[1] *1. Chiba Institute of Technology, Narashino, Japan*

H3-06. **Withdrawn**

H3-07. **Nitrided $ThMn_{12}$-Type Compounds for Sustainable Advanced Manufacturing.** *D. Salazar*[1] *1. BCMaterials, Basque Center for Materials Applications and Nanostructures, Leioa, Spain*

H3-08. **Production of $Sm(Fe,Ti)_{12}$ Magnets by hot Deformation.** T. Saito[1], *Y. Ogawa*[1] and D. Nishio-Hamane[2] *1. Chiba Institute of Technology, Narashino, Japan; 2. Institute for Solid State Physics, The University of Tokyo, Kashiwa, Japan*

H3-09. **Grain Boundary Segregation, Phase Formation, and Their Influence on the Coercivity of Rapidly Solidified $SmFe_{11}Ti$ Hard Magnetic Alloys.** *S. Ener*[1], F. Maccari[1], D. Palanisamy[2], L. Schaefer[1], K. Skokov[1], D. Raabe[2], B. Gault[2] and O. Gutfleisch[1] *1. Functional Materials, Technische Universitat Darmstadt Fachbereich Material- und Geowissenschaften, Darmstadt, Germany; 2. Max-Planck-Institut fur Eisenforschung GmbH, Dusseldorf, Germany*

H3-10. **Recent Advances in SmFe12-Based Hard Magnetic Materials.** ***(Invited)*** *H. Sepehri Amin*[1], Y. Tamazawa[2], M. Kambayashi[2], G. Saito[2], Y. Takahashi[1], D. Ogawa[1], T. Ohkubo[1], S. Hirosawa[1], M. Doi[2], T. Shima[2] and K. Hono[1] *1. Busshitsu Zairyo Kenkyu Kiko, Tsukuba, Japan; 2. Tohoku Gakuin Daigaku, Sendai, Japan*

H3-11. **Withdrawn**

H3-12. **Withdrawn**

H3-13. **The Influence of Grain Size on the Internal Oxidation of Sm_2Co_{17} Sintered Magnets.** *A.R. Campbell*[1] and R.S. Sheridan[1] *1. School of Metallurgy and Materials, University of Birmingham, Birmingham, United Kingdom*

H3-14. **Epitaxy Induced Controlled Phase Separation in Y-Co and Sm-Co Thin Films.** *S. Sharma*[1], D. Ohmer[1], A. Zintler[1], D. Guenzing[2], M. Major[1], I. Radulov[1], P. Komissinskiy[1], B. Xu[1], H. Zhang[1], K. Ollefs[2], K. Skokov[1], L. Molina-Luna[1] and L. Alff[1] *1. Institute of Materials Science, Technische Universität Darmstadt, Darmstadt, Germany; 2. Universität Duisburg-Essen, Duisburg, Germany*

WEDNESDAY MORNING 6:30

LIVE Q&A 8

Session H4
FERRITES AND GARNETS II (Poster Session)

Feng Xu, Chair
Nanjing University of Science and Technology, Nanjing, China

H4-01. **Influence of Size and Shape on key Performance Metrics in Spin-Torque Oscillators.** *B.R. Zink*[1], Y. Lv[1] and J. Wang[1] *1. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States*

H4-02. **Characterization of NiFe and Silicon Dioxide Multilayers for on-Wafer Inductors Operating at Radio and Low GHz Frequencies.** *S. Goldman*[1] and Z. Celinski[1] *1. Physics, University of Colorado at Colorado Springs, Colorado Springs, CO, United States*

H4-03. **Simultaneous Measurement of Permeability and Permittivity Using a Flexible Microstrip Line-Type Probe up to 67 GHz.** *S. Yabukami*[1,2], K. Nozawa[2], L. Ton That[2] and K. Okita[1] *1. Graduate School of Biomedical Engineering, Tohoku University, Sendai, Japan; 2. Graduate School of Engineering, Tohoku University, Sendai, Japan*

H4-04. **Consideration on Lowering Loss Design of Skin Effect Suppressed Multi-Layer Transmission Line With Positive/Negative (Cu/NiFe) Permeability Materials for High Data-Rate and Low Delay-Time I/O Interface Board.** *K.H. Kubomura*[1], Y. Aizawa[1], H. Nakayama[2], R. Hara[2] and H. Tanaka[2] *1. Advanced Course of Production and Environment System, National Institute of Technology (KOSEN), Nagano College, Nagano, Japan; 2. Department of Electronics and Control Engineering, National Institute of Technology (KOSEN), Nagano College, Nagano, Japan*

H4-05. **The Effect of Praseodymium and Samarium Substitution in Inverse Spinel Nickel Ferrite: Structural, Magnetic, and Mossbauer Study.** *D. Guragain*[1], S.R. Mishra[1], T.P. Poudel[1], B.K. Rai[2] and S. Yoon[3] *1. Department of Physics and Material Science, The University of Memphis, Memphis, TN, United States; 2. Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, United States; 3. Department of Physics, Kunsan National University, Gunsan, The Democratic People's Republic of Korea*

H4-06. **Withdrawn**

H4-07. **Synthesis of Reduced Graphene Oxide/$CoFe_2O_4$ Composite Particles and Their Magnetorheological Characteristics.** *Y. Dong*[1] and H. Choi[1] *1. Polymer Science and Engineering, Inha University, Incheon, The Republic of Korea*

H4-08. **Magnetic Performance Improvement Caused by Tensile Stress in Equivalent Iron Core Fabricated by High-Strength Non-Oriented Electrical Steel.** *L. Gao*[1], H. ZHANG[2] and R. Pei[3] *1. Suzhou Inn-mag New Energy Ltd., Suzhou, China; 2. Universite de Technologie de Troyes, Troyes, France; 3. Shenyang University of Technology, Shenyang, China*

H4-09. **Withdrawn**

H4-10. **Withdrawn**

H4-11. **Withdrawn**

H4-12. **Withdrawn**

Session H5
HALF-METALLIC MATERIALS AND MAGNETIC SEMICONDUCTORS (Poster Session)

Simon Granville, Chair
Victoria University of Wellington, Lower Hutt, New Zealand

H5-01. **Synthesis and Characterization of ScPtBi Thin Films.** *Ö. Polat*[1,2], I. Mohelsky[1,2], J. Polčak[1,2], J. Ander Arregi Uribeetxebarria[1] and T. Sikola[1,2] *1. Stredoevropsky technologicky institut, Brno, Czechia; 2. Vysoke uceni technicke v Brne, Brno, Czechia*

H5-02. **Electroresistivity, Magnetic and Galvanomagnetic Properties of Co-Based Heusler Alloys in the States of Half-Metallic Ferromagnet and Spin Gapless Semiconductor.** *A. Semiannikova*[1], V. Irkhin[1], Y.A. Perevozchikova[1], P. Korenistov[1] and V. Marchenkov[1,2] *1. M N Mikheev Institute of Metal Physics of the Ural Branch of the Russian Academy of Sciences, Ekaterinburg, Russian Federation; 2. Ural Federal University named after the first President of Russia B N Yeltsin, Ekaterinburg, Russian Federation*

H5-03. **Co_2FeSn Heusler Nanowires With High Spin Polarization.** *L. Galdun*[1,3], P. Szabo[2], V. Vega[3], E. Barriga-Castro[4], R. Mendoza-Reséndez[5], C. Luna[5], J. Kovac[2], O. Milkovic[6,2], R. Varga[1] and V.M. Prida[3] *1. Center for Progressive Materials, TIP, UPJS, Kosice, Slovakia; 2. Institute of Experimental Physics, Slovak Academy of Sciences, Kosice, Slovakia; 3. Departamento de Física, Facultad de Ciencias, Universidad de Oviedo, Oviedo, Spain; 4. Centro de Investigación en Química Aplicada, Coahuila, Mexico; 5. Universidad Autónoma de Nuevo León, Nuevo León, Mexico; 6. Institute of Materials Research, Slovak Academy of Sciences, Kosice, Slovakia*

H5-04. **Preparation and Thermoelectric Properties of Mn_2CoAl Inverse Full-Heusler Alloy.** *H. Li*[1], Y. Nagashima[1], K. Hayashi[1] and Y. Miyazaki[1] *1. Tohoku Daigaku Daigakuin Kogaku Kenkyuka Kogakubu, Sendai, Japan*

H5-05. **Magnetic Properties of Co_2MeSi and Co_2MeAl (Me = Ti, v, Cr, Mn, Fe, Co, Ni) Half-Metallic Heusler Alloys.** *Y.A. Perevozchikova*[1], A. Semiannikova[1], V. Irkhin[1] and V. Marchenkov[1,2] *1. IMP UB RAS, Ekaterinburg, Russian Federation; 2. UrFU, Ekaterinburg, Russian Federation*

H5-06. **Magnetotransport Properties of Ru Doped Cobalt Ferrite Thin Film With Perpendicular Magnetic Anisotropy.** *M. P*[1] and A.K. P S[1] *1. Physics, Indian Institute of Science, Bangalore, India*

H5-07. **Magnetic and Electronic Properties of Transition Metal Doped Aluminium Nitride: Haldane's Approach Combined With ab Initio Results.** *P. Harikumar*[1] *1. materials science group, Indira Gandhi Centre for Atomic Research, Kalpakkam, India*

H5-08. **Temperature Controlled Anomalous Hall Voltage Switching in Co/Gd Ferrimagnet Near Compensation.** *L.A. Hernandez*[1], R.W. Greening[1], M. Roos[1], X. Fan[1] and B.L. Zink[1] *1. Physics and Astronomy, University of Denver, Denver, CO, United States*

Session S4
ANTIFERROMAGNETIC SPINTRONICS: TRANSPORT AND DYNAMICS IN METALS, INSULATORS AND MAGNETIC TUNNEL JUNCTIONS

Xin Fan, Chair
University of Denver, Denver, CO, United States

9:00

S4-01. **Theory of Spin Transport and Torque in Non-Collinear Antiferromagnets.** ***(Invited)*** *A. Manchon*[1] *1. Aix-Marseille Universite, Marseille, France*

9:36

S4-02. **Sub-Terahertz Antiferromagnetic Spin Pumping in Cr_2O_3.** ***(Invited)*** *J. Shi*[1], J. Li[1], C. Wilson[2], M. Lohmann[1], R. Cheng[1], M. Kavand[2], W. Yuan[1], M. Aldosary[1], N. Agladze[2], P. Wei[1] and M. Sherwin[2] *1. University of California Riverside, Riverside, CA, United States; 2. University of California Santa Barbara, Santa Barbara, CA, United States*

10:12

S4-03. **Voltage-Controlled Antiferromagnetism in Magnetic Tunnel Junctions.** ***(Invited)*** *W. Wang*[1] *1. Physics, University of Arizona, Tucson, AZ, United States*

10:48

S4-04. **Antiferromagnetic Insulatronics: Spintronics Without Magnetic Fields and Moving Charges.** ***(Invited)*** *P. Kläui*[1] *1. Physics, Johannes Gutenberg-Universitat Mainz Fachbereich Physik Mathematik und Informatik, Mainz, Germany*

11:24

S4-05. **Magnetic Spin Hall Effects in Topological Chiral Antiferromagnets.** ***(Invited)*** *Y. Otani*[1,2] *1. Institute for Solid State Physics, Tokyo Daigaku, Bunkyo-ku, Japan; 2. Center for Emergent Matter Science, Rikagaku Kenkyujo, Wako, Japan*

Session I1
INNOVATIVE MAGNETICS DESIGN AND APPLICATIONS

Joe Davies, Chair
NVE Corporation, Eden Prairie, MN, United States

I1-01. **Thermomagnetic Harvesting of low Temperature Waste Heat.** ***(Invited)*** *S. Fähler[1] 1. IMW, Leibniz IFW Dresden, Dresden, Germany*

I1-02. **On-Chip Thin-Film Microtransformer With Improved Coupling Factor for High Frequency Data Transmission.** *D. Dinulovic*[1], M. Shousha[1] and M. Haug[1] *1. MagI3C R&D Division, Wuerth Elektronik eiSos GmbH & Co. KG, Garching, Germany*

I1-03. **Power Conversion Efficiency Prioritized AC Filter Inductor Design for Three-Phase PWM Inverter.** *H. Matsumori*[1], D. Mizutani[1], T. Kosaka[1], N. Matsui[1], T. Miyazaki[2] and Y. Okawauchi[2] *1. Nagoya Kogyo Daigaku, Nagoya, Japan; 2. ROHM Co., Ltd, Kyoto, Japan*

I1-04. **Fast and in Situ Remanent Flux Detection Method for a Protection Current Transformer Based on the Fluxgate Theory.** T. Zheng[1] and *Y. Wang*[1] *1. College of Electrical Engineering, Zhejiang University, Hangzhou, China*

I1-05. **Optically Powered Diamagnetically Levitated Robots for Biomedical Applications.** *M. Beauchamp*[1], S. Yee[1] and H. ElBidweihy[1] *1. Electrical and Computer Engineering, United States Naval Academy, Annapolis, MD, United States*

I1-06. **Permanent Magnet Dipole Design With Strong in-Plane Magnetic Field.** *C. Li*[1], D. Adeyemo[1], B. Zhang[1] and A. Radomski[2] *1. R&D Engineering, dexter magnetic technologies, Elk Grove Village, IL, United States; 2. manufacturing, Dexter Magnetic Technologies inc, Elk Grove Village, IL, United States*

I1-07. **Iron Loss and Hysteresis Properties of Magnetic Materials Excited by Multi Level PWM Inverter.** *A. Yao*[1], F. Kato[1] and H. Sato[1] *1. Advanced Power Electronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan*

I1-08. **Withdrawn**

I1-09. **Parameter Identification of Preisach Model Based on Velocity-Controlled Particle Swarm Optimization Method.** *L. Chen*[1,2], Q. Yi[1], T. Ben[1], H. Xiong[1] and Y. Wang[2] *1. China Three Gorges University, Yichang, China; 2. Hebei University of Technology, Tianjin, China*

Session I2
MICROWAVE AND OPTICAL MAGNETIC MATERIALS

Xinjun Wang, Chair
University of Maryland, Boston, MA, United States

I2-01. **Development of Magnetic Core/Shell Nanostructures for 5G mm Wave Absorbers.** *J. Han*[1], A. Baker[1], A. Troksa[1], d. Qu[1] and S. Mccall[1] *1. Lawrence Livermore National Laboratory, Livermore, CA, United States*

I2-02. **Giant Nonreciprocity in Magnetoacoustic Devices.** ***(Invited)*** P.J. Shah[1,2], D.A. Bas[1], I. Lisenkov[3], A. Matyushov[4], N.X. Sun[4] and *M. Page*[1] *1. Air Force Research Laboratory, Wright-Patterson AFB, OH, Wright-Patterson AFB, OH, United States; 2. Apex Microdevices, West Chester, OH, United States; 3. Independent Researher, Newton Upper Falls, MA, United States; 4. Northeastern University, Northeastern University, Boston, MA, Boston, MA, United States*

I2-03. **Multiferroic Lamb Wave Antenna With Energy Reflecting Components.** *R. Zheng*[1], V.M. Estrada[1] and A. Sepulveda[1] *1. MAR, University of California Los Angeles, Los Angeles, CA, United States*

I2-04. **Hexagonal Ferrite Composite and Sintered Slab Noise Suppressor Embedded in-Between IC Chip and Interposer.** A. Takahashi[1], Y. Miyazawa[1], *M. Yamaguchi*[1,2], R. Sai[4], S. Tanaka[3], K. Jike[3], K. Watanabe[3] and M. Nagatana[3] *1. New Industry Creation Hachery Center, Tohoku Unversity, Sendai, Japan; 2. Department of Electrical Engineering, Tohoku Gakuin Daigaku, Sendai, Japan; 3. Graduate School of Science, Technology and Innovation, Kobe University, Kobe, Japan; 4. Centre for Nano Science and Engineering, Indian Institute of Science, Bengaluru, India*

I2-05. **Broadband-Millimeter-Wave Absorber Based on Ti-Co Substituted ε-Iron Oxide.** *A. Namai*[1], K. Ogata[1], M. Yoshikiyo[1] and S. Ohkoshi[1] *1. Department of Chemistry, School of Science, The University of Tokyo, Bunkyo-ku, Japan*

I2-06. **Single-Pulse all-Optical Toggle Switching of Magnetization Without a Rare Earth.** ***(Invited)*** *J. Besbas*[1], C. Banerjee[1], K.E. Siewierska[1], G. Atcheson[1], N. Teichert[1], P.S. Stamenov[1], K. Rode[1] and M. Coey[1] *1. School of Physics, Trinity College Dublin, Dublin, Ireland*

I2-07. **Linear Chains of Nanomagnets: Engineering the Effective Magnetic Anisotropy.** *A. Talapatra*[1] and A. Adeyeye[1,2] *1. Department of Electrical and Computer Engineering, National University of Singapore - Kent Ridge Campus, Singapore, Singapore; 2. Physics, Durham University, Durham, United Kingdom*

I2-08. **Withdrawn**

I2-09. **Controlling Magnetic Properties of the van der Waals Crystal $MnPS_3$ via the Absorption Spectrum.** *M. Birowska*[1] and J. Kunstmann[2] *1. Faculty of Physics, University of Warsaw, Warsaw, Poland; 2. Theoretical Chemistry, Department of Chemistry and Food Chemistry TU Dresden, Dresden, Germany*

I2-10. **Enhanced Magneto-Optical Effect in Ce:YIG Based All Dielectric Metasurfaces.** *X. Shuang*[1], Q. Liu[2], J. Qin[1], Y. Chen[2], H. Duan[2], L. Deng[1] and L. Bi[1] *1. National Engineering Research Center of Electromagnetic Radiation Control Materials, University of Electronic Science and Technology of China, Chengdu, China; 2. College of Mechanical and Vehicle Engineering National Engineering Research Center for High Efficiency Grinding, Hunan University, Changsha, China*

I2-11. **Design of Tb_xCo_{100-x} for All Optical Switching of Magnetization.** *A. Ciuciulkaite*[1], K. Mishra[2], M.V. Moro[1], I. Chioar[1], R. Rowan-Robinson[3], S. Parchenko[4], A. Kleibert[4], B. Lindgren[1], G. Andersson[1], C. Davies[5], A. Kimel[2], M. Beritta[1], P.M. Oppeneer[1], A. Kirilyuk[5] and V. Kapaklis[1] *1. Physics and Astronomy, Uppsala Universitet, Uppsala, Sweden; 2. Radboud Universiteit Institute for Molecules and Materials, Nijmegen, Netherlands; 3. Department of Material Science and Engineering, The University of Sheffield, Sheffield, United Kingdom; 4. Swiss Light Source, Paul Scherrer Institut, Villigen, Switzerland; 5. FELIX laboratory, Radboud Universiteit, Nijmegen, Netherlands*

I2-12. **Waveguide Integrated Broadband Magneto-Optical Isolators on Silicon Nitride Platforms.** *W. Yan*[1,2], Y. Yang[1,2], S. Liu[1,2], J. Qin[1,2], L. Deng[1,2] and L. Bi[1,2] *1. National Engineering Research Center of Electromagnetic Radiation Control Materials, University of Electronic Science and Technology of China, Chengdu, China; 2. State Key Laboratory of Electronic Thin-Films and Integrated Devices, University of Electronic Science and Technology of China, Chengdu, China*

I2-13. **Magneto-Optical Detection of Photoinduced Magnetism *via* Chirality Induced Spin Selectivity in 2D Chiral Hybrid Organic-Inorganic Perovskites.** *Z. Huang*[1], B. Bloom[2], X. Ni[3], Z. Georgieva[2], M. Marciesky[2], E. Vetter[1], f. liu[3], D. Waldeck[2] and D. Sun[1] *1. Physics, North Carolina State University, Raleigh, NC, United States; 2. Chemistry, University of Pittsburgh, Pittsburgh, PA, United States; 3. Material Science and Engineering, Univeristy of Utah, Salt Lake City, UT, United States*

I2-14. **Interfacial and Bulk Magnetic Properties of Stoichiometric Cerium Doped Terbium Iron Garnet Polycrystalline Thin Films.** *K. Srinivasan*[1], C. Radu[2], D. Bilardello[3], P. Solheid[3] and B. Stadler[1] *1. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States; 2. Lake Shore Cryotronics Inc., Westerville, OH, United States; 3. Institute for Rock Magnetism, Department of Earth and Environmental Sciences, University of Minnesota, Minneapolis, MN, United States*

I2-15. **Optical Vortex and Ferrocell: a Comparative Study.** *A. Tufaile*[2], T.A. Vanderelli[1], M. Snyder[3] and A.P. Tufaile[2] *1. Ferrocell USA, Ligonier, PA, United States; 2. Soft Matter Lab/EACH, Universidade de Sao Paulo, Sao Paulo, Brazil; 3. Morehead State University, Morehead, KY, United States*

I2-16. **GaN Based High Strength Magnetic Field Pulser.** *W. Theh*[1], N. Prabhu Gaunkar[1] and M. Mina[1] *1. Electrical and Computer Engineering, Iowa State University, Ames, IA, United States*

WEDNESDAY MORNING 12:00

LIVE Q&A 9

Session I3
SKYRMION IMAGING

David Burn, Chair
Diamond Light Source Ltd, Didcot, United Kingdom

I3-01. **Real-Space Imaging of Confined Magnetic Skyrmion Tubes.** ***(Invited)*** *M.T. Birch*[1,2], D. Cortés-Ortuño[3], L. Turnbull[1], M. Wilson[1], F. Gross[4], N. Träger[4], A. Laurenson[5], N. Bukin[5], S. Moody[1], M. Weigand[6], G. Schütz[4], H. Popescu[7], R. Fan[2], P. Steadman[2], J. Verezhak[8], G. Balakrishnan[8], J. Loudon[9], A. Twitchett-Harrison[9], O. Hovorka[3], H. Fangohr[3,10], F. Ogrin[5], J. Gräfe[4] and P. Hatton[1] *1. Durham University, Durham, United Kingdom; 2. Diamond Light Source Ltd, Didcot, United Kingdom; 3. University of Southampton, Southampton, United Kingdom; 4. Max Planck Institute for Intelligent Systems, Stuttgart, Germany; 5. University of Exeter, Exeter, United Kingdom; 6. Helmholtz-Zentrum Berlin fur Materialien und Energie GmbH, Berlin, Germany; 7. Synchrotron SOLEIL, Gif-sur-Yvette, France; 8. University of Warwick, Coventry, United Kingdom; 9. Cambridge University, Cambridge, United Kingdom; 10. European XFEL GmbH, Schenefeld, Germany*

I3-02. **Fractal Analysis of Magnetic Domain From Ferromagnetic to Skyrmion States in $MgO/Mn_2CoAl/Pd$ Ultrathin Films.** *G. Dubuis*[1,2], Y. Zhang[1,2], T.J. Butler[1,2] and S. Granville[1,2] *1. Robinson Research Institute, Victoria University of Wellington, Wellington, New Zealand; 2. MacDiarmid Institute for Advanced Materials and Nanotechnology, Wellington, New Zealand*

I3-03. **Domain Wall Skyrmions: Examining Domain Wall Substructures in $[Pt/(Co/Ni)_M/Ir]_N$ Multi-Layers.** *M.P. Li*[1], A. Sapkota[2], A. Rai[2], A. Pokhrel[2], T. Mewes[2], D. Xiao[3,1], C. Mewes[2], M. De Graef[1] and V. Sokalski[1] *1. Materials Science & Engineering, Carnegie Mellon University, Pittsburgh, PA, United States; 2. Department of Physics and Astronomy/MINT Center, The University of Alabama, Tuscaloosa, AL, United States; 3. Department of Physics, Carnegie Mellon University, Pittsburgh, PA, United States*

I3-04. **Utilizing Vacuum States Above Surfaces for Imaging and Manipulation of Atomic-Scale Magnetism.** ***(Invited)*** *A. Schlenhoff*[1] *1. Department of Physics, University of Hamburg, Hamburg, Germany*

I3-05. **Antiferromagnetically-Coupled Skyrmion Lattices in Topological Insulator/Ferrimagnet Heterostructures.** *H. Wu*[1], F. Gross[2], B. Dai[1], D. Lujan[3], S. Razavi[1], P. Zhang[1], X. Li[3], J. Gräfe[2] and K. Wang[1] *1. University of California Los Angeles, Los Angeles, CA, United States; 2. Max Planck Institute for Intelligent Systems, Stuttgart, Germany; 3. The University of Texas at Austin, Austin, TX, United States*

I3-06. **Room-Temperature Skyrmions at Zero Field in Exchange-Biased Ultrathin Films.** *F. Fabre*[1], K. Rana[2], A. Finco[1], S. Chouaieb[1], A. Haykal[1], L. Buda-Prejbeanu[2], O. Fruchart[2], S. Le Denmat[3], P. David[3], M. Belmeguenai[4], T. Denneulin[5], R. Dunin-Borkowski[5], G. Gaudin[2], O. Boulle[2] and V. Jacques[1] *1. Laboratoire Charles Coulomb, Montpellier, France; 2. SPINtronique et Technologie des Composants, Grenoble, France; 3. Institut NEEL, Grenoble, France; 4. Laboratoire des Sciences des Procedes et des Materiaux, Villetaneuse, France; 5. Ernst Ruska-Centre for Microscopy and Spectroscopy with Electrons and Peter Grünberg Institute, Jülich, Germany*

I3-07. **Magnetic Skyrmions in Epitaxial Thin Films of a_2Mo_3N With the Filled β-Mn-Type Structure.** *B. Qiang*[1], N. Togashi[1], S. Wada[1], S. Momose[1], T. Hajiri[1], M. Kuwahara[1] and H. Asano[1] *1. Nagoya Daigaku, Nagoya, Japan*

I3-08. **Significant Anisotropy and Creation of Skyrmions Induced by Chemisorbed Hydrogen.** *G. Chen*[1], A. Quintana[2], A.K. Schmid[3] and K. Liu[2,1] *1. Physics Department, University of California, Davis, Davis, CA, United States; 2. Physics Department, Georgetown University, Washington, DC, United States; 3. Molecular Foundry, Lawrence Berkeley National Laboratory, Berkeley, CA, United States*

I3-09. **Room-Temperature Magnetic Imaging of Antiferromagnetic Skyrmions in Multi-Repeats Synthetic Antiferromagnets.** *Y. Sassi*[1], W. Legrand[1], F. Ajejas[1], S. Collin[1], K. Bouzehouane[1], A. Vecchiola[1], N. Reyren[1], V. Cros[1] and A. Fert[1] *1. Unité Mixte de Physique, CNRS, Thales, Univ. Paris-Sud, Université Paris-Saclay, 91767 Palaiseau, France*

I3-10. **Zero-Field Room Temperature Skyrmion Lattice Stabilized by Interlayer Electronic Coupled Bias Layer.** *F. Ajejas*[1], Y. Sassi[1], W. Legrand[1], S. Collin[1], K. Bouzehouane[1], N. Reyren[1], V. Cros[1] and A. Fert[1] *1. Unite Mixte de Physique CNRS/Thales, Palaiseau, France*

I3-11. **Chirality Switch of Magnetic Skyrmion in Ta/FeCoB/TaOx Trilayers.** *C. Fillion*[1], R. Kumar[1], B. Lovery[1], I. Benguettat-El Mokhtari[3], I. Joumard[1], S. Auffret[1], L. Ranno[2], Y. Roussigné[3], S. Chérif[3], A. Stashkevich[3], M. Belmeguenai[3], C. Baraduc[1] and H. Béa[1] *1. SPINtronique et Technologie des Composants, Grenoble, France; 2. CNRS, Néél Institute, Grenoble, France; 3. Université Sorbonne Paris Nord, LPSM, CNRS, UPR 3407, F-93430 Villetaneuse, France*

Session I4
STRAIN & DOPING EFFECTS IN THIN FILMS

Daniel Salazar, Chair
BCMaterials, Derio, Spain

I4-01. **Curvilinear Magnetism: Fundamentals and Applications.** ***(Invited)*** *D. Makarov*[1] *1. Intelligent Materials and Systems, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany*

I4-02. **Magnetic and Electronic Transport Properties of Reactively Facing-Target Sputtered Fe_4N/Muscovite Flexible Heterostructures.** *X. Shi*[1] and W. Mi[1] *1. Tianjin University, Tianjin, China*

I4-03. **Strengthen the Magnetic Properties of Pr-Fe-B Thin Films by Biased Substrate.** *L.T. Tran*[1], C. Chang[1], M. Kuo[1] and A. Sun[1] *1. Yuan Ze University, Chung-Li, Taiwan*

I4-04. **Temperature Dependence of the Anisotropic Magnetoresistance of Compressively Strained Thin Films of $La_{2/3}Sr_{1/3}MnO_3$ on $LaAlO_3$.** *A. Burema*[1], J.J. van Rijn[1] and T. Banerjee[1] *1. Rijksuniversiteit Groningen, Groningen, Netherlands*

I4-05. **Resistance Minimum in Pd Induced by Hydrogen Absorption.** *T. Ozawa*[1], R. Shimizu[2], T. Hitosugi[2] and K. Fukutani[1,3] *1. Institute of Industrial Science, The University of Tokyo, Meguro, Japan; 2. School of Materials and Chemical Technology, Tokyo Institute of Technology, Meguro, Japan; 3. Advanced Science Research Center, Japan Atomic Energy Agency, Tokai, Japan*

I4-06. **Strain-Modulated Helimagnetism and Magnetic Phase Diagram in a Film of Highly Crystalline MnP Nanorods.** *R. Pokharel Madhogaria*[1], C. Hung[1], E. Clements[1], A. Duong[2], R. Das[2], P. Huy[2], S. Cho[3], M. Phan[1] and H. Srikanth[1] *1. University of South Florida, Tampa, FL, United States; 2. Phenikaa University, Hanoi, Vietnam; 3. University of Ulsan, Ulsan, The Republic of Korea*

I4-07. **Strain Induced Magnetic Transition in $CaMnO_3$ Ultrathin Films.** M.A. Barral[1], A.M. Llois[1] and *S.M. Di Napoli*[1] *1. CNEA-CONICET, Instituto de Nanocienciay Nanotecnologia, San Martin, Argentina*

I4-08. **Magnetic Anisotropy and Electrical Property of CoZrTaB Thin Films Deposited by Oblique Sputtering.** S. Tummalapalli[1] and *H. Yu*[1] *1. School of Electrical, Computer and Energy Engineering, Arizona State University, Tempe, AZ, United States*

I4-09. **Two Magnetic Phases in Mn-Bi_2Te_3 Superlattice.** *S. Bac*[1], X. Liu[1], J. Wang[1], M. Dobrowolska[1], J. Furdyna[1] and B. Assaf[1] *1. Physics, University of Notre Dame, Notre Dame, IN, United States*

I4-10. **Ordered Occupancy of Interstitial Voids in Mn_5Ge_3 Lattice by the Carbon Dopant.** *R. Kalvig*[1], E. Jedryka[1], M. Wojcik[1], M. Petit[2] and L. Michez[2] *1. Polska Akademia Nauk Instytut Fizyki, Warszawa, Poland; 2. Aix-Marseille Universite, Marseille, France*

I4-11. **Evolution of Structural and Magnetic Properties of Ar^{2+} Ion Irradiated TiO_2 Thin Films Annealed Under Argon Atmosphere.** *B. Bharati*[1] and C. RATH[1] *1. SCHOOL OF MATERIALS SCIENCE AND TECHNOLOGY, Indian Institute of Technology BHU Varanasi, Varanasi, India*

I4-12. **Study of Magnetization Behaviour of Co-Doped TiO_2.** R. Gupta[3], *S. Kumar*[1], A. Gupta[2], D. Phase[3] and A. Pandey[4] *1. School of Instrumentation, Devi Ahilya University, Indore, India; 2. Center for Spintronics, Amity University, Noida, India; 3. UGC DAE Consortium for Scientific Research, Indore, India; 4. Inter-University Accelerator Center, New Delhi, New Delhi, India*

I4-13. **Spin Ordering and Precessional Damping in Ferrimagnetic Thin Film Structures Near Compensation.** *J. Shoup*[1], H. Liu[1], D. Khadka[2], T.R. Thapaliya[2], S. Huang[2], D. Karaiskaj[1] and D.A. Arena[1] *1. University of South Florida, Tampa, FL, United States; 2. University of Miami, Coral Gables, FL, United States*

I4-14. **Effect of the N_2/RE Ratio During Growth on the Properties of Rare Earth Nitrides.** *A. Shaib*[1,2], J. Chan[1,2], W. Holmes-Hewett[1,2], F. Ullstad[1,2], J. Miller[1,2], B. Ruck[1,2], H. Trodahl[1,2] and F. Natali[1,2] *1. School of Chemical and Physical Sciences, Victoria University of Wellington, Wellington, New Zealand; 2. The MacDiarmid Institute for Advanced Materials and Nanotechnology, Wellington, New Zealand*

I4-15. **High Degree of Order and Uniaxial Magnetic Anisotropy of $L1_0$-FeNi Films Fabricated by Denitriding Epitaxial FeNiN Films.** *K. Ito*[1,2], M. Hayashida[1], T. Ichimura[1], T. Nishio[3], S. Goto[3], H. Kura[3], T. Koganezawa[4], M. Mizuguchi[5], Y. Shimada[1], T. J. Konno[1], H. Yanagihara[6] and K. Takanashi[1,2] *1. Institute for Materials Research, Tohoku University, Sendai, Japan; 2. Center for Spintronics Research Network, Tohoku University, Sendai, Japan; 3. Advanced Research and Innovation Center, DENSO CORPORATION, Nisshin, Japan; 4. Japan Synchrotron Radiation Research Institute, Sayo, Japan; 5. Department of Materials Process Engineering, Nagoya University, Nagoya, Japan; 6. Department of Applied Physics, University of Tsukuba, Tsukuba, Japan*

Session I5
INSTRUMENTATION AND MEASUREMENT TECHNIQUES II (Poster Session)

Tatiana Guidi, Chair
Science and Technology Facilities Council, Didcot, United Kingdom

I5-01. **Withdrawn**

I5-02. **Magnetic Properties Measurement and Simulation of Electrical Steel Sheet Under Cutting Influence.** Y. Li[1], *Y. Fu*[1], Y. Dou[1] and K. zhang[1] *1. State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China*

I5-03. **Effect of Plastic Straining on the Remanent Magnetization of Ferrite-Pearlitic Steel: Experimental and Modeling Aspects.** Z. Maazaz[1,2], *O. Hubert*[1] and E.A. Fnaiech[2] *1. LMT - Laboratoire de Mécanique et Technologie, Université Paris-Saclay/ENS Paris-Saclay/CNRS, Gif-sur-Yvette, France; 2. SKIPPER - NDT, Paris, France*

I5-04. **Withdrawn**

I5-05. **Ferromagnetic Resonance Studies of Composite EMF Shielding Materials.** *P. Couture*[1], R. Camley[1], K. Livesey[1], T. Robinson[2], D. Meyers[2], S. Maat[2] and Z. Celinski[1] *1. Physics, University of Colorado at Colorado Springs, Colorado Springs, CO, United States; 2. YTC America Inc, Camarillo, CA, United States*

I5-06. **Magnetic Field Spectra and Sizing of Defects in Magnetic Flux Leakage Inspection.** *M. Aziz*[1], R. Abdulla[2] and M. Al-Dujaili[2] *1. Engineering, University of Exeter, Exeter, United Kingdom; 2. MEDCO Ltd, Surrey, United Kingdom*

I5-07. **Study of Mechanical Resonance Induced by Magnetostriction in Closed Structures Based on Fe-Si.** *J. Li*[1], G. Li[1], D. Zhang[1] and K. Yu[2] *1. Dalian University of Technology, Dalian, China; 2. Waseda University, Tokyo, Japan*

I5-08. **Magnetic Measurement and Analysis of C-Type Amorphous by an Improved Adjustable Air Gap Tester.** Y. Li[1], *Z. Wan*[1], H. Sun[1] and H. Liu[1] *1. State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China*

I5-09. **Frequency Characteristics of an air-Cored Coil and its Application to Conductivity Examination.** *W. Cheng*[1,2] and H. Hashizume[2] *1. NDE Center, Japan Power Engineering and Inspection Corp., Yokohama, Japan; 2. Department of Quantum Science and Energy Engineering, Tohoku University, Sendai, Japan*

I5-10. **Withdrawn**

I5-11. **Withdrawn**

WEDNESDAY
AFTERNOON
12:30

LIVE Q&A 10

Session J1
BIOMEDICAL APPLICATIONS I - THERAPEUTIC APPLICATIONS

Anirudh Sharma, Co-Chair
University of Minnesota, Minneapolis, MN, United States
Daniel Ortega, Co-Chair
University of Cádiz, Cádiz, Spain

J1-01. **Effect of Cortex-Coil Distance on Resting Motor Threshold in Schizophrenia Patients During Transcranial Magnetic Stimulation.** ***(Invited)*** E. Cheng[1], U.M. Mehta[2], A.K. Pandurangi[3] and *R.L. Hadimani*[4,1] *1. Department of Biomedical Engineering, Virginia Commonwealth University, Richmond, VA, United States; 2. Department of Psychiatry, National Institute of Mental Health & Neurosciences, Bangalore, India; 3. Department of Psychiatry, Virginia Commonwealth University, Richmond, VA, United States; 4. Department of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States*

J1-02. **Quadruple Silicon Steel Core Coil for Highly Focused Transcranial Magnetic Stimulation in Small Animals.** *I.C. Carmona*[1], D. Kumbhare[2], M.S. Baron[3,4] and R.L. Hadimani[1,5] *1. Dept. of Mechanical and Nuclear Engineering, Virginia Commonwealth University, College of Engineering, Richmond, VA, United States; 2. Department of Neurosurgery, Virginia Commonwealth University Health System, Richmond, VA, United States; 3. McGuire Research Institute, Hunter Holmes McGuire Veterans Affairs Medical Center, Richmond, VA, United States; 4. Southeast Parkinson's Disease Research, Education and Clinical Center (PADRECC), Hunter Holmes McGuire Veterans Affairs Medical Center, Richmond, VA, United States; 5. Dept. of Biomedical Engineering, Virginia Commonwealth University, Richmond, VA, United States*

J1-03. **Contacless Sensing of Spinal Cord Temperature Using Magnetically Bistable Microwires.** J. Gamcova[1,2], M. Bacova[3], I. Sulla[4], L. Slovinska[5], J. Galik[3] and *R. Varga*[1,6] *1. RVmagnetics a.s., Kosice, Slovakia; 2. Institute of Material Science, Slovak Academy of Sciences, Kosice, Slovakia; 3. Institute of Neurobiology, Slovak Academy of Sciences, Kosice, Slovakia; 4. Department of Anatomy, Histology and Physiology, University of Veterinary Medicine and Pharmacy, Kosice, Slovakia; 5. Associated Tissue Bank of Faculty of Medicine, University of Pavol Jozef Safarik in Kosice, Kosice, Slovakia; 6. Center of Progressive Materials TIP, University Pavol Jozef Safarik in Kosice, Kosice, Slovakia*

J1-04. **Liquid Flow and Control Without Solid Walls.** ***(Invited)*** *P. Dunne*[1,2], T. Adachi[2,3], A.A. Dev[1], A. Sorrenti[2,4], L. Giacchetti[2,5], A. Bonnin[6], C. Bourdon[7], P. Mangin[7], M. Coey[8], B. Doudin[1] and T.M. Hermans[2] *1. Institut de Physique et Chimie des Materiaux de Strasbourg, Strasbourg, France; 2. Institut de Science et d'Ingenierie Supramoleculaires, Strasbourg, France; 3. Universite de Geneve, Geneva, Switzerland; 4. Eidgenossische Technische Hochschule Zurich, Zurich, Switzerland; 5. Qfluidics, Strasbourg, France; 6. Paul Scherrer Institut, Villigen, Switzerland; 7. INSERM, EFS Grand-Est, BPPS UMR-S1255, FMTS, Strasbourg, France; 8. University of Dublin Trinity College, Dublin, Ireland*

J1-05. **2D Nanodisks for Magnetic Hyperthermia: Role of Hysteresis Losses.** ***(Invited)*** *P. Tiberto*[1], G. Barrera[1], F. Celegato[1] and M. Coïsson[1] *1. Advance materials and life science, Istituto Nazionale di Ricerca Metrologica, Torino, Italy*

J1-06. **Janus Magnetic-Plasmonic Nanoparticles for Magnetically Targeted and Thermally Activated Cancer Therapy.** ***(Invited)*** *A. Espinosa*[1,2], J. Reguera[3,5], A. Curcio[2], A. Muñoz-Noval[6], C. Kuttner[4], A. Van de Walle[2], L. Liz-Marzán[4,5] and C. Wilhelm[2] *1. IMDEA Nanociencia, Madrid, Spain; 2. Laboratoire Matière et Systèmes Complexes (MSC), Université Paris Diderot, Paris, France; 3. BCMaterials, Basque Center for Materials, Applications and Nanostructures, Bilbao, Spain; 4. CIC biomaGUNE and Ciber-BBN, Donostia-San Sebastián, Spain; 5. Ikerbasque, Basque Foundation for Science, Bilbao, Spain; 6. Dpto. Física Materiales, Facultad CC. Físicas, Universidad Complutense de Madrid, Madrid, Spain*

J1-07. **Functional Magnetic Ferrogels: From Biosensors to Regenerative Medicine.** ***(Invited)*** *G.V. Kurlyandskaya*[1,5], F.A. Blyakhman[5,3], N.A. Buznikov[2], A.P. Safronov[5,4] and S.V. Shcherbinin[5,4] *1. Electricity and Electronics, University of Basque Country UPV-EHU, Leioa, Spain; 2. Scientific and Research Institute of Natural Gases and Gas Technologies, Moscow, Moscow, Russian Federation; 3. Biophysics, Ural State Medical University, Ekaterinburg, Ekaterinburg, Russian Federation; 4. Institute of Electrophysics, UD RAS, Ekaterinburg, Russian Federation; 5. Institute of Natural Sci. and Math., Ural Federal University, Ekaterinburg, Russian Federation*

J1-08. **Using Dipolar Interactions to Improve Magnetic-Hyperthermia Performance of Low-Anisotropy Nanoparticles: Theoretical Study of Chain-Like Structures.** *D.P. Valdés*[1,2], E. Lima Jr.[1], R.D. Zysler[1,2] and E. De Biasi[1,2] *1. Instituto de Nanociencia y Nanotecnología, CNEA-CONICET, S.C. de Bariloche, Argentina; 2. Instituto Balseiro, Universidad Nacional de Cuyo, S.C. de Bariloche, Argentina*

J1-09. **Fundamental Study on Cancer Therapy by Blocking Newborn Blood Vessels With Surface Modified Magnetite Particles.** *M. Kirimura*[1], Y. Akiyama[1] and F. Sato[1] *1. Graduate School of Engineering, Osaka Daigaku, Suita, Japan*

Session J2
CRYSTALLINE SOFT MAGNETIC MATERIALS

Alex Leary, Chair
NASA Glenn Research Center, Sandusky, OH, United States

J2-01. **An Improved Magnetostriction Model of Silicon Steel Considering the Saturated Magnetic Domain Wall Movement.** *T. Ben*[1], F. Chen[1], L. Chen[1,2] and R. Yan[2] *1. China Three Gorges University, Yichang, China; 2. Hebei University of Technology, Tianjin, China*

J2-02. **Withdrawn**

J2-03. **Domain Structure and Energy Losses up to 10 kHz in Grain-Oriented Fe-Si Sheets.** A. Magni[1], A. Sola[1], O. de la Barrière[2], E. Ferrara[1], L. Martino[1], *C. Ragusa*[3], C. Appino[1] and F. Fiorillo[1] *1. Istituto Nazionale di Ricerca Metrologica, Torino, Italy; 2. Lab. SATIE, CNRS–ENS, Saclay, France; 3. Department of Energy, Politecnico di Torino, Torino, Italy*

J2-04. **Secondary Recrystallization Behavior in Magnetostrictive Fe-Ga Thin Sheets Induced by Nano-Sized Composite Precipitates.** *Z. He*[1,2], Y. Sha[2], G. Zhou[1], F. Zhang[2] and L. Zuo[2] *1. School of Materials Science and Engineering, Shenyang University of Technology, Shenyang, China; 2. Key Laboratory for Anisotropy and Texture of Materials (Ministry of Education), Northeastern University, Shenyang, China*

J2-05. **Domain Observation in Electrodeposited Permalloy Thin Films.** *K. Dev*[1], G. VASHISHT[1], V.R. Reddy[2] and A. Subramanian[1] *1. Department of Physics and Astrophysics, University of Delhi, New Delhi, India; 2. UGC-DAE Consortium for Scientific Research, Indore, India*

J2-06. **New Pathways to Iron Nitride Soft Magnets.** *T. Monson*[1], T. Stevens[1], C. Pearce[1], M. Hoyt[1], E. Vreeland[1], R. Delaney[1], S. Atcitty[1], B. Zheng[2], C. Belcher[2], Y. Zhou[2], E. Lavernia[2] and T. Rupert[2] *1. Sandia National Laboratories, Albuquerque, NM, United States; 2. University of California, Irvine, Irvine, CA, United States*

J2-07. **Accelerated Soft Magnetic Materials Development.** *V. Chaudhary*[1], M.S. Nartu[2], S. Dasari[2], R. Banerjee[2] and R. Ramanujan[1] *1. School of Materials Science and Engineering, Nanyang Technological University, Singapore, Singapore; 2. Department of Materials Science and Engineering, University of North Texas, Denton, TX, United States*

J2-08. **Evaluation of Medium-Entropy $Fe_xCo_yNi_z$ Alloys as Precursors for FeCoNi-Based High-Entropy Soft-Magnetic Alloys.** A.A. Paul[1] and *T.V. Jayaraman*[1] *1. Mechanical Engineering, University of Michigan Dearborn, Dearborn, MI, United States*

Session J3
MAGNETIC PHASE TRANSITION AND SUPERCONDUCTIVITY

Elizabeth Skoropata, Chair
Oak Ridge National Laboratory, Knoxville, TN, United States

J3-01. **Withdrawn**

J3-02. **Photoinduced Spin-Density and Charge-Density Wave Dynamics in Cr.** ***(Invited)*** *S.K. Patel[1,2] 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*

J3-03. **Magnetism and Magnetotransport Around the Curie Temperature in the Dilute Ferromagnetic Semiconductor (Ga,Mn)as.** *M. Wang*[1], B. Howells[1], R.A. Marshall[1], J.M. Taylor[1], K.W. Edmonds[1], A.W. Rushforth[1], R.P. Campion[1] and B.L. Gallagher[1] *1. School of Physics and Astronomy, University of Nottingham, Nottingham, United Kingdom*

J3-04. **Observed Effects of Magnetism on the Calculated Stacking Fault Energies of FCC Co.** *K. Cole-Piepke*[1], A. Srivastava[1], A. Koenig[2], D. Tweddle[2], C. Mewes[1], T. Mewes[1], G. Thompson[2], R. Noebe[3] and A. Leary[3] *1. Department of Physics and Astronomy, The University of Alabama, Tuscaloosa, AL, United States; 2. Department of Metallurgy and Materials Engineering, The University of Alabama, Tuscaloosa, AL, United States; 3. Materials and Structures Division, NASA John H Glenn Research Center, Cleveland, OH, United States*

J3-05. **Magnetic Phase Diagram and Exchange Bias Effect of $TbFe_xMn_{12-x}$ (x=6.0 -9.0) Intermetallic Compounds.** Y. Xia[1], Z. Lin[1] and *J. Yang*[1] *1. physics, Peking University, Beijing, China*

J3-06. **Withdrawn**

J3-07. **Withdrawn**

J3-08. **Interplay Between Magnetism and Superconductivity in Iron Substituted $FeSr_2YCu_2O_{7+\delta}$ Cuprates Studied by μSR.** *S.A. López Paz*[1], D. Sari[3,4], A. Hillier[2] and M. Alario-Franco[1] *1. Inorganic Chemistry Department, Universidad Complutense de Madrid, Avda. Complutense s/n, 28040, Madrid, Spain; 2. ISIS facility, Rutherford Appleton Laboratory, Chilton, United Kingdom; 3. College of Engineering, Shibaura Institute of Technology, 307 Fukasaku, Minuma-ku, Saitama City, Saitama 337-8570, Japan; 4. Meson Science Laboratory, RIKEN, 2-1 Hirosawa, Wako, Saitama 351-0198, Japan*

J3-09. **Magnetic Phases in Superconducting, Polycrystalline Bulk FeSe Samples.** Q. Nouailhetas[1,2], A. Koblischka-Veneva[1,3], *M.R. Koblischka*[1,3], K. Berger[2], B. Douine[2], Y. Slimani[4] and E. Hannachi[5] *1. Experimental Physics, Universitat des Saarlandes Naturwissenschaftlich-Technische Fakultat, Saarbrucken, Germany; 2. GREEN, University of Lorraine, Nancy, France; 3. Materials Science, Shibaura Institute of Technology, Tokyo, Japan; 4. Biophysics, Imam AbdulRahman Bin Faisal University, Dammam, Saudi Arabia; 5. Material Physics, Universite de Carthage, Tunis, Tunisia*

J3-10. **Enhanced Superconductivity in Single Layer FeTeSe/$SrTiO_3$ Heterostructures.** ***(Invited)*** *L. Li*[1] *1. Physics and Astronomy, West Virginia University, Morgantown, WV, United States*

J3-11. **Predicting Long- and Short-Range Order With Restricted Boltzmann Machine.** *M. Timirgazin*[1] and A. Arzhnikov[1] *1. Physical-Technical Institute, UdmFRC UB RAS, Izhevsk, Russian Federation*

WEDNESDAY AFTERNOON 12:30

LIVE Q&A 10

Session J4
SPIN CURRENTS I

Satoru Emori, Co-Chair
Virginia Tech, Blacksburg, VA, United States
Aurelien Manchon, Co-Chair
Aix-Marseille Universite, Marseille, France

J4-01. **Efficient Spin-Orbit Torque in vdW Heterostructure of 2D Itinerant Ferromagnet and Weyl Semimetal.** *I. Kao*[1], J. Gobbo[1], R. Muzzio[1], J. yan[2], J. Goldberger[3], J. Katoch[1] and S. Singh[1] *1. Department of Physics, Carnegie Mellon University, Pittsburgh, PA, United States; 2. Oak Ridge National Laboratory, Oak Ridge, TN, United States; 3. Department of Chemistry, The Ohio State University, Columbus, OH, United States*

J4-02. **Composition Dependence of Spin Anomalous Hall Effect in a Ferromagnetic Fe-Co Alloy.** *Y. Koike*[1,2], S. Iihama[3,4] and S. Mizukami[2,4] *1. Department of Applied Physics, Tohoku University, Sendai, Japan; 2. WPI-AIMR, Tohoku University, Sendai, Japan; 3. FRIS, Tohoku University, Sendai, Japan; 4. CSRN, Tohoku University, Sendai, Japan*

J4-03. **Amorphous Transition Metal Thin Films for Spin Current Generation.** *J. Karel*[1,2], C. Hsu[3], D. Bouma[4], C. Fuchs[4], P. Corbae[5], N. Roschewsky[3], S. Salahuddin[3,6] and F. Hellman[4,6] *1. Materials Science and Engineering, Monash University, Clayton, VIC, Australia; 2. ARC Centre of Excellence in Future Low-Energy Electronics Technologies, Clayton, VIC, Australia; 3. Department of Electrical Engineering and Computer Science, University of California Berkeley, Berkeley, CA, United States; 4. Physics, University of California Berkeley, Berkeley, CA, United States; 5. Materials Science and Engineering, University of California Berkeley, Berkeley, CA, United States; 6. Materials Science Division, E O Lawrence Berkeley National Laboratory, Berkeley, CA, United States*

J4-04. **Optical Spin-Orbit Torque in Heavy Metal-Ferromagnet Heterostructures.** ***(Invited)*** *G. Choi*[1], J. Oh[2], D. Lee[2], s. lee[2], K. Kim[3], M. Lim[4], B. Min[5], K. Lee[2] and H. Lee[4] *1. Department of Energy Science, Sungkyunkwan University - Natural Sciences Campus, Suwon, The Republic of Korea; 2. Department of Materials Science and Engineering, Korea University, Seongbuk-gu, The Republic of Korea; 3. Center for theoretical physics of complex system, Institute for Basic Science, Daejeon, The Republic of Korea; 4. Department of physics, Pohang University of Science and Technology, Pohang, The Republic of Korea; 5. Center for spintronics, Korea Institute of Science and Technology, Seongbuk-gu, The Republic of Korea*

J4-05. **Piezoelectric Strain Control of Spin-Orbit Torques in Perpendicularly Magnetized CoFeB Thin Films.** *M. Filianina*[1,2], J. Hanke[1,3], K. Lee[1], D. Han[1,5], S. Jaiswal[1,4], A. Rajan[1], G. Jakob[1,2], Y. Mokrousov[1,3] and M. Klaui[1,2] *1. Johannes Gutenberg Universitat Mainz, Mainz, Germany; 2. Graduate School of Excellence Materials Science in Mainz, Mainz, Germany; 3. Forschungszentrum Julich Peter Grunberg Institut, Julich, Germany; 4. Singulus Technology AG, Kahl am Mainz, Germany, Kahl am Main, Germany; 5. Korea Advanced Institute of Science and Technology, Seoul, The Republic of Korea*

J4-06. **Probing Spin-Orbit Torques in Heterostructures With in-Plane Magnetic Anisotropy via Spin Hall Effective Field.** *Y. Liu*[2], T. Chen[2], T. Lo[2], T. Tsai[2], S. Yang[1], Y. Chang[1], J. Wei[1] and C. Pai[2,3] *1. Electronic and Optoelectronic System Research Laboratories, Industrial Technology Research Institute, Hsinchu, Taiwan; 2. Department of Materials Science and Engineering, National Taiwan University, Taipei, Taiwan; 3. Center of Atomic Initiative for New Materials, National Taiwan University, Taipei, Taiwan*

J4-07. **Spin to Charge Conversion of ac Spin Current in Si Detected by Inductive Measurements.** *E. Shigematsu*[1], L. Liensberger[2,3], M. Weiler[2,3], R. Ohshima[1], Y. Ando[1], T. Shinjo[1], H. Huebl[2,3] and M. Shiraishi[1] *1. Department of Electronics Science and Engineering, Kyoto University, Kyoto, Japan; 2. Walther-Meißner-Institut, Bayerische Akademie der Wissenschaften, Garching, Germany; 3. Physik-Department, Technische Universität München, Garching, Germany*

J4-08. **Bias-Field-Free Spin Hall Oscillator With an out-of-Plane Precession Mode.** *T. Shirokura*[1] and H.N. Pham[1,2] *1. Electrical and Electronic Engineering, Tokyo Institute of Technology, Meguro-ku, Japan; 2. Center for Spintronics Research Network (CSRN), The University of Tokyo, Bunkyo-ku, Japan*

J4-09. **Controllable Orientations of Spin Polarization Beyond the Spin Hall Effect.** *T. Chuang*[1], D. Qu[2], S. Huang[1] and S. Lee[2] *1. Department of Physics, National Taiwan University, Taipei, Taiwan; 2. Institute of Physics, Academia Sinica, Taipei, Taiwan*

J4-10. **Transverse and Longitudinal Spin-Torque Ferromagnetic Resonance for Improved Measurements of Spin-Orbit Torques.** *S. Karimeddiny*[1], J.A. Mittelstaedt[1], R. Buhrman[2,1] and D. Ralph[1,3] *1. Physics, Cornell University, Ithaca, NY, United States; 2. Applied and Engineering Physics, Cornell University, Ithaca, NY, United States; 3. Physics, Kavli Institute at Cornell for Nanoscale Science, Ithaca, NY, United States*

J4-11. **Spin-Orbit Interaction in Fe_xSi_{1-x}/Co Bi-Layers.** *C. Hsu*[1], J. Karel[2], N. Roschewsky[3], S. Cheema[4], D. Bouma[3], S. Sayed[1], F. Hellman[3] and S. Salahuddin[1] *1. Electrical Engineering and Computer Science, University of California Berkeley, Berkeley, CA, United States; 2. Materials Science and Engineering, Monash University, Clayton, VIC, Australia; 3. Physics, University of California Berkeley, Berkeley, CA, United States; 4. Materials Science and Engineering, University of California Berkeley, Berkeley, CA, United States*

J4-12. **Effect of Interfacial Intermixing on Spin-Orbit Torque in Co/Pt Bilayers.** *G.G. Baez Flores*[1] and K. Belashchenko[1] *1. Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE, United States*

WEDNESDAY AFTERNOON 12:30

LIVE Q&A 10

Session J5
WEYL AND TOPOLOGICAL MATERIALS

Ralph Skomski, Chair
University of Nebraska-Lincoln, Lincoln, NE, United States

J5-01. **Correlating Magnetic Structure and Magnetotransport in Thin Films of the Weyl Semimetal $Eu_{1-x}Sm_xTiO_3$.** *R. Need*[1], Z. Porter[2], K. Ahadi[3], B. Kirby[4], S. Stemmer[2] and S. Wilson[2] *1. University of Florida, Gainesville, FL, United States; 2. University of California Santa Barbara, Santa Barbara, CA, United States; 3. North Carolina State University, Raleigh, NC, United States; 4. National Institute of Standards and Technology, Gaithersburg, MD, United States*

J5-02. **Grain Size Dependence of Transverse Thermomagnetic Transport in the Weyl Semimetal NbP.** *E. Scott*[1], C. Fu[2], S. Guin[2], C. Felser[2] and S. Watzman[1] *1. University of Cincinnati College of Engineering and Applied Science, Cincinnati, OH, United States; 2. Max Planck Institute for Chemical Physics of Solids, Dresden, Germany*

J5-03. **Chiral-Anomaly-Induced Nonlinear Hall Effect in Tilted Weyl Semimetals.** *R. Li*[1], S. Zhang[1], A. Burkov[2] and O. Heinonen[3] *1. Physics, Case Western Reserve University, Cleveland, OH, United States; 2. Physics, University of Waterloo, Waterloo, ON, Canada; 3. Argonne National Laboratory Materials Science Division, Lemont, IL, United States*

J5-04. **Anomalous Planar Hall Effect in Predicted Type II Weyl Fe_3Sn_2.** *N. Kumar*[1], Y. Soh[1], Y. Wang[2], J. Li[2] and Y. Xiong[2] *1. Neutrons and Muons, Paul Scherrer Institut, Villigen, Switzerland; 2. Anhui Province Key Laboratory of Condensed Matter Physics at Extreme Conditions, High Magnetic Field Laboratory of the Chinese Academy of Sciences, Hefei, China*

J5-05. **Epitaxial Growth of the Weyl Semimetal YbPtBi (111) on C-Plane Sapphire by Co-Sputtering.** *M. Vaughan*[1], M. Dearg[1], M. Ali[1], C.H. Marrows[1] and G. Burnell[1] *1. University of Leeds, Leeds, United Kingdom*

J5-06. **Weyl-Kondo Semimetals: Correlated Topology and Control of Nodes.** ***(Invited)*** *S.E. Grefe*[1], H. Lai[1], S. Paschen[2] and Q. Si[1] *1. Rice University, Houston, TX, United States; 2. Technische Universitat Wien, Wien, Austria*

J5-07. **Meta-Magnetism of Weakly-Coupled Antiferromagnetic Topological Insulators.** *A. Tan*[1,3], V. Labracherie[1,3], N. Kunchur[1], A. Wolter[1], J. Dufouleur[1], B. Büchner[1,2], A. Isaeva[1,2] and R. Giraud[1,3] *1. Leibniz-Institut fur Festkorper- und Werkstoffforschung Dresden eV, Dresden, Germany; 2. Technische Universitat Dresden, Dresden, Germany; 3. Universite Grenoble Alpes, Grenoble, France*

J5-08. **Peculiarities of the Electro- and Magnetoresistivity of WTe_2 and $MoTe_2$ Single Crystals.** *A. Domozhirova*[1], S.V. Naumov[1], S.M. Podgornykh[1], V. Chistyakov[1], J.A. Huang[2] and V. Marchenkov[1,3] *1. M.N. Mikheev Institute of Metal Physics, UB RAS, Ekaterinburg, Russian Federation; 2. National Cheng Kung University, Tainan, Taiwan; 3. Ural Federal University, Ekaterinburg, Russian Federation*

J5-09. **Anomalous Hall Effects in Rare Earth Nitrides.** *W. Holmes-Hewett*[1,2], B. Ruck[1,2], R.G. Buckley[1,3] and H. Trodahl[1,2] *1. The MacDiarmid Institute for Advanced Materials and Nanotechnology, Wellington, New Zealand; 2. School of Chemical and Physical Sciences, Victoria University of Wellington, Wellington, New Zealand; 3. Robinson Research Institute, Victoria University of Wellington, Wellington, New Zealand*

J5-10. **Direct Observation of Hidden Spin Polarization in 2H-$MoTe_2$.** Y. Xu[1], *J. Tu*[1] and X. Ruan[1] *1. York-Nanjing Joint Center, Nanjing University, Nanjing, China*

J5-11. **Rotational Currents Around Lanthanide Dopants in Simple Metals.** *A.O. Leon*[4], A. Cahaya[2], M. Rahimi[3] and G. Bauer[1] *1. Institute for Materials Research, Tohoku University, Sendai, Japan; 2. Department of Physics, Universitas Indonesia, Depok, Indonesia; 3. Nano-Structured Coatings Institute, Yazd Payame Noor University, Yazd, The Islamic Republic of Iran; 4. Department of Physics, Metropolitan University of Technology, Santiago, Chile*

J5-12. **Quantifying Induced Moment in non-Magnetic Cu – C_{60} Interfaces via x-ray Magnetic Circular Dichroism.** *P. Sharangi*[1], P. Gargiani[2], M. Valvidares[2] and S. Bedanta[1] *1. School of Physical Science, National Institute of Science Education and Research (NISER), Bhubaneswar, India; 2. Alba Synchrotron Light Source, Barcelona, Spain*

J5-13. **Density Functional Theory and Machine Learning Guided Study of Mn-Ga Alloys With Targeted Magnetic Properties.** *T. Hartnett*[1], P. Balachandran[1,2] and S. Gangopadhyay[1] *1. Materials Scinece Engineering, University of Virginia, Charlottesville, VA, United States; 2. Mechanical Engineering, University of Virginia, Charlottesville, VA, United States*

J5-14. **Unusual Magnetic and Transport Properties of PrScGe-GdScGe Solid Solution.** *T. Del Rose*[1,2], A.K. Pathak[3], Y. Mudryk[2] and V.K. Pecharsky[1,2] *1. Materials Science and Engineering, Iowa State University, Ames, IA, United States; 2. Ames Laboratory, Ames, IA, United States; 3. University at Buffalo - The State University of New York, Buffalo, NY, United States*

WEDNESDAY AFTERNOON 12:30

LIVE Q&A 10

Session J6
ANTIFERROMAGNETIC SPINTRONICS II (Poster Session)

Angela Wittmann, Chair
Massachusetts Institute of Technology, Cambridge, MA, United States

J6-01. **Withdrawn**

J6-02. **Growth of non-Collinear Antiferromagnet Thin Films for Spintronics.** *B. Rimmler*[1] and S.S. Parkin[1] *1. Nano-Systems from ions, spins and electrons, Max Planck Institute of Microstructure Physics, Halle (Saale), Germany*

J6-03. **Diffusive Spin Nernst Effect of Antiferromagnetic Magnons.** *H. Zhang*[1] and R. Cheng[1,2] *1. Department of Electrical and Computer Engineering, University of California Riverside, Riverside, CA, United States; 2. Department of Physics and Astronomy, University of California Riverside, Riverside, CA, United States*

J6-04. **Evidence of Topological Hall Effect in Pt/Antiferromagnetic-Insulator Bilayers.** *Y. Cheng*[1], S. Yu[1], M. Zhu[2], J. Hwang[2] and F. Yang[1] *1. Physics, The Ohio State University, Columbus, OH, United States; 2. Materials Science and Engineering, The Ohio State University, Columbus, OH, United States*

J6-05. **Effects of Geometry on Curvilinear Spin Chains.** D. Kononenko[1,2], *O. Pylypovskyi*[3], K. Yershov[2,4], U. Roessler[2], A. Tomilo[1], J. Fassbender[3], J. van den Brink[2,5], D. Makarov[3] and D. Sheka[1] *1. Taras Shevchenko National University of Kyiv, Kyiv, Ukraine; 2. Leibniz-Institut fur Festkorper- und Werkstoffforschung Dresden eV, Dresden, Germany; 3. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 4. Institut teoreticnoi fiziki imeni M M Bogolubova Nacional'na akademia nauk Ukraini, Kyiv, Ukraine; 5. Institute for Theoretical Physics, TU Dresden, Dresden, Germany*

J6-06. **Withdrawn**

J6-07. **Antiferromagnetic Domain Structure in CuMnAs Devices.** *S. Reimers*[1,2], O.J. Amin[1], R.P. Campion[1], O. Gomonay[6], F. Maccherozzi[2], F. Krizek[4], V. Novák[4], T. Jungwirth[4,1], D. Kriegner[5,4], A. Björling[3], D. Carbone[3], K.W. Edmonds[1], P. Wadley[1] and S.S. Dhesi[2] *1. School of Physics and Astronomy, The University of Nottingham, Nottingham, United Kingdom; 2. Diamond Light Source, Didcot, United Kingdom; 3. MAX IV Laboratory, Lund, Sweden; 4. Department of Spintronics and Nanoelectronics, Institute of Physics ASCR, FZU, Prague, Czechia; 5. Institute for Solid State and Materials Physics, Technical University Dresden, Dresden, Germany; 6. Johannes Gutenberg Universitat Mainz, Mainz, Germany*

J6-08. **Withdrawn**

J6-09. **Anomalous Hall Effect in Mn-Sn Thin Films - Correlation With Crystal Structure.** *J. Yoon*[1], Y. Takeuchi[1], Y. Yamane[1,2], S. Kanai[1,3], J. Ieda[1,4], H. Ohno[1,5] and S. Fukami[1,6] *1. Lab. for Nanoelectronics and Spintronics, RIEC, Tohoku University, Sendai, Japan; 2. FRIS, Tohoku Univiersity, Sendai, Japan; 3. FRiD, Tohoku University, Sendai, Japan; 4. ASRC, Japan Atomic Energy Agency, Tokai, Japan; 5. CSIS, Tohoku University, Sendai, Japan; 6. WPI-AIMR, Tohoku University, Sendai, Japan*

J6-10. **Withdrawn**

J6-11. **Terahertz Emission From an Exchange-Coupled Synthetic Antiferromagnet.** *Q. Zhang*[1,2], Y. Yang[1], Z. Luo[1], Y. Xu[1], R. Nie[1], X. Zhang[2] and Y. Wu[1] *1. National University of Singapore, Singapore, Singapore; 2. Southern University of Science and Technology, Shenzhen, China*

J6-12. **Temperature-Dependent Exotic Spin Torques in Antiferromagnetic FeRh.** *J. Gibbons*[1], T. Dohi[2], H. Saglam[3], J. Pearson[4], S. Fukami[2] and A. Hoffmann[1] *1. Materials Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, United States; 2. Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku Daigaku Denki Tsushin Kenkyujo, Sendai, Japan; 3. Applied Physics, Yale University, New Haven, CT, United States; 4. Materials Science Division, Argonne National Laboratory, Lemont, IL, United States*

Session K1
MULTIFERROIC MATERIALS AND HETERO-STRUCTURES I

Rajesh Chopdekar, Chair
Lawrence Berkeley National Laboratory, Berkeley, CA, United States

K1-01. **Magnetoelectric Behavior via a Spin State Transition.** ***(Invited)*** *S. Chikara*[1,5], J. Gu[2], X. Zhang[2], H. Cheng[2], N. Smythe[3], J. Singleton[1], B. Scott[3], E. Krenkel[4], J. Eckert[4] and V. Zapf[1] *1. Pulsed Field Facility, Los Alamos National Laboratory, Los Alamos, NM, United States; 2. University of Florida, Gainesville, FL, United States; 3. Los Alamos National Laboratory, Los Alamos, NM, United States; 4. Harvey Mudd College, Claremont, CA, United States; 5. National High Magnetic Field Laboratory, Tallahassee, FL, United States*

K1-02. **Electric-Field-Modulated Magnetism in All-Oxide Multiferroic Heterostructures.** *P. Wang*[1], C. Jin[1] and H. Bai[1] *1. Tianjin Key Laboratory of Low Dimensional Materials Physics and Processing Technology, School of Science, Tianjin University, Tianjin, China*

K1-03. **Voltage Control of Néel Wall Interaction in Thin Films With Uniaxial in-Plane Anisotropy.** *J. Zehner*[1], I. Soldatov[1], S. Schneider[1], S. Fähler[1], K. Nielsch[1], R. Schäfer[1] and K. Leistner[1] *1. Leibniz-Institut fur Festkorper- und Werkstoffforschung Dresden eV, Dresden, Germany*

K1-04. **Withdrawn**

K1-05. **Oxidation Effect on the Interface Magnetoelectric Coupling in Co/Pb(Zr,Ti)O_3(001).** *R. Arras*[1] and S. Cherifi-Hertel[2] *1. Centre d'Elaboration de Materiaux et d'Etudes Structurales, Toulouse, France; 2. Institut de Physique et Chimie des Materiaux de Strasbourg, Strasbourg, France*

K1-06. **Influence of Size on the Magnetization Switching of Strain-Mediated FeGaB/PMN-PT Magnetoelectric Heterostructure: a Micromagnetic Study.** *P. Pathak*[1] and D. Mallick[1] *1. Department of Electrical Engineering, Indian Institute of Technology Delhi, New Delhi, India*

K1-07. **Reconfigurable Magnonic Crystal Based on Multiferroic-Ferromagnetic Heterostructures.** *I. Boventer*[1], H. Merbouche[1], V. haspot[1], C. Carrétero[1], S. Fusil[1], V. Garcia[1], A. Barthelemy[1] and A. Anane[1] *1. Unité Mixte de Physique CNRS/Thalès, Palaiseau, France*

K1-08. **Withdrawn**

K1-09. **Elastic Properties of the Multiferroic BiFeO3 by Time Resolved Acoustic Measurements.** *P. Hemme*[1], P. Djemia[2], Y. Galais[1], A. Sacuto[1], D. Colson[3], P. Rovillain[4], B. Perrin[4], L. Belliard[4] and M. Cazayous[1] *1. Laboratoire Materiaux et Phenomenes Quantiques, Paris, France; 2. Laboratoire des Sciences des Procedes et des Materiaux, Villetaneuse, France; 3. Service de Physique de l'Etat Condense, Gif Sur Yvette, France; 4. Institut des NanoSciences de Paris, Paris, France*

K1-10. **Magneto-Ionic Effect in Piezo-Ionic/Magnetostrictive Composites for Energy Generation Applications.** *A. Lasheras*[1], P. G.Saiz[2,1], J. Gutierrez[1,2] and A. Lopes[2] *1. University of the Basque Country, Leioa, Spain; 2. Fundacion BCMaterials - Basque Center for Materials Applications and Nanostructures, Leioa, Spain*

K1-11. **Formation of Spiral Ordering by Magnetic Field in Frustrated Anisotropic Antiferromagnets.** *O.I. Utesov*[1,2] and A.V. Syromyatnikov[1,2] *1. Theory Division, National Research Center "Kurchatov Institute" B.P. Konstantinov Petersburg Nuclear Physics Institute, Gatcina, Russian Federation; 2. Physics Department, Sankt-Peterburgskij gosudarstvennyj universitet, Sankt-Peterburg, Russian Federation*

K1-12. **Ho Doping Induced Spin Reorientation in O- $Lu_{1-x}Ho_xFeO_3$ (x = 0 to 1).** *L. S*[1], B. P.D[2], S. Kaul[1] and S. S[1] *1. School of Physics, University of Hyderabad, Hyderabad, India; 2. UGC-DAE Consortium for Scientific Research, Mumbai Center, Mumbai, India*

K1-13. **Withdrawn**

K1-14. **On the Correlation of the Magnetic Properties With the Structural Parameters in Fe-Doped Europium Chromite.** D.R. Ratkovski[1], E. França[1], J.M. Marin[2], A. Franco Jr[3] and *F. Machado*[1] *1. Departamento de Física, Universidade Federal de Pernambuco, Recife, Brazil; 2. Instituto de Fisica, Universidad de Antioquia, Medellin, Colombia; 3. Instituto de Física, Universidade Federal de Goiás, Goiânia, Brazil*

K1-15. **Evaluation of Structural Transformation, Magnetization Reversal Along With Magnetic Switching Effect in $GdMn_{1-x}Cr_xO_3$ Perovskite.** *P. Tiwari*[1] *1. Materials Science, Indian Institute of Technology BHU Varanasi, Varanasi, India*

WEDNESDAY EVENING 7:00

LIVE Q&A 11

Session K2
NEW MAGNETIC MATERIALS

Ziyao Zhou, Co-Chair
Xi'an Jiaotong University, Xi'an, China
Chuanpu Liu, Co-Chair
Colorado State University, Fort Collins, CO, United States

K2-01. **Withdrawn**

K2-02. **Cluster Glass Magnetism in Z_2XY Type Heusler Alloy.** *T. Samanta*[1] and P. Bhobe[2] *1. Metallurgy Engineering and Materials Science, Indian Institute of Technology Indore, Indore, India; 2. Discipline of Physics, Indian Institute of Technology Indore, Indore, India*

K2-03. **Tunable Room-Temperature Ferromagnetism and Emergent Phenomena in Atomically Thin Transition Metal Dichalcogenide Semiconductors.** ***(Invited)*** *M. Phan*[1] *1. Department of Physics, University of South Florida, Tampa, FL, United States*

K2-04. **Probing Hidden Interfacial Magnetism in Magnetic Insulator Hybrid Structures.** ***(Invited)*** *P. Quarterman*[1], Y. Fan[2], J. Bauer[2], Y. Lv[3], J. Wang[3], C. Ross[2], L. Liu[2], J.A. Borchers[1] and A.J. Grutter[1] *1. NIST Center for Neutron Research, Gaithersburg, MD, United States; 2. Massachusetts Institute of Technology, Cambridge, MA, United States; 3. University of Minnesota, Minneapolis, MN, United States*

K2-05. **Green Synthesis of Magnetic Fe_3O_4, $CoFe_2O_4$ and $NiFe_2O_4$ From Aloe Vera Extract for Future Biomedical Applications.** *G.C. Hermosa*[1], H. Wu[1], C. Liao[1], S. Wang[2], Y. Chen[1,3], Y. Tsai[1,3] and A. Sun[1] *1. Chemical Engineering and Materials Science, Yuan Ze University, Chung-Li, Taiwan; 2. Materials and Mineral Resources Engineering, National Taipei University of Technology, Taipei, Taiwan; 3. Far Eastern Memorial Hospital, New Taipei City, Taiwan*

K2-06. **Twisted Magnetism in Ultra-Short 1D Iron Chains With Hybridized Boundaries.** *N.M. Vargas*[1], F. Torres[2], A. Baker[3], J.R. Lee[3], M. Kiwi[2], T.M. Willey[3], C. Monton[4] and I.K. Schuller[1] *1. Physics, University of California San Diego, La Jolla, CA, United States; 2. Physics, Universidad de Chile Facultad de Ciencias Fisicas y Matematicas, Santiago, Chile; 3. Materials Science Division, Lawrence Livermore National Laboratory, Livermore, CA, United States; 4. General Atomics, San Diego, CA, United States*

K2-07. **Light-Mediated Magnetism in Atomically Thin Vanadium-Doped Tungsten Disulfide Semiconductors.** *V. Ortiz Jimenez*[1], Y. Pham[1], M. Liu[2], F. Zhang[2], V. Kalappattil[1], B. Muchharla[1], T. Eggers[1], D. Duong[3], M. Terrones[2] and M. Phan[1] *1. University of South Florida, Tampa, FL, United States; 2. The Pennsylvania State University, University Park, PA, United States; 3. Sungkyunkwan University, Suwon, The Republic of Korea*

K2-08. **Magnetic Doping of Graphene With Substitutional Manganese Atoms.** *P. Lin*[1], R. Villarreal[1], H. Bana[1], S. Brems[2], S. Achilli[3], G. Fratesi[3], M.N. Nair[4] and L.M. Pereira[1] *1. Quantum Solid State Physics, KU Leuven, Leuven, Belgium; 2. Interuniversitair Micro-electronica Centrum (imec), Leuven, Belgium; 3. ETSF and Dipartimento di Fisica, Università degli Studi di Milano, Milan, Italy; 4. CUNY Advanced Science Research Centre, New York, NY, United States*

K2-09. **Withdrawn**

K2-10. **Properties of Quaternary-Alloy Ferromagnetic Semiconductor (in,Ga,Fe)Sb.** *T. Hotta*[1], K. Takase[1], K. Takiguchi[1], S. Karumuri[1], L. Anh[2,3] and M. Tanaka[1,4] *1. Department of Electrical Engineering and Information Systems, The University of Tokyo, Bunkyo-ku, Japan; 2. Institute of Engineering Innovation, The University of Tokyo, Bunkyo-ku, Japan; 3. PRESTO, JST, Tokyo, Japan; 4. Center for Spintronics Research Network, The University of Tokyo, Bunkyo-ku, Japan*

K2-11. **Withdrawn**

K2-12. **Phase Behavior of Charged Magnetic Nanoplatelets.** *M. Rosenberg*[1] and S. Kantorovich[1,2] *1. Universitat Wien, Wien, Austria; 2. Ural'skij federal'nyj universitet imeni pervogo Prezidenta Rossii B N El'cina, Ekaterinburg, Russian Federation*

K2-13. **Room-Temperature Ferromagnetism and Strain-Dependent Magnetic Anisotropy in 2D MnGaN.** Y. Ma[1], D. Hunt[2,3], K. Meng[4], T. Erickson[1], F. Yang[4], M. Barral[2,3], V. Ferrari[2,3] and *A.R. Smith*[1] *1. Ohio University Nanoscale and Quantum Phenomena Institute, Department of Physics and Astronomy, Athens, OH, United States; 2. Departamento de Física de la Materia Condensada, GIyA, CAC, Comisión Nacional de Energía Atómica, Buenos Aires, Argentina; 3. Instituto de Nanociencia y Nanotecnología INN (CNEA-CONICET), Buenos Aires, Argentina; 4. The Ohio State University Department of Physics, Columbus, OH, United States*

K2-14. **Withdrawn**

WEDNESDAY EVENING 7:00

LIVE Q&A 11

Session K3
SPIN INJECTION AND TRANSPORT IN NANOSCALE DEVICES

Dong-Soo Han, Chair
Korea Institute of Science and Technology, Seoul, The Republic of Korea

K3-01. **Energy and Momentum Conservation in Spin Transfer.** *A. Mitrofanov*[1] and S. Urazhdin[1] *1. Emory University, Atlanta, GA, United States*

K3-02. **Far out-of-Equilibrium Spin Populations Trigger Giant Spin Injection Into Atomically Thin MoS_2.** *M. Battiato*[1], K. Held[2], L. Cheng[1], X. Wang[1], J. Chai[3], W. Yang[3], M. Yang[3], M. Cheng[4], Y. Wu[4], X. Cheng[1], D. Chi[3], K. Goh[3], J. Zhu[5], H. Sun[1], S. Wang[3], J. Song[1], H. Yang[4] and E. Chia[1] *1. Nanyang Technological University, Singapore, Singapore; 2. Technische Universitat Wien, Wien, Austria; 3. Agency for Science Technology and Research, Singapore, Singapore; 4. National University Singapore Faculty of Science, Singapore, Singapore; 5. Los Alamos National Laboratory, Los Alamos, NM, United States*

K3-03. **Spin Injection Enhancement via Ultra-Thin Oxide Barriers Into Molecularly Functionalized Graphene.** *J.C. Toscano Figueroa*[1,2], N. Natera Cordero[1,2], D. Bandurin[1], C.R. Anderson[1], V. Guarochico Moreira[1], I. Grigorieva[1] and I.J. Vera-Marun[1] *1. Physics and Astronomy, The University of Manchester, Manchester, United Kingdom; 2. Consejo Nacional de Ciencia y Tecnologia, Mexico City, Mexico*

K3-04. **Spin Transport in two-Terminal Lateral Devices.** ***(Invited)*** *A.M. Spiesser*[2], H. Saito[2], Y. Fujita[3], S. Yamada[3,1], K. Hamaya[3,1], S. Yuasa[2] and R. Jansen[2] *1. Center for Spintronics Research Network, Osaka University Graduate School of Engineering Science, Osaka, Japan; 2. Spintronics Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan; 3. Department of Systems Innovation, Osaka University Graduate School of Engineering Science, Osaka, Japan*

K3-05. **Origin of the Magnetic Field Enhancement of the Spin Signal in Metallic Non-Local Spin Transport Devices.** *A.J. Wright*[1], M.J. Erickson[2,3], D. Bromley[1], P.A. Crowell[2], C. Leighton[3] and L. O'Brien[1] *1. Physics, University of Liverpool, Liverpool, United Kingdom; 2. Physics and Astronomy, University of Minnesota, Minneapolis, MN, United States; 3. Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN, United States*

K3-06. **Ballistic Spin Transport in InSb Nanowires With Strong Rashba Spin-Orbital Interaction.** *Z. Yang*[1], B. Heischmidt[1], S. Gazibegovic[2], G. Badawy[2], D. Car[2], P.A. Crowell[1], E.P. Bakkers[2] and V.S. Pribiag[1] *1. School of Physics and Astronomy, University of Minnesota, Minneapolis, MN, United States; 2. Eindhoven University of Technology, Eindhoven, Netherlands*

K3-07. **Unusual Scaling of Kondo Spin Relaxation.** *X. Shen*[1] and Y. Ji[1] *1. University of Delaware, Newark, DE, United States*

K3-08. **Magnetotransport Effect in Magnetic Heterojunctions: Combined First-Principles With NEGF and Spin Dynamics.** *B. Huang*[1], C. Chao[1], Y. Tang[1] and C. Kaun[2] *1. Physics, National Central University, Chung-Li, Taiwan; 2. Research Center for Applied Sciences Academia Sinica, Taipei, Taiwan*

Session K4
2D MAGNETIC MATERIALS: TRANSPORT PROPERTIES (Poster Session)

Yong-Chang Lau, Chair
Tohoku University, Sendai, Japan

K4-01. **Ultrahigh Efficient Spin-Orbit-Torque Magnetization Switching in Sputtered Topological Insulator BiSb and $(Co/Pt)_2$ Multilayers.** *F. Tuo*[1], H. Nguyen[1,2], S. Nakano[1] and H.N. Pham[1,3] *1. Department of Electrical and Electronic Engineering, Tokyo Institute of Technology, Tokyo, Japan; 2. Department of Physics, Ho Chi Minh City University of Education, Ho Chi Minh City, Vietnam; 3. Center for Spintronics Research Network, The University of Tokyo, Tokyo, Japan*

K4-02. **Withdrawn**

K4-03. **Band-Structure Spin-Filtering in Vertical Spin Valves Based on CVD Grown WS_2.** *V. Zatko*[1], M. Galbiati[1], S. Dubois[2], M. Och[3], C. Mattevi[3], P. Brus[4], B. Servet[4], M. Martin[1], F. Godel[1], J. Charlier[2], F. Petroff[1], B. Dlubak[1] and P. Seneor[1] *1. Unité Mixte de Physique, CNRS, Thales, Université Paris-Saclay, Palaiseau, France; 2. Institute of Condensed Matter and Nanosciences, Université catholique de Louvain, Louvain-La-Neuve, Belgium; 3. Department of Materials, Imperial College, London, United Kingdom; 4. Thales Research and Technology, Palaiseau, France*

K4-04. **Magnetotransport Characteristics in Second-Order Weyl Semimetals.** *S. Komori*[1] and K. Kondo[1] *1. Research Institute for Electronic Science, Hokkaido University, Sapporo, Japan*

K4-05. **α-Sn Magnetotransport Devices.** *O. Vail*[1], A. Chang[2], S. Harrington[2], P. Folkes[1], P. Taylor[1], G. de Coster[1] and C. Palmstrom[2] *1. RLS-EE, US Army Research Laboratory, Adelphi, MD, United States; 2. Electrical & Computing Engineering and Materials, University of California Santa Barbara, Santa Barbara, CA, United States*

K4-06. **Withdrawn**

K4-07. **Withdrawn**

K4-08. **Spin Caloritronic Device Based on Asymmetric Surfaces of Magnetic Topological Insulators.** *T. Chiba*[1], S. Takahashi[2] and T. Komine[3] *1. National Institute of Technology, Fukushima College, Iwaki, Japan; 2. Advanced Institute for Materials Research, Tohoku University, Sendai, Japan; 3. Faculty of Engineering, Ibaraki University, Hitachi, Japan*

K4-09. **Large Multi-Directional Spin-to-Charge Conversion in low Symmetry Semimetal $MoTe_2$ at Room Temperature.** *N. Ontoso*[1], C. Safeer[1], J. Ingla-Aynés[1], F. Herling[1], V. Pham[2,1], A. Kurzmann[3], K. Ensslin[3], A. Chuvilin[1,6], I. Robredo[4,7], M. Vergniory[4,6], F. de Juan[4,6], L.E. Hueso[1,6], M. Calvo[1,5] and F. Casanova[1,6] *1. CIC nanoGUNE, San Sebastian, Spain; 2. SPINtronique et Technologie des Composants, Grenoble, France; 3. Department of Physics, ETH Zurich Campus Honggerberg, Eidgenossische Technische Hochschule Zurich - Campus Honggerberg, Zurich, Switzerland; 4. Donostia International Physics Center, San Sebastian, Spain; 5. Departamento de Física Aplicada, Universitat d'Alacant, Alacant, Spain; 6. Ikerbasque, Bilbao, Spain; 7. Department of Condensed Matter Physics, Universidad del Pais Vasco, Bilbao, Spain*

K4-10. **Electrical Bandgap Tuning and Spin Transport in Fully Encapsulated Bilayer Graphene Devices: Steps Towards 2D Spin Logic.** *C.R. Anderson*[1], V.H. Guarochico-Moreira[1,2], N. Natera Cordero[1,3], J.C. Toscano Figueroa[1,3], I. Grigorieva[1] and I.J. Vera-Marun[1] *1. Physics and Astronomy, The University of Manchester, Faculty of Science and Engineering, Manchester, United Kingdom; 2. Departmento de Física, Escuela Superior Politécnica del Litoral, Guayaquil, Ecuador; 3. CONACyT, Consejo Nacional de Ciencia y Tecnologia, Mexico City, Mexico*

K4-11. **Withdrawn**

K4-12. **A Study of Magnetoresistance in Type-I and Type-II Weyl Semimetals.** *K. Morishima*[1] and K. Kondo[1] *1. Research Institute for Electronic Science, Hokkaido University, Sapporo, Japan*

K4-13. **Size Effect in the Kinetic Properties in Thin Films of Bi_2Se_3 Topological Insulator.** *V. Chistyakov*[1], A. Domozhirova[1], J.A. Huang[3] and V. Marchenkov[1,2] *1. M.N. Mikheev Institute of Metal Physics UB RAS, Ekaterinburg, Russian Federation; 2. Ural Federal University, Ekaterinburg, Russian Federation; 3. National Cheng Kung University, Tainan, Taiwan*

K4-14. **Charge Trapping Analysis in Sputtered Bi_xSe_{1-x} Based Accumulation-Mode FETs - Part 2.** *P. Sahu*[1], J. Chen[2,3] and J. Wang[3] *1. School of Physics and Astronomy, University of Minnesota, Minneapolis, MN, United States; 2. HFC Semiconductor, Fishkill, NY, United States; 3. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States*

Session K5
BIOMEDICAL APPLICATIONS II
(Poster Session)

Gaspare Varvaro, Chair
Consiglio Nazionale delle Ricerche, Monterotondo Scalo (RM), Italy

K5-01. **Advancements in the Receive Hardware for the Single Sided Magnetic Particle Imaging Scanner.** J.D. Pagan[1], C. McDonough[1], J. Lin[2] and *A. Tonyushkin*[1] *1. Physics Department, University of Massachusetts Boston, Boston, MA, United States; 2. Engineering Department, University of Massachusetts Boston, Boston, MA, United States*

K5-02. **Effects of PEGylated Fe/Fe3O4 Core Shell Nanoparticles on Cancer Cells.** *B.H. Domac*[1], S. Alkhatib[1], O. Zirhli[2], N. Gunduz Akdogan[3], G. Bulut[1] and O. Akdogan[1] *1. Bahcesehir Universitesi Muhendislik ve Doga Bilimleri Fakultesi, Istanbul, Turkey; 2. Sabanci Universitesi Muhendislik ve Doga Bilimleri Fakultesi, Istanbul, Turkey; 3. Piri Reis Universitesi, Istanbul, Turkey*

K5-03. **Effect of Applied Magnetic Field on Permeability and Heating Efficiency of Multifunctional Micro/Nano-Magnetic Particles for Hyperthermia Therapy.** *L. Ton That*[1], Y. Yamamoto[2], K. Mitobe[3] and S. Yabukami[1] *1. Department of Electrical Engineering, Tohoku University, Sendai, Japan; 2. Department of Systems Design Engineering, Akita University, Akita, Japan; 3. Department of Mathematical Science and Electrical-Electronic-Computer Engineering, Akita University, Akita, Japan*

K5-04. **Iron Carbide Nanoparticles for Multimodal Hyperthermia Heating.** M. Xing[1], *J. Mohapatra*[1], J. Beatty[1], J. Elkins[1], A. Chalise[1], W. Chen[1], M. Jin[1] and P. Liu[1] *1. Department of Physics, The University of Texas at Arlington, Arlington, TX, United States*

K5-05. **Core-Shell ZnO@Fe_3O_4 Nanostructure for Magnetic Hyperthermia and Bio-Imaging Applications.** *J. Gupta*[1], P. Hassan[1] and k. Barick[1] *1. Chemistry, Bhabha Atomic Research Centre, Mumbai, India*

K5-06. **Effect of Coil Positioning and Orientation of the Quadruple Butterfly Coil During Transcranial Magnetic Stimulation.** *O.F. Afuwape*[1,2], P. Rastogi[1] and D.C. Jiles[1] *1. Department of Electrical and Computer Engineering, Iowa State University, Ames, IA, United States; 2. Department of Mechanical Engineering, Iowa State University, Ames, IA, United States*

K5-07. **Coil Design for Simultaneous Dual-Site Transcranial Magnetic Stimulation to Effectively Modulate the Motor Cortex.** *J. Boldrey*[1], G. Goss[1], A. Boes[2] and D.C. Jiles[1] *1. Electrical and Computer Engineering, Iowa State University, Ames, IA, United States; 2. Departments of Neurology, Psychiatry, and Pediatrics, University of Iowa Carver College of Medicine, Iowa City, IA, United States*

K5-08. **Modification of Thiol Groups on Magnetic Nanoparticles for Theranostics.** H. Katayanagi[1], S. Hamada[1], A. Usui[3], Y. Hosokai[4] and *Y. Ichiyanagi*[1,2] *1. Physics, Yokohama National University, Yokohama, Japan; 2. Research Center for Thermal and Entropic Science, Osaka University, Toyonaka, Japan; 3. School of Medicine, Tohoku University, Sendai, Japan; 4. International University. of Health and Welfare, Otawara, Japan*

K5-09. **Withdrawn**

K5-10. **An Experimental View on Retinal Receptivity of ELF-Inducing Blindsight-Like Phosphenes.** *H. Nakagawa*[1], M. Sugai[1], S. Fujiwara[2] and S. Ueno[3] *1. Tokyo Denki University, Tokyo, Japan; 2. CPCC, Tokyo, Japan; 3. Kyushu University, Fukuoka, Japan*

K5-11. **Methodology for Focality Homogenization in Magnetic Stimulation of Biological Tissues.** *I.C. Carmona*[1] and R.L. Hadimani[1,2] *1. Dept. of Mechanical and Nuclear Engineering, Virginia Commonwealth University, Richmond, VA, United States; 2. Dept. of Biomedical Engineering, Virginia Commonwealth University, Richmond, VA, United States*

K5-12. **Withdrawn**

WEDNESDAY EVENING 7:30

LIVE Q&A 12

Session L1
MAGNETIC MICROSCOPY AND IMAGING I

Sophie Morley, Chair
Lawrence Berkeley National Laboratory, Berkeley, CA, United States

L1-01. **Frontiers of Magnetic Force Microscopy.** ***(Invited)*** *O. Kazakova*[1], R. Puttock[1], C. Barton[1], H. Corte-León[1], M. Jaafar[2], V. Neu[3] and A. Asenjo[2] *1. Quantum Technology, NPL, London, United Kingdom; 2. Consejo Superior de Investigaciones Cientificas, Madrid, Spain; 3. IFW, Dresden, Germany*

L1-02. **New Vortex Core Probe for Magnetic Force Microscopy.** J. Soltys[1], I. Vetrova[1], J. Feilhauer[1], *J. Tobik*[1], K. Bublikov[1], V. Cambel[1] and J. Fedor[1] *1. Elektrotechnicky ustav SAV, Bratislava, Slovakia*

L1-03. **Magnetic Field Induced Half-Hedgehog Spin-Textures in Soft Hemispherical Nanodots.** E. Berganza[1,2], M. Jaafar[1,3], J.A. Fernandez- Roldan[1,4], M. Goiriena-Goikoetxea[5,6], J. Pablo-Navarro[7], A. García-Arribas[5,8], K.Y. Guslienko[9], C. Magén[7,10], J. de Teresa[7,10], O. Chubykalo-Fesenko[1] and *A. Asenjo*[1] *1. ICMM-CSIC, Madrid, Spain; 2. Institute of Nanotechnology, KIT, Eggenstein-Leopoldshafen, Germany; 3. Departamento de Física de la Materia Condensada, UAM, Madrid, Spain; 4. Departamento de Física, Universidad de Oviedo, Oviedo, Spain; 5. Departamento de Electricidad y Electrónica, UPV/EHU, Leioa, Spain; 6. Department of Electrical Engineering and Computer Science, University of California Berkeley, Berkeley, CA, United States; 7. Instituto de Nanociencia de Aragon, Zaragoza, Spain; 8. Fundacion BCMaterials - Basque Center for Materials Applications and Nanostructures, Leioa, Spain; 9. Department of Materials Physics, UPV/EHU, Donostia, Spain; 10. ICMA-CSIC, Zaragoza, Spain*

L1-04. **Magnetic Texture Evolution Within Uniaxial Kagome Ferromagnets at Constant Heating/Cooling Rates.** *A. Sugawara*[1], T. Akashi[1], M. Kassem[2,3], Y. Tabata[2], T. Waki[2] and H. Nakamura[2] *1. Center for Exploratory Laboratory, Hitachi Ltd, Hatoyama, Japan; 2. Department of Materials Science and Engineering, Kyoto University, Kyoto, Japan; 3. Assiut University Faculty of Science, Assiut, Egypt*

L1-05. **Using Time-Resolved SEMPA Imaging to Reveal the Dynamics of Multiple Competing Switching Pathways Using Just a Single Measurement.** *R.M. Reeve*[1], D. Schönke[1], H. Stoll[2,1] and M. Klaui[1] *1. Johannes Gutenberg Universitat Mainz, Mainz, Germany; 2. Max-Planck-Institut fur Intelligente Systeme, Stuttgart, Germany*

L1-06. **Imaging Magnetic Domains at the Surface of Fe_3O_4(001) Using a Spin-Polarised Metastable Helium Beam.** *P. Bentley*[1,2], R.F. Evans[1], X. Sun[3], M. Kurahashi[2], A. Pratt[1] and Y. Yamauchi[2] *1. Department of Physics, University of York, York, United Kingdom; 2. National Institute for Materials Science, Tsukuba, Japan; 3. University of Science and Technology of China, Hefei, China*

L1-07. **Imaging non-Collinear Antiferromagnetic Textures via Single Spin Relaxometry.** ***(Invited)*** *A. Finco*[1] *1. Laboratoire Charles Coulomb, Université de Montpellier and CNRS, Montpellier, France*

L1-08. **NV^- Center Magnetometry Using Sequential Bayesian Experiment Design.** *S. Dushenko*[2,1], K. Ambal[3,4] and R.D. McMichael[2] *1. Institute for Research in Electronics and Applied Physics, University of Maryland, College Park, College Park, MD, United States; 2. Physical Measurement Laboratory, National Institute of Standards and Technology, Gaithersburg, MD, United States; 3. Institute for Research in Electronics and Applied Physics, University of Maryland, College Park/NIST, College Park, MD, United States; 4. Wichita State University, Wichita, KS, United States*

L1-09. **Antiferromagnetic Spin Cycloidal Orders Imaged With a Commercial Scanning Nitrogen-Vacancy Magnetometer.** *H. Zhong*[1], A. Stark[1], F. Favaro[1] and P. Maletinsky[1] *1. Qnami AG, Muttenz, Switzerland*

L1-10. **Magnetic Singularities Topological Charge Experimentally Revealed via Soft X-Ray Tomography.** *A. Hierro-Rodriguez*[1,2], C. Quiros[1,2], A. Sorrentino[3], L. Alvarez Prado[1,2], J. Martín[1,2], J. Alameda[1,2], S. McVitie[4], E. Pereiro[3], M. Velez[1,2] and S. Ferrer[3] *1. Physics, Universidad de Oviedo, Oviedo, Spain; 2. CINN (CSIC-Universidad de Oviedo), El Entrego, Spain; 3. Experiments, CELLS, ALBA Synchrotron, Cerdanyola del Valles, Spain; 4. School of Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom*

L1-11. **Field Dependence Chirality in Ferromagnetic Multilayers Probed by Dichroism in x-ray Resonant Magnetic Scattering.** *E.O. Burgos Parra*[3,1], W. Legrand[1], S. Flewett[2], F. Ajejas[1], C. Leveille[3], Y. Sassi[1], P. Gargiani[4], M. Valvidares[4], N. Reyren[1], V. Cros[1] and N. Jaouen[3] *1. Unite Mixte de Physique CNRS/Thales, Palaiseau, France; 2. Pontificia Universidad Catolica de Valparaiso Facultad de Ciencias, Valparaiso, Chile; 3. Synchrotron SOLEIL, Gif-sur-Yvette, France; 4. Sincrotron ALBA, Barcelona, Spain*

L1-12. **Imaging Shape and Voltage Control of Spin Textures in Ferroic Heterostructures.** *R.V. Chopdekar*[1] *1. Advanced Light Source, E O Lawrence Berkeley National Laboratory, Berkeley, CA, United States*

L1-13. **Direct Observation of Temperature Dependent Vortex Dynamics in a $La_{0.7}Sr_{0.3}MnO_3$ Micromagnet.** E. Digernes[2], *J. Leliaert*[1], M. Weigand[3], E. Folven[2] and B. Van Waeyenberge[1] *1. Dept. of Solid State Sciences, Universiteit Gent, Gent, Belgium; 2. Department of Electronic Systems, Norges teknisk-naturvitenskapelige universitet, Trondheim, Norway; 3. Helmholtz-Zentrum Berlin fur Materialien und Energie GmbH, Berlin, Germany*

L1-14. **Fiber-Optic Magnetic Vector Gradient Imaging With Fluorescent Defects in Diamond.** *S.M. Blakley*[1,2], I.V. Fedotov[3,4], J. Becker[1] and A.M. Zheltikov[1,3] *1. Department of Physics & Astronomy, Texas A&M University, College Station, TX, United States; 2. Physical Measurement Laboratory, National Institute of Standards and Technology, Gaithersburg, MD, United States; 3. Physics Department, Lomonosov Moscow State University, Moscow, Russian Federation; 4. Russian Quantum Center, Skolkovo, Russian Federation*

Session L2
VOLTAGE-CONTROLLED MAGNETIC ANISOTROPY AND SWITCHING

Takayuki Nozaki, Chair
Natinaol Institute of Advanced Industrial Science and Technology, Tsukuba, Japan

L2-01. **Voltage Control of Magnetism Enabled by Resistive Switching.** ***(Invited)*** *P. Salev*[1], L. Fratino[2], D.Y. Sasaki[3], R. Berkoun[2], J. del Valle[4], Y. Kalcheim[1], Y. Takamura[3], M. Rozenberg[2] and I.K. Schuller[1] *1. University of California San Diego, La Jolla, CA, United States; 2. Laboratoire de Physique des Solides, Orsay, France; 3. University of California Davis, Davis, CA, United States; 4. Universite de Geneve, Geneva, Switzerland*

L2-02. **Voltage-Induced Ferromagnetism in Diamagnetic FeS_2.** J. Walter[1,2], B. Voigt[1], E. Day-Roberts[1], K. Heltemes[2], R. Fernandes[1], T. Birol[1] and *C. Leighton*[1] *1. University of Minnesota, Minneapolis, MN, United States; 2. Augsburg University, Minneapolis, MN, United States*

L2-03. **Inverse of Voltage Controlled Magnetic Anisotropy (VCMA) Effect.** *A. Shukla*[1], A. Chouhan[1], R. Pandey[1], R. Maripeddi[1], T. Yamamoto[2], H. Kubota[2], A. Fukushima[2], S. Yuasa[2], T. Nozaki[2] and A. Tulapurkar[1] *1. Electrical Engineering, Indian Institute of Technology Bombay, Mumbai, India; 2. Sangyo Gijutsu Sogo Kenkyujo Tsukuba Chuo, Tsukuba, Japan*

L2-04. **Optimization of the VCMA Driven Magnetization Reversal.** *R. One*[1,2], H. Béa[2], C. Fillion[2], S. Mican[1], M. Joldos[3], B. Dieny[2], L. Buda-Prejbeanu[2] and C. Tiusan[1,3] *1. Faculty of Physics, Babes-Bolyai University, Cluj-Napoca, Romania; 2. Univ. Grenoble Alpes, CEA, CNRS, Grenoble INP, IRIG-SPINTEC, 38000 Grenoble, France; 3. Technical University of Cluj-Napoca, Cluj-Napoca, Romania*

L2-05. **Impact of Ambient Temperature on the Switching Behavior of Voltage-Controlled Perpendicular Magnetic Tunnel Junction.** *Y. Wu*[1,2], W. Kim[1], S. Van Beek[1], S. Couet[1], R. Carpenter[1], S. Rao[1], S. Kundu[1], F. Yasin[1], D. Crotti[1], J. Van Houdt[1,2], G. Groeseneken[1,2] and G.S. Kar[1] *1. imec, Leuven, Belgium; 2. ESAT, KULeuven, Leuven, Belgium*

L2-06. **Tuning Magnetic Anisotropy and Skyrmion Stability With Electric Field.** *A. Fassatoui*[1], J. Peña Garcia[1], A. Mantel[2], L. Ranno[1], H. Béa[3], J. Vogel[1] and S. Pizzini[1] *1. Institut NEEL, Grenoble, France; 2. Laboratoire de Physique et Chimie des Nano-objets, Toulouse, France; 3. SPINtronique et Technologie des Composants, Grenoble, France*

L2-07. **Hydroxide-Based Magneto-Ionics: Paramagnetic-to-Ferromagnetic Transition in Electrolyte-Gated α-$Co(OH)_2$.** *A. Quintana-Puebla*[1], A.A. Firme[2], C.J. Jensen[1] and K. Liu[1] *1. Physics Department, Georgetown University, Washington, DC, United States; 2. Physics and Astronomy, University of Wyoming, Laramie, WY, United States*

L2-08. **Magneto-Ionic Enhancement of Exchange Bias in MnN/CoFe.** *C.J. Jensen*[1], A. Quintana[1], P. Quarterman[2], A.J. Grutter[2] and K. Liu[1] *1. Physics, Georgetown University, Washington, DC, United States; 2. NIST Center for Neutron Research, Gaithersburg, MD, United States*

L2-09. **Superconductivity-Induced Change in Magnetic Anisotropy in Epitaxial Ferromagnet-Superconductor Hybrids With Spin-Orbit Interaction.** *C. González-Ruano*[1*], D. Caso[1], L.G. Johnsen[2], C. Tiusan[3,4], M. Hehn[4], N. Banerjee[5], J. Linder[2] and F.G. Aliev[1] *1. Universidad Autonoma de Madrid, Madrid, Spain; 2. Center for Quantum Spintronics, Norwegian University of Science and Technology, Trondheim, Norway; 3. Center of Superconductivity Spintronics and Surface Science C4S, Technical University of Cluj-Napoca, Cluj-Napoca, Romania; 4. Institut Jean Lamour, Nancy Universite, Nancy, France; 5. Loughborough University, Epinal Way, Loughborough, United Kingdom*

WEDNESDAY EVENING 7:30

LIVE Q&A 12

Session L3
MAGNETIZATION DYNAMICS AND DAMPING III (Poster Session)

Takeshi Kato, Chair
Nagoya University, Nagoya, Japan

L3-01. **Fully-Vector Simulation Framework for the Investigation of Magnetisation Dynamics and Skyrmions.** *J. O'Brien*[1] and P. Stamenov[1] *1. Physics, University of Dublin Trinity College, Dublin, Ireland*

L3-02. **Utilizing Four-Node Tetrahedra-Shaped Hopfield Neural Network Configurations in the Local Magnetization Assessment of 3D Objects Exhibiting Hysteresis.** *A. Adly*[1] and S. Abd-El-Hafiz[2] *1. Elect. Power Engineering Dept., Cairo University Faculty of Engineering, Cairo, Egypt; 2. Engineering Mathematics and Physics Dept., Cairo University Faculty of Engineering, Cairo, Egypt*

L3-03. **Discrete Magnetic Breathers in Monoaxial Chiral Helimagnet.** *A. Ovchinnikov*[1], I. Bostrem[1], V. Sinitsyn[1], E. Ekomasov[3,4] and J. Kishine[2] *1. Institute Natural Sciences and Mathematics, Ural Federal Univeristy, Ekaterinburg, Russian Federation; 2. The Open University of Japan, Chiba, Japan; 3. Bashkir State University, Ufa, Russian Federation; 4. South Ural State University, Chelyabinsk, Russian Federation*

** - Best student presentation award finalist*

L3-04. **Atomistic Spin-Lattice Dynamics on Model Hamiltonians in low-Dimensional Systems.** *D. Thonig*[1], J. Hellsvik[4,5], M. Pereiro[2], J. Fransson[2] and A. Delin[3,2] *1. School of Science and Technology, Örebro University, Örebro, Sweden; 2. Department of Physics and Astronomy, Uppsala Universitet, Uppsala, Sweden; 3. Department of Applied Physics, School of Engineering Sciences, KTH Royal Institute of Technology, Kista, Sweden; 4. Nordic Institute for Theoretical Physics, Stockholm, Sweden; 5. Department of Physics, KTH Royal Institute of Technology, Stockholm, Sweden*

L3-05. **Effect of Perpendicular Magnetic Field on Domain Wall Motion of Glass-Coated Magnetically Bistable Microwires With Different Anisotropy.** *L. Fecova*[1,2], K. Richter[1,3] and R. Varga[2] *1. Department of Physics of Condensed Matters, Pavol Jozef Safarik University in Kosice Institute of Physics, Kosice, Slovakia; 2. Center for Progressive Materials, Pavol Jozef Safarik University in Kosice, Technology and Innovation Park, Kosice, Slovakia; 3. Institute of Materials Science, Kiel University, Kiel, Germany*

L3-06. **Field Induced Uniaxial Anisotropy in Ferromagnetic Thin Films.** *B. Nepal*[1], A. Pokhrel[1], M. Bruno[1], J. Cates[1], F. Brunson[1], D. Fox[1], A. Grice[1], J. Ingram[1], A. Leone[1], A. Lewis[1], C. Murray[1], L. Stoll[1], H. Trewin[1], T. Mewes[1], C. Mewes[1] and G. Mankey[1] *1. Physics and Astronomy, The University of Alabama, Tuscaloosa, AL, United States*

L3-07. **Spin-Polarized Photocurrent in TbCo/FeCo Superlattice Observed via THz Time Domain Spectroscopy.** *D. Khusyainov*[1], S.V. Ovcharenko[1], A. Buryakov[1], N. Tiercelin[2], V. Preobrajenski[3], E. Mishina[1] and A. Sigov[1] *1. Nanotechnology, MIREA Russian Technological University, Moscow, Russian Federation; 2. Universite de Lille, Lille, France; 3. Institut obsej fiziki imeni A M Prohorova RAN, Moscow, Russian Federation*

L3-08. **Influence of Induced Uniaxial Anisotropy in Silicon-Doped Yttrium Iron Garnet (YIG:Si) Film on Ultrafast Dynamics of Magnetization Excited by Femtosecond Laser Pulses.** *S.V. Ovcharenko*[1], M.S. Gaponov[1] and E. Mishina[1] *1. Nanoelectronics, MIREA Rossijskij tehnologiceskij universitet, Moscow, Russian Federation*

L3-09. **Time Dependence of Magnetic Moment of Strontium-Ferrite Powder Measured by Biaxial VSM.** *T. Ahmed*[1], W.J. Geerts[1] and B. D.C.[1] *1. Material Science, Engineering and Commercialization, Texas State University System, San Marcos, TX, United States*

L3-10. **Effect of the Ga Composition on the Soft and High-Frequency Magnetic Properties of $Fe_{85.1-x}Ga_xB_{14.9}$ Thin Films.** *S. Muramatsu*[1], T. Miyazaki[3] and Y. Endo[1,2] *1. Graduate School of Engineering, Tohoku University, Sendai, Japan; 2. Center for Science and Innovation in Spintronics, Tohoku University, Sendai, Japan; 3. Faculty of Engineering, Tohoku University, Sendai, Japan*

L3-11. **Realization of Ferromagnetic Resonance in 1nm Co Ultrathin Film.** *S. Yoshii*[1], R. Ohshima[1], Y. Ando[1], T. Shinjo[1] and M. Shiraishi[1] *1. Kyoto Daigaku, Kyoto, Japan*

L3-12. **Ferromagnetic Resonance and Micromagnetic Simulations of FeSiB Amorphous Thin Films.** *G. Soares*[1], F. Celegato[1], F. Garcia-Sanchez[2], G. Barrera[1], M. Pasquale[1] and P. Tiberto[1] *1. Istituto Nazionale di Ricerca Metrologica, Turin, Italy; 2. epartamento de Fisica Aplicada, Universidad de Salamanca, Salamanca, Spain*

L3-13. **Reconfigurable and Bias-Field-Free Microwave Properties in C-, L- and S-Shaped Nanomagnets.** *K. Begari*[1] and A. Haldar[1] *1. Physics Department, Indian Institute of Technology Hyderabad, Hyderabad, India*

L3-14. **Electromagnetic Wave Absorption and Resonance in Infinite Cobalt Nano-Prisms.** *M. Aziz*[1] and C. McKeever[2] *1. Engineering, University of Exeter, Exeter, United Kingdom; 2. Physics, University of Exeter, Exeter, United Kingdom*

L3-15. **Optimization of Lumped Element Resonator via Total Capacitive Design and Coplanar Waveguide Configuration for Effective Magnon-Photon Coupling.** *Y. Xiong*[1], Y. Li[2], T. Polakovic[2], R. Divan[2], J. Pearson[2], H. Qu[1], Z. Xiao[2,3], W. Kwok[2], W. Zhang[1] and V. Novosad[2] *1. Oakland University, Rochester, MI, United States; 2. Argonne National Laboratory, Lemont, IL, United States; 3. Northern Illinois University, DeKalb, IL, United States*

WEDNESDAY EVENING 7:30

LIVE Q&A 12

Session L4
MAGNETO-ELASTIC AND MAGNETO-CALORIC MATERIALS III (Poster Session)

Brian Lejeune, Chair
Northeastern University, Boston, MA, United States

L4-01. **The Effect of Mn Substitution by Co and Ni in Fe-Rich $(Mn,Fe)_2(P,Si)$.** *A. Kiecana*[1], I. Batashev[1], A.I. Dugulan[1], N.v. van Dijk[1] and E. Brück[1] *1. Radiation, Science and Technology, Technische Universiteit Delft, Delft, Netherlands*

L4-02. **Novel MnP Thin Films With Integrated Thermoelectric and Thermomagnetic Functionalities for Energy-Efficient Solid State Refrigeration.** *C. Hung*[1], R.M. Madhogaria[1], A. Duong[2], R. Das[2], H. Pham[2], S. Cho[3], H. Srikanth[1] and M. Phan[1] *1. Physics, University of South Florida, Tampa, FL, United States; 2. Phenikaa Research and Technology Institute, Phenikaa University, Hanoi, Vietnam; 3. Department of Physics and Energy Harvest-Storage Research Center, University of Ulsan, Ulsan, The Republic of Korea*

L4-03. **Structural and Magnetostrictive Properties of Fe-Ga-Tb Alloys: Density-Functional Theory Study.** *M. Adelani*[1], S. Olive Méndez[1], F. Espinosa-Magaña[1] and M. Grijalva Castillo[1] *1. Material Physics, Centro de Investigacion en Materiales Avanzados, S.C., Chihuahua, Mexico*

L4-04. **Structural and Magnetocaloric Properties $0.75La_{0.7}Ca_{0.3}MnO_3$/ $0.25La_{0.84}Sr_{0.16}MnO_3$ Nanocomposite.** *P. Bisht*[1], M. .[1], A. Gaur[1] and R.N. Mahato[1] *1. School of Physical Sciences, Jawaharlal Nehru University, New Delhi, India*

L4-05. **Thermoplastic Elastomers With Strontium Ferrite Particulate and Magnetic Annealing Used for Fused Deposition Modeling.** *S. Ziemann*[1], N.A. Fischer[1], A. Robinson[1], T. Lee[1] and B. Nelson-Cheeseman[1] *1. Mechanical Engineering, University of Saint Thomas, Saint Paul, MN, United States*

L4-06. **Large Magnetocaloric Effect due to Anhysteretic First-Order Transition in Pr_2in.** *A. Biswas*[1], N.A. Zarkevich[1], A.K. Pathak[1,2], O. Dolotko[1], I.Z. Hlova[1], Y. Mudryk[1], A.V. Smirnov[1], D.D. Johnson[1,3] and V.K. Pecharsky[1,3] *1. Ames Laboratory, Ames, IA, United States; 2. SUNY Buffalo State College, Buffalo, NY, United States; 3. Department of Materials Science and Engineering, Iowa State University, Ames, IA, United States*

L4-07. **Influence of Ni/Mn Concentration on the Magnetocaloric Effect in $Ni_{43+x}Mn_{46-x}Sn_{11}$ (x = 0; 1) Heusler Alloys.** *S. Emelyanova*[1] and V. Marchenkov[1,2] *1. UB RAS, M.N. Mikheev Institute of Metal Physics, Ekaterinburg, Russian Federation; 2. Ural Federal University named after the first President of Russia B.N.Yeltsin, Ekaterinburg, Russian Federation*

L4-08. **On the Synthesis and Magnetocaloric Behavior of the $Ni_{37.5}Co_{12.5}Mn_{35}Ti_{15}$ Quaternary Alloy.** *M. López*[1], J. Zamora Mendieta[1], C.F. Sánchez Valdés[2] and J.L. Sánchez Llamazares[1] *1. División de materiales avanzados, Instituto Potosino de Investigacion Cientifica y Tecnologica AC, San Luis Potosi, Mexico; 2. División Multidisciplinaria, Universidad Autonoma de Ciudad Juarez, Juarez, Mexico*

L4-09. **Thermal Cycling Influence on the Thermomagnetic Properties of Ni-Mn-Sn Based Magnetic Shape Memory Alloys.** A. Wederni[1], J. Saurina[1], M. Escoda[1], M. Ipatov[2], J. gonzalez[2] and *J. Suñol*[1] *1. Universitat de Girona, Girona, Spain; 2. University of Basque Country, San Sebastián, Spain*

L4-10. **Magnetic Annealing of Extruded Thermoplastic Magnetorheological Elastomers for 3D-Printing via FDM.** *N.A. Fischer*[1], A. Robinson[1], T. Lee[1], T. Calascione[1], L.J. Koerner[2] and B. Nelson-Cheeseman[1] *1. Mechanical Engineering, University of Saint Thomas, Saint Paul, MN, United States; 2. Electrical & Computer Engineering, University of Saint Thomas, Saint Paul, MN, United States*

L4-11. **Magnetic and Magnetocaloric Properties of Tb_5Si_4.** *V. Khovaylo*[1,2], S.V. Taskaev[3,2], K. Skokov[4], M.N. Ulyanov[3], D. Bataev[3], M.Y. Bogush[3], D. Plakhotskiy[3], M. Kononova[1,3] and Z. Hu[5] *1. National University of Science and Technology MISiS, Moscow, Russian Federation; 2. National Research South Ural State University, Chelyabinsk, Russian Federation; 3. Department of Physics, Chelyabinsk State University, Chelyabinsk, Russian Federation; 4. Technische Universitat Darmstadt, Darmstadt, Germany; 5. University of Science and Technology Beijing, Beijing, China*

L4-12. **Thermal Switches in Solid State Magnetic Refrigeration: Conductivity Change Requirements and Effects.** *D. Silva*[1], A. Pereira[1], J. Ventura[1], J. Araújo[1] and J. Oliveira[2] *1. IFIMUP, University of Porto, Porto, Portugal; 2. LAETA, University of Porto, Porto, Portugal*

L4-13. **Optimization of Magnetic Refrigerant Capacity of Mn_5Ge_3 Alloy Near Room Temperature.** *L. Bachhraj*[1], A. Rathi[1], A. Verma[1], B. Gahtori[1], R. Pant[1], P.D. Babu[2] and G. Basheed[1] *1. AcSIR, CSIR-National Physical Laboratory (NPL) Campus, New Delhi, India; 2. BARC campus, UGC-DAE Consortium for scientific research, Mumbai, India*

L4-14. **A Study of Effect of Mechanical Preloads on Magnetorheological Elastomers Hysteresis Loop.** *W.M. Kiarie*[1] and D.C. Jiles[2,1] *1. Materials Science and Engineering, Iowa State University, Ames, IA, United States; 2. Electrical and Computer Engineering, Iowa State University, Ames, IA, United States*

L4-15. **Withdrawn**

L4-16. **Effects of Particulate Size on the Magnetic and Magnetoactive Properties of an Extruded Magnetorheological Thermoplastic Elastomer.** *A. Robinson*[1], N.A. Fischer[1], T. Lee[1], T.M. Calascione[1] and B. Nelson-Cheeseman[1] *1. Engineering, University of Saint Thomas, Saint Paul, MN, United States*

L4-17. **Withdrawn**

Session S5
PHYSICS AND APPLICATIONS IN TRANSMISSION AND CONTROL OF SPIN-ORBIT TORQUES

Jonathan Sun, Chair
IBM T. J. Watson Research Center, Yorktown Heights, NY, United States

8:00

S5-01. **Spin-Orbit Torque Induced Magnetization Switching Based on Topological Spin Textures and Magnons.** ***(Invited)*** *H. Yang*[1] *1. National University of Singapore, Singapore, Singapore*

8:36

S5-02. **Magnetization Switching Utilizing Surface States in Topological Materials.** ***(Invited)*** *M. Wu*[1], P. Li[1], J. Kally[2], S. Zhang[3], T. Pillsbury[2], J. Ding[1], G. Csaba[4], J. Ding[3], S. Jiang[3], Y. Liu[5], R. Sinclair[5], C. Bi[6], A. DeMann[1], G. Rimal[7], W. Zhang[8], S. Field[1], J. Tang[7], W. Wang[6], O. Heinonen[3], V. Novosad[3], A. Hoffmann[3] and N. Samarth[2] *1. Colorado State University, Fort Collins, CO, United States; 2. Pennsylvania State University, University Park, PA, United States; 3. Argonne National Laboratory, Lemont, IL, United States; 4. Pazmany Peter Catholic University, Budapest, Hungary; 5. Stanford University, Stanford, CA, United States; 6. University of Arizona, Tucson, AZ, United States; 7. University of Wyoming, Laramie, WY, United States; 8. Oakland University, Rochester, MI, United States*

9:12

S5-03. **Planar Hall Driven Spin Torque in a Ferromagnet/Nonmagnet/Ferromagnet System.** ***(Invited)*** *C. Safranski*[1], J. Xu[2], A.D. Kent[2] and J. Sun[1] *1. IBM T. J. Watson Research Center, Yorktown Heights, NY, United States; 2. Physics, Center for Quantum Phenomena, New York University, New York, NY, United States*

9:48

S5-04. **Electrical Spin Current Generation in Ferromagnets and at Ferromagnetic Interfaces.** ***(Invited)*** *V. Amin*[1], P.M. Haney[2] and M.D. Stiles[2] *1. Physics, Indiana University Purdue University, Indianapolis, Indianapolis, IN, United States; 2. National Institute of Standards and Technology, Gaithersburg, MD, United States*

10:24

S5-05. **Metrology and Materials Optimization: Maximizing Spin Hall Ratio and Spin Torque Efficiency of Pt.** ***(Invited)*** *L. Zhu*[1], L. Zhu[2], S. Shi[1], D. Ralph[1] and R. Buhrman[1] *1. Cornell University, Ithaca, NY, United States; 2. Shaanxi Normal University, Xi'an, China*

Session S6
NEXT GENERATION ARTIFICIAL SPIN ICE

Cristiano Nisoli, Chair
Los Alamos National Laboratory, Los Alamos, NM, United States

9:00

S6-01. **Artificial Spin Ice, Vertex Frustration, and the Advantages of Intentional Design.** ***(Invited)*** *P. Schiffer*[1] *1. Yale University, New Haven, CT, United States*

9:36

S6-02. **Super-X-Magnetism: Investigation and Control of Ordering Processes in Artificial Spin Ice.** ***(Invited)*** *R. Stamps*[1] *1. Physics and Astronomy, University of Manitoba, Winnipeg, MB, Canada*

10:12

S6-03. **Frustrated Spin Architecture: From Macroscopically Degenerate Artificial Spin ice to Artificial Spin Glasses.** ***(Invited)*** *A. Farhan*[1] *1. Department of Applied Physics, Aalto University, Espoo, Finland*

10:48

S6-04. **Spontaneous Superdomain Wall Fluctuations in a 2D Square Artificial Spin Ice.** ***(Invited)*** *S. Roy*[1], X. Chen[1,2], B. Farmer[2], J.S. Woods[2], S. Dhuey[3], W. Hu[4], C. Mazzoli[4], S. Wilkins[4], R.V. Chopdekar[1], A. Scholl[1], I.K. Robinson[5], L.E. DeLong[2] and J.T. Hastings[6] *1. Advanced Light Source, E O Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 2. Dept. of Physics, University of Kentucky, Lexington, KY, United States; 3. Molecular Foundry, E O Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 4. NSLSII, Brookhaven National Laboratory, Upton, NY, United States; 5. Condensed Matter Physics, Brookhaven National Laboratory, Upton, NY, United States; 6. Dept. Of Electrical and Computer Engg., University of Kentucky, Lexington, KY, United States*

11:24

S6-05. **Plasmon-Assisted Opto-Thermal Excitation of Nanomagnetic Arrays.** ***(Invited)*** *P. Vavassori*[1,2], N. Leo[1], M. Menniti[1], M. Pancaldi[3], P. Gypens[4] and J. Leliaert[4] *1. Nanomagnetism, CIC nanoGUNE, San Sebastian, Spain; 2. Ikerbasque, Bilbao, Spain; 3. Department of Physics, Stockholm University, Stockholm, Sweden; 4. Deptartment of Solid State Sciences, Gent University, Gent, Belgium*

Session M1
ANTIFERROMAGNETIC SPINTRONICS III

Libor Smejkal, Chair
Johannes Gutenberg University of Mainz, Mainz, Germany

M1-01. **Large Spin-Orbit Torque Efficiency and Magnetic Symmetry Effect in the Antiferromagnet IrMn.** ***(Invited)*** J. Zhou[1], X. Shu[1] and *J. Chen*[1] *1. Materials Science and Engineering, National University of Singapore, Singapore, Singapore*

M1-02. **Concurrent Magneto-Optical Imaging and Magneto-Transport Readout of Electrical Switching of Insulating Antiferromagnetic Thin Films.** *F. Schreiber*[1*], L. Baldrati[1], C. Schmitt[1], R. Ramos[2], E. Saitoh[2,3], R. Lebrun[1,4] and M. Klaui[1,5] *1. Johannes Gutenberg Universität Mainz, Mainz, Germany; 2. Tohoku Daigaku, Sendai, Japan; 3. Tokyo Daigaku, Bunkyo-ku, Japan; 4. Unite Mixte de Physique CNRS/ Thales, Palaiseau, France; 5. Johannes Gutenberg University Mainz Graduate School of Excellence Materials Science in Mainz, Mainz, Germany*

M1-03. **Nonlinear Optical Imaging of Current Induced Spin Switching in Antiferromagnetic Nickel Oxide/Platinum Devices.** *J. Lee*[1], Y. Tang[2], A. Mei[3], D.G. Schlom[3], D. Ralph[2] and F. Rana[1] *1. Electrical and Computer Engineering, Cornell University, Ithaca, NY, United States; 2. Physics, Cornell University, Ithaca, NY, United States; 3. Material Science and Engineering, Cornell University, Ithaca, NY, United States*

M1-04. **Atomistic Spin Dynamics Simulations of Iridium Manganese Alloys.** *S. Jenkins*[1], R. Chantrell[1] and R.F. Evans[1] *1. Department of Physics, University of York, York, United Kingdom*

M1-05. **Optical Imaging of Antiferromagnetic Domains and Dynamics Switching in CoO Film by Magneto-Optical Birefringence Effect.** *J. Xu*[1], X. Zhang[2], J. Xia[2], C. Zhou[1], D. Shi[1], G. Chen[3], Y. Zhou[2] and Y. Wu[1] *1. Department of Physics and State Key Laboratory of Surface Physics, Fudan University, Shanghai, China; 2. School of Science and Engineering, The Chinese University of Hong Kong, Shenzhen, China; 3. Department of Physics, University of California Davis, Davis, CA, United States*

M1-06. **Inertial Domain Wall Motion Driven by Staggered Spin-Orbit Fields in Layered Antiferromagnets.** *R. Rama-Eiroa*[1,2], P. Roy[3], J.M. González[2], K.Y. Guslienko[4,2], J. Wunderlich[5] and R.M. Otxoa[3,1] *1. Donostia International Physics Center, San Sebastian, Spain; 2. Materials Physics Department, Universidad del Pais Vasco - Campus Gipuzkoa, San Sebastián, Spain; 3. Hitachi Cambridge Laboratory, Cambridge, United Kingdom; 4. Ikerbasque, Bilbao, Spain; 5. Universitat Regensburg Fakultat fur Physik, Regensburg, Germany*

** - Best student presentation award finalist*

M1-07. **Spin-Oribit Torques in Mn_2Au/HM Bilayers.** *W. Fang*[1] and K. Belashchenko[1] *1. Physics, University of Nebraska-Lincoln, Lincoln, NE, United States*

M1-08. **Micromagnetic Modeling of Antiferromagnets.** ***(Invited)*** *G. Finocchio*[1], L. Sánchez-Tejerina[1], R. Tomasello[2], V. Puliafito[1], A. Giordano[1], F. Garesci[1] and M. Carpentieri[3] *1. Universita degli Studi di Messina, Messina, Italy; 2. Institute of Applied and Computational Mathematics, FORTH, Heraklion, Greece; 3. Politecnico di Bari, Bari, Italy*

M1-09. **Spin Flop and Crystalline Anisotropic Magnetoresistance in CuMnAs.** *M. Wang*[1], C. Andrews[1], S. Reimers[1,2], O.J. Amin[1], P. Wadley[1], R.P. Campion[1], S.F. Poole[1], J. Felton[1], K.W. Edmonds[1], B.L. Gallagher[1], A.W. Rushforth[1], O. Makarovsky[1], K. Gas[3], M. Sawicki[3], D. Kriegner[4], J. Zubáč[4,5], K. Olejník[4], V. Novák[4], T. Jungwirth[4], M. Shahrokhvand[6], U. Zeitler[6], S.S. Dhesi[2] and F. Maccherozzi[2] *1. School of Physics and Astronomy, University of Nottingham, Nottingham, United Kingdom; 2. Diamond Light Source Ltd, Didcot, United Kingdom; 3. Institute of Physics, Polish Academy of Sciences, Warsaw, Poland; 4. Institute of Physics, Czech Academy of Science, Prague, Czechia; 5. Faculty of Mathematics and Physics, Univerzita Karlova Matematicko-fyzikalni fakulta, Praha, Czechia; 6. High Field Magnet Laboratory (HFML-EMFL), Radboud Universiteit, Nijmegen, Netherlands*

M1-10. **Withdrawn**

M1-11. **Absence of Evidence of Electrical Switching of the Antiferromagnetic Néel Vector.** *C. Chiang*[1], S. Huang[1], D. Qu[2], P. Wu[1] and C. Chien[1,3] *1. Department of Physics, National Taiwan University, Taipei, Taiwan; 2. Institute of Physics, Academia Sinica, Taipei, Taiwan; 3. Department of Physics and Astronomy, Johns Hopkins University, Baltimore, MD, United States*

M1-12. **Zero Field Optic Mode Beyond 20 GHz in a Synthetic Antiferromagnet.** *H.J. Waring*[1*], N. Johansson[1], I.J. Vera-Marun[2] and T. Thomson[1] *1. Computer Science, The University of Manchester, Manchester, United Kingdom; 2. Physics and Astronomy, The University of Manchester, Manchester, United Kingdom*

** - Best student presentation award finalist*

Session M2
COMPLEX OXIDES I

Cinthia Piamonteze, Co-Chair
Paul Scherrer Institut, Villigen, Switzerland
Peter Fischer, Co-Chair
Lawrence Berkeley National Laboratory, Berkeley, CA, United States

M2-01. **Interfacial Ferromagnetism and Structural Distortion in Ultrathin (111)-Oriented $LaNiO_3$.** *M. Kane*[1,2], A. Vailionis[2], L.J. Riddiford[3,2], A. Mehta[4], A.T. N'Diaye[5], E. Arenholz[6] and Y. Suzuki[3,2] *1. Materials Science and Engineering, Stanford University, Stanford, CA, United States; 2. Geballe Laboratory for Advanced Materials, Stanford University, Stanford, CA, United States; 3. Applied Physics, Stanford University, Stanford, CA, United States; 4. Stanford Synchrotron Radiation Lightsource, Menlo Park, CA, United States; 5. E O Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 6. Cornell High Energy Synchrotron Source, Ithaca, NY, United States*

M2-02. **Ferroelastic Nature and Ferromagnetism in Epitaxial $LaCoO_3$.** *S. Yoon*[1], X. Gao[1], J. Ok[1], Z. Liao[1], M. Han[2], Y. Zhu[2], P. Ganesh[1], M. Chisholm[1], W. Choi[3] and H. Lee[1] *1. Oak Ridge National Laboratory, Oak Ridge, TN, United States; 2. Brookhaven National Laboratory, Upton, NY, United States; 3. Sungkyunkwan University, Suwon, The Republic of Korea*

M2-03. **Doping- and Strain-Dependent Electrochemical Control of Magnetism in Ion-Gel-Gated $La_{1-x}Sr_xCoO_{3-\delta}$ Films.** *V. Chaturvedi*[1], W. Postiglione[1], B. Yu[2], W. Tabis[2,3], S. Hameed[2], N. Biniskos[2], H. Zhou[4], Z. Zhang[4], M. Greven[2] and C. Leighton[1] *1. Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN, United States; 2. School of Physics and Astronomy, University of Minnesota, Minneapolis, MN, United States; 3. Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, Krakow, Poland; 4. Advanced Photon Source, Argonne National Laboratory, Lemont, IL, United States*

M2-04. **Strain and Thickness Dependent Magnetic Properties of Epitaxial $La_{0.7}Sr_{0.3}CoO_3/La_{0.7}Sr_{0.3}MnO_3$ Heterostructures.** *M. Feng*[1], N. Ahlm[1], A.M. Kane[1], I. Chiu[2], D.Y. Sasaki[1], P. Shafer[3], A.T. N'Diaye[3], A. Mehta[4] and Y. Takamura[1] *1. Materials Science and Engineering, University of California, Davis, Davis, CA, United States; 2. Chemical Engineering, University of California, Davis, Davis, CA, United States; 3. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 4. SLAC National Accelerator Laboratory, Menlo Park, CA, United States*

M2-05. **Study of Canonical Spin Glass Behavior in Co Doped $LaMnO_3$.** *F.H. Bhat*[1,5], G.A. Khan[2], G. Kataria[3], R. Kumar[4], D. Sahdev[3] and M.A. Malik[5] *1. Physics, Islamic University of Science and Technology, Awantipora, India; 2. Physics, SP College, Cluster University Srinagar, Srinagar, India; 3. Quazartech, New Delhi, India; 4. Materials Science and Engineering, NIT, Hamirpur, Hamirpur, India; 5. Physics, University of Kashmir, Srinagar, India*

M2-06. **Versatile Magnetic Ordered Phases in $SrMnO_3$ Films and its co- Dependence on Structural Properties.** *J.J. van Rijn*[1], A. Das[1], E. Vallabhaneni[1] and T. Banerjee[1] *1. Zernike Institute of Advanced Materials, University of Groningen, Groningen, Netherlands*

M2-07. **Microstructure Analysis of Electrospun $La_{0.8}Sr_{0.2}MnO_3$ Nanowires Using Electron Microscopy and Electron Backscatter Diffraction (EBSD).** *A. Koblischka-Veneva*[1,2], M.R. Koblischka[1,2], X. Zeng[2] and J. Schmauch[2] *1. Material Science, Shibaura Kogyo Daigaku, Koto-ku, Japan; 2. Experimental Physics, Universitat des Saarlandes Naturwissenschaftlich-Technische Fakultat, Saarbrucken, Germany*

M2-08. **Surface Ferromagnetism in $Pr_{0.5}Ca_{0.5}MnO_3$ Nanoparticles as a Consequence of Local Imbalance Mn^{3+}:Mn^{4+} Ratio.** D. Alshalawi[1], J. Alonso[1,2], *P. de la Presa*[1] and A. Hernando[1] *1. Instituto de Magnetismo Aplicado, Universidad Complutense de Madrid, Madrid, Spain; 2. Insitut of Materials Science of Madrid, Consejo Superior de Investigaciones Cientificas, Madrid, Spain*

M2-09. **Size Dependence of Charge Order and Magnetism in $Sm_{0.35}Ca_{0.65}MnO_3$ – Magnetization and Electron Paramagnetic Resonance Studies.** *L.R. Goveas*[1], B. K.S.[2], A. K.N.[3] and S. Bhat[2] *1. Physics, St. Joseph's College (Autonomous), Bangalore, India; 2. Physics, Indian Institute of Science, Bangalore, India; 3. Physics, Dr. Ambedkar Institute of Technology, Bangalore, India*

M2-10. **Unusual Dynamical Properties of Oxide-Magnetic Heterostructures.** ***(Invited)*** *J. Ramirez*[1] *1. Department of Physics, Universidad de los Andes, Bogota, Colombia*

M2-11. **Withdrawn**

M2-12. **Magnetic-Domain-Wall-Induced Electrical Polarization in Rare-Earth Iron Garnet Systems: a First-Principle Study.** *T. Bayaraa*[1], C. Xu[1], Y. Yang[2], H. Xiang[2] and L. Bellaiche[1] *1. Physics, University of Arkansas Fayetteville, Fayetteville, AR, United States; 2. State Key Laboratory of Surface Physics and Department of Physics, Fudan University, Shanghai, China*

M2-13. **Hidden Magnetoelectric Multipoles, and Anti-Magnetoelectric Effect in Fe_2O_3.** *X.H. Verbeek*[1] and N.A. Spaldin[1] *1. Materials department, ETH Zurich, Zürich, Switzerland*

M2-14. **Influence of the Oxide Termination and Polarization on the Interfacial Dzyaloshinskii-Moriya Interaction and the Perpendicular Magnetic Anisotropy in BTO/CoFeB/Pt System.** *S. Tacchi*[1], W. Lin[2], B. Yang[3,4], A.P. Chen[5], X. Wu[2], R. Guo[2], S. Chen[2], Q. Xie[2], X. Shu[2], L. Liu[2], Y. Hui[2], G. Chow[2], Y.P. Feng[6,5], G. Carlotti[7], H. Yang[3,4] and J. Chen[2] *1. Istituto Officina dei Materiali, Sede Secondaria di Perugia, CNR, Consiglio Nazionale delle Ricerche, Perugia, Italy; 2. Department of materials science and engineering, National University of Singapore, Singapore, Singapore; 3. Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, Ningbo, China; 4. Center of Materials Science and Optoelectronics Engineering, University of Chinese Academy of Sciences, Beijing, China; 5. NUS Graduate School of Integrative Sciences and Engineering, National University of Singapore, Singapore, Singapore; 6. Department of Physics, National University of Singapore, Singapore, Singapore; 7. Department of Physics and Geology, Università degli Studi di Perugia, Perugia, Italy*

M2-15. **Tuning the Magnetic Anisotropy and Phase Transition in Superparamagnetic Cobalt Oxide Nanostructures Synthesized Through Novel Solution-Growth Technique.** *N.N. Joshi*[1,2], V. Kochat[1] and S. S. A.[2] *1. Materials Science Centre, Indian Institute of Technology Kharagpur, Kharagpur, India; 2. Centre for Nano Science and Engineering, Indian Institute of Science, Bangalore, India*

M2-16. **Withdrawn**

THURSDAY
MORNING
12:00

LIVE Q&A 13

Session M3
MAGNETIZATION DYNAMICS AND DAMPING IV: SPIN CURRENT, SPIN-TORQUE, SPIN TRANSPORT, VORTICES, SKYRMIONS AND DOMAIN WALLS

Igor Barsukov, Chair
University of California, Riverside, Riverside, CA, United States

M3-01. **Detection of in-Plane Magnetization Switching of $Ni_{80}Fe_{20}$ Layer by Spin Rectification Effect.** *M. Aoki*[1], Y. Ando[1], R. Ohshima[1], E. Shigematsu[1], T. Shinjo[1] and M. Shiraishi[1] *1. Electronic Science and Engineering, Kyoto university, Nishikyo-ku, Kyoto, Japan*

M3-02. **Role of Crystalline and Damping Anisotropy to the Angular Dependences of Spin Rectification Effect in Single Crystal CoFe Film.** *F. Zeng*[1], X. Shen[1], Y. Li[2], Z. Yuan[3], W. Zhang[2] and Y. Wu[1] *1. Fudan University, Shanghai, China; 2. Oakland University, Rochester, MI, United States; 3. Beijing Normal University, Beijing, China*

M3-03. **Phase-Resolved Electrical Detection of Strongly Coupled Magnon-Magnon Hybrid Device.** *Y. Li*[1], C. Zhao[1], Z. Zhang[1], M. Vogel[1], Y. Xiong[2], J. Sklenar[3], R. Divan[4], J. Pearson[1], W. Zhang[2], A. Hoffmann[5] and V. Novosad[1] *1. Argonne National Laboratory Materials Science Division, Lemont, IL, United States; 2. Physics, Oakland University, Rochester, MI, United States; 3. Physics, Wayne State University, Detroit, MI, United States; 4. Center for Nanoscale Materials, Argonne National Laboratory, Lemont, IL, United States; 5. Materials Science Division, University of Illinois at Urbana-Champaign, Urbana, IL, United States*

M3-04. **Picosecond Spin Orbit Torque Switching.** *K. Jhuria*[1], J. Hohlfeld[1], A. Pattabi[2], E. Martin[1], A. Ygnacio Arriola Córdova[1,3], X. Shi[4], R. Lo Conte[2], S. Petit-Watelot[1], J. Rojas-Sanchez[1], G. Malinowski[1], S. Mangin[1], A. Lemaître[5], M. Hehn[1], J. Bokor[2,6], R. B. Wilson[4] and J. Gorchon[1] *1. Université de Lorraine, CNRS, IJL, Nancy, France; 2. Department of Electrical Engineering and Computer Sciences, University of California Berkeley, Berkeley, CA, United States; 3. Universidad Nacional de Ingenieria, Lima, Peru; 4. Department of Mechanical Engineering and Materials Science and Engineering Program, University of California Riverside, Riverside, CA, United States; 5. Centre de Nanoscience et de Nanotechnologies, Universite Paris-Saclay, Palaiseau, France; 6. Lawrence Berkeley National Laboratory, Berkeley, CA, United States*

M3-05. **Direct Imaging of the ac Component of Spin Pumping From Permalloy Into Uncompensated Antiferromagnetic Co Doped ZnO.** S. Pile[1], M. Buchner[1], V. Ney[1], T. Schaffers[1], K. Lenz[2], R. Narkowicz[2], J. Lindner[2], H. Ohldag[3,4] and *A. Ney*[1] *1. Johannes Kepler Univ., Linz, Austria; 2. Helmholtz Center Dresden Rossendorf, Dresden Rossendorf, Germany; 3. Stanford Synchrotron Radiation Lightsource, Menlo Park, CA, United States; 4. University of California, Santa Cruz, Santa Cruz, CA, United States*

M3-06. **Spin Pumping From $Ni_{80}Fe_{20}$ Into Monolayer Transition Metal Dichalcogenides.** *H. Bangar*[1], R. Mudgal[1], A. Kumar[1], N. Chowdhury[1], S. Das[2] and P.K. Muduli[1] *1. Physics, Indian Institute of Technology Delhi, New Delhi, India; 2. Center for Applied Research in Electronics, Indian Institute of Technology Delhi, New Delhi, India*

M3-07. **Inversion of the Spin-Torque Effect via Resonant Magnon Scattering in Nanomagnets.** *I. Barsukov*[1], H. Lee[2], A. Jara[2], Y. Chen[2], A. Gonçalves[2], C. Sha[2], J. Katine[3], R. Arias[4], B. Ivanov[5] and I. Krivorotov[2] *1. UC Riverside, Riverside, CA, United States; 2. UC Irvine, Irvine, CA, United States; 3. Western Digital, San Jose, CA, United States; 4. Universidad de Chile, Santiago, Chile; 5. National Academy of Sciences, Kyiv, Ukraine*

M3-08. **Controlling the Gyrotropic Critical Current by Resonant Excitation of the Higher Order Spin Wave Modes in Vortex-Based Magnetic Tunnel Junctions.** *A. Jenkins*[1], L. San Emeterio Alvarez[1], S. Memshawy[2], B. Paolo[2], V. Cros[2], P. Freitas[1] and R. Ferreira[1] *1. Spintronics, International Iberian Nanotechnology Laboratory, Braga, Portugal; 2. Unite Mixte de Physique CNRS/Thales, Palaiseau, France*

M3-09. **Magnetization Dynamics of Helical and Skyrmion Phases in Bulk $Co_8Zn_8Mn_4$ at Room Temperature.** *J. Soh*[1], D. Prabhakaran[2], A. Boothroyd[2] and D. Grundler[1,3] *1. Institute of Materials, Ecole Polytechnique Federale de Lausanne, Lausanne, Switzerland; 2. Department of Physics, University of Oxford, Oxford, United Kingdom; 3. Institute of Microengineering, Ecole Polytechnique Federale de Lausanne, Lausanne, Switzerland*

M3-10. **Deterministic Approach to Skyrmionic Dynamics at Nonzero Temperatures: Pinning Sites and Racetracks.** *J. Castell-Queralt*[1], L. González-Gómez[1], N. del-Valle[1] and C. Navau[1] *1. Physics, Universitat Autonoma de Barcelona Facultat de Ciencies, Barcelona, Spain*

M3-11. **Traveling Skyrmions in Chiral Antiferromagnets.** *S. Komineas*[1,3] and N. Papanicolaou[2] *1. Department of Mathematics and Applied Mathematics, University of Crete, Heraklion, Greece; 2. Department of Physics, University of Crete, Heraklion, Greece; 3. Institute of Applied and Computational Mathematics, Idryma Technologias kai Ereunas, Heraklion, Greece*

M3-12. **Inertial Dynamics of Magnetic Vortices.** *M. Yoo*[1,2], F. Mineo[3,4] and J. Kim[1] *1. Centre de Nanosciences et de Nanotechnologies, Université Paris-Saclay, Palaiseau, France; 2. Laboratoire Matériaux Optiques, Photonique et Systèmes, CentraleSupélec, Université de Lorraine, Metz, France; 3. Max Planck Institute for the Science of Light, Erlangen, Germany; 4. Department of Physics, Friedrich-Alexander University of Erlangen-Nuremberg, Erlangen, Germany*

M3-13. **Critical Depinning Dynamics of Domain Walls With Internal Degrees of Freedom.** *A. Skaugen*[1,2] and L. Laurson[1,2] *1. Computational Physics Laboratory, Tampereen yliopisto, Tampere, Finland; 2. Helsinki Institute of Physics, Helsinki, Finland*

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LIVE Q&A 13

Session M4
SPIN CURRENTS II

Peng Li, Chair
Auburn University, Auburn, AL, United States

M4-01. **Giant Anomalous Nernst Effect in Topological Magnets.** ***(Invited)*** *A. Sakai*[1,2], S. Minami[1,3], T. Koretsune[4], T. Chen[2], T. Higo[2], Y. Wang[2], T. Nomoto[5], M. Hirayama[6], S. Miwa[2,7], D. Nishio-Hamane[2], F. Ishii[3,6], R. Arita[5,6] and S. Nakatsuji[1,2] *1. Department of Physics, University of Tokyo, Tokyo, Japan; 2. Institute for Solid State Physics, University of Tokyo, Kashiwa, Japan; 3. Nanomaterials Research Institute, Kanazawa University, Kanazawa, Japan; 4. Department of Physics, Tohoku University, Sendai, Japan; 5. Department of Applied Physics, University of Tokyo, Tokyo, Japan; 6. Center for Emergent Matter Science (CEMS), RIKEN, Wako, Japan; 7. Trans-scale Quantum Science Institute, University of Tokyo, Tokyo, Japan*

M4-02. **Anomalous Nernst Effect in Iron- Based Sintered Alloys.** *Y. Omori*[1], Y. Iwasaki[1], R. Sawada[1], S. Kuroshima[1], M. Ishida[1] and A. Kirihara[1] *1. Nihon Denki Kabushiki Kaisha, Minato-ku, Japan*

M4-03. **Interfacial Modulation of the Spin Pumping in YIG/Pt.** L. Liu[1], Y. Li[1], T. Feng[2], X. Wang[3], D. Wu[2], P. Gao[1] and *J. Li*[1] *1. Peking University, Beijing, China; 2. Nanjing University, Nanjing, China; 3. Hong Kong University of Science and Technology, Kowloon, Hong Kong*

M4-04. **Thoeretical Study on Anomalous Spin-Hall and Magnetic Spin-Hall Effect Induced by Anisotropic Spin-Flip Scattering on Ferromagnets.** *Y. Yahagi*[1], J. Zelezny[2], D. Miura[1] and A. Sakuma[1] *1. Applied Physics, Tohoku Daigaku, Sendai, Japan; 2. Spintronics and Nanoelectronics, Fyzikalni ustav Akademie ved Ceske republiky, Praha, Czechia*

M4-05. **Hidden (Staggered) Spin Hall Conductivity.** *F. Xue*[1,2] and P.M. Haney[1] *1. Physical Measurement Lab, National Institute of Standards and Technology, Gaithersburg, MD, United States; 2. University of Maryland at College Park Institute for Research in Electronics and Applied Physics, College Park, MD, United States*

M4-06. **Enhanced Anomalous Nernst Effect in Ni / Pt Superlattice.** *T. Seki*[1,2], Y. Sakuraba[3,4], A. Miura[3], K. Masuda[3], M. Tsujikawa[5,2], K. Uchida[3,1], T. Kubota[1,2], Y. Miura[3], M. Shirai[5,2] and K. Takanashi[1,2] *1. Institute for Materials Research, Tohoku University, Sendai, Japan; 2. Center for Spintronics Research Network, Tohoku University, Sendai, Japan; 3. National Institute for Materials Science, Tsukuba, Japan; 4. PRESTO, Japan Science and Technology Agency, Saitama, Japan; 5. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan*

M4-07. **High-Quality Single Crystalline Europium Iron Garnet Films With Perpendicular Magnetic Anisotropy by Sputtering.** *M. Guo*[1], Y. Liu[1], C. Cheng[2], C. Wu[3], W. Chen[1], T. Chen[2], S. Zhou[4], C. Pai[2], S. Lee[5], M. Hong[2] and J. Kwo[1] *1. National Tsing Hua University, Hsinchu, Taiwan; 2. National Taiwan University, Taipei, Taiwan; 3. Max-Planck-Institut fur Chemische Physik fester Stoffe, Dresden, Germany; 4. Institut für Ionenstrahlphysik und Materialforschung, Forschungszentrum Dresden-Rossendorf e.V., Dresden, Germany; 5. Academia Sinica, Taipei, Taiwan*

M4-08. **Thermomagnetic Control of Spintronic THz Emission Enabled by Ferrimagnets.** *M. Fix*[1], R. Schneider[2], J. Bensmann[2], S. Michaelis de Vasconcellos[2], R. Bratschitsch[2] and M. Albrecht[1] *1. Institute of Physics, University of Augsburg, Augsburg, Germany; 2. Institute of Physics and Center for Nanotechnology, University of Münster, Münster, Germany*

M4-09. **Coherent Long-Range Transfer of Angular Momentum Between Magnon Kittel Modes by Circularly Polarized Phonons.** K. An[1], A. Litvinenko[1], R. Kohno[1], v.v. naletov[2,1], G. de loubens[3], L. Vila[1], j. ben youssef[7], n. vukadinovic[4], G. Bauer[5], V. Tyberkevych[6], A.N. Slavin[6] and *O. Klein*[1] *1. SPINtronique et Technologie des Composants, Grenoble, France; 2. Kazanskij federal'nyj universitet, Kazan', Russian Federation; 3. Service de Physique de l'Etat Condense, Gif Sur Yvette, France; 4. Dassault Aviation, Saint-Cloud, France; 5. Tohoku Daigaku, Sendai, Japan; 6. Oakland University, Rochester, MI, United States; 7. Universite de Bretagne Occidentale, Brest, France*

M4-10. **Modulation of Magnon Spin Transport in a Magnetic Gate Transistor.** K. Das[1], *F. Feringa*[1], M. Middelkamp[1], B. Van Wees[1] and I.J. Vera-Marun[2] *1. Rijksuniversiteit Groningen Faculty of Science and Engineering, Groningen, Netherlands; 2. The University of Manchester, Manchester, United Kingdom*

M4-11. **Short-Range Study of Thermal Magnon Transport in Magnetic Garnets.** *K. An*[1], R. Kohno[1], N. Thiery[1], D. Reitz[4], L. Vila[1], v.v. naletov[1,5], N. Beaulieu[2,3], j. ben youssef[2], G. de loubens[3], y. Tserkovnyak[4] and O. Klein[1] *1. Université Grenoble Alpes, CEA, CNRS, Grenoble INP, Spintec, Grenoble, France; 2. Laboratoire des Sciences et Techniques de l'Information de la Communication et de la Connaissance, Brest, France; 3. SPEC, CEA-Saclay, CNRS, Université Paris-Saclay, Gif-sur-Yvette, France; 4. University of California Los Angeles, Department of Physics and Astronomy, Los Angeles, CA, United States; 5. Kazan Federal University, Institute of Physics, Kazan, Russian Federation*

M4-12. **Thermoelectric Effects of Superconductor-Ferromagnetic Hybrids.** *K. Blagg*[1], P. Allen[1], B. Lloyd[1], M.P. Lilly[2] and M. Singh[1] *1. Physics, Colorado School of Mines, Golden, CO, United States; 2. Sandia National Laboratories, Albuquerque, NM, United States*

THURSDAY
MORNING
12:00

LIVE Q&A 13

Session M5
SKYRMIONS I
(Poster Session)

Nico Kerber, Co-Chair
Johannes Gutenberg University of Mainz, Mainz, Germany
Thomas Moore, Co-Chair
University of Leeds, Leeds, United Kingdom

M5-01. **Skyrmion-Skyrmion Interaction in a Magnetic Film.** *D. Capic*[1], D. Garanin[1] and E. Chudnovsky[1] *1. Physics, City University of New York, New York, NY, United States*

M5-02. **XMCD-STXM Magnetic Imaging of Skyrmions With in-Situ Hall Transport Measurements in Pt/Co/Ir Multilayer Hall Discs.** *A.J. Huxtable*[1], S. Finizio[2], K. Zeissler[1], E. Darwin[1], G. Burnell[1], M. Rosamond[1], E. Linfield[1], J. Raabe[2] and C.H. Marrows[1] *1. University of Leeds, Leeds, United Kingdom; 2. Paul Scherrer Institut, Villigen, Switzerland*

M5-03. **Withdrawn**

M5-04. **Magnetic Skyrmions and Phase Transitions in a Antiferromagnetic/Ferroelectric Bilayers.** *I. Sharafullin*[1], A. Yuldasheva[1] and H.T. Diep[2] *1. Institute of Physics and Technology, Baskirskij Gosudarstvennyj Universitet, Ufa, Russian Federation; 2. Laboratory of Theoretical Physics and Modeling, Cergy Paris University, Paris, France*

M5-05. **Numerical Simulation of Magnetic Skyrmions on Flat Lattices.** *V.Y. Kapitan*[1,2], E. Vasiliev[1,2], A. Perzhu[1,2], D. Kapitan[1,2], A. Rybin[1,2], A.O. Korol[1], K. Soldatov[1,2] and Y. Shevchenko[1,2] *1. Computer Systems, Dal'nevostocnyj federal'nyj universitet, Vladivostok, Russian Federation; 2. Institut prikladnoj matematiki DVO RAN, Vladivostok, Russian Federation*

M5-06. **Withdrawn**

M5-07. **Structural and Magnetic Properties of β-Mn Structured Cobalt-Zinc Thin Film Alloys.** *M. Dearg*[1], A. Caruana[2], C. Kinane[2], G. Burnell[1], S. Langridge[2] and C.H. Marrows[1] *1. School of Physics and Astronomy, University of Leeds, Leeds, United Kingdom; 2. ISIS, Rutherford Appleton Laboratory, STFC, Oxon, United Kingdom*

M5-08. **Energetics, Equilibrium Shape, and Vorticity of Skyrmions and Antiskyrmions Stabilized by the Anisotropic Dzyaloshinskii-Moriya Interaction in Thin Films With C_{2v} Symmetry.** *M.D. Kitcher*[1], M. De Graef[1] and V. Sokalski[1] *1. Materials Science & Engineering, Carnegie Mellon University, Pittsburgh, PA, United States*

M5-09. **Withdrawn**

M5-10. **Spin Transport Using a Magnetic Skyrmion Lattice.** *D.I. King*[1], J. Tang[1] and J. Ackerman[2] *1. Physics and Astronomy, University of Wyoming, Laramie, WY, United States; 2. Chemical and Petroleum Engineering, University of Wyoming, Laramie, WY, United States*

M5-11. **Skyrmions and Antiskyrmions From Current-Induced Boundary Instabilities.** *S. Sandhoefner*[1], A.S. Raeliarijaona[1], R. Nepal[1], D. Snyder-Tinoco[2] and A.A. Kovalev[1] *1. Physics, University of Nebraska-Lincoln, Lincoln, NE, United States; 2. California State University San Bernardino, San Bernardino, CA, United States*

M5-12. **Field and Temperature Dependence of the Skyrmion Lattice Phase and the Appearance of a Second Helical Phase in FeGe.** *D. Burn*[1], S. Zhang[2,3], G. van der Laan[1] and T. Hesjedal[3] *1. Magnetic Spectroscopy Group, Diamond Light Source Ltd, Didcot, United Kingdom; 2. ShanghaiTech University School of Physical Science and Technology, Shanghai, China; 3. Department of Physics, University of Oxford, Oxford, United Kingdom*

M5-13. **Stabilizing Skyrmions on Pt/Co/Ta Multilayers and Ordered Arrays of Nanodomes by FORC Hall Analysis.** *J. Denardin*[1], D. Toneto[3], J.L. Palma[2], S. Oyarzun[1] and L. Dorneles[3] *1. Physics, Universidad de Santiago de Chile, Santiago de Chile, Chile; 2. Universidad Central de Chile, Santiago, Chile; 3. Physics, Universidade Federal de Santa Maria, Santa Maria, Brazil*

M5-14. **Magnetic Phase Diagram of Co Doped Cu_2OSeO_3: an AC Susceptibility Study.** *U. Erugu*[1], D.I. King[1] and J. Tang[1] *1. Physics & Astronomy, University of Wyoming, Laramie, WY, United States*

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LIVE Q&A 13

Session M6
STRUCTURED MATERIALS
(Poster Session)

Purnima Balakrishnan, Chair
National Institute of Standards and Technology, Menlo Park, CA, United States

M6-01. **Thermal Hysteresis of Thin Terbium (Tb) Films.** *F.H. Sales*[1], J.J. Melo[1], A.L. Dantas[2], L.L. Oliveira[2] and A.S. Carriço[3] *1. Department of Physics, Federal Institute of Education, Science and Technology of Maranhão (IFMA), São Luís, Brazil; 2. Departament of Physics, University of State of Rio Grande do Norte (UERN), Natal, Brazil; 3. Departament of Physics, Federal University of Rio Grande do Norte (UFRN), Natal, Brazil*

M6-02. **Kerr Microscopy Real-Time Imaging of the Magnetization Reversal Process in Kagome Artificial Spin ice.** *D. Shi*[1] *1. physics department, Fudan University, Shanghai, China*

M6-03. **Features of Magnetization Reversal of $Fe_{10}Ni_{90}$/Ti/(R-Co) (R = Gd, Dy) Films.** *O.A. Adanakova*[1], E. Kudyukov[1], K. Balymov[1], A. Rusalina[1] and V. Vas'kovskiy[1,2] *1. Ural Federal University named after the first President of Russia B.N. Yeltsin, Ekaterinburg, Russian Federation; 2. M.N. Mikheev Institute of Metal Physics UB RAS, Ekaterinburg, Russian Federation*

M6-04. **The Structural, Magnetic, and Electrical Properties of Cubic Mn_3Ga.** *H. Bang*[1] and M. Jung[1] *1. Sogang University, Mapo-gu, The Republic of Korea*

M6-05. **Fine-Tuned Perpendicular Magnetic Anisotropy of Co-Doped Mn_3Ga Thin Films.** *W. Yoo*[1] and M. Jung[1] *1. Sogang University, Mapo-gu, The Republic of Korea*

M6-06. **Correlation of Strains and Interfacial DMI in Symmetric Epitaxial Pd/Co/Pd(111) Thin Films.** *A.G. Kozlov*[1], N. Sarnavskii[1] and A. Davydenko[1] *1. School of natural sciences, Dal'nevostocnyj federal'nyj universitet, Vladivostok, Russian Federation*

M6-07. **Above Room-Temperature Ferromagnetism in Wafer-Scale two-Dimensional van der Waals Fe_3GeTe_2 Tailored by Topological Insulator.** *T. Nie*[1], H. Wang[1], Y. Liu[1], P. Wu[1] and W. Hou[1] *1. School of Microelectronics, Beihang University, Beijing, China*

M6-08. **Growth-Field-Induced Magnetic Anisotropy in Sputtered Amorphous CoAlZr-SmCoTi Artificially Layered Structures.** P. Rani[1], P.E. Jönsson[1] and *G. Andersson*[1] *1. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden*

M6-09. **Investigation of Magnetic Anisotropy of Ultrathin Co Films Growth on Au(788) Vicinal Surface.** *R.J. Rosa*[1], G. Gomes[2], R. Souza[1] and M. Martins[1] *1. Centro de Desenvolvimento da Tecnologia Nuclear, Belo Horizonte, Brazil; 2. Universidade Estadual de Montes Claros, Montes Claros, Brazil*

M6-10. **$NiCo_2O_4$ Thin Films Prepared by Reactive Molecular Beam Epitaxy and Annealing Under High-Pressure Oxygen Atmosphere.** A. Tsujie[1], Y. Hara[1], T. Yanase[2], T. Shimada[2] and *T. Nagahama*[2] *1. CSE, Hokkaido University, Sapporo, Japan; 2. Graduate School of Engineering, Hokkaido University, Sapporo, Japan*

M6-11. **Tuning of Perpendicular Magnetic Anisotropy in $Ta/Co_xFe_{80-x}B_{20}/MgO$ With Varying Fe Content.** *R.S. Yadav*[1], A. Kumar[1], K. Khan[1] and P.K. Muduli[1] *1. Department of Physics, Indian Institute of Technology Delhi, New Delhi, India*

M6-12. **From Bulk Frustrated Magnetism to Magnetic Long-Range Order in Thin Films of Double Perovskite Compound $BaTi_{1/2}Mn_{1/2}O_3$.** *R.P. Amaral*[1], R.L. Serrano[1] and P. Schio[2] *1. Federal University of Uberlândia, Uberlândia, Brazil; 2. Laboratorio Nacional de Luz Sincrotron, Campinas, Brazil*

Session N1
SKYRMIONS II

Mathias Klaui, Co-Chair
Universität Mainz, Mainz, Germany
Guoqiang Yu, Co-Chair
Institute of Physics, Los Angeles, CA, United States

N1-01. **Chiral and Achiral Magnetic Spin Textures in Fe/Gd Multilayers.** ***(Invited)*** *S. Montoya*[1] *1. Naval Information Warfare Center Pacific, San Diego, CA, United States*

N1-02. **Skyrmion Breathing Modes in Synthetic Ferri- and Antiferromagnets.** *M. Lonsky*[1] and A. Hoffmann[1] *1. Materials Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, United States*

N1-03. **Ferromagnetic Resonance of Skyrmions in Thin Film Multilayers.** *T. Srivastava*[1,2], I. Ngouagnia[2], Y. Sassi[1], F. Ajejas[1], A. Vecchiola[1], K. Bouzehouane[1], N. Reyren[1], V. Cros[1], H. Hurdequint[2], J. Kim[3], T. Devolder[3] and G. de loubens[2] *1. Unité Mixte de Physique, CNRS, Thales, Université Paris-Saclay, 91767 Palaiseau, France; 2. SPEC, CEA-Saclay, CNRS, Université Paris-Saclay, 91191 Gif-sur-Yvette, France; 3. Centre for Nanoscience and Nanotechnology, CNRS, Université Paris-Saclay, 91120 Palaiseau, France*

N1-04. **Skyrmion Generation by Ionic Liquid Gating in Ultra-Thin Films.** *Y. Zhang*[1,2], G. Dubuis[1,2] and S. Granville[1,2] *1. Robinson Research Institute, Victoria University of Wellington, Wellington, New Zealand; 2. MacDiarmid Institute for Advanced Materials and Nanotechnology, Wellington, New Zealand*

N1-05. **Anisotropic Skyrmion Diffusion Controlled by Field-Induced Symmetry Breaking.** *N. Kerber*[1,2], M. Weissenhofer[3], K. Raab[1], K. Litzius[1,4], J. Zázvorka[1,5], U. Nowak[3] and M. Klaui[1,2] *1. Institut für Physik, Johannes Gutenberg Universitat Mainz, Mainz, Germany; 2. Graduate School of Excellence Materials Science in Mainz, Mainz, Germany; 3. Fachbereich Phyisk, Universität Konstanz, Konstanz, Germany; 4. Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, United States; 5. Institute of Physics, Charles University, Prague, Czechia*

N1-06. **Skyrmion Dynamics in Tracks Patterned With Magnetic Anisotropy: Theory and Simulations.** *S. Miki*[1,2], C. LIU[2,3], E. TAMURA[1,2], J. Cho[4], M. Goto[1,2], H. Nomura[1,2], R. NAKATANI[3] and Y. Suzuki[1,2] *1. Engineering and Science, Osaka Daigaku, Toyonaka, Japan; 2. The Center for Spintronics Research Network, Toyonaka, Japan; 3. Engineering, Osaka Daigaku, Suita, Japan; 4. Nanotechnology, Daegu Gyeongbuk Institute of Science and Technology, Daegu, The Republic of Korea*

N1-07. **Spin Dynamics of Skymion and Chiral Soliton Lattices in Cu_2OSeO_3 Locally Resolved by Scanning Brillouin Light Scattering.** *P. Che*[1], T. Schönenberger[2], A. Kúkol'ová[1,3], A. Magrez[4], H. Berger[4], H.M. Rønnow[2] and D. Grundler[1,5] *1. Laboratory of Nanoscale Magnetic Materials and Magnonics, Institute of Materials (IMX), École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland; 2. Laboratory for Quantum Magnetism, Institute of Physics, École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland; 3. Laboratory of Semiconductor Materials, Institute of Materials (IMX), École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland; 4. Crystal Growth Facility, Institut de Physique, École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland; 5. Institute of Microengineering (IMT), École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland*

N1-08. **Skyrmion Lattice Phases in Thin Film Multilayers.** J. Zázvorka[1,2], F. Dittrich[1], Y. Ge[1], N. Kerber[1,3], *K. Raab*[1], T. Winkler[1], K. Litzius[1,3], M. Veis[2], P. Virnau[1,3] and M. Klaui[1,3] *1. Institute of Physics, Johannes Gutenberg Universitat Mainz, Mainz, Germany; 2. Faculty of Mathematics and Physics, Univerzita Karlova, Praha, Czechia; 3. Johannes Gutenberg University Mainz Graduate School of Excellence Materials Science in Mainz, Mainz, Germany*

N1-09. **Ultrafast Light-Induced Nucleation of Skyrmion Lattices.** *P. Olleros-Rodríguez*[1], M.S. Strungaru[2], S. Ruta[2], P.I. Gavriloaea[2], P. Perna[1], R. Chantrell[2] and O. Chubykalo-Fesenko[3] *1. IMDEA Nanoscience Institute, Madrid, Spain; 2. Physics, University of York, York, United Kingdom; 3. Materials Science Institute of Madrid (ICMM-CSIC), Madrid, Spain*

N1-10. **Skyrmion Racetracks Defined by Light-ion Irradiation and Current Induced Skyrmion Guiding at Room Temperature.** R. Juge[1], *K. Bairagi*[1], K. Rana[1], M. Sall[2], D. Mailly[3], D. Ravelosona[2], M. Belmeguenai[4], Y. Roussigné[4], S. Auffret[1], L. Buda-Prejbeanu[1], G. Gaudin[1] and O. Boulle[1] *1. CEA, CNRS, Grenoble INP, IRIG-SPINTEC, Universite Grenoble Alpes, Saint-Martin-d'Heres, France; 2. Spin-Ion Technologies, 10 Boulevard Thomas Gobert, 91120 Palaiseau, France; 3. CNRS, Université Paris-Sud, Université Paris-Saclay, 10 boulevard Thomas Gobert, Centre de Nanosciences et de Nanotechnologies, 91120 Palaiseau, France; 4. CNRS, Université Paris 13, Laboratoire des Sciences des Procedés et des Matériaux, 93430 Villetaneuse, France*

N1-11. **Topology-Dependent Brownian Gyromotion of a Single Skyrmion.** *L. Zhao*[1,2], Z. Wang[1,2], X. Zhang[3], X. Liang[3], J. Xia[3], K. Wu[1,2], H. Zhou[1,2], Y. Dong[1,2], G. Yu[4], K. Wang[5], X. Liu[6], Y. Zhou[3] and W. Jiang[1,2] *1. State Key Laboratory of Low-Dimensional Quantum Physics and Department of Physics, Tsinghua University, Beijing, China; 2. Frontier Science Center for Quantum Information, Tsinghua University, Beijing, China; 3. School of Science and Engineering, The Chinese University of Hong Kong, Shenzhen, Shenzhen, China; 4. Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences, Beijing, China; 5. University of California Los Angeles Department of Electrical Engineering, Los Angeles, CA, United States; 6. Department of Electrical and Computer Engineering, Shinshu University, Nagano, Japan*

N1-12. **Switching Fixed Magnetic Skyrmions in Continuous Film and Patterned Nanodots Using Voltage Control of Magnetic Anisotropy.** *D. Bhattacharya*[1], S. Razavi[2], H. Wu[2], B. Dai[2], K. Wang[2] and J. Atulasimha[1] *1. Virginia Commonwealth University, Richmond, VA, United States; 2. University of California Los Angeles, Los Angeles, CA, United States*

THURSDAY
AFTERNOON
12:30

LIVE Q&A 14

Session N2
SPIN WAVE II: MAGNONICS IN FERROMAGNETS AND ANTIFERROMAGNETS

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

N2-01. **Theoretical Studies of Dipolar and Exchange Effects in Creating Magnetic Rogue Waves.** *M. Copus*[1] and R. Camley[1] *1. Physics, University of Colorado at Colorado Springs, Colorado Springs, CO, United States*

N2-02. **Quantum Magnonics at the Edge of Space and Time.** *G. Fabiani*[1] and J. Mentink[1] *1. Institute for Molecules and Materials, Radboud University, Nijmegen, Netherlands*

N2-03. **Magnonic Bending, Phase Shifting and Interferometry in a 2D Reconfigurable Nanodisk Crystal.** *K. Stenning*[1], J.C. Gartside[1], T. Dion[1,2], A. Vanstone[1], D. Arroo[2] and W. Branford[1] *1. Imperial College London, London, United Kingdom; 2. University College London, London, United Kingdom*

N2-04. **Non-Hermitian Hybrid Magnonics.** ***(Invited)*** *X. Zhang*[1] *1. Argonne National Laboratory, Lemont, IL, United States*

N2-05. **Magnon Antibhunching in a Nanomagnet.** *H. Yuan*[1] and R. Duine[1] *1. Institute for Theoretical Physics, Universiteit Utrecht, Utrecht, Netherlands*

N2-06. **Withdrawn**

N2-07. **Insight on the Time-Resolved Spin Wave Amplification in Nano-Magnonic Devices Using Spin-Orbit-Torque.** *H. Merbouche*[1], B. Divinskiy[2], D. Gouéré[1], C. Calo[4], B. Paolo[3], V. Cros[1], A. Anane[1], V.E. Demidov[2] and S. Demokritov[2] *1. Unite Mixte de Physique CNRS/Thales, Palaiseau, France; 2. Institue for Applied Physics, University of Muenster, Munster, Germany; 3. Thales Research and Technology France, Palaiseau, France; 4. III-V Lab, Palaiseau, France*

N2-08. **Controlling of Nonlinear Relaxation of Quantized Magnons in Nano-Devices.** *M. Mohseni*[1], Q. Wang[2], B. Heinz[1], M. Kewenig[1], M. Schneider[1], F. Kohl[1], B. Lägel[1], A. Chumak[2] and P. Pirro[1] *1. Physics, Technische Universitat Kaiserslautern, Kaiserslautern, Germany; 2. Physics, Universitat Wien, Wien, Austria*

N2-09. **Enhancement of the Spin Mixing Conductance at YIG/Pt Interfaces by Electrical Annealing.** *R. Kohno*[1], N. Thiery[1], K. An[1], P. Noël[1], L. Vila[1], v.v. naletov[1,4], N. Beaulieu[2,3], j. ben youssef[3], G. de loubens[2] and O. Klein[1] *1. Universite Grenoble Alpes, CEA, CNRS, Spintec, Grenoble, France; 2. SPEC, CEA-Saclay, CNRS, Universite Paris-Saclay, Gif-sur-Yvette, France; 3. LabSTICC, CNRS, Université de Bretagne Occidentale, Brest, France; 4. Institute of Physics, Kazan Federal University, Kazan, Russian Federation*

N2-10. **Spin-Transport and Spin-Dynamics in Ultra-low Damping Insulating Antiferromagnets.** A. Ross[1,2], *I. Boventer*[3], O. Gomonay[1], L. Baldrati[1], V. Baltz[4], U. Ebels[4], A.L. Barra[5], A. Anane[3], A. Qaiumzadeh[6], A. Brataas[6], P. Kläui[1,2] and R. Lebrun[3] *1. Institute for Physics, Johannes Gutenberg University Mainz, Mainz, Germany; 2. Graduate School of Excellence Materials Science in Mainz, Mainz, Germany; 3. Unité Mixte de Physique CNRS/Thalès, Palaiseau, France; 4. Université Grenoble Alpes CNRS/CEA, Grenoble INP, SPINTEC, Grenoble, France; 5. Laboratoire National des Champs Magnétiques Intenses, CNRS-UGA-UPS-INSA-EMFL, FR, Grenoble, France; 6. Center for Quantum Spintronics, Department of Physics, Norwegian University of Science and Technology, Trondheim, Norway*

N2-11. **Optically Inspired Nanomagnonics With Patterned Spin Textures in Synthetic Antiferromagnets.** *E. Albisetti*[1], S. Tacchi[2], R. Silvani[3], G. Scaramuzzi[1], S. Finizio[4], S. Wintz[4], C. Rinaldi[1], M. Cantoni[1], J. Raabe[4], G. Carlotti[3], R. Bertacco[1], E. Riedo[5] and D. Petti[1] *1. Dipartimento di Fisica, Politecnico di Milano, Milano, Italy; 2. CNR-IOM, Perugia, Italy; 3. Università di Perugia, Perugia, Italy; 4. Paul Scherrer Institut, Villigen, Switzerland; 5. New York University Tandon School of Engineering, Brooklyn, NY, United States*

N2-12. **Antiferromagnetic Spin Wave Propagation on Nonuniform Magnetic Backgrounds.** *M. Hu*[1,2], M. Hoefer[1], E. Iacocca[3] and M.J. Donahue[4] *1. Applied Mathematics, University of Colorado Boulder, Boulder, CO, United States; 2. Applied and Computational Mathematics Division, National Institute of Standards and Technology, Boulder, CO, United States; 3. Mathematics, Physics and Electrical Engineering, Northumbria University, Newcastle upon Tyne, United Kingdom; 4. Applied and Computational Mathematics Division, National Institute of Standards and Technology, Gaithersburg, MD, United States*

N2-13. **Withdrawn**

N2-14. **Simulating Spin Wave Noise in Synthetic Antiferromagnetic Textures.** *J. Kim*[1], J. Adam[1], A. Finco[2] and V. Jacques[2] *1. Centre de Nanosciences et de Nanotechnologies, CNRS, Université Paris-Saclay, Palaiseau, France; 2. Laboratoire Charles Coulomb, CNRS, Université de Montpellier, Montpellier, France*

Session N3
MAGNETIC RECORDING VIA OPTICAL, HEAT AND MAGNETIC EXCITATION I
(Poster Session)

Yassine Quessab, Co-Chair
New York University, New York, NY, United States
Stephanie Hernandez, Co-Chair
Seagate Technology, Minneapolis, MN, United States

N3-01. **Medium H_k Structure Effects in Microwave Assisted Magnetic Recording.** K. Kurihara[1], *T. Tanaka*[1], X. Ya[1], Y. Kanai[2] and K. Matsuyama[1] *1. ISEE, Kyushu University, Fukuoka, Japan; 2. Department of Engineering, Niigata Institute of Technology, Kashiwazaki, Japan*

N3-02. **Optimisation of Dual Structure Recording Media.** *S. Greaves*[1] and Y. Kanai[2] *1. RIEC, Tohoku Daigaku, Sendai, Japan; 2. Niigata Koka Daigaku, Kashiwazaki, Japan*

N3-03. **Separate Quantitative Evaluation of Perpendicular Magnetic Anisotropy for Disorder and Order Portion in FePt Granular Films.** *T. Saito*[1], K. Tham[2], R. Kushibiki[2], T. Ogawa[1] and S. Saito[1] *1. Tohoku Daigaku Daigakuin Kogaku Kenkyuka Kogakubu, Sendai, Japan; 2. Tanaka Kikinzoku Kogyo Kabushiki Kaisha, Chiyoda-ku, Japan*

N3-04. **Incoherent Magnetization Switching Within a Fept-$L1_0$ Grain.** *Y. Yan*[1] and J. Zhu[1] *1. Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA, United States*

N3-05. **Multiscale Micromagnetic-Atomistic Modelling of the Effects of MgO/CoFeB Interfacial Anisotropy, Dzyaloshinskii-Moriya Interactions, and Spin Transfer Torque in HDD TMR Reader.** S. Jenkins[1], A. Dobrynin[2], K. McNeill[2], R. Chantrell[1] and *R.F. Evans*[1] *1. Physics, University of York, York, United Kingdom; 2. Research and Development, Seagate Technology (Ireland), Derry, United Kingdom*

N3-06. **Iterative Detection With Multilayer Perceptron for Bit-Patterned Media Recording.** *S. Jeong*[1] and J. Lee[1] *1. School of Electronic Engineering, Soongsil University, Seoul, The Republic of Korea*

N3-07. **Constrained Codes for Single-Reader/Two-Track Reading Technique in Bit-Patterned Magnetic Recording Systems.** *S. Sokjabok*[1], M. Mattayakan[1], C. Buajong[1], S. Koonkarnkhai[2], P. Kovintavewat[2] and c. warisarn[1] *1. College of Advanced Manufacturing Innovation (AMI), King Mongkut's Institute of Technology Ladkrabang, 1 Soi Chalongkrung 1, Ladkrabang, Bangkok 10520, Thailand., Bangkok, Thailand; 2. Data Storage Technology Research Center, Nakhon Pathom Rajabhat University (NPRU), Nakhon Pathom 73000, Thailand., Nakhon Pathom, Thailand*

N3-08. **Soft-Information Flipper Based on Long-Short Term Memory Networks for Ultra-High Density Magnetic Recording.** *N. Rueangnetr*[1], L.M. Myint[2] and c. warisarn[1] *1. College of Advanced Manufacturing Innovation, King Mongkut's Institute of Technology Ladkrabang, KMITL, Bangkok, Thailand; 2. Faculty of Engineering, King Mongkut's Institute of Technology Ladkrabang Faculty of Engineering, King Mongkut's Institute of Technology Ladkrabang, KMITL, Bangkok, Thailand*

N3-09. **A Simple Skew-Angle Detection and Alleviation Method Based on Readback Signal in Bit-Patterned Magnetic Recording Systems.** *S. Koonkarnkhai*[1], c. warisarn[2] and P. Kovintavewat[1] *1. Nakhon Pathom Rajabhat University, Nakhon Pathom, Thailand; 2. King Mongkut's Institute of Technology Ladkrabang, Bangkok, Thailand*

N3-10. **Viscoelastic Effects of Thermal Decomposed Lubricants on the Head-Disk Interface in Heat-Assisted Magnetic Recording.** H. Son[1] and *P. Chung*[1] *1. Department of Energy Engineering, Inje University, Gimhae, The Republic of Korea*

N3-11. **Withdrawn**

N3-12. **The Influence of Finite-Size Effects on the Curie Temperature of $L1_0$-FePt.** *B.T. Nguyen*[1], S. Ruta[1], O. Hovorka[2], R.F. Evans[1] and R. Chantrell[1] *1. Physics, University of York, York, United Kingdom; 2. Engineering and Physical Sciences, University of Southampton, Southampton, United Kingdom*

N3-13. **Curvature Change of Heat Assisted Magnetic Recording Patterns With Different Bit Lengths.** *K. Xue*[1] and R. Victora[1] *1. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States*

N3-14. **Effects of Thermo-Mechanical Contact on Ferromagnetic Thin Film of PMR (Perpendicular Magnetic Recording) Media.** *C. Yeo*[1], M. He[1], J. Lee[1], M. Choi[3], Y. Hong[3], J. You[2], D. Purani[4], J. Lee[5] and H. Won[3] *1. Department of Mechanical Engineering, Texas Tech University, Lubbock, TX, United States; 2. School of Engineering, University of Saint Thomas, Saint Paul, MN, United States; 3. Department of Electrical and Computer Engineering, The University of Alabama, Tuscaloosa, AL, United States; 4. Head Disk Interface Group, Seagate Technology, Shakopee, MN, United States; 5. Hysitron Nanomechanical Test Instruments, Bruker Corporation, Eden Prairie, MN, United States*

Session N4
MAGNETIC TUNNEL JUNCTION AND RELATED EFFECTS, VOLTAGE CONTROLLED MAGNETISM (Poster Session)

Joseph Prestigiacomo, Chair
Naval Research Lab, Washington, DC, United States

N4-01. **Compact Model of Nanometer STT-MTJ Device With Scale Effect.** *M. Wang*[1] and Y. Jiang[1] *1. Jiangnan University, Wuxi, China*

N4-02. **Low Resistivity Spin Orbit Torque Wiring With WCu Composite Material.** *E. Komura*[1], Y. Shiokawa[1], Y. Ishitani[1], K. Hamanaka[1], K. Suda[1], A. Tsumita[1], Y. Kakinuma[1], Y. Terasaki[1] and T. Sasaki[1] *1. TDK Corporation, Ichikawa, Japan*

N4-03. **Measurement of Anisotropy Field Under External Perpendicular Magnetic Field in FeCoB and FeB Nanomagnets. Study of PMA Features in a Nanomagnet.** *V. Zayets*[1] *1. Research Institute for Advanced Electronics and Photonics, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan*

N4-04. **Developing a Vampire Model for TAMR.** *B.W. Wilson*[1], J.N. Scott[1], W. Hendren[1] and R. Bowman[1] *1. Queen's University Belfast, Belfast, United Kingdom*

N4-05. **Withdrawn**

N4-06. **Reversible Voltage Control of Magnetism via Lithium Ion Migration in a Battery-Inspired Magneto-Ionic Heterostructure.** *M. Ameziane*[1], R. Mansell[1] and S. van Dijken[1] *1. Applied Physics, Aalto University, Espoo, Finland*

N4-07. **The Voltage-Controlled Magnetic Anisotropy Effect Under High Electric Field.** *B. Zhou*[1], M. Xu[1], P. Khanal[1], Y. Zhang[1] and W. Wang[1] *1. Physics, The University of Arizona, Tucson, AZ, United States*

N4-08. **Nonvolatile Voltage Controlled Molecular Spin State Switching for Memory Applications.** G. Hao[1,2], A. Mosey[3], X. Jiang[1], R.V. Chopdekar[2], R. Cheng[3], X. Xu[1], A. Marshall[4] and *A.T. N'Diaye*[2] *1. Department of Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE, United States; 2. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 3. Physics Department, Indiana University Purdue University at Indianapolis, Indianapolis, IN, United States; 4. Department of Electrical Engineering, University of Texas at Dallas, Austin, TX, United States*

Session N5
NOVEL SENSORS II
(Poster Session)

Jeffrey McCord, Chair
CAU Kiel, Kiel, Germany

N5-01. **Application of 90-Degree Configuration MTJ With PMA Pinned Layer and in-Plane Sensing Layer on Large Area Biosensors.** *C. Lee*[1], D. Su[3], J. Wang[2] and C. Lai[1]
1. Department of Materials Science and Engineering, National Tsing Hua University, Hsinchu, Taiwan; 2. Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States; 3. Department of Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN, United States

N5-02. **Serial Magnetic Tunnel Junctions Based Sensor for Nondestructive Flux Leakage Testing.** *Z. Jin*[1], M. Mohd Noor Sam[1,2], M. Oogane[1,3] and Y. Ando[1,4] *1. Applied Physics, Tohoku university, Sendai, Japan; 2. Graduate Program in Spintronics, Tohoku University, Sendai, Japan; 3. Center for Science and Innovation in Spintronics (Core Research Cluster), Organization for Advanced Studies, Tohoku university, Sendai, Japan; 4. Center for Spintronics Research Network, Tohoku university, Sendai, Japan*

N5-03. **Sensing Scheme Design and High-Moment Magnetic Nanoparticles for Next-Generation Giant Magnetoresistance-Based Biosensors.** *D. Su*[1], K. Wu[2] and J. Wang[2] *1. Chemical Engineering and Materials Science, University of Minnesota, Minneapolis, MN, United States; 2. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States*

N5-04. **Design and Performance of GMR Line Devices for High Sensitive Magnetic Sensor Applications.** *N. Fukatani*[1], M. Ichimura[1] and J. Hayakawa[1] *1. Center for Exploratory Research, Hitachi Ltd., Tokyo, Japan*

N5-05. **Ultrasensitive Anomalous Hall Effect Sensor Based on CoFeB With Compensated in-Plane and Perpendicular Magnetic Anisotropies.** *Y. Zhang*[1], K. Wang[1] and G. Xiao[1]
1. Physics, Brown University, Providence, RI, United States

N5-06. **Vibrational Electromagnetic Energy Harvester and GMI Accelerometer Combined Device.** *J.J. Beato-López*[1,3], I. Royo[1], J. Algueta-Miguel[1,2] and C. Gómez-Polo[1,3]
1. Universidad Publica de Navarra, Pamplona, Spain; 2. Institute of Smart Cities, Universidad Pública de Navarra, Pamplona, Spain; 3. Institute for Advanced Materials and Mathematics, INAMAT2, Universidad Pública de Navarra, Pamplona, Spain

N5-07. **Development of Highly Sensitive MI Element by Controlling Anisotropy and Noise Analysis of MI Element.** *J. Ma*[1] and T. Uchiyama[1] *1. Department of Electrical Engineering, Graduate School of Engineering, Nagoya University, Nagoya, Japan*

N5-08. **Withdrawn**

N5-09. **New Aspects on the Performance of a Fundamental Mode Orthogonal Fluxgate Magnetometer Based on Amorphous Wire Cores.** *M. Tibu*[1], S. Corodeanu[1], C. Hlenschi[1,2], H. Chiriac[1] and N. Lupu[1] *1. MDM, Institutul National de Cercetare-Dezvoltare pentru Fizica Tehnica, Iasi, Romania; 2. Physics, A. I. Cuza University of Iasi, Ïasi, Romania*

N5-10. **On Reduction of the Magnetic Noise Limits of Orthogonal Fluxgate Sensor.** *M. Dressler*[1], M. Butta[1] and M. Janosek[1] *1. Department of Measurement, Czech Technical University in Prague Faculty of Electrical Engineering, Prague, Czechia*

N5-11. **Distributed Magnetic Sensor Using Reflection Coefficients From Both Ends of Single Magnetic Coaxial Cable.** *K. Takenaka*[1] and N. Noguchi[1] *1. Yokogawa Denki Kabushiki Kaisha, Musashino, Japan*

N5-12. **Smartphone-Based Indoor Localization Using Permanent Magnets and Artificial Intelligence for Pattern Recognition.** *E. Fisher*[1,2], a. ivry[1,3], R. Alimi[1] and E. Weiss[1] *1. Soreq Nuclear Research Center, Yavne, Israel; 2. Jerusalem College of Technology, Yerushalayim, Israel; 3. Technion Israel Institute of Technology, Haifa, Israel*

N5-13. **Printed Magnetic Needle Probes Sensor.** *S. Nguedjang Kouakeuo*[1,3], Y. Tene Deffo[1], B. Ducharne[2], L. Morel[3], M. Raulet[3], P. Tsafack[1], J. Garcia-Bravo[4] and B. Newell[4] *1. Faculty of Engineering and Technology, University of Buea, Buea, Cameroon; 2. Laboratoire de Génie Electrique et Ferroélectricité, INSA de Lyon, Villeurbanne, France; 3. Laboratoire Ampère, Université de Lyon, Villeurbanne, France; 4. School of Engineering Technology, Purdue University, West Lafayette, IN, United States*

N5-14. **High-Sensitive Symmetric Response Magnetoresistance Sensor With Magnetic Field Concentrator Using Anti-Phase AC Modulation Bridge.** *S. Shirotori*[1], A. Kikitsu[1], Y. Higashi[1], Y. Kurosaki[1] and H. Iwasaki[1] *1. Kabushiki Kaisha Toshiba Kenkyu Kaihatsu Center, Kawasaki, Japan*

N5-15. **Generation of Eddy Current at Localized Region Using Magnetic Focusing Probe for Eddy Current Testing.** *K. Sakai*[1], T. Kiwa[1] and K. Tsukada[1] *1. Graduate School of Interdisciplinary Science and Engineering in Health Systems, Okayama University, Okayama, Japan*

N5-16. **The Einstein-de Haas Effect in Yttrium Iron Garnet at 3 MHz.** K. Mori[1], *M. Dunsmore*[1], J.E. Losby[1,2], D. Jenson[1], M. Belov[2] and M.R. Freeman[1] *1. Physics, University of Alberta, Edmonton, AB, Canada; 2. National Research Council Canada Nanotechnology Research Centre, Edmonton, AB, Canada*

Session S7
NEW APPROACHES FOR INFORMATION PROCESSING COUPLING SPINTRONICS AND MAGNONICS

Tamalika Banerjee, Chair
University of Groningen, Groningen, Netherlands

3:00

S7-01. **Towards Magnonic Devices Based on Voltage-Controlled Magnetic Anisotropy.** ***(Invited)*** *B. Rana[1] 1. Center for Emergent Matter Science, RIKEN, Wako, Japan*

3:36

S7-02. **Mechanisms of the Voltage Control of Magnetic Anisotropy at Magnetic Metal/Oxide Interfaces.** ***(Invited)*** *F. Ibrahim[1]*, A. Hallal[1], H. Yang[1,2], B. Dieny[1] and M. Chshiev[1] *1. Univ. Grenoble Alpes, CEA, CNRS, SPINTEC, F-38000 Grenoble, France, Grenoble, France; 2. Key Laboratory of Magnetic Materials and Devices, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, Ningbo 315201, China, Ningbo, China*

4:12

S7-03. **Designing Ferroelectric-Gated Mott Transistors via Interfacial Charge Engineering.** ***(Invited)*** *X. Hong[1] 1. Department of Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE, United States*

4:48

S7-04. **Potential of $SrTiO_3$-Based 2DEG for Spin-Charge Interconversion.** ***(Invited)*** *A. Barthelemy[1] 1. Unite Mixte de Physique CNRS/Thales, Palaiseau, France*

5:24

S7-05. **Controlling Magnetic Anisotropy by Rashba and Other Spin-Orbit Couplings.** ***(Invited)*** *J. Ieda[1] 1. Advanced Science Research Center, Japan Atomic Energy Agency, Tokai, Japan*

Session O1
2D MAGNETIC MATERIALS

Yasuhiro Niimi, Chair
Osaka University, Osaka, Japan

O1-01. **Spin Transport and Spin-Orbit Proximity Phenomena in van der Waals Heterostructures.** ***(Invited)*** *J.F. Sierra*[1], L. Benítez[1,3], W.F. Savero Torres[1], M. Costache[1] and S.O. Valenzuela[1,2] *1. Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and The Barcelona Institute of Science and Technology (BIST), Bellaterra, Spain; 2. Institució Catalana de Recerca i Estudis Avançats (ICREA), Barcelona, Spain; 3. Universitat Autònoma de Barcelona, Barcelona, Spain*

O1-02. **Room-Temperature Ferromagnetism in $CrTe_2$ Thin Flakes Imaged by Single Spin Magnetometry.** *F. Fabre*[1], A. Purbawati[2], A. Finco[1], A. Haykal[1], S. Chouaieb[1], N. Rougemaille[2], J. Coraux[2], I. Philip[1] and V. Jacques[1] *1. Laboratoire Charles Coulomb, Montpellier, France; 2. Institut NEEL, Grenoble, France*

O1-03. **Complex Spin Dynamics in Layered $CrBr_3$.** *S. Siddiqui*[3], J. Sklenar[2], D. Lebedev[1], J.T. Gish[1], M. Hersam[1] and A. Hoffmann[3] *1. Department of Materials Science and Engineering, Northwestern University, Evanston, IL, United States; 2. Department of Physics and Astrnomy, Wayne State University, Detroit, MI, United States; 3. Department of Materials Science and Engineering, University of Illinois at Urbana-Champaign College of Engineering, Urbana, IL, United States*

O1-04. **Manipulation of the van der Waals Magnet $Cr_2Ge_2Te_6$ by Spin-Orbit Torques.** *V. Gupta*[1], T.M. Cham[1], G.M. Stiehl[1], A. Bose[1], J.A. Mittelstaedt[1], K. Kang[1], S. Jiang[1], K. Mak[1], J. Shan[1], R. Buhrman[1] and D. Ralph[1,2] *1. Cornell University, Ithaca, NY, United States; 2. Kavli Institute at Cornell, Ithaca, NY, United States*

O1-05. **Distinct Magneto-Raman Signatures of Spin-Flip Phase Transitions in CrI_3.** *A. McCreary*[1], T.T. Mai[1,2], F. Utermohlen[2], J.R. Simpson[1,3], K. Garrity[1], X. Feng[2], D.L. Shcherbakov[2], Y. Zhu[4], J. Hu[5], D. Weber[2], K. Watanabe[6], T.T. taniguchi. takashi@nims.go.jp[6], J. Goldberger[2], Z. Mao[4], C. Lau[2], Y. Lu[2], N. Trivedi[2], R. Valdes Aguilar[2] and A.R. Hight Walker[1] *1. National Institute of Standards and Technology, Gaithersburg, MD, United States; 2. The Ohio State University, Columbus, OH, United States; 3. Towson University, Towson, MD, United States; 4. Pennsylvania State University, University Park, PA, United States; 5. University of Arkansas Fayetteville, Fayetteville, AR, United States; 6. National Institute for Materials Science, Ibaraki, Japan*

O1-06. **Topological Surface States-Caused Large Damping Enhancement in Dirac Semimetal-Ferromagnetic Metal Layered Structures.** *J. Ding*[1], C. Liu[1], R. Yu[1,2], U. Erugu[3], J. Tang[3], H. Ding[2], H. Chen[1,4] and M. Wu[1] *1. Department of Physics, Colorado State University, Fort Collins, CO, United States; 2. National Laboratory of Solid State Microstructures and Department of Physics, Nanjing University, Nanjing, China; 3. Department of Physics and Astronomy, University of Wyoming, Laramie, WY, United States; 4. School of Advanced Materials Discovery, Colorado State University, Fort Collins, CO, United States*

O1-07. **Weak Antilocalization and Anisotropic Magnetoresistance in Topological $Bi_2Te_xSe_{3-x}$ Thin Films.** *G.M. Stephen*[1], O. Vail[2], J. Lu[3], P. Taylor[2] and A.L. Friedman[1] *1. Laboratory for Physical Sciences, College Park, MD, United States; 2. Army Research Lab, Adelphi, MD, United States; 3. Materials Science and Engineering, University of Virginia, Charlottesville, VA, United States*

O1-08. **Spin-to-Charge Conversion in van der Waals Heterostructures.** ***(Invited)*** *S. Chenattukuzhiyil*[1] *1. CIC nanoGUNE, San Sebastian, Spain*

O1-09. **Electric-Field Control of Spin-Orbit Torque and Magnetic Anisotropy in Topological Insulator Heterostructures.** *T. Chiba*[1] and T. Komine[2] *1. National Institute of Technology, Fukushima College, Iwaki, Japan; 2. Faculty of Engineering, Ibaraki University, Hitachi, Japan*

O1-10. **Temperature- and Magnetic Field-Dependent Raman Spectroscopy of Layered, Antiferromagnetic $FePS_3$.** *J.R. Simpson*[1,2], A. McCreary[2], T.T. Mai[2], C. Dennis[3], R. Valdes Aguilar[4] and A.R. Hight Walker[2] *1. Physics, Astronomy, and Geosciences, Towson University, Towson, MD, United States; 2. Physical Measurement Laboratory, National Institute of Standards and Technology, Gaithersburg, MD, United States; 3. Materials Measurement Laboratory, National Institute of Standards and Technology, Gaithersburg, MD, United States; 4. Physics, The Ohio State University, Columbus, OH, United States*

O1-11. **Spin Hall Effect in Paramagnetic Kagome-Lattice Semimetal $Co_3Sn_2S_2$.** *Y. Lau*[1,2], K. Fujiwara[1], J. Ikeda[1], T. Seki[1,2], A. Tsukazaki[1,2] and K. Takanashi[1,2] *1. Institute for Materials Research (IMR), Tohoku University, Sendai, Japan; 2. Center for Spintronics Research Network, Tohoku University, Sendai, Japan*

O1-12. **Ferromagnetism and Giant Magnetoresistance in Zinc-Blende FeAs/InAs Superlattice Structures.** *L. Anh*[2,3], T. Hayakawa[1], Y. Nakagawa[4], H. Shinya[5,6], T. Fukushima[7,8], H. Katayama-Yoshida[9], Y. Iwasa[4,10] and M. Tanaka[1,9] *1. Dept. of Electrical Engineering and Information Systems, The University of Tokyo, Tokyo, Japan; 2. Institute of Engineering Innovation, The University of Tokyo, Tokyo, Japan; 3. JST, PRESTO, Saitama, Japan; 4. QPEC & Dept. of Applied Physics, The University of Tokyo, Tokyo, Japan; 5. Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 6. Center for Spintronics Research Network (CSRN), Tohoku University, Sendai, Japan; 7. Institute for Solid State Physics, The University of Tokyo, Chiba, Japan; 8. Center for Spintronics Research Network (CSRN), Osaka University, Osaka, Japan; 9. Center for Spintronics Research Network (CSRN), The University of Tokyo, Tokyo, Japan; 10. RIKEN Center for Emergent Matter Science (CEMS), Tokyo, Japan*

O1-13. **Proximity-Induced Spin Hall Effect in Graphene/WSe_2 van der Waals Heterostructures With Tunable, Highly Efficient Spin-to-Charge Conversion.** *F. Herling*[1,2], S. Chenattukuzhiyil[1], J. Ingla-Aynés[1], N. Ontoso[1], L.E. Hueso[1,3] and F. Casanova[1,3] *1. CIC nanoGUNE, San Sebastian, Spain; 2. QuESTech, Horizon 2020 ITN, Marie Sklodowska-Curie Action (No 766025), Grenoble, France; 3. IKERBASQUE, Basque Foundation for Science, Bilbao, Spain*

O1-14. **Coexistance of Quantum Oscillation and Magnetic Hysteresis in $CeTe_3$ Thin Films.** *M. Watanabe*[1], S. Lee[1], T. Asano[1], T. Ibe[1], M. Tokuda[1], H. Taniguchi[1], D. Ueta[2], Y. Okada[2], K. Kobayashi[1,3] and Y. Niimi[1,4] *1. Graduate School of Science, Osaka University, Toyonaka, Japan; 2. Okinawa Institute of Science and Technology Graduate University, Kunigami-gun, Japan; 3. Institute for Physics of Intelligence and Department of Physics, The University of Tokyo, Bunkyo-ku, Japan; 4. Center for Spintronics Researh Network, Osaka University, Toyonaka, Japan*

FRIDAY MORNING 6:00

LIVE Q&A 15

Session O2
MRAM AND MAGNETIC TUNNEL JUNCTIONS

Takayuki Nozaki, Co-Chair
Natinaol Institute of Advanced Industrial Science and Technology, Tsukuba, Japan

Kevin Garello, Co-Chair
SPINTEC, Grenoble Cedex, France

O2-01. **Technologies for Commercial MRAM Products and Radiation Hard Applicability.** ***(Invited)*** *F.B. Mancoff*[1], S. Ikegawa[1], J. Janesky[1], S. Aggarwal[1], S. Alam[1], H. Almasi[1], M. DeHerrera[1], B. Hughes[1], H. Lee[1], K. Nagel[1], G. Shimon[1], J. Sun[1], J. Yang-Scharlotta[2], A. Narasimham[2] and S. Guertin[2] *1. Everspin Technologies, Inc., Chandler, AZ, United States; 2. Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA, United States*

O2-02. **Simplified Double Magnetic Tunnel Junction With Switchable Assistance Layer for Improved STT-MRAM Performance.** *D. Sanchez Hazen*[1], S. Auffret[1], I. Joumard[1], L. Vila[1], L. Buda-Prejbeanu[1], R. Sousa[1], L. Prejbeanu[1] and B. Dieny[1] *1. SPINtronique et Technologie des Composants, Grenoble, France*

O2-03. **Effect of Surface Modification Treatment on top Pinned MTJ With Perpendicular Easy Axis.** *H. Honjo*[1], M. Yasuhira[1], S. Ikeda[1] and T. Endoh[1] *1. Center for Innovative Integrated Electronic Systems, Tohoku University, Sendai, Japan*

O2-04. **Back-Hopping in Spin-Transfer-Torque Switching of Perpendicularly Magnetized Tunnel Junctions.** *T. Devolder*[3], O. Bultynck[1,2], P. Bouquin[3,1], V. Nguyen[1], S. Rao[1], D. Wan[1], B. Soree[1,2], I. Radu[1], G.S. Kar[1] and S. Couet[1] *1. IMEC, Leuven, Belgium; 2. KUL, Leuven, Belgium; 3. Université Paris-Saclay, Palaiseau, France*

O2-05. **Impact of $Fe_{80}B_{20}$ Insertion on the Properties of Dual-MgO Perpendicular Magnetic Tunnel Junctions.** *E. Liu*[1], T. Lee[2] and H. Yang[1] *1. National University of Singapore, Singapore, Singapore; 2. Globalfoundries Inc Singapore, Singapore, Singapore*

O2-06. **Enhancement of Magnetic Interaction and Magnetic Anisotropy in MTJ With Multiple CoFeB/MgO Interfaces for High Thermal Stability.** *K. Nishioka*[1], H. Honjo[1], M. Yasuhira[1], S. Ikeda[1,2] and T. Endoh[1,3] *1. Center for Innovative Integrated Electronic Systems, Tohoku Daigaku, Sendai, Japan; 2. Center for Spintronics Integrated Systems, Tohoku University, Sendai, Japan; 3. Graduate school of Engineering, Tohoku University, Sendai, Japan*

O2-07. **Thermal Stability and Magnetization Switching of Exchanged Coupled Composite Free Layer of Perpendicular Magnetic Tunnel Junction.** *I. Volvach*[1], E. Fullerton[3] and V. Lomakin[2] *1. Material Science and Engineering, University of California San Diego, La Jolla, CA, United States; 2. Electrical & Computer Engineering, University of California San Diego, La Jolla, CA, United States; 3. Center for Memory and Recording Research, University of California San Diego, La Jolla, CA, United States*

O2-08. **Withdrawn**

O2-09. **Resolution of Non-Destructive Imaging for Buried Interfaces.** *A. Hirohata*[1], B. Aditya[2], J. Wu[2], M. Ota[3] and K. Elphick[1] *1. Electronics Engineering, University of York, York, United Kingdom; 2. City University of Hong Kong, Kowloon, Hong Kong; 3. Nagaoka Gijutsu Kagaku Daigaku Denki Denshi Joho Kogaku Katei Denki Denshi Joho Kogaku Senko, Nagaoka, Japan*

O2-10. **Perpendicular Magnetic Anisotropy in Cu_2Sb-Type (Mn-Cr) AlGe Films: Layer Thickness and Adjacent Layer Dependence.** *T. Kubota*[1,2], K. Ito[1,2], R.Y. Umetsu[1,2], M. Mizuguchi[1,2] and K. Takanashi[1,2] *1. Institute for Materials Research, Tohoku Daigaku, Sendai, Japan; 2. Center for Spintronics Research Network, Tohoku Daigaku, Sendai, Japan*

O2-11. **Variation of Energy Barrier With Temperature in X/1X-nm Shape-Anisotropy Magnetic Tunnel Junctions.** *J. Igarashi*[1], B. Jinnai[2], V. Desbuis[3], S. Mangin[3], S. Fukami[1,4] and H. Ohno[1,4] *1. Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University, Sendai, Japan; 2. WPI Advanced Institute for Materials Research, Tohoku University, Sendai, Japan; 3. Institut Jean Lamour, Université de Lorraine, Nancy, France; 4. Center for Science and Innovation in Spintronics, Tohoku University, Sendai, Japan*

O2-12. **Combined Effects of Stray Field and Dzyaloshinskii–Moriya Interaction on Magnetic Tunnel Junction With Stepped and Pillar Structures.** *C. Cheng*[1], K. Chen[1], J. Wei[2], Y. Hsin[2], S. Sheu[2] and Y. Tseng[1] *1. National Chiao Tung University, Hsinchu, Taiwan; 2. Industrial Technology Research Institute, Hsinchu, Taiwan*

O2-13. **Investigation of Acoustic Wave Induced FMR Assisted Spin Toque Switching of MTJs With Lateral Anisotropy Variation.** *W. Misba*[1], M. Rajib[1], D. Bhattacharya[1] and J. Atulasimha[1] *1. Virginia Commonwealth University, Richmond, VA, United States*

O2-14. **Evaluation of Read Disturbance Reduction Effect by Bi-Directional Read on Ferromagnetic Material Properties of SOT-MRAM.** *Y. Kishi*[1], K. Tabata[1], M. Ke[1] and T. Kawahara[1] *1. Department of Electrical Engineering, Faculty of Engineering, Tokyo University of Science, Katsushika-ku, Japan*

O2-15. **Multilevel Magnetization Switching of Magnetic Tunnel Junctions Induced by Spin-Orbit Torque.** *J. Lourembam*[1], L. Huang[1], B. Chen[2], J. Qiu[1], H. Chung[1], Q. Yap[1], S. Lee Koon Yap[3], S. Wong[3] and S. Lim[1] *1. Electronic Materials, Institute of Materials Research and Engineering, Singapore, Singapore; 2. Institute of High Performance Computing, Singapore, Singapore; 3. Institute of Materials Research and Engineering, Singapore, Singapore*

O2-16. **Effect of Edge Roughness in Spin-Orbit Torque Magnetoresistive Random-Access Memory With Damping Constant Variation.** *J. Byun*[1], D. Kang[1] and M. Shin[1] *1. School of Electrical Engineering, Korea Advanced Institute of Science and Technology, Daejeon, The Republic of Korea*

Session O3
SKYRMIONS AND BEYOND

Haifeng Du, Co-Chair
High Magnetic Field Laboratory of Chinese Academy of Sciences, Hefei, China

Yizhou Liu, Co-Chair
Rikagaku Kenkyujo Sohatsu Bussei Kagaku Kenkyu Center, Tianjin, China

O3-01. **Beyond Skyrmions: Alternative Magnetic Quasiparticles.** ***(Invited)*** *B. Göbel*[1,2], I. Mertig[1] and O. Tretiakov[3] *1. Martin-Luther-Universitat Halle-Wittenberg, Halle, Germany; 2. Max Planck Institute of Microstructure Physics, Halle, Germany; 3. School of Physics, University of New South Wales, Sydney, NSW, Australia*

O3-02. **Topological Half-Skyrmions and Bimerons in an Antiferromagnetic Insulator at Room Temperature.** *H. Jani*[1] and P. Radaelli[2] *1. Physics, National University of Singapore, Singapore, Singapore; 2. Physics, University of Oxford, Oxford, United Kingdom*

O3-03. **Three-Dimensional Dynamics of a Magnetic Hopfion.** *Y. Liu*[1,2], W. Hou[3], X. Han[1] and J. Zang[3] *1. Beijing National Laboratory of Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences, Beijing, China; 2. Center for Emergent Matter Science, RIKEN, Wako, Japan; 3. Department of Physics and Astronomy, University of New Hampshire, Durham, NH, United States*

O3-04. **Chirality in Action: From Antiferromagnets to Novel Chiral Particles.** ***(Invited)*** *Y. Mokrousov*[1,2] *1. Forschungszentrum Julich GmbH, Julich, Germany; 2. Johannes Gutenberg Universitat Mainz, Mainz, Germany*

O3-05. **Electric-Field Switching of Magnetic Topological Charge in Type-I Multiferroics.** *C. Xu*[1], P. Chen[1], H. Tan[2], Y. Yang[3], H. Xiang[4] and L. Bellaiche[1] *1. University of Arkansas Fayetteville, Fayetteville, AR, United States; 2. Max Planck-Institute of Microstructure Physics, Halle, Germany; 3. Nanjing University, Nanjing, China; 4. Fudan University, Shanghai, China*

O3-06. **Stabilization of Zero Field Skyrmions in Synthetic Antiferromagnetic Multilayers.** *M. Sim*[2,1], D. Thian[2], M. Ramu[2], X. Chen[2], S. Goolaup[2], C. Li[2], H. Tan[2], N. Lim Chee Beng[2], S. Lee Koon Yap[2], P. Ho[2] and A. Soumyanarayanan[2,1] *1. Department of Physics, National University of Singapore, Singapore, Singapore; 2. Institute of Materials Research and Engineering, Agency for Science, Technology and Research (A*STAR), Singapore, Singapore*

O3-07. **Skyrmions in Synthetic Antiferromagnets and Their Current Induced Nucleation.** R. Juge[5], N. Sisodia[5], V. Pham[5], Q. Zhang[5], K. Rana[5], L. Aballe[1], M. Foerster[1], R. Belkhou[4], M. Belmeguenai[2], G. Gaudin[5], J. Gräfe[3], M. Weigand[3] and *O. Boulle[5] 1. Sincrotron ALBA, Barcelona, Spain; 2. Laboratoire des Sciences des Procedes et des Materiaux, Villetaneuse, France; 3. Max-Planck-Institute Stuttgart, Stuttgart, Germany; 4. Synchrotron SOLEIL, Gif-sur-Yvette, France; 5. Spintec, Univ. Grenoble Alpes, CNRS, CEA, Grenoble, France*

O3-08. **Stabilisation of Skyrmions in an Antiferromagnet at Room Temperature Using Exchange Bias.** K. Rana[2], *R. Lopes Seeger[2]*, S. Ruiz-Gomez[1], R. Juge[2], Q. Zhang[2], S. Auffret[2], M. Foerster[1], L. Aballe[1], G. Gaudin[2], V. Baltz[2] and O. Boulle[2] *1. Sincrotron ALBA, Barcelona, Spain; 2. Spintec, Univ. Grenoble Alpes CNRS CEA, Grenoble, France*

O3-09. **Magnonic Quadrupole Topological Insulator in Antiskyrmion Crystals.** T. Hirosawa[1], *S.A. Diaz[2]*, J. Klinovaja[2] and D. Loss[2] *1. Physics, University of Tokyo, Tokyo, Japan; 2. Physics, Universitat Basel, Basel, Switzerland*

O3-10. **Withdrawn**

O3-11. **Tuning Zero-Field Magnetic Skyrmions in all-Light-Metals Multilayers.** *R. Lo Conte[1,2]*, A.K. Nandy[3], G. Chen[4], A. Fernandes Cauduro[5], A. Maity[3], C. Ophus[5], Z. Chen[6], A.T. N'Diaye[7], K. Liu[6,4], A.K. Schmid[5] and R. Wiesendanger[1] *1. Department of Physics, University of Hamburg, Hamburg, Germany; 2. Department of Materials Science and Engineering, University of California Berkeley, Berkeley, CA, United States; 3. School of Physical Sciences, National Institute of Science Education and Research, Jatni, India; 4. Department of Physics, University of California Davis, Davis, CA, United States; 5. Molecular Foundry, E O Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 6. Department of Physics, Georgetown University, Washington, DC, United States; 7. Advanced Light Source, E O Lawrence Berkeley National Laboratory, Berkeley, CA, United States*

O3-12. **Observation of Opposite Topological Charges in Single D_{2d} Heusler Compound.** *J. Jena[2*]*, B. Göbel[2], T. Ma[2], V. Kumar[1], R. Saha[2], I. Mertig[3], C. Felser[1] and S.S. Parkin[2,3] *1. Max Planck Institute for Chemical Physics of Solids, Dresden, Germany; 2. NISE, Max Planck Institute of Microstructure Physics, Halle, Germany; 3. Institute of Physics, Martin Luther University, Halle, Germany*

O3-13. **Micromagnetic Simulations of Skyrmionic Bubbles in the Van Der Waals Structure Fe_3GeTe_2.** *M. Grelier[1]*, Y. Sassi[1], B. Dlubak[1], M. Martin[1], P. Seneor[1], V. Cros[1], N. Reyren[1] and A. Fert[1] *1. Unité Mixte de Physique, CNRS, Thales, Université Paris-Saclay, Palaiseau, France*

** - Best student presentation award finalist*

Session O4
SPIN HALL AND RELATED EFFECTS I

Vlad Demidov, Co-Chair
University of Muenster, Muenster, Germany
Francisco Gonçalves, Co-Chair
HZDR- Helmholtz Zentrum Dresden Rossendorf, Dresden, Germany

O4-01. **Giant Transition-State Enhancement of Quasiparticle Spin-Hall Effect in an Exchange-Spin-Split Superconductor Detected by non-Local Magnon Spin-Transport.** *K. Jeon*[1], J. Jeon[1], X. Zhou[1], A. Migliorini[1], J. Yoon[1] and S.S. Parkin[1] *1. Max Planck Institute of Microstructure Physics, Halle (Saale), Germany*

O4-02. **Strong Interfacial Exchange Field in a Heavy Metal/ Ferromagnetic Insulator System Determined by Spin Hall Magnetoresistance.** *J. Gomez-Perez*[1], X. Zhang[2,3], F. Calavalle[1], M. Ilyn[3], C. González-Orellana[3], M. Gobbi[1,4], C. Rogero[2,3], A. Chuvilin[1,4], V. Golovach[2,4], L.E. Hueso[1,4], F. Bergeret[2,4] and F. Casanova[1,4] *1. CIC nanoGUNE BRTA, Donostia-San Sebastián, Spain; 2. Donostia International Physics Center, San Sebastian, Spain; 3. Centro de Fisica de Materiales, San Sebastian, Spain; 4. Ikerbasque, Basque Foundation for Science, Bilbao, Spain*

O4-03. **Spin Transport in $La_{0.67}Sr_{0.33}MnO3/YBa_2Cu_3O_{7-\delta}$ Bilayers.** *J. Wisser*[1] and Y. Suzuki[1] *1. Applied Physics, Stanford University, Stanford, CA, United States*

O4-04. **Dephasing of Transverse Spin Current in Ferrimagnetic Alloys.** *Y. Lim*[1], B. Khodadadi[1], J. Li[2], D. Viehland[2], A. Manchon[3,4] and S. Emori[1] *1. Physics, Virginia Polytechnic Institute and State University, Blacksburg, VA, United States; 2. Materials Science and Engineering, Virginia Polytechnic Institute and State University, Blacksburg, VA, United States; 3. Physical Science and Engineering Division, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia; 4. CNRS, CINaM, Aix-Marseille Universite, Marseille, France*

O4-05. **Charge-to-Spin Conversion Efficiency in Ferromagnetic Nanowires by Spin Torque Ferromagnetic Resonance: Reconciling Lineshape and Linewidth Analysis Methods.** *J. Xu*[1] and A.D. Kent[1] *1. physics department, New York University, New York, NY, United States*

O4-06. **Modulation of Spin Sink Efficiency Using Magnetic Phase Transition on NiFe/Dy System.** *K. Yamanoi*[1], Y. Sakakibara[1], J. Fujimoto[2], M. Matsuo[2,3] and Y. Nozaki[1,4] *1. Department of Physics, Keio University, Yokohama, Japan; 2. Kavli Institute for Theoretical Sciences, University of Chinese Academy of Sciences School of Computer and Control Engineering, Beijing, China; 3. RIKEN Noshinkei Kagaku Kenkyu Center, Wako, Japan; 4. Center for Spintronics Research Network, Kanagawa, Japan*

O4-07. **Molecular Spintronics Utilizing a Novel Metal-Organic Interface.** ***(Invited)*** *S. Miwa*[1] *1. The Institute for Solid State Physics (ISSP), The University of Tokyo, Kashiwa, Japan*

O4-08. **Enhancement of Spin Hall Effect in Ta_xW_{1-x} Alloys.** *L. Qian*[1], K. Wang[1], Y. Zheng[2] and G. Xiao[1] *1. Physics, Brown University, Providence, RI, United States; 2. Northeastern University, Boston, MA, United States*

O4-09. **Large Spin Hall Effect in non-Equilibrium Cu-Based Binary Alloys Beyond Solubility Limit.** *H. Masuda*[1], R. Modak[2], T. Seki[1,2], K. Uchida[1,2], Y. Lau[1,3], Y. Sakuraba[2,4], R. Iguchi[2] and K. Takanashi[1,3] *1. Institute for Materials Research, Tohoku university, Sendai, Japan; 2. National Institute for Materials Science, Tsukuba, Japan; 3. Center for Spintronics Research Network, Tohoku University, Sendai, Japan; 4. JST PRESTO, Saitama, Japan*

O4-10. **Observation of Inverse Spin Hall Effect at CoFeB/C_{60} Interface.** *P. Sharangi*[1], B.B. Singh[1] and S. Bedanta[1] *1. School of Physical Science, National Institute of Science Education and Research, Bhubaneswar, India*

O4-11. **Inverse Spin Hall Effect in Sputtered MoS_2/CoFeB Bilayers.** *A. Mishra*[1], V. Thiruvengadam[1], K. Roy[1], P. Gupta[1], B.B. Singh[1] and S. Bedanta[1] *1. National Institute of Science Education and Research, Bhubaneswar, India*

O4-12. **Direct Observation of Spin Accumulation in Cu Induced by Spin Pumping.** J. Ding[2], W. Zhang[1,2], M. Jungfleisch[3,2], J. Pearson[2], *H. Ohldag*[4,5], V. Novosad[2] and A. Hoffmann[6,2] *1. Oakland University, Rochester, MI, United States; 2. Argonne National Laboratory Materials Science Division, Lemont, IL, United States; 3. University of Delaware, Newark, DE, United States; 4. E O Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 5. University of California Santa Cruz Division of Physical and Biological Sciences, Santa Cruz, CA, United States; 6. University of Illinois at Urbana-Champaign, Urbana, IL, United States*

FRIDAY MORNING 6:00

LIVE Q&A 15

Session O5
MAGNETIC MICROSCOPY AND IMAGING II (Poster Session)

Agustina Asenjo, Chair
ICMM-CSIC, Madrid, Spain

O5-01. **Nucleation of Magnetic Singularities at Interfaces in Ferro/Ferrimagnetic Multilayers Studied by Magnetic Force Microscopy and X-ray Magnetic Tomography.** *J. Hermosa*[1,2], A. Hierro-Rodriguez[1,2], C. Quiros[1,2], L. Alvarez Prado[1,2], R. Valcarcel[3], A. Sorrentino[3], E. Pereiro[3], J. Martín[1,2], M. Velez[1,2] and S. Ferrer[3] *1. Physics Dept., Universidad de Oviedo, Oviedo, Spain; 2. CINN (CSIC – Universidad de Oviedo), El Entrego, Spain; 3. ALBA Synchrotron, Cerdanyola del Vallès, Spain*

O5-02. **Nucleation and Current-Induced Bubble Structures Motion in PMA Multilayers.** *J. Marqués Marchán*[1], M. Pérez-Carmona[1], J. Prieto[2] and A. Asenjo[1] *1. Instituto de Ciencia de Materiales de Madrid (ICMM), Consejo Superior de Investigaciones Cientificas, Madrid, Spain; 2. Instituto de Sistemas Optoelectrónicos y Microtecnología (ISOM), Universidad Politecnica de Madrid, Madrid, Spain*

O5-03. **Withdrawn**

O5-04. **Magnetic Stray Field Sensing With Spin Defects in Silicon Carbide.** *M. Bejarano*[1], F.J. Gonçalves[1], M. Hollenbach[1,2], T. Hache[1,3], Y. Berencén[1], G.V. Astakhov[1] and H. Schultheiss[1] *1. Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. Technische Universitat Dresden, Dresden, Germany; 3. Technische Universitat Chemnitz, Chemnitz, Germany*

O5-05. **Magneto-Optical Investigation of Scattering by Superparamagnetic Nanoparticles Using Multi-Harmonic Analysis.** C. Patterson[2], *M. Syed*[1], N. Fried[1] and T. Li[1] *1. Physics & Optical Engineering, Rose-Hulman Institute of Technology, Terre Haute, IN, United States; 2. Physics, University of Michigan, Ann Arbor, MI, United States*

O5-06. **Characterizing Tunable Nanoparticle Systems for Thermometry.** *T.Q. Bui*[1], A.J. Biacchi[1], A.R. Hight Walker[1], B. Correa[1], C. Dennis[1] and S. Woods[1] *1. National Institute of Standards and Technology, Gaithersburg, MD, United States*

O5-07. **A Description of Laser Impacts on Magnetic Properties for GO Electrical Steels Under Surface Treatment With Short and Ultra-Short Pulses.** *M. Nesser*[1], O. Maloberti[2,1], E. Salloum[1], J. Dupuy[3], J. Birat[4], C. Pineau[4], S. Panier[1], J. Fortin[1,2] and P. Dassonvalle[5,2] *1. LTI Laboratory, Amiens, France; 2. ESIEE Amiens, Amiens, France; 3. Multitel, Mons, Belgium; 4. Instituts de Recherche Technologique Materiaux Metallurgie Procedes, Metz, France; 5. MIS, Amiens, France*

O5-08. **Evidence of the Interfacial Dzyaloshinskii-Moriya Interaction in $Ni_{80}Fe_{20}$/Graphene Using Bragg-MOKE.** *N. Bansal*[1], N. Chowdhury[1], A. Kumar[1], S. Das[2] and P.K. Muduli[1] *1. Physics, Indian Institute of Technology Delhi, New Delhi, India; 2. Centre for Applied Research in Electronics (CARE), Indian Institute of Technology Delhi, New Delhi, India*

O5-09. **Effect of Ti as an Under and Spacer-Layer on the Perpendicular Magnetic Anisotropy of Tb-Fe Thin Film.** *A.K. Sahoo*[2], J.A. Chelvane[1] and J.R. Mohanty[2] *1. Defence Metallurgical Research Laboratory, Hyderabad 500058, India, Hyderabad, India; 2. Nanomagnetism and Microscopy Laboratory, Department of Physics, Indian Institute of Technology Hyderabad, Kandi, Sangareddy 502285, Telangana, India, Hyderabad, India*

Session O6
MICROMAGNETIC MODELLING I (Poster Session)

Harald Oezelt, Chair
Danube University Krems, Wr. Neustadt, Austria

O6-01. **Scalable Space and Time Hierarchical Dipole-Dipole Interactions in the VAMPIRE Code.** S. Jenkins[1], A. Meo[1] and *R.F. Evans*[1] *1. Physics, University of York, York, United Kingdom*

O6-02. **Micromagnetic Modeling Magnetization Excitation by a Resonance.** *V. Teplov*[1], V. Bessonov[1], S. Batalov[1] and A. Telegin[1] *1. Institute of Metallurgy UB RAS, Yekaterinburg, Russian Federation*

O6-03. **Skyrmions in Nanodiscs of Co/Pt and the Effect of Inter-Skyrmionic Dipolar Interactions on Their Stability in Nanostructure.** *Y. Kumar*[1], H. Saren[1] and P. Das[1] *1. Physics, Indian Institute of Technology Delhi, New Delhi, India*

O6-04. **Possible Realization of Double Spin Vortex State in Hollow Submicron Particles.** *N. Hirano*[1], E. Nomura[1], M. Chiba[1], H. Magara[2], T. Sato[2], Z. Akase[2] and S. Kobayashi[1] *1. Faculty of Science and Engineering, Iwate University, Morioka, Japan; 2. Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan*

O6-05. **Stress-Induced Modification of Gyration Eigen-Frequencies in Stacked Double-Vortex Structures.** *V. Iurchuk*[1], A. Kákay[1] and A. Deac[1] *1. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany*

O6-06. **Vortex-Induced Topological Rearrangements in Permalloy Antidot Films.** *V.V. Zverev*[1,2] and I.M. Izmozherov[1,2] *1. Department of Theoretical Physics and Applied Mathematics, Ural Federal University named after the first President of Russia B N Yeltsin, Institute of Physics and Technology, Ekaterinburg, Russian Federation; 2. M N Miheev Institute of Metal Physics, Institut fiziki metallov imeni M N Miheeva Ural'skogo otdelenia Rossijskoj akademii nauk, Ekaterinburg, Russian Federation*

O6-07. **Withdrawn**

O6-08. **Spatial Magnetization Modes in Spin Hall Driven Oscillators.** *E. Zhang*[1] and J. Zhu[1] *1. Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA, United States*

O6-09. **Spin Waves Transport in the 3D Magnonic Waveguides.** *A.A. Martyshkin*[1], E. Beginin[1] and A. Sadovnikov[1] *1. Saratovskij nacional'nyj issledovatel'skij gosudarstvennyj universitet imeni N G Cernysevskogo, Saratov, Russian Federation*

O6-10. **Shape-Related Effects on Ferromagnetic Nanoparticles: a Micromagnetic Approach for Highly Diluted and Highly Ordered Systems.** *R. Delgado-Garcia*[1], G. Rodriguez-Rodriguez[1], A. López-Ortega[1] and J. Colino[1] *1. Applied Physics, Universidad de Castilla-La Mancha, Toledo, Spain*

O6-11. **The Analysis of Magnetite Nanoparticles Allowed to Warm Through Superparamagnetic Transition.** *D. McPherson*[1] and K. Chesnel[1] *1. Physics and Astronomy, Brigham Young University, Provo, UT, United States*

O6-12. **Asymmetry Induced Inhomogeneous Magnetization Reversal in Hemispherical Shells.** *A. Mary*[1] and S. Thomas[1] *1. Department of Physics, Cochin University of Science and Technology, Cochin 682022, India*

O6-13. **Withdrawn**

O6-14. **Switching in Square Ferromagnetic Nanodot.** *P. Eroshenko*[2], S. Komogortsev[2] and V.A. Fel'k[1] *1. Sibirskij gosudarstvennyj universitet nauki i tehnologij imeni akademika M F Resetneva, Krasnoarsk, Russian Federation; 2. Kirensky Institute of Physics, Federal Research Center KSC SB RAS, Krasnoyarsk, Russian Federation*

O6-15. **Phase-Field Simulation of Domain Evolution and Magnetization Switching Mechanism Near the Ferromagnetic Morphotropic Phase Boundary.** *C. Hu*[1], Z. Zhang[1], T. Yang[2], W. Li[1] and L. Chen[2] *1. Liaocheng University, Liaocheng, China; 2. The Pennsylvania State University, University Park, PA, US, University Park, PA, United States*

O6-16. **Withdrawn**

O6-17. **Micromagnetic Simulations of the Quasi-Static Properties of Dissimilar Bilayers.** *A. Pokhrel*[1], B. Nepal[1], U. Karki[1], A. Sapkota[1], A. Rai[1], T. Mewes[1] and C. Mewes[1] *1. Physics and Astronomy, The University of Alabama System, Tuscaloosa, AL, United States*

O6-18. **Micromagnetic Modelling of Stripe Domains in Thin Films With a Columnar Microstructure.** *E. Dengina*[1], A. Bolyachkin[1], N. Kulesh[1] and V. Vas'kovskiy[1,2] *1. Ural Federal University, Ekaterinburg, Russian Federation; 2. Insitute of Metal Physics UB RAS, Ekaterinburg, Russian Federation*

Session O7
SPIN WAVE III: CONTROLLING SPIN WAVE DYNAMICS
(Poster Session)

Maciej Dabrowski, Co-Chair
University of Exeter, Exeter, United Kingdom
Juan Gabriel Ramirez, Co-Chair
Universidad de los Andes, Bogotá, Colombia

O7-01. **Systematic Micromagnetic Study of the Band Structure of One-Dimensional Artificial Magnonic Crystals in Presence of Interfacial Dzyaloshinskii-Moriya Interaction.**
R. Silvani[1,2], S. Tacchi[3], M. Kuepferling[1] and G. Carlotti[2]
1. Istituto Nazionale di Ricerca Metrologica, Torino, Italy; 2. Universita degli Studi di Perugia Dipartimento di Fisica e Geologia, Perugia, Italy; 3. Istituto Officina dei Materiali Consiglio Nazionale delle Ricerche, Trieste, Italy

O7-02. **Effect of the Interfacial Dzyaloshinskii-Moriya Interaction on Spin Waves Eigenmodes of Elliptical CoB Dots Magnetized in-Plane.**
M. Alunni[1], R. Silvani[1,2], S. Tacchi[3] and *G. Carlotti*[1] *1. Dept of Physics and Geology, Universita degli Studi di Perugia, Perugia, Italy; 2. Istituto Nazionale di Ricerca Metrologica, Torino, Italy; 3. Istituto Officina dei Materiali del CNR (CNR-IOM), Perugia, Italy*

O7-03. **Spin Wave Resonance Properties of Magnetic Squares With Different Aspect Ratios Based on $Co_{90}Fe_{10}$.**
X. Ya[1], K. Kurihara[1], T. Tanaka[1] and K. Matsuyama[1] *1. ISEE, Kyushu University, Fukuoka, Japan*

O7-04. **Withdrawn**

O7-05. **Spin Waves in Cylindrical Nanowires in the Vortex State.**
D. Caso[1], C. Bran[2], M. Vazquez[2], K.Y. Guslienko[3,4] and F.G. Aliev[1] *1. Condensed Matter Physics, Universidad Autonoma de Madrid, Madrid, Spain; 2. Instituto de Ciencia de Materiales de Madrid, ES, Madrid, Spain; 3. Material Physics, Universidad del Pais Vasco, Bilbao, Spain; 4. Ikerbasque, Bilbao, Spain*

O7-06. **Terahertz Magnonics in 2D Chromium Trihalides With Atomically-Engineered Dzyaloshinskii–Moriya Interaction.**
R.M. de Menezes[1,2], D. Sabani[1], C. Bacaksiz[1], C. de Souza Silva[2] and M.V. Milošević[1] *1. Physics, Universiteit Antwerpen, Antwerpen, Belgium; 2. Physics, Universidade Federal de Pernambuco, Recife, Brazil*

O7-07. **Strain-Induced Spin-Wave Transport in 3D Magnonic Structures Based on YIG/PZT and YIG/GaAs Multilayers.** *A. Sadovnikov*[1], E. Beginin[1], A. Grachev[1], S. Sheshukova[1], A. Stognij[3] and S. Nikitov[1,2] *1. nonlinear physics, Saratovskij nacional'nyj issledovatel'skij gosudarstvennyj universitet imeni N G Cernysevskogo, Saratov, Russian Federation; 2. FGBUN Institut radiotehniki i elektroniki imeni V A Kotel'nikova Rossijskoj akademii nauk, Moskva, Russian Federation; 3. NPC Belarus Material science, Minsk, Belarus*

O7-08. **Non-Reciprocal Spin Wave Propagation in Magnetic Bilayer Structures.** *O. Gladii*[1], R. Salikhov[1], O. Hellwig[1,2], J. Lindner[1] and H. Schultheiss[1] *1. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. Physics, Technische Universitat Chemnitz, Chemnitz, Germany*

O7-09. **Spin Wave Spectral Probing of Possible Micro-States in Building Block of Macroscopically Degenerate Artificial Spin Ice.** *N. Arora*[1] and P. Das[1] *1. Department of Physics, Indian Institute of Technology Delhi, New Delhi, India*

O7-10. **The Formation of Waveguide Channels for Spin Waves in a Three-Dimensional Magnon Network Based on Multilayer Magnonic Crystall Arrays.** *S. Odintsov*[1], S. Sheshukova[1], S. Nikitov[2] and A. Sadovnikov[1] *1. Saratovskij nacional'nyj issledovatel'skij gosudarstvennyj universitet imeni N G Cernysevskogo, Saratov, Russian Federation; 2. FGBUN Institut radiotehniki i elektroniki imeni V A Kotel'nikova Rossijskoj akademii nauk, Moscow, Russian Federation*

O7-11. **Strain-Tuned Reconfigurable Spin-Wave Transport in Magnonic Crystal/Piezoelectric Structure.** *A. Grachev*[1], E. Beginin[1] and A. Sadovnikov[1] *1. Saratov State University, Saratov, Russian Federation*

O7-12. **The Edge Effect on the Magnetic Skyrmion Motion Driving by Spin Wave.** *T. Huang*[1], K. Wu[1], Y. Lin[1], W. Peng[1], P. Chen[1] and M. Chen[1] *1. National Applied Research Laboratories, Hsinchu, Taiwan*

O7-13. **Interferometric Properties in Standing Spin Wave Resonance of $Co_{90}Fe_{10}$ and the Application as an Integrated Phase Comparator.** *X. Ya*[1], K. Kurihara[1], T. Tanaka[1] and K. Matsuyama[1] *1. ISEE, Kyushu University, Fukuoka, Japan*

O7-14. **Compressed Sensing for Time- and Space-Resolved Spin-Wave Propagation.** *R. Kainuma*[1], K. Matsumoto[1,2] and T. Satoh[1] *1. Department of Physics, Tokyo Institute of Technology, Meguro-ku, Japan; 2. Department of Physics, Kyushu University, Fukuoka, Japan*

O7-15. **Modification of Magnon Threshold and Characteristics Using a Secondary Signal and Phase Noise.** *A. Venugopal*[1] and R. Victora[1] *1. Department of Electrical Engineering and Computer Science, University of Minnesota, Minneapolis, MN, United States*

O7-16. **Sub-GHz Resonant Magnetoelastic Coupling in Epitaxial Fe Thin Films.** J. Duquesne[1], *P. Rovillain*[1], C. Hepburn[1], M. Eddrief[1], P. Atkinson[1], A. Anane[2] and M. Marangolo[1] *1. Institut des NanoSciences de Paris, Sorbonne Université, CNRS, UMR7588, F-75005 Paris, France, Paris, France; 2. Unité Mixte de Physique CNRS, Thales, Université Paris-Saclay, F-91767 Palaiseau, France, Palaiseau, France*

FRIDAY MORNING 6:30

LIVE Q&A 16

Session P1
BIOMEDICAL APPLICATIONS III - IMAGING AND DIAGNOSTIC SENSING

Pilar Marin, Co-Chair
Universidad Complutense de Madrid, Madrid, Spain
Jonathan Leliaert, Co-Chair
Ghent University, Ghent, Belgium

P1-01. **Controlling Exotic Molecular Spins Toward Next-Generation MRI Probes.** ***(Invited)*** *J. Zadrozny*[1], T. Ozvat[1], A. Campanella[1], M. Broussard[1] and M. Mignard[1] *1. Chemistry, Colorado State University, Fort Collins, CO, United States*

P1-02. **Superparamagnetic Particles as MRI Temperature Contrast Agent.** J.H. Hankiewicz[1], J. Stroud[1], R. Camley[1], S.E. Russek[2], D. Lachowicz[3], A. Kmita[3], M. Gajewska[3], E. Trynkiewicz[3], R. Wirecka[3], M. Przybylski[3], G. Parigi[4] and *Z. Celinski*[1] *1. Center for BioFrontiers, Universityof Colorado, Colorado Springs, CO, United States; 2. National Institute of Standards and Technology, Boulder, CO, United States; 3. Academic Centre for Materials and Nanotechnology, AGH University of Science and Technology, Krakow, Poland; 4. University of Florence, Florence, Italy*

P1-03. **Development of Biocompatible Ferrite Particles for Magnetic Resonance Imaging.** *J. Stroud*[1], J.H. Hankiewicz[2], N. Alghamdi[1], T. Read[2], P. Bilski[3], K. Klodowski[4], J. Brown[5], M. Przybylski[6,7] and Z. Celinski[1] *1. Physics, University of Colorado at Colorado Springs, Colorado Springs, CO, United States; 2. Biofrontiers, University of Colorado at Colorado Springs, Colorado Springs, CO, United States; 3. Physics, Uniwersytet im Adama Mickiewicza w Poznaniu, Poznan, Poland; 4. Medical Physics and Biophysics, Akademia Gorniczo-Hutnicza imienia Stanislawa Staszica w Krakowie, Krakow, Poland; 5. Skaggs School of Pharmacy and Pharmaceutical Sciences, University of Colorado Denver - Anschutz Medical Campus, Aurora, CO, United States; 6. Academic Centre for Materials and Nanotechnology, Akademia Gorniczo-Hutnicza imienia Stanislawa Staszica w Krakowie, Krakow, Poland; 7. Physics and Applied Computer Science, Akademia Gorniczo-Hutnicza imienia Stanislawa Staszica w Krakowie, Krakow, Poland*

P1-04. **Signal to Noise Ratio of Single Domain Nanomagnet Amplification of Nuclear Magnetic Resonance Signals at Ambient Temperature.** *M. Rajib*[1], T. Kaisar[1], M. Barbic[2], H. ElBidweihy[3] and J. Atulasimha[1] *1. Mechanical and Nuclear Engineering Department, Virginia Commonwealth University, Richmond, VA, United States; 2. Applied Physics and Instrumentation Group, Howard Hughes Medical Institute, Janelia Research Campus, Ashburn, VA, United States; 3. Electrical and Computer Engineering, United States Naval Academy, Annapolis, MD, United States*

P1-05. **Rapid Diagnostic Tests With Magnetic Particles as Mediators for Inductive Sensing.** M. Salvador[1,2], Á. Gallo-Cordova[3], A. Moyano[1,4], J.C. Martínez-García[1], M.P. Morales[3] and *M. Rivas*[1] *1. Department of Physics, Universidad de Oviedo, Gijon, Spain; 2. Istituto di Struttura della Materia - Consiglio Nazionale delle Ricerche (CNR, Rome, Italy; 3. Instituto de Ciencia de Materiales de Madrid, Madrid, Spain; 4. Department of Physical and Analyticl Chemistry, University of Oviedo, Gijon, Spain*

P1-06. **Real-Time Tracking of Coronavirus Progress Using Magnetic Sensing and Machine Learning.** *K. Hwang*[1], V. Ortiz Jimenez[1], Y. Pham[1], B. Muchharla[1], O. Thiabgoh[1], T. Eggers[1] and M. Phan[1] *1. University of South Florida, Tampa, FL, United States*

P1-07. **Issues of Magnetic Particle Transport Over Patterned Magnetic Thin Film Systems for lab-on-Chips.** ***(Invited)*** *A. Ehresmann*[1,2] *1. Faculty of Mathematics and Sciences, Institute of Physics, University of Kassel, Kassel, Germany; 2. Center for Interdisciplinary Nanostructure Science and Technology (CINSaT), University of Kassel, Kassel, Germany*

P1-08. **Quantitative Demultiplexing Magnetically Enriched Biological Tissues.** *M. Zamani Kouhpanji*[1] and B. Stadler[1] *1. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States*

P1-09. **Withdrawn**

Session P2
MAGNETIC RECORDING VIA OPTICAL, HEAT AND MAGNETIC EXCITATION II

Simon Greaves, Chair
Tohoku University, Sendai, Japan

P2-01. **Resolving the Role of Magnetic Circular Dichroism in Multishot Helicity-Dependent all-Optical Switching.** ***(Invited)*** *Y. Quessab*[2,1], M. Deb[2,3], J. Gorchon[2], M. Hehn[2], G. Malinowski[2] and S. Mangin[2] *1. Department of Physics, New York University, New York, NY, United States; 2. Institut Jean-Lamour, CNRS UMR 7198, Universite de Lorraine, Nancy, France; 3. Institut fur Physik und Astronomie, Universitat Potsdam, Potsdam, Germany*

P2-02. **Templated Growth of $L1_0$-FePt for HAMR Media.** *B. Zhou*[2,1], C. Xu[2,1], B. Varaprasad[2,3], D.E. Laughlin[2,1] and J. Zhu[2,3] *1. Materials Science and Engineering, Carnegie Mellon University, Pittsburgh, PA, United States; 2. The Data Storage Systems Center, Carnegie Mellon University, Pittsburgh, PA, United States; 3. Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA, United States*

P2-03. **Analysis of Adjacent Track Erasure for the HAMR Media.** *N.A. Natekar*[1] and R. Victora[1] *1. Electrical Engineering, University of Minnesota, Minneapolis, MN, United States*

P2-04. **Rotated Read Head for High Density Heat-Assisted Shingled Magnetic Recording.** *W. Hsu*[1] and R. Victora[1] *1. Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States*

P2-05. **Models of Advanced Recording Systems (MARS) - a Multi-Timescale Micromagnetic Code for Granular Film Simulations.** *S.E. Rannala*[1], A. Meo[2], S. Ruta[1], R. Chantrell[1], P. Chureemart[2] and J. Chureemart[2] *1. Physics, University of York, York, United Kingdom; 2. Physics, Mahasarakham University, Mahasarakham, Thailand*

P2-06. **Hypersonic Heat-Induced Flows of Magnons Induced by Femtosecond Laser Pulses.** *S. Ruta*[1], Z. Fu[1,2], T. Ostler[3], A. Kimel[4] and R. Chantrell[1] *1. University of York, York, United Kingdom; 2. Tongji University, Shanghai, China; 3. Sheffield Hallam University, Sheffield, United Kingdom; 4. Radboud Universiteit, Nijmegen, Netherlands*

P2-07. **Energy Barrier Calculations in Multispin Systems for Magnetic Recording Purposes.** *P.I. Gavriloaea*[1], S. Ruta[1] and R. Chantrell[1] *1. Department of Physics, University of York, York, United Kingdom*

P2-08. **Tuneable, Perpendicular Synthetic Ferrimagnets With Negative Remanence.** *J.N. Scott*[1], W. Hendren[1], R. Bowman[1], R. Hicken[2], M. Dabrowski[2], D. Burn[3], A. Frisk[3] and G. van der Laan[3] *1. Queen's University Belfast, Belfast, United Kingdom; 2. University of Exeter, Exeter, United Kingdom; 3. Diamond Light Source Ltd, Didcot, United Kingdom*

P2-09. **Integration of Single-Shot all-Optical Switching Tb/Co Multilayer-Based Electrodes Within Perpendicular Magnetic Tunnel Junctions.** ***(Invited)*** L. Avilés Félix[1], A. Olivier[1], Q. Li[2], C. Davies[2,3], L. Alvaro-Gomez[1], M. Rubio-Roy[1], S. Auffret[1], A. Kirilyuk[3], A. Kimel[2], T. Rasing[2], R. Sousa[1], L. Buda-Prejbeanu[1], B. Dieny[1] and *L. Prejbeanu*[1] *1. Spintec, Univ Grenoble Alpes, CEA, CNRS, Grenoble INP, IRIG-SPINTEC, Grenoble, France; 2. Radboud University, Institute for Molecules and Materials, Nijmegen, Netherlands; 3. FELIX Laboratory, Radboud University, Nijmegen, Netherlands*

P2-10. **Layer-Selective Magnetization Reversal and Optical Switching in Ni_3Pt/Ir/Co Synthetic Ferrimagnets.** *M. Dabrowski*[1], J.N. Scott[2], W. Hendren[2], A. Frisk[3], D. Burn[3], D. Newman[1], C. Klewe[4], A.T. N'Diaye[4], P. Shafer[4], P.S. Keatley[1], T. Hesjedal[5], G. van der Laan[3], R. Bowman[2] and R. Hicken[1] *1. Department of Physics and Astronomy, University of Exeter, Exeter, United Kingdom; 2. School of Mathematics and Physics, Queen's University Belfast, Belfast, United Kingdom; 3. Magnetic Spectroscopy Group, Diamond Light Source Ltd, Didcot, United Kingdom; 4. Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 5. Department of Physics, University of Oxford, Oxford, United Kingdom*

P2-11. **Chemical Order-Disorder Transitions in Intermetallic Alloys for High-Density Magnetic Recording.** *N.I. Polushkin*[1], T.B. Moeller[2], S.A. Bunyaev[3], A.V. Bondarenko[3], M. He[4], M.V. Shugaev[4], J. Boneberg[2] and G.N. Kakazei[3] *1. Institut fiziki mikrostruktur Rossijskoj akademii nauk, Niznij Novgorod, Russian Federation; 2. Physics, Universitat Konstanz, Konstanz, Germany; 3. Institute of Physics for Advanced Materials, Nanotechnology and Photonics (IFIMUP)/ Departamento de Física e Astronomia, Universidade do Porto, Porto, Portugal; 4. Materials Science and Engineering, University of Virginia, Charlottesville, VA, United States*

FRIDAY MORNING 6:30

LIVE Q&A 16

Session P3
MICROMAGNETIC MODELLING II

Ali Ghoreyshi, Chair
Seagate Technology, Sain Louis Park, MN, United States

P3-01. **Macromagnetic Simulations by Micromagnetic Superposition.** ***(Invited)*** *H. Oezelt*[1], M. Gusenbauer[1], P. Zhao[2], T.G. Woodcock[2] and T. Schrefl[1] *1. Department for Integrated Sensor Systems, Danube University Krems, Wr. Neustadt, Austria; 2. Institute for Metallic Materials, IFW Dresden, Dresden, Germany*

P3-02. **High Order Methods for Computing the Demagnetization Tensor for Periodic Boundaries.** *M.J. Donahue*[1] and D.G. Porter[1] *1. Information Technology Laboratory, National Institute of Standards and Technology, Gaithersburg, MD, United States*

P3-03. **Micromagnetic Exchange Field Calculations for Unstructured Meshes.** *E.B. Poulsen*[1], A.R. Insinga[1] and R. Bjørk[1] *1. Department of Energy Conversion and Storage, Technical University of Denmark (DTU), Kgs. Lyngby, Denmark*

P3-04. **Coarse-Graining in Micromagnetic Simulations of Dynamic Hysteresis Loops.** *R. Behbahani*[1,2], M.L. Plumer[1] and I. Saika-Voivod[1,2] *1. Physics and Physical Oceanography, Memorial University of Newfoundland, St. John's, NL, Canada; 2. Applied Mathematics, Western University, London, ON, Canada*

P3-05. **High-Performance Micromagnetics on GPUs for Batched Simulations.** *X. Wang*[1] and V. Lomakin[1] *1. University of California San Diego, La Jolla, CA, United States*

P3-06. **Introducing Flatspin: Enabling Large Scale Dynamical Artificial Spin Ice Simulations.** J.H. Jensen[1], *A. Strømberg*[2], O. Lykkebø[1], A. Penty[1], M. Själander[1], E. Folven[2] and G. Tufte[1] *1. Department of Computer Science, Norges teknisk-naturvitenskapelige universitet, Trondheim, Norway; 2. Department of Electronic Systems, Norges teknisk-naturvitenskapelige universitet, Trondheim, Norway*

P3-07. **Magnetic Barkhausen Noise: a Simulation Tool.** *P. Fagan*[1,2], B. Ducharne[2], L. DANIEL[3] and A. SKARLATOS[1] *1. CEA – DISC, CEA-LIST, CEA Saclay DIGITEO LABS, Gif-sur-yvette, France; 2. Institut National des Sciences Appliquees de Lyon, Villeurbanne, France; 3. Université Paris-Saclay, CentraleSupélec, CNRS, Group of Electrical Engineering-Paris (GeePs), Gif-sur-yvette, France*

P3-08. **Thermal Activation Barriers for Creation and Annihilation of Magnetic Droplet Solitons in the Presence of Spin Transfer Torque.** *G.D. Chaves*[1] and D.L. Stein[2,3] *1. Department of Thin Films, Polska Akademia Nauk Instytut Fizyki Molekularnej, Poznan, Poland; 2. Department of Physics and Courant Institute of Mathematical Sciences, New York University, New York, NY, United States; 3. Santa Fe Institute, Santa Fe, NM, United States*

P3-09. **Theoretical Study of Current Induced Domain Wall Motion in Magnetic Nanotubes With Azimuthal Magnetization.** *J. Hurst*[1], A. De Riz[1], O. Fruchart[1], J. Toussaint[2] and D. Gusakova[1] *1. Univ. Grenoble Alpes, CNRS, CEA, Grenoble INP**, Spintec, F-38000, Grenoble, France, Grenoble, France; 2. Univ. Grenoble Alpes, CNRS, Institut NEEL, Grenoble, France*

P3-10. **Exchange Explosions of Topological Edge Defects in a Square Micromagnet.** *S. Slöetjes*[1], E. Folven[2] and J.K. Grepstad[2] *1. Physics and Astronomy, Uppsala Universitet, Uppsala, Sweden; 2. Department of Electronic Systems, Norges teknisk-naturvitenskapelige universitet, Trondheim, Norway*

P3-11. **Exploring Coercivity as a Function of Boundary Conditions in Simulated Nanochessboard Colonies: Free Surface, Semi-Infinite Single Crystal, and Intra-Colony Conditions.** *A. Savovici*[1], Y. Jin[2], W.A. Soffa[1] and J.A. Floro[1] *1. Materials Science Department, University of Virginia, Charlottesville, VA, United States; 2. Materials Science Department, Michigan Technological University, Houghton, MI, United States*

P3-12. **Magnetization Reversal of FePt Thin Films: Experiments and Simulations.** *A. Román*[1], J. Gómez[2], A. Butera[2], K. Bouzehouane[3,4], C. García[5] and L. Steren[1] *1. Laboratorio de Nanoestructuras Magnéticas y Dispositivos, Instituto de Nanociencia y Nanotecnologia CNEA-CONICET, San Martin, Argentina; 2. Centro Atomico Bariloche, Bariloche, Argentina; 3. Unité Mixte de Physique CNRS/Thales, Palaiseau, France; 4. Univ. Paris-Sud/Université Paris-Saclay, Palaiseau, France; 5. Universidad Técnica Federico Santa María, Departamento de Física & Centro Científico Tecnológico de Valparaíso-CCTVal, Valparaiso, Chile*

FRIDAY MORNING 6:30

LIVE Q&A 16

Session P4
ANTIFERROMAGNETIC SPINTRONICS IV (Poster Session)

Romain Lebrun, Chair
Unité Mixte de Physique CNRS/Thales, Palaiseau, France

P4-01. **Withdrawn**

P4-02. **Withdrawn**

P4-03. **Spatial Oscillations of the Spin Transfer Torque in Ferrimagnetic MTJs From First Principles.** *M.T. Stamenova*[1], P.S. Stamenov[1], Q. Sun[2], N. Kioussis[2] and S. Sanvito[1] *1. School of Physics and CRANN, University of Dublin Trinity College, Dublin, Ireland; 2. W. M. Keck Computational Materials Theory Center, California State University, Northridge, Northridge, CA, United States*

P4-04. **Withdrawn**

P4-05. **Sputtering Growth of Non-Collinear Antiferromagnetic Mn_3Sn Thin Films.** *V. Kalappattil*[1], G. Street[1] and M. Wu[1] *1. Department of Physics, Colorado State University, Fort Collins, CO, United States*

P4-06. **Electrical Switching of Hall Resistance in Noncollinear Antiferromagnetic Antiperovskite Nitrides.** *K. Matsuura*[1], T. Hajiri[1], K. Sonoda[1], S. Ishino[1] and H. Asano[1] *1. Nagoya Daigaku, Nagoya, Japan*

P4-07. **Quantifying Current-Induced Torques Leading to Néel Vector Switching in CoO/Pt Bilayers.** L. Baldrati[1], *C. Schmitt*[1], O. Gomonay[1], R. Lebrun[1], R. Ramos[2], E. Saitoh[2,3], J. Sinova[1,4] and M. Klaui[1,5] *1. Johannes Gutenberg Universitat Mainz, Mainz, Germany; 2. Tohoku Daigaku, Sendai, Japan; 3. Tokyo Daigaku, Bunkyo-ku, Japan; 4. Akademie ved Ceske republiky, Praha, Czechia; 5. Johannes Gutenberg University Mainz Graduate School of Excellence Materials Science in Mainz, Mainz, Germany*

P4-08. **Antiferromagnetic Moments Switching Induced by a Topological Insulator.** *X. Chen*[1], C. Song[1], X. Kou[2] and F. Pan[1] *1. Tsinghua University, Beijing, China; 2. Shanghai Tech University, Shanghai, China*

P4-09. **Magnon Landau Levels and Topological Spin Responses in Antiferromagnets.** A.A. Kovalev[1] and *B. Li*[1] *1. University of Nebraska-Lincoln, Lincoln, NE, United States*

P4-10. **Withdrawn**

P4-11. **Spin-Transfer Torque Oscillator Based on Composite Synthetic Antiferromagnets.** *I. Volvach*[1], A.D. Kent[3], E. Fullerton[4] and V. Lomakin[2] *1. Material Science and Engineering, University of California San Diego, La Jolla, CA, United States; 2. Electrical & Computer Engineering, University of California San Diego, La Jolla, CA, United States; 3. Department of Physics, New York University, New York, NY, United States; 4. Center for Memory and Recording Research, University of California San Diego, La Jolla, CA, United States*

P4-12. **Current Induced out-of-Plane Spin Accumulation on $IrMn_3$(001) Antiferromagnet.** Y. Liu[1], Y. Liu[1], P. He[1], K. Teo[1], T. Phung[2], S. Yang[2] and *H. Yang*[1] *1. National University of Singapore, Singapore, Singapore; 2. IBM Research - Almaden, San Jose, CA, United States*

P4-13. **Spin Transport Experiments in the Easy-Plane Phase of the Antiferromagnetic Insulator Hematite.** *T. Wimmer*[1,2], J. Gueckelhorn[1,2], M. Opel[1], S. Geprägs[1], H. Huebl[1,2], R. Gross[1,2] and M. Althammer[1,2] *1. Magnetism and Spintronics Group, Walther-Meissner-Institut, Garching, Germany; 2. Physik Department, Technische Universität München, Garching, Germany*

P4-14. **Withdrawn**

Session P5
MULTIFERROIC MATERIALS AND HETERO-STRUCTURES II (Poster Session)

Ales Hrabec, Chair
ETH Zurich, Villigen, Switzerland

P5-01. **Application of Bayesian Optimization to Ferroic Materials Development.** *A.R. Will-Cole*[2], A.G. Kusne[1], P. Tonner[1], X. Liang[2], C. Dong[2], Y. Wei[2], H. Chen[2] and N.X. Sun[2] *1. National Institute of Standards and Technology, Gaithersburg, MD, United States; 2. Electrical Engineering, Northeastern University, Boston, MA, United States*

P5-02. **Free Layer Magnetic Anisotropy Control in the Multiferroic Tunnel Junction: a Computational Study on Materials Interfaces.** *A.P. Chen*[1,2], W. Lin[2], J. Chen[2] and Y.P. Feng[2] *1. Case Western Reserve University, Cleveland, OH, United States; 2. National University of Singapore, Singapore, Singapore*

P5-03. **New Optical Approach for Development of Straintronics.** *A. Telegin*[1], V.A. Bessonova[1], Y.P. Sukhorukov[1] and A.P. Nossov[1] *1. magnetic semiconductors, M.N. Miheev Institute of Metal Physics UB of RAS, Yekaterinburg, Russian Federation*

P5-04. **Magnetic Structure at Perovskite/Antiperovskite Interface.** *J. Zemen*[1] and O. Heczko[2,1] *1. Faculty of Electrical Engineering, Czech Technical University in Prague, Praha, Czechia; 2. Magnetic Measurement and Materials, Institute of Physics CAS, Prague, Czechia*

P5-05. **The Role of Electroacoustic Magnons in Enhancing Magnetoelectric Responses.** *S. Sayedaghaee*[1,2], C. Paillard[3], S. Prosandeev[1], B. Xu[4] and L. Bellaiche[1] *1. Physics Department and Institute for Nanoscience and Engineering, University of Arkansas Fayetteville, Fayetteville, AR, United States; 2. Microelectronics-Photonics Program, University of Arkansas Fayetteville, Fayetteville, AR, United States; 3. CentraleSupélec, Structures Proprietes et Modelisation des Solides, Gif-sur-Yvette, France; 4. School of Physical Science and Technology, Soochow University, Suzhou, China*

P5-06. **Magnetoelectric Coupling and Decoupling in Multiferroic Hexagonal $YbFeO_3$ Thin Films.** *X. Li*[1], Y. Yun[1] and X. Xu[1,2] *1. Department of Physics and Astronomy, University of Nebraska, Lincoln, Lincoln, NE, United States; 2. Nebraska Center for Materials and Nanoscience, University of Nebraska, Lincoln, Lincoln, NE, United States*

P5-07. **Microscopic Theory of Spin Driven Electric Polarization in Lacunar Spinels GaV_4S_8 and $GaMo_4S_8$.** *S.A. Nikolaev*[1] and I. Solovyev[2] *1. Tokyo Kogyo Daigaku, Meguro-ku, Japan; 2. Busshitsu Zairyo Kenkyu Kiko Kokusai Nanoarchitectonics Kenkyu Kyoten, Tsukuba, Japan*

P5-08. **Withdrawn**

P5-09. **Morphotropic $BiFeO_3$-$PbTiO_3$: Effect of La^{3+} Substitution.** *R. Payyadi Porayil*[1], A. Swain[1], V. Subramanian[1] and M. Rao[1] *1. Indian Institute of Technology, Madras, Chennai, India*

P5-10. **Jahn-Teller Distortions in $(Co_{1-x}Cu_x)Cr_2O_4$ (x = 0.5, 0.25) Nanoparticles: Structural, Magnetic and Electronic Properties.** *P. Mohanty*[1], C. Sheppard[1], B. Doyle[1], E. Carleschi[1] and A. Prinsloo[1] *1. Physics, University of Johannesburg, Auckland Park, South Africa*

P5-11. **Materials Characterization and Multiferroic Properties Optimization of Magnetoelectric Composites Based on Sintered Cobalt Ferrite/Barium Titanate Nanoparticles.** *F. Safi Samghabadi*[1], M. Khodadadi[1,2], L. Chang[3,2] and D. Litvinov[3,1] *1. Materials Science and Engineering, University of Houston, Houston, TX, United States; 2. Center for Integrated Bio and Nano Systems, University of Houston, Houston, TX, United States; 3. Electrical and Computer Engineering, University of Houston, Houston, TX, United States*

P5-12. **Study of Ferromagnetic Resonance of Micro and Nano Size Barium Ferrite Powders.** W. Quan[1] and *M.N. Afsar*[1] *1. Tufts University, Medford, MA, United States*

P5-13. **Withdrawn**

P5-14. **Controlling Magnetic Properties of Epitaxial Nanocomposite Thin Films Through Ionic Liquid Gating.** S. Ning[1], *E. Cho*[1] and C. Ross[1] *1. Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, United States*

FRIDAY MORNING 6:30

LIVE Q&A 16

Session P6
SPIN HALL AND RELATED EFFECTS II (Poster Session)

Shu Zhang, Co-Chair
University of California, Los Angeles, Los Angeles, CA, United States
Tao Zhu, Co-Chair
Institute of Physics, Chinese Academy of Sciences, Beijing, China

P6-01. **Large Field Like Torque in Amorphous Ru2Sn3 Originated From Intrinsic Spin Hall Effect.** *T. Peterson*[1], M. DC[2], Y. Fan[1], J. Chen[1], D. Zhang[1], H. Li[1], P. Swatek[1] and J. Wang[1] *1. University of Minnesota, Minneapolis, MN, United States; 2. Stanford University, Stanford, CA, United States*

P6-02. **Spin Pumping and Anti-Damping in Trilayer Structures.** *P. Gupta*[1], A. Kumar[1], K. Khan[1], N. Chowdhury[1] and P.K. Muduli[1] *1. Department of Physics, Indian Institute of Technology Delhi, New Delhi, India*

P6-03. **Unusual Electronic Transport Properties of Sputter-Deposited $Co_{25}Fe_{75}$ /Pt Based Heterostructured Thin Film Sample.** *H. Saren*[1], Y. Kumar[1], A. Deka[2], Y. Fukuma[2], H. Asada[3] and P. Das[1] *1. Physics, Indian Institute of Technology Delhi, New Delhi, India; 2. Computer Science and Electronics, Kyushu Institute of Technology, Iizuka, Japan, Iizuka, Japan; 3. Graduate School of Science and Engineering, Yamaguchi University, Ube, Japan*

P6-04. **Angle Dependent Magnetoresistance in EuO_{1-x} Thin Films.** *N. Shrestha*[1] and J. Tang[1] *1. Department of Physics and Astronomy, University of Wyoming, Laramie, WY, United States*

P6-05. **Withdrawn**

P6-06. **Spin-Orbit Torque Induced Switching in CoFeB and β-W Bilayer With a 1 nm Ta Insert Layer.** *S. Allen*[2], A.J. Narasimham[1], M. Zhu[3], A. Diebold[3], V.P. LaBella[3] and P. Dhagat[2] *1. College of Nanoscale Science and Engineering, State University of New York, Albany, NY, United States; 2. Electrical Engineering, Oregon State University, Corvallis, OR, United States; 3. SUNY PI, State University of New York, Albany, NY, United States*

P6-07. **Study of Magnetic Field Dependence of Hall Effect in FeB and FeCoB Nanomagnets. an Evidence of Contribution of Inverse Spin Hall Effect.** *V. Zayets*[1] and A.S. Mishchenko[2] *1. Research Institute for Advanced Electronics and Photonics, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan; 2. Center for Emergent Matter Science, RIKEN, Wako, Japan*

P6-08. **Enhancements of the Spin Seebeck Effect Owing to the Bismuth-Substitution in Thermoelectric Generators Comprising an LPE Bi-Substituted YIG Film.** *M. Imamura*[1], H. Asada[2], D. Tashima[1] and J. Kitagawa[1] *1. Fukuoka Inst. of Tech., Fukuoka, Japan; 2. Yamaguchi Univ., Ube, Japan*

P6-09. **Spin Transport Property in Thermally-Evaporated Pigment-Red Films by Using a Dynamical Spin Injection Method.** K. Nishida[1], Y. Teki[1] and *E. Shikoh*[1] *1. Osaka City University, Osaka, Japan*

P6-10. **Spin Injection Into Vanadium Dioxide Films From a Typical Ferromagnetic Metal, Across the Metal-Insulator Transition of the Vanadium Dioxide Films.** *K. Tamura*[1], T. Kanki[2], S. Shirai[1], H. Tanaka[2], Y. Teki[1] and E. Shikoh[1] *1. Osaka City University, Osaka, Japan; 2. Osaka University, Osaka, Japan*

P6-11. **Flat and Highly (100) Texture of MgO Tunnel Barrier and W/Hf Thickness Ratio Dependence in MgO/CoFeB/(W/Hf)-Multilayer Large Spin Hall Effect Electrode System.** *Y. Saito*[1], N. Tezuka[2], S. Ikeda[1] and T. Endoh[1] *1. Center for Innovative Integrated Electronic Systems, Tohoku University, Sendai, Japan; 2. Department of Materials Science, Graduate School of Engineering, Tohoku University, Sendai, Japan*

P6-12. **Influence of Ferromagnetic-Layer Thickness on Dynamical Spin Injection.** *S. Obinata*[1], K. Miyazaki[1], K. Ohnishi[1] and T. Kimura[1] *1. Dept of Physics, Kyushu University, Fukuoka, Japan*

P6-13. **Optical Method of Determining Spin Diffusion Length of Ferromagnetic Metals.** *K. Ko*[1] and G. Choi[1,2] *1. Department of Energy Science, Sungkyunkwan University, Suwon, The Republic of Korea; 2. Center for Integrated Nanostructure Physics, Institute for Basic Science (IBS), Suwon, The Republic of Korea*

P6-14. **Voltage Control of Magnetic Proximity Effect and Anomalous Hall Effect in $CoFe_2O_4$/Pt Bilayer by Ionic Liquid Gating.** *S. Nodo*[1], S. Ono[2], T. Yanase[3], T. Shimada[3] and T. Nagahama[3] *1. Hokkaido University, Graduate School of Chemical Sciences and Engineering, Sapporo, Japan; 2. Central Research Institute of Electric Power Industry, Yokosuka, Japan; 3. Hokkaido University, Graduate School of Engineering, Sapporo, Japan*

P6-15. **Effects of a Molecular Interfaces on the Spin Hall Magnetoresistance for YIG/Pt and YIG/Ta.** *S. Alotibi*[1] *1. University of Leeds, Leeds, United Kingdom*

P6-16. **Negative Spin Hall Angle and Large Spin-Charge Conversion in Thermally-Evaporated Chromium Thin Films.** *S.M. Bleser*[1], R.W. Greening[1], M. Roos[1], X. Fan[1] and B.L. Zink[1] *1. Physics and Astronomy, University of Denver, Denver, CO, United States*

Session S8
NOVEL APPROACHES TO THE EXCITATION AND CONTROL OF NANO-SCALE PROPAGATING SPIN WAVES

Johan Åkerman, Chair
University of Gothenburg, Göteborg, Sweden

9:00

S8-01. **Control of Nonlinear Damping and Excitation of Spin Waves by Spin-Orbit Torque in Systems With Perpendicular Magnetic Anisotropy.** ***(Invited)*** *V.E. Demidov*[1], B. Divinskiy[1], M. Evelt[1], S. Demokritov[1], S. Urazhdin[2], L. Soumah[3], V. Cros[3], j. ben youssef[4], G. de loubens[5], O. Klein[6], B. Paolo[3] and A. Anane[3] *1. Westfalische Wilhelms-Universitat Munster, Munster, Germany; 2. Emory University, Atlanta, GA, United States; 3. Unite Mixte CNRS/Thales, Palaiseau, France; 4. Universite de Bretagne Occidentale, Brest, France; 5. SPEC, CEA-Saclay, CNRS, Université Paris-Saclay, Gif-sur-Yvette, France; 6. SPINTEC, CEA-Grenoble, CNRS and Université Grenoble Alpes, Grenoble, France*

9:36

S8-02. **Robust Voltage-Control of Damping, Threshold Current, and Frequency in Spin Hall Nano-Oscillators.** ***(Invited)*** *H. Fulara*[1], M. Zahedinejad[1], R. Khymyn[1], M. Dvornik[1], S. Fukami[2], S. Kanai[2], H. Ohno[2] and J. Åkerman[1] *1. Physics, University of Gothenburg, Gothenburg, Sweden; 2. Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication, Tohoku University, Sendai, Japan*

10:12

S8-03. **Spin-Wave Data Processing in YIG Nanostructures.** ***(Invited)*** *A. Chumak*[1] *1. Faculty of Physics, University of Vienna, Vienna, Austria*

10:48

S8-04. **Magnetic Excitations in a two-Dimensional Honeycomb Magnet CrI_3.** ***(Invited)*** *L. Zhao*[1] *1. Physics, University of Michigan, Ann Arbor, MI, United States*

11:24

S8-05. **Spin Textures as Coherent Excitation Sources for Ultrashort Spin Waves.** ***(Invited)*** *S. Wintz*[1,2] *1. Max-Planck-Institut für Intelligente Systeme, Stuttgart, Germany; 2. Paul Scherrer Institut, Villigen PSI, Switzerland*

FRIDAY
MORNING
12:00

LIVE Q&A 17

Session Q1
HARD MAGNETIC MATERIALS: RARE-EARTH-FREE

Jeotikanta Mohapatra, Chair
University of Texas at Arlington, Arlington, TX, United States

Q1-01. **First-Principles Investigation of the Impact of Chemical Order on the Magneto-Crystalline Anisotropy in $L1_0$ FeNi (Tetrataenite).** *A. Izardar*[1] and C. Ederer[1] *1. Eidgenossische Technische Hochschule Zurich, Zurich, Switzerland*

Q1-02. **Extrusion Based 3D Printing of Partially Transformed $Fe_{16}N_2$/Fe Flakes Into Permanent Magnet.** *O. Zirhli*[1], N. Gunduz Akdogan[2], Y.N. Odeh[3], I. Misirlioglu[1], E. Devlin[4] and O. Akdogan[5] *1. Materials Science and Nano Engineering, Sabanci Universitesi, Istanbul, Turkey; 2. Ship Construction, Piri Reis Universitesi, Istanbul, Turkey; 3. Faculty of Engineering and Natural Sciences, Bahcesehir Universitesi, Istanbul, Turkey; 4. Institute of Nanoscience and Nanotechnology, Ethniko Kentro Ereunas Physikon Epistemon 'Demokritos' Tomeas Epistemes Ylikon, Athens, Greece; 5. Mechatronics Engineering, Bahcesehir Universitesi, Istanbul, Turkey*

Q1-03. **Withdrawn**

Q1-04. **Novel Database Driven Method for Discovering New Co-Based Ferromagnets.** ***(Invited)*** *J.K. Byland*[1], S. Ding[1], Y. Shi[1], R. Mata[1], P. Klavins[1] and V. Taufour[1] *1. Physics and Astronomy, University of California, Davis, Davis, CA, United States*

Q1-05. **Investigation of Magnetic and Electromagnetic Properties of Cobalt Substituted M-Type Barium Hexaferrite in X-Band.** *K. Rana*[1], V. Gupta[2], M. Tomar[2] and A. Thakur[1,3] *1. Innovative Science Research Society, Shimla, India; 2. Department of Physics & Astrophysics, University of Delhi, New Delhi, India; 3. Nanotechnology, Amity University Gurgaon, Gurgaon, India*

Q1-06. **Formation and Magnetic Properties of τ-MnAlC Synthesized by Spark Plasma Sintering Process.** F. Maccari[1], A. Aubert[1], *S. Ener*[1], I. Radulov[1], K. Skokov[1] and O. Gutfleisch[1] *1. Technische Universitat Darmstadt Fachbereich Material- und Geowissenschaften, Darmstadt, Germany*

Q1-07. **Recent Progress in the Development of MnAl-C Magnets.** *T.G. Woodcock*[1] *1. Leibniz IFW Dresden, Dresden, Germany*

Q1-08. **Rare-Earth-Free MnAl-C-Ni Permanent Magnets With State-of-the-Art Properties, Produced by Extrusion of Milled Powder.** *L. Feng*[1,2], J. Freudenberger[1,3], T. Mix[1], K. Nielsch[1,2] and T.G. Woodcock[1] *1. Leibniz IFW Dresden, Dresden, Germany; 2. Institute of Materials Science, Technische Universitat Dresden, Dresden, Germany; 3. Institute of Materials Science, Technische Universitat Bergakademie Freiberg, Freiberg, Germany*

Q1-09. **Novel Ferrite Materials Possessing Record Magnetic Hardness.** *E. Gorbachev*[4,2], L.A. Trusov[1], A.E. Sleptsova[4], E.S. Kozlyakova[3], L.N. Alyabyeva[5], M.A. Karpov[1], B.P. Gorshunov[5], A.S. Prokhorov[5,6] and P.E. Kazin[1] *1. Department of Chemistry, Moskovskij gosudarstvennyj universitet imeni M V Lomonosova, Moscow, Russian Federation; 2. Energy Storage, Skolkovskij institut nauki i tehnologij, Skolkovo, Russian Federation; 3. Department of Physics, Moskovskij gosudarstvennyj universitet imeni M V Lomonosova, Moscow, Russian Federation; 4. Department of Materials Science, Moskovskij gosudarstvennyj universitet imeni M V Lomonosova, Moscow, Russian Federation; 5. Moskovskij fiziko-tehniceskij institut, Dolgoprudnyj, Russian Federation; 6. Institut obsej fiziki imeni A M Prohorova RAN, Moscow, Russian Federation*

Q1-10. **Modern FORC Data Analysis and Interpretation Approaches.** ***(Invited)*** J. Gräfe[1], *F. Gross*[1], J.C. Martínez-García[2], E. Goering[1] and M. Rivas[2] *1. Max-Planck-Institut fur Intelligente Systeme, Stuttgart, Germany; 2. Universidad de Oviedo, Gijon, Spain*

Q1-11. **Hard Magnetic Properties of $FeCoNiAlCu_xTi_x$ Based High Entropy Alloys.** *S. Na*[1], P.K. Lambert[1] and N.J. Jones[1] *1. Physical Metallurgy and Fire Performance Branch, Naval Surface Warfare Center, Carderock Division, West Bethesda, MD, United States*

Q1-12. **Sub-20nm Rare-Earth Free Ferrimagnetic Films Fabricated by Reactive Sputtering.** *W. Zhou*[1], T. Hartnett[2], P. Balachandran[2] and J. Poon[1] *1. Physics, University of Virginia, Charlottesville, VA, United States; 2. Material science, University of Virginia, Charlottesville, VA, United States*

FRIDAY MORNING 12:00

LIVE Q&A 17

Session Q2
MAGNETIZATION DYNAMICS AND DAMPING V: MAGNETIZATION DYNAMICS

Benjamin Ducharne, Chair
Institut National des Sciences Appliquees de Lyon, Villeurbanne, France

Q2-01. **Resonant Coupling Between Magnetic Layers by Acoustic Phonons.** *K. An*[1], R. Kohno[1], A. Litvinenko[1], v.v. naletov[1,7], L. Vila[1], G. de loubens[2], j. ben youssef[3], n. vukadinovic[4], G. Bauer[5], A.N. Slavin[6], V. Tyberkevych[6] and O. Klein[1] *1. Univ. Grenoble Alpes, CEA, CNRS, Grenoble INP, INAC-Spintec, Grenoble, France; 2. SPEC, CEA-Saclay, CNRS, Université Paris-Saclay, Gif-sur-Yvette, France; 3. LabSTICC, CNRS, Université de Bretagne Occidentale, Brest, France; 4. Dassault Aviation, Saint-Cloud, France; 5. Institute for Materials Research and WPI-AIMR and CSRN, Tohoku University, Sendai, Japan; 6. Department of Physics, Oakland University, Rochester, MI, United States; 7. Kazan Federal University Institute of Physics, Tatarstan, Kazan, Russian Federation*

Q2-02. **Parametric Amplification of Magnons in Synthetic Antiferromagnets.** *A. Kamimaki*[1,2], S. Iihama[2,3], K. Suzuki[2,3], N. Yoshinaga[4,2] and S. Mizukami[2,3] *1. Department of Applied Physics, Tohoku University, Sendai, Japan; 2. WPI-AIMR, Tohoku University, Sendai, Japan; 3. CSRN, Tohoku University, Sendai, Japan; 4. MathAM-OIL, AIST, Sendai, Japan*

Q2-03. **Latent State in Time-Resolved Nonlinear Magnon Scattering in Thin Films.** *T. Qu*[1], A. Hamill[1], A. Venugopal[1], J.J. Etheridge[1], P.A. Crowell[1] and R. Victora[1] *1. University of Minnesota, Minneapolis, MN, United States*

Q2-04. **Discrepancy Between Constraining and Effective Fields in Ab-Initio Spin Dynamics.** *S. Streib*[1], V. Borisov[1], M. Pereiro[1], A. Bergman[1], E. Sjöqvist[1], A. Delin[2,3], O. Eriksson[1,4] and D. Thonig[4,1] *1. Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden; 2. Department of Applied Physics, KTH Royal Institute of Technology, Stockholm, Sweden; 3. Swedish e-Science Research Center (SeRC), KTH Royal Institute of Technology, Stockholm, Sweden; 4. School of Science and Technology, Örebro University, Örebro, Sweden*

Q2-05. **Fractional Equation for the Anomalous Magnetic Diffusion in Ferromagnetic Materials.** *B. Ducharne*[1], Y. Tene Deffo[2], P. Tsafack[2], B. Zhang[3] and G. Sebald[4] *1. Laboratoire de Génie Electrique et Ferroélectricité – INSA de Lyon, Villeurbanne, France; 2. Faculty of Engineering and Technology, University of Buea, Buea, Cameroon; 3. Green Manufacturing R&D Laboratory, School of Mechanical, Electrical and Information Engineering, Shandong University, Weihai, China; 4. ELyTMaX UMI 3757, CNRS – Université de Lyon – Tohoku University, International Joint Unit, Tohoku University, Sendai, Japan*

Q2-06. **Withdrawn**

Q2-07. **Magnon Mediated Coherent Information Manipulation and Processing.** ***(Invited)*** *C.A. Trevillian*[1] and V. Tyberkevych[1] *1. Physics, Oakland University, Rochester, MI, United States*

Q2-08. **Spin Dynamics and Relaxation in Thin Film La0.7Sr0.3MnO3/SrTiO3: ac Magnetic Susceptibility and Magnetic Viscosity Investigations.** *N. Mottaghi*[1], M.S. Seehra[1], J. Shi[3], M. Jain[2] and M.B. Holcomb[1] *1. Physics and Astronomy, West Virginia University, Morgantown, WV, United States; 2. Institute of Materials Science & Department of Physics, University of Connecticut, Storrs, Storrs, CT, United States; 3. Department of Materials Science and Engineering, University of Connecticut, Storrs, CT, United States*

Q2-09. **Thermodynamics of Interacting Magnetic Nanoparticles.** P. Torche[1], D. Serantes[2], D. Baldomir[2], K. Livesey[3], O. Chubykalo-Fesenko[4], S. Ruta[5], R. Chantrell[5] and *O. Hovorka*[1] *1. University of Southampton, Southampton, United Kingdom; 2. University of Santiago de Compostela, Santiago de Compostela, Spain; 3. University of Colorado at Colorado Springs, Colorado Springs, CO, United States; 4. Instituto de Ciencia de Materiales de Madrid, Madrid, Spain; 5. University of York, York, United Kingdom*

Q2-10. **Disentangling Local Heat Contributions in Interacting Magnetic Nanoparticles.** C. Munoz-Menendez[1,2], *D. Serantes*[1,2], O. Chubykalo-Fesenko[3], S. Ruta[4], O. Hovorka[5], P. Nieves[6], K. Livesey[7], D. Baldomir[1,2] and R. Chantrell[4] *1. Applied Physics, Universidade de Santiago de Compostela, Santiago de Compostela, Spain; 2. Instituto de Investigacións Tecnolóxicas, Universidade de Santiago de Compostela, Santiago de Compostela, Spain; 3. Instituto de Ciencia de Materiales de Madrid, Madrid, Spain; 4. Physics, University of York, York, United Kingdom; 5. University of Southampton Faculty of Engineering and the Environment, Southampton, United Kingdom; 6. Technical University of Ostrava, Ostrava-Poruba, Czechia; 7. University of Colorado at Colorado Springs, Colorado Springs, CO, United States*

Q2-11. **Tuning the Dynamics in Fe_3O_4 Nanoparticles for Hyperthermia Optimization.** *H. Chen*[1], D. Billington[2], E. Riordan[2], J. Blomgren[3], S. Giblin[2], C. Johansson[3] and S. Majetich[1] *1. Physics, Carnegie Mellon University, Pittsburgh, PA, United States; 2. Cardiff University, Cardiff, United Kingdom; 3. RISE Research Institutes of Sweden, Göteborg, Sweden*

Session Q3
NEUROMORPHIC COMPUTING WITH SPIN-TORQUE OSCILLATORS

Danijela Marković, Chair
CNRS, University of Paris-Sud, Paris, France

Q3-01. **Dynamic Effects of Exchange Inertia in Artificial Neural Networks Based on Antiferromagnetic Oscillators.** *H. Bradley*[1] and V. Tyberkevych[1] *1. Department of Physics, Oakland University, Rochester, MI, United States*

Q3-02. **Memristive Functionality of a Thin-Film Ferromagnet/Antiferromagnet Bilayer.** *S. Ivanov*[1] and S. Urazhdin[1] *1. Department of Physics, Emory University, Atlanta, GA, United States*

Q3-03. **Ideal Memristor Based on Viscous Magnetization Dynamics Driven by Spin Torque.** *G. Chen*[1], S. Ivanov[1] and S. Urazhdin[1] *1. physics, Emory University, Atlanta, GA, United States*

Q3-04. **2D Mutually Synchronized Spin Hall Nano-Oscillator Networks for Neuromorphic Computing.** ***(Invited)*** M. Zahedinejad[1], A.A. Awad[1], S. Muralidhar[1], A. Houshang[1], R. Khymyn[1], H. Fulara[1], M. Dvornik[1] and *J. Åkerman*[1] *1. Department of Physics, University of Gothenburg, Goteborg, Sweden*

Q3-05. **Withdrawn**

Q3-06. **Radio-Frequency Synapses for Neural Networks Made of Spin-Torque Nano-Oscillators.** *N. Leroux*[1], D. Marković[1], J. Laydevant[1], M. Ernoult[1,3], J. Trastoy[1], E. Martin[1], T. Petrisor[1], L. Martins[2], A. Jenkins[2], R. Ferreira[2], D. Querlioz[3], A. Mizrahi[1] and J. Grollier[1] *1. Unite Mixte de Physique CNRS/Thales, Palaiseau, France; 2. International Iberian Nanotechnology Laboratory, Braga, Portugal; 3. Centre de Nanosciences et de Nanotechnologies, Orsay, France*

Q3-07. **Uniform Mode Spin Hall Nano-Oscillator Array Based Scalable Learning of Classification Tasks Using Different Machine Learning Datasets.** *U. Singh*[1], S. Kumar[2], N. Garg[3], P.K. Muduli[3] and D. Bhowmik[2] *1. Department of Electronics and Communication Engineering, Delhi Technological University, Delhi, India; 2. Department of Electrical Engineering, Indian Institute of Technology Delhi, New Delhi, India; 3. Department of Physics, Indian Institute of Technology Delhi, New Delhi, India*

Session Q4
SPIN CURRENTS III

Lijun Zhu, Co-Chair
Cornell University, Ithaca, NY, United States
Shilei Zhang, Co-Chair
ShanghaiTech University School of Physical Science and Technology, Shanghai, China

Q4-01. **Domain Wall Based Spin-Hall Nano-Oscillators.** ***(Invited)***
H. Schultheiss[1,2], T. Hache[1], N. Sato[1], L. Körber[1,2], N. Puwenberg[3], T. Mühl[3], A.A. Awad[4], S.S. Arekapudi[5], F.J. Gonçalves[1], O. Hellwig[1,5] and J. Fassbender[1,2] *1. Institute for Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 2. Technische Universitat Dresden Fakultat Mathematik und Naturwissenschaften, Dresden, Germany; 3. Leibniz-Institut fur Festkorper- und Werkstoffforschung Dresden eV, Dresden, Germany; 4. Department of Physics, Goteborgs universitet Naturvetenskapliga Fakulteten, Goteborg, Sweden; 5. Technische Universitat Chemnitz, Chemnitz, Germany*

Q4-02. **Role of Dirac Nodal Lines and Strain on the Spin Hall Conductivity of Epitaxial IrO_2 Thin Films.** *A. Bose*[1], J.N. Nelson[2], X.S. Zhang[1], R. Jain[2], D.G. Schlom[3], D. Ralph[2], D.A. Muller[1], K.M. Shen[2] and R. Buhrman[1] *1. AEP, Cornell University, Cornell University, Ithaca, NY, US, Ithaca, NY, United States; 2. Department of Physics, Cornell University, Cornell University, Cornell University, Ithaca, NY, US, Ithaca, NY, United States; 3. Department of Materials Science and Engineering, Cornell University, Cornell University, Ithaca, NY, US, Ithaca, NY, United States*

Q4-03. **Artificial Enhancement of the Spin Hall Angle of Ge Using the Interdiffusion of Atoms in $Co_2FeAl_{0.5}Si_{0.5}$/*n*-Ge Heterostructures.** *S. Kaneta-Takada*[1], M. Yamada[2], S. Sato[1], S. Arai[1], L. Anh[1,3], K. Hamaya[2] and S. Ohya[3,4] *1. Department of Electrical Engineering and Information Systems, The University of Tokyo, Bunkyo-ku, Japan; 2. Graduate School of Engineering Science, Osaka University, Toyonaka, Japan; 3. Institute of Engineering Innovation, The University of Tokyo, Bunkyo-ku, Japan; 4. Center for Spintronics Research Network (CSRN), The University of Tokyo, Bunkyo-ku, Japan*

Q4-04. **Agility of Spin Hall Nano-Oscillators Measured Using Time-Resolved Micro-BLS.** *F.J. Gonçalves*[1], T. Hache[1], C. McKeefry[1], O. Hellwig[1,2], J. Fassbender[1] and H. Schultheiss[1] *1. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden - Rossendorf, Dresden, Germany; 2. Physics, Technische Universitat Chemnitz, Chemnitz, Germany*

Q4-05. **Spin-Orbit Magnetic State Readout in Scaled Ferromagnetic/Heavy Metal Nanostructures.** *I. Groen*[1], V. Pham[1], S. Manipatruni[3], W. Choi[1], D. Nikonov[3], E. Sagasta[1], C. Lin[3], T. Gosavi[3], A. Marty[2], L.E. Hueso[1], I. Young[3] and F. Casanova[1] *1. Nanodevices, CIC nanoGUNE BRTA, San sebastian, Spain; 2. 2D and Semiconductor Spintronics, SPINTEC, CEA-INAC/CNRS/Univ. Grenoble, Grenoble, France; 3. Components Research, Intel Corp., Hillsboro, OR, United States*

Q4-06. **Spin Hall Angle Control by Doping Element Into Pt Host.** H. Li[1], *H. Yuasa*[1], T. Yamauchi[1] and Y. Kurokawa[1] *1. Faculty of information Science and Electrical Engineering, Kyushu University, Fukuoka, Japan*

Q4-07. **Current-Induced Switching From the Spin Hall Effect of BiTe.** *T. Chen*[1], C. Peng[1], H. Yen[1] and C. Pai[1] *1. National Taiwan University, Taipei, Taiwan*

Q4-08. **Large Improvement on Spin-Orbit Torque Switching Efficiency in Pt-Cu Alloy.** *C. Hu*[1] and C. Pai[1] *1. Materials Science and Engineering, National Taiwan University, Taipei, Taiwan*

Q4-09. **Manipulation of Coupling and Magnon Transport in Magnetic Metal-Insulator Hybrid Structures.** *Y. Fan*[1], P. Quarterman[2], J. Finley[1], J. Han[1], P. Zhang[1], J.T. Hou[1], M.D. Stiles[3], A.J. Grutter[2] and L. Liu[1] *1. EECS, Massachusetts Institute of Technology, Cambridge, MA, United States; 2. NIST Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD, United States; 3. Physical Measurement Laboratory, National Institute of Standards and Technology, Gaithersburg, MD, United States*

Q4-10. **Spintronic GdFe/Pt THz Emitters.** *R. Schneider*[1], M. Fix[2], J. Bensmann[1], S. Michaelis de Vasconcellos[1], M. Albrecht[2] and R. Bratschitsch[1] *1. Institute of Physics and Center for Nanotechnology, University of Münster, Münster, Germany; 2. Institute of Physics, University of Augsburg, Augsburg, Germany*

Q4-11. **Room-Temperature non-Volatile Ferroelectric Control of Spin Hall Effect in the Semiconductor GeTe.** S. Varotto[1], L. Nessi[1], S. Cecchi[2], J. Slawinska[3], P. Noël[5], S. Petrò[1], A. Novati[1], M. Cantoni[1], M. Costa[7], R. Calarco[8], M. Buongiorno Nardelli[3], M. Bibes[6], S. Picozzi[4], J. Attané[5], L. Vila[5], R. Bertacco[1] and *C. Rinaldi*[1] *1. Physics, Politecnico di Milano, Milano, Italy; 2. Epitaxy, Paul-Drude-Institut fur Festkorperelektronik, Berlin, Germany; 3. Physics, University of North Texas, Denton, TX, United States; 4. Consiglio Nazionale delle Ricerche - CNR-SPIN, Chieti, Italy; 5. Grenoble Alpes, CEA, CNRS Grenoble INPUniversity, Grenoble, France; 6. CNRS Thales, Thales, France; 7. Physics, Fluminense Federal University, Rio de Janeiro, Brazil; 8. Consiglio Nazionale delle Ricerche, CNR-IMM, Roma, Italy*

Session Q5
BIOMEDICAL APPLICATIONS IV
(Poster Session)

Horia Chiriac, Chair
National Institute of Research and Development for Technical Physics, Iasi, Romania

Q5-01. **Investigation of a Coupled Elasto-Magnetic Discs for Low Reynolds Number Pumps.** *E.L. Martin*[1], M.T. Bryan[2], A. Pac[1], A.D. Gilbert[1] and F. Ogrin[1] *1. The College of Engineering, Mathematics and Physical Sciences, University of Exeter, Exeter, United Kingdom; 2. Department of Electronic Engineering, University of London Royal Holloway, Egham, United Kingdom*

Q5-02. **Optimization of Transcranial Magnetic Stimulator Coil Using Stream Function for Reducing the Influence of Individual Variabilities of Head Geometry.** *S. Liu*[1], H. Yoshioka[1], A. Kuwahata[1] and M. Sekino[1] *1. Department of Electrical Engineering and Information Systems, Graduate School of Engineering, The University of Tokyo, Bunkyo-ku, Japan*

Q5-03. **Fe-Cr-Nb-B Magnetic Particles and STEM Cells, Triggers for Cancer Cells Apoptosis by Magneto-Mechanical Actuation.** *H. Chiriac*[1], A. Minuti[1,2], C. Stavila[1,2], L. Labusca[1], D. Herea[1] and N. Lupu[1] *1. Magnetic Materials and Devices, National Institute of Research and Development for Technical Physics, Iasi, Romania; 2. Faculty of Physics, "Alexandru Ioan Cuza" University, Iasi, Romania*

Q5-04. **Co/Pd-Based Synthetic Antiferromagnetic Multi-Stacks for Biomedical Applications.** *G. Varvaro*[1], S. Laureti[1], M. Hassan[1,3], D. Peddis[2,1], G. Barucca[3], P. Mengucci[3], A. Gerardino[4], E. Giovine[4], O. Lik[5] and M. Albrecht[5] *1. Institute of Structure of Matter, Consiglio Nazionale delle Ricerche, Roma, Italy; 2. DCCI, Universita degli Studi di Genova, Genova, Italy; 3. SIMAU, Universita Politecnica delle Marche, Ancona, Italy; 4. Istituto di Fotonica e Nanotecnologie, Consiglio Nazionale delle Ricerche, Roma, Italy; 5. Institute of Physics, Universitat Augsburg, Augsburg, Germany*

Q5-05. **Withdrawn**

Q5-06. **A Two-Dimensional Magnetic Gripper Robot Driven by a Triad of Electromagnetic Coils.** *H. Lee*[1], D. Yang[1], K. Lee[1] and S. Jeon[1] *1. Mechanical and Automotive Engineering, Kongju National University, Gongju, The Republic of Korea*

Q5-07. **Influence of Magnetic Nanoparticles on Cells of Ehrlich Ascites Carcinoma.** *S. Stolyar*[1,3], O. Kryukova[1], R. Yaroslavtsev[1,3] and N. Latyshev[2] *1. Krasnoyarsk Scientific Center, Krasnoyarsk, Russian Federation; 2. Siberian Federal University, Krasnoarsk, Russian Federation; 3. Kirensky Institute of Physics, Krasnoyarsk, Russian Federation*

Q5-08. **Towards Next-Generation Nerve Repair: Effects of Static Magnetic Field on Neurite Extensions.** *X. Zhang*[1], C. Mills[2], Y. Hua[2], R. Koppes[2], R. Pérez del Real[3], M. Vazquez[3], A. Koppes[2] and L. Lewis[1,2] *1. Mechanical and Industrial Engineering, Northeastern University, Boston, MA, United States; 2. Chemical Engineering, Northeastern University, Boston, MA, United States; 3. Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain*

Q5-09. **Study on the Acid-Base Balance in Blood Under Pulsed Magnetic Field Using Magnetic Beads.** *S. Bang*[1] and H. Lee[1] *1. Oriental Biomedical Engineering, Sangji University, Wonju, The Republic of Korea*

Q5-10. **Withdrawn**

Q5-11. **High Throughput Magnetic Single-Cell Sorting Using Spin Orbit Torque.** *V.M. Estrada*[1], R. Zheng[1], G. Carman[1] and A. Sepulveda[1] *1. Mechanical Engineering, University of California Los Angeles, Los Angeles, CA, United States*

Q5-12. **Portable Magnetic Particle Spectroscopy (MPS) Device for Future Rapid, One-Step and Wash-Free Bioassays.** *V.K. Chugh*[1], K. Wu[1], A. Nair[1], A. di Girolamo[1], N. Seekaew[2], L. Nguyen[2], R. Saha[1], W. Davies[3], V. D Krishna[4], D. Su[5], M. C-J. Cheeran[4] and J. Wang[1] *1. Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, United States; 2. Department of Mechanical Engineering, University of Minnesota, Minneapolis, MN, United States; 3. Department of Computer Science and Engineering, University of Minnesota, Minneapolis, MN, United States; 4. Department of Veterinary Population Medicine, University of Minnesota, Minneapolis, MN, United States; 5. Department of Chemical Engineering and Material Science, University of Minnesota, Minneapolis, MN, United States*

FRIDAY MORNING 12:00

LIVE Q&A 17

Session Q6
COMPLEX OXIDES II (Poster Session)

Suzanne te Velthuis, Chair
Argonne National Laboratory, Argonne, IL, United States

Q6-01. **Direct Observation of Double Exchange in Ferromagnetic $La_{0.7}Sr_{0.3}CoO_3$ by Broadband Ellipsometry.** *A. Dubroka*[1] *1. Condensed matter, IQVIA Spain, Brno, Czechia*

Q6-02. **Characterization of $La_xSr_{1-x}FeO_3/SrTiO_3$ Superlattices Grown by Pulsed Laser Deposition.** *M. Kiaba*[1], T. Číz[1], O. Caha[1], G. Koster[2] and A. Dubroka[1] *1. Department of Condensed Matter Physics, Masaryk University, Brno, Czechia; 2. Universiteit Twente Faculteit Technische Natuurwetenschappen, Enschede, Netherlands*

Q6-03. **Withdrawn**

Q6-04. **Magnetic Anisotropy and Spin Scattering in ($La_{2/3}Sr_{1/3}$) MnO_3/$CaRuO_3$ Bilayers.** *P.P. Balakrishnan*[1,2] and Y. Suzuki[1] *1. Geballe Laboratory for Advanced Materials, Stanford University, Stanford, CA, United States; 2. NIST Center for Neutron Research, National Institute of Standards and Technology, Gaithersburg, MD, United States*

Q6-05. **High-Frequency Magnetotransport in $La_{1-x}Sr_xMnO_3$ (x = 0.12-0.20).** U. Chaudhuri[1] and *R. Mahendiran*[1] *1. Physics, National University of Singapore, Singapore, Singapore*

Q6-06. **Magnetic and Electron Paramagnetic Resonance Studies of Charge Ordered $R_{0.5}Ca_{0.5}MnO_3$ (R = Pr, Bi) Manganites.** *A. K.N.*[1] and S. Bhat[2] *1. Physics, Dr. Ambedkar Institute of Technology, Bangalore, India; 2. Physics, Indian Institute of Science, Bangalore, India*

Q6-07. **Phases Competition in Half-Doped $La_{0.5-x}Dy_xCa_{0.5-y}Sr_yMnO_3$ Films.** *Y. Tang*[1], A. Zhang[1], X. Wu[2] and Z. Zhai[3] *1. Hohai University, Nanjing, China; 2. Nanjing University, Nanjing, China; 3. Huaiyin Normal University, Huai'an, China*

Q6-08. **Structural and Magneto Transport Properties of Ruddlesden –Propper $La_{2-2x}Sr_{2+2x}Mn_2O_7$ ($0.42 \leq x \leq 0.52$) Layered Manganites.** *A.K. Saw*[1], S. Gupta[2], V.K. Pecharsky[2] and V. Dayal[1] *1. Department of Physics, Maharaja Institute of Technology Mysore, Mandya, India; 2. Division of Materials Science and Engineering, Ames Laboratory, US Dept. of Energy, Ammes, IA, United States*

Q6-09. **Adjustment of Electromagnetic Properties in $SrRuO_3$ via Ru Content.** *Z. Zhang*[1], X. Yang[1], F. Duan[1], Y. Wang[1], T. Zhang[1], Y. Sun[1], A. Zhang[2] and X. Wu[1] *1. Department of physics, Nanjing University, Nanjing, China; 2. College of Science, Hohai University, Nanjing, China*

Q6-10. **Magnetic Anisotropy and Dzyaloshinskii-Moriya Interaction in Perovskite $SrRuO_3$/$SrTiO_3$ Oxide Heterostructues.** *Z. Li*[1], W. Mi[1] and H. Bai[1] *1. Tianjin University, Tianjin, China*

Q6-11. **Observation of Room Temperature Magnetoresistance in Graphene / $CoFe_2O_4$ Nanocomposite.** *S. Roy*[1,2], I. S.[1], F. Francis[1], V. G. V.[1] and A. Subramanian[1] *1. Centre for Nano and Soft Matter Sciences, Bangalore, India; 2. Manipal Academy of Higher Education, Manipal, India*

Q6-12. **Withdrawn**

Q6-13. **Withdrawn**

Session R1
DOMAIN WALLS

Liza Herrera Diez, Co-Chair
CNRS, University of Paris-Sud, Orsay, France
Reinoud Lavrijsen, Co-Chair
TU Eindhoven, Eindhoven, Netherlands

R1-01. **Interactions Between Spin Wave and Magnetic Domain Structures.** ***(Invited)*** *L. Liu*[1] *1. Massachusetts Institute of Technology, Cambridge, MA, United States*

R1-02. **Magnetic Domain Formation and Shift in Magnetic Nanowire Memory Element With U-Shaped Writer Observed by Magneto-Optical Kerr Microscopy.** Y. Hori[1], M. Endo[1], N. Ishii[1] and *Y. Miyamoto*[1] *1. Science & Technology Research Labs., NHK (Japan Broadcasting Corp.), Setagaya-ku, Japan*

R1-03. **Withdrawn**

R1-04. **Domain Wall Dynamics in Junctions of Bi-Ring Structures.** *G. Venkat*[1], T.J. Hayward[1], A. Strømberg[2], I.T. Vidamour[1], E. Folven[2] and D. Allwood[1] *1. Materials Science and engineering, The University of Sheffield, Sheffield, United Kingdom; 2. Electronic Systems, Norges teknisk-naturvitenskapelige universitet, Trondheim, Norway*

R1-05. **Direct Imaging of Chiral Domain Walls due to the Dzyaloshinskii-Moriya Interaction in Ferrimagnetic Alloys at Different Temperatures.** *B. Seng*[1,2], D. Schönke[1], R.M. Reeve[1,3], J. Yeste[1], N. Kerber[1,3], D. Lacour[2], F. Kammerbauer[1], J. Bello[2], M. Hehn[2], S. Mangin[2] and P. Kläui[1,3] *1. Institut für Physik, Johannes Gutenberg-Universität Mainz, 55099 Mainz, Germany; 2. Institut Jean Lamour, UMR CNRS 7198, Université de Lorraine, 54506 Vandoeuvre-lès-Nancy, France; 3. Graduate School of Excellence Materials Science in Mainz, 55128 Mainz, Germany*

R1-06. **Modelling of Magneto-Thermoelectric Response From a Domain Wall.** *E. Saugar*[4], T. Ostler[1], C. Barton[2], R. Puttock[2], P. Klapetek[3], O. Kazakova[2] and O. Chubykalo-Fesenko[4] *1. Materials and Engineering Research Institute, Sheffield Hallam University, Sheffield, United Kingdom; 2. National Physical Laboratory, Hampton Rd, Teddington, Middlesex TW11 0LW, United Kingdom; 3. Czech Metrology Institute, Okruzni 31, 638 00 Brno, Czechia; 4. Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain*

R1-07. **Surface Acoustic Wave Assisted Depinning of Magnetic Domain Walls.** *A. Adhikari*[1], E. Gilroy[2], T.J. Hayward[2] and S. Adenwalla[1] *1. Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE, United States; 2. Department of Materials Science and Engineering, University of sheffield, Sheffield S1 3JD, United Kingdom*

R1-08. **Experimental Observation and Control of Coupled Chiral Domain Walls in Synthetic Antiferromagnets Using in-Situ Lorentz Transmission Electron Microscopy.** *N. Pandey*[1], M.P. Li[1], M. De Graef[1] and V. Sokalski[1] *1. Carnegie Mellon University, Pittsburgh, PA, United States*

R1-09. **Domain Wall Tilt and Enhancement of the Walker Limit in Stripes With Dzyaloshinskii-Moriya Interaction and Perpendicular Anisotropy.** *O. Pylypovskyi*[1], V. Kravchuk[2,3], O. Volkov[1], J. Fassbender[1], D. Sheka[4] and D. Makarov[1] *1. Helmholtz-Zentrum Dresden-Rossendorf e.V., Dresden, Germany; 2. Karlsruher Institut fur Technologie, Karlsruhe, Germany; 3. Institut teoreticnoi fiziki imeni M M Bogolubova Nacional'na akademia nauk Ukraini, Kyiv, Ukraine; 4. Taras Shevchenko National University of Kyiv, Kyiv, Ukraine*

R1-10. **Chiral Magnetic Domain Walls Dynamics in Creep Regime.** *C. Nguiepe Segnou*[1], M. Belmeguenai[2], S. Eimer[1], Y. Roussigne[2], S. Cherif[2], A. Stashkevich[2], T. Devolder[1] and J. Adam[1] *1. C2N, Paris-Saclay University, Palaiseau, France; 2. Universite Sorbonne Paris Nord Institut Galilee, Villetaneuse, France*

R1-11. **Current Induced Domain Wall Motion at the Magnetic Compensation Point in Manganese Nickel Nitride (MnNiN) Thin Films.** *S. Ghosh*[1,2], T. Komori[2], A. Hallal[1], T. Hirose[2], J. Peña Garcia[3], H. Okuno[4], J. Vogel[3], M. Chshiev[1], J. Attané[1], T. Suemasu[2], L. Vila[1] and S. Pizzini[3] *1. Grenoble Alpes University, CEA, CNRS, Grenoble INP, IRIG-Spintec, Grenoble, France; 2. University of Tsukuba, Graduate School of Pure and Applied Sciences, Tsukuba, Japan; 3. Grenoble Alpes University, CNRS, Institut Néel, Grenoble, France; 4. Grenoble Alpes University, CEA, IRIG-MEM, Grenoble, France*

R1-12. **Directional Growth of Dendritic Domains in Co/Ni/Pt Multilayers - Significance of Domain Wall Steady-State Dynamics and Dispersive Stiffness.** *J.A. Brock*[1], M.D. Kitcher[2], R. Medapalli[1], V. Sokalski[2] and E. Fullerton[1] *1. Center for Memory and Recording Research, University of California San Diego, La Jolla, CA, United States; 2. Materials Science and Engineering Department, Carnegie Mellon University, Pittsburgh, PA, United States*

R1-13. **Creating 3D Nanomagnetic Circuits for Spintronics Applications.** *F. Meng*[3], C. Donnelly[3], C. Abert[4], S. Holmes[1], Z. Xiao[2], J. Liao[3], D. Suess[4] and A. Fernandez-Pacheco[5] *1. University College London, London, United Kingdom; 2. Engineering, University of Cambridge, Cambridge, United Kingdom; 3. Physics, University of Cambridge, Cambridge, United Kingdom; 4. Physics, Universitat Wien, Wien, Austria; 5. Physics, University of Glasgow, Glasgow, United Kingdom*

Session R2
DOMAIN WALLS AND THE DZYALOSHINSKII-MORIYA INTERACTION II

Damien McGrouther, Chair
University of Glasgow, Glasgow, United Kingdom

R2-01. **Ultrafast Domain Wall Dynamics in Metallic and Insulating Ferrimagnets.** ***(Invited)*** *L. Caretta*[1,2], S. Kim[3], K. Lee[4], C. Ross[5] and G. Beach[5] *1. Materials Science and Engineering, University of California Berkeley, Berkeley, CA, United States; 2. Materials Sciences Division, E O Lawrence Berkeley National Laboratory, Berkeley, CA, United States; 3. Department of Physics and Astronomy, University of Missouri, Columbia, MO, United States; 4. Department of Materials Science and Engineering, Korea University, Seongbuk-gu, The Republic of Korea; 5. Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, United States*

R2-02. **Interface Engineering to Control the Dzyaloshinskii-Moriya Interaction in Ferrimagnetic GdCo: *ab Initio* Calculations.** *M. Morshed*[1], K. Khoo[2], Y. Quessab[3], J. Xu[3], R. Laskowski[2], P. Balachandran[4,5], A.D. Kent[3] and A.W. Ghosh[1,6] *1. Department of Electrical and Computer Engineering, University of Virginia, Charlottesville, VA, United States; 2. Institute of High Performance Computing, Agency for Science, Technology and Research, Singapore, Singapore; 3. Center for Quantum Phenomena, Department of Physics, New York University, New York, NY, United States; 4. Department of Materials Science and Engineering, University of Virginia, Charlottesville, VA, United States; 5. Department of Mechanical and Aerospace Engineering, University of Virginia, Charlottesville, VA, United States; 6. Department of Physics, University of Virginia, Charlottesville, VA, United States*

R2-03. **Tunable Magnetic Anisotropy and Dzyaloshinskii-Moriya Interaction at Cobalt/Diamond Interfaces.** *J. Jiang*[1], J. Liang[2], Q. Cui[2], Z. Wang[2], W. Mi[1] and H. Yang[2,3] *1. Tianjin University, Tianjin, China; 2. Ningbo Institute of Industrial Technology Chinese Academy of Sciences, Ningbo, China; 3. Center of Materials Science and Optoelectronics Engineering, University of Chinese Academy of Sciences, Beijing, China*

R2-04. **Withdrawn**

R2-05. **Interplay Between Spin-Orbit Torque and Dzyaloshinskii-Moriya Interactions in Thin Amorphous Ferrimagnetic Films.** *Y. Quessab*[1], J. Xu[1], N.N. Statuto[1] and A.D. Kent[1] *1. Department of Physics, New York University, New York, NY, United States*

R2-06. **Universal High-Speed Dynamics of Distorted Bubble Skyrmions in an Uncompensated Amorphous Ferrimagnet.** *K. Litzius*[1], F. Buettner[1], A. Wittmann[1], W. Zhou[2], C. Ma[2], J. Gräfe[3], N. Träger[3], S. Finizio[4], Y. Quessab[5], D. Suzuki[1], L. Caretta[1], M. Huang[1], S. Sheffels[1], S. Huang[1], H. Nembach[6], G.A. Riley[6], J. M. Shaw[6], M. Valvidares[7], P. Gargiani[7], G. Schütz[3], A.D. Kent[5], J. Poon[2] and G. Beach[1] *1. Massachusetts Institute of Technology, Cambridge, MA, United States; 2. University of Virginia, Charlottesville, VA, United States; 3. Max Planck Institute for Intelligent Systems, Stuttgart, Germany; 4. Paul Scherrer Institut, Villigen, Switzerland; 5. Department of Physics, New York University, New York, NY, United States; 6. National Institute of Standards and Technology, Gaithersburg, MD, United States; 7. ALBA Synchrotron Light Source, Barcelona, Spain*

R2-07. **MnGa/Co_2MnSi Bilayer for Spin-Orbit Torque Magnetization Switching.** *M. Yamanouchi*[1], K. Jono[2], F. Shimohashi[2] and T. Uemura[2] *1. Research Institute for Electronic Science, Hokkaido University, Sapporo, Japan; 2. Division of Electronics for Informatics, Graduate School of Information Science and Technology, Hokkaido University, Sapporo, Japan*

R2-08. **In Pursuit of the Anisotropic Dzyaloshinskii-Moriya Interaction: Structural and Magnetic Characterization of Uniaxial Pt/Co-Based C_{2V} Thin Films.** *M.D. Kitcher*[1], T. Mewes[2], C. Mewes[2], M. De Graef[1] and V. Sokalski[1] *1. Materials Science & Engineering, Carnegie Mellon University, Pittsburgh, PA, United States; 2. Physics and Astronomy, University of Alabama, Tuscaloosa, AL, United States*

R2-09. **The Effects of Disorder on Hysteresis Loops in Chiral Magnets.** *V. Nehruji*[1], M. Beg[1], H. Fangohr[1,2], T. Hesjedal[3], T. Lancaster[4], P. Hatton[4] and O. Hovorka[1] *1. University of Southampton, Southampton, United Kingdom; 2. European XFEL GmbH, Schenefeld, Germany; 3. Oxford University, Oxford, United Kingdom; 4. Durham University, Durham, United Kingdom*

R2-10. **Tuning Spin-Orbit Torques Across the Phase Transition in VO_2/NiFe Heterostructures.** *J. Kim*[1], K. Lee[1], J. Cramer[1], D. Han[2], P. Salev[3], P.N. Lapa[3], N.M. Vargas[3], I.K. Schuller[3], G. Jakob[1] and M. Klaui[1] *1. Institute of Physics, Johannes Gutenberg University, Mainz, Germany; 2. Korea Institute of Science and Technology, Seol, The Republic of Korea; 3. Department of Physics, University of California San Diego, La Jolla, CA, United States*

R2-11. **Engineering Chiral Magnetic Textures in W/Co/AuPt Thin Films.** *J. Peña Garcia*[3], L. Camosi[2], A. Fassatoui[3], S. Pizzini[3], O. Fruchart[4], A. Thiaville[1], S. Rohart[1], F. Genuzio[5], T. Onur Mentes[5], A. Locatelli[5] and J. Vogel[3] *1. Laboratoire de Physique des Solides, Orsay, France; 2. Institut Catala de Nanociencia i Nanotecnologia, Bellaterra, Spain; 3. Institut NEEL, Grenoble, France; 4. SPINtronique et Technologie des Composants, Grenoble, France; 5. Elettra Sincrotrone Trieste SCpA, Trieste, Italy*

Session R3
MRAM, MAGNETIC LOGIC, AND RELATED DEVICES

Liliana D. Buda-Prejbeanu, Co-Chair
CEA, Paris, France
Lauren Garten, Co-Chair
Naval Research Lab, Washington, DC, United States

R3-01. **Current-Driven Magnetic Domain-Wall Logic.** ***(Invited)***
Z. Luo[1], A. Hrabec[1], T. Dao[1], G. Sala[1], S. Finizio[2], J. Feng[1], S. Mayr[1], J. Raabe[2], P. Gambardella[1] and L. Heyderman[1] *1. ETH Zurich, Zurich, Switzerland; 2. Paul Scherrer Institut, Villigen, Switzerland*

R3-02. **Threshold Logic With Current-Driven Magnetic Domain Walls.** *X. Hu*[1], B.A. Hill[1], F. Garcia-Sanchez[2] and J.S. Friedman[1] *1. Electrical & Computer Engineering, The University of Texas at Dallas, Richardson, TX, United States; 2. Universidad de Salamanca, Salamanca, Spain*

R3-03. **Speed Enhancement of Magnetic Logic-Memory Device by Insulator-to-Metal Transition.** *Y. Pu*[1] and X. Zhang[1] *1. Materials Science and Engineering, Tsinghua University, Beijing, China*

R3-04. **Walker-Like Domain Wall Motion in STTMRAM Cells: Evidence and Consequences for the Write Error Rate.** P. Bouquin[2,1], J. Kim[1], O. Bultynck[2], S. Rao[2], S. Couet[2], G.S. Kar[2] and *T. Devolder*[1] *1. Université Paris-Saclay, Palaiseau, France; 2. IMEC, Leuven, Belgium*

R3-05. **Micromagnetic Instabilities Associated With Domain Wall Dynamics in Perpendicular Magnetized Magnetic Tunnel Junction Nanopillars.** *N.N. Statuto*[1], J. Beik Mohammadi[2] and A.D. Kent[1] *1. Physics Department, Center for Quantum Phenomena, New York University, New York, NY, United States; 2. Department of Physics, Loyola University New Orleans, New Orleans, LA, United States*

R3-06. **Spintronic Control of Magnetostatically Coupled dot Assemblies.** *S. Jeon*[1], H. Chen[1] and S. Majetich[1] *1. Physics, Carnegie Mellon University, Pittsburgh, PA, United States*

R3-07. **Data Transmission in an Insulator Utilizing Rotational Magnetization Wave.** *A. Shadman*[1] and J. Zhu[1] *1. Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA, United States*

R3-08. **The Influence of a Thermal Noise on the Accuracy of a Spectrum Analyzer Based on a Spin Torque Nano-Oscillator.** *S. Louis*[1], A. Litvinenko[2], V. Iurchuk[2], P. Sethi[2], P. Elphick[3], V. Tyberkevych[4], P. Artemchuk[4], A. Jenkins[5], R. Ferreira[5], B. Dieny[2], U. Ebels[2] and A.N. Slavin[4] *1. Electrical and Computer Engineering, Oakland University, Rochester, MI, United States; 2. CEA, CNRS, INAC, SPINTEC – University Grenoble Alpes, Grenoble, France; 3. KOSTAL of America, Troy, MI, United States; 4. Physics, Oakland University, Rochester, MI, United States; 5. International Iberian Nanotechnology Laboratory, Braga, Portugal*

R3-09. **Entropy-Reduced Retention Times in Magnetic Memory Elements: a Case of the Meyer-Neldel Compensation Rule.** *L. Desplat*[1,2] and J. Kim[2] *1. Institut de Physique et de Chimie des Matériaux de Strasbourg, CNRS, Université de Strasbourg, Strasbourg, France; 2. Centre de Nanosciences et de Nanotechnologies, CNRS, Université Paris-Saclay, Palaiseau, France*

R3-10. **An Eigenvalue-Based Framework for the Magnetization Switching by Spin Torque.** *Z. Lin*[1], I. Volvach[1] and V. Lomakin[2] *1. Materials Science and Engineering, University of California San Diego, La Jolla, CA, United States; 2. Department of Electrical and Computer Engineering, University of California San Diego, La Jolla, CA, United States*

R3-11. **Development of the Metastable Electrode Materials for the Huge Tunnel Magnetoresistance Effect.** *T. Ichinose*[1], J. Ikeda[1,2], Y. Onodera[1,2], K. Suzuki[1,3] and S. Mizukami[1,4] *1. WPI-AIMR, Tohoku University, Sendai, Japan; 2. Department of Applied Physics, Tohoku University, Sendai, Japan; 3. CSRN, Tohoku University, Sendai, Japan; 4. CSIS and CSRN, Tohoku University, Sendai, Japan*

R3-12. **Enhancement of Magnetoresistance Characteristics of Ge-Rich $Co_2Fe(Ga,Ge)$-Based Current-Perpendicular-to-Plane Giant Magnetoresistance Devices.** *K. Nakada*[1], Y. Chikaso[2], T. Tanimoto[2], M. Inoue[2], K. Inubushi[1] and T. Uemura[2] *1. Advanced Products Development Center, Technology & Intellectual Property HQ, TDK Corporation, Ichikawa, Japan; 2. Grad. School of Information Science and Technology, Hokkaido University, Sapporo, Japan*

R3-13. **Current-in-Plane Spin-Valve Magnetoresistance in Ferromagnetic Semiconductor (Ga,Fe)Sb Heterostructures With High Curie Temperature.** *K. Takase*[1], L. Anh[2,3], K. Takiguchi[1] and M. Tanaka[1,4] *1. Department of Electrical Engineering and Information Systems, The University of Tokyo, Bunkyo-ku, Japan; 2. Institute of Engineering Innovation, The University of Tokyo, Bunkyo-ku, Japan; 3. PRESTO, JST, Kawaguchi, Japan; 4. Center for Spintronics Research Network (CSRN), The University of Tokyo, Bunkyo-ku, Japan*

R3-14. **Perpendicular Magnetized Spin-Valves on Flexible Substrates. a Comparative Study Between Transfer-and-Bond Approaches and Direct Deposition on Flexible Substrates.** *G. Varvaro*[1], M. Hassan[1,2], S. Laureti[1], G. Barucca[2], C. Rinaldi[3], F. Fagiani[3], N. Schmidt[4] and M. Albrecht[4]
1. Institute of Structure of Matter, Consiglio Nazionale delle Ricerche, Roma, Italy; 2. SIMAU, University Polytechnic Marche, Ancona, Italy; 3. Dept. of Physics, Politecnico di Milano, Milano, Italy; 4. Institute of Physics, Universitat Augsburg, Augsburg, Germany

FRIDAY AFTERNOON 12:30

LIVE Q&A 18

Session R4
SPIN HALL AND RELATED EFFECTS III

Hidekazu Kurebayashi, Chair
University College London, London, United Kingdom

R4-01. **Robust two-Terminal Spin-Valve Effect From Chirality-Induced Spin Selectivity.** *T. Liu*[1], X. Wang[2,4], H. Wang[2], G. Shi[3], F. Gao[3], H. Feng[3], H. Deng[1], L. Hu[1], E. Lochner[1], P. Schlottmann[1], S. von Molnar[1], Y. Li[3], J. Zhao[2] and P. Xiong[1]
1. Physics, Florida State University, Tallahassee, FL, United States; 2. State Key Laboratory of Superlattices and Microstructures, Institute of Semiconductors Chinese Academy of Sciences, Beijing, China; 3. Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Beijing, China; 4. College of Applied Sciences, Beijing University of Technology, Beijing, China

R4-02. **Room Temperature Gate Tunable Spin-to-Charge Conversion in $LaCrO_3/SrTiO_3$ Heterostructures.** S. Yang[1], A. Al-Tawhid[1], E. Vetter[1], D. Kumah[1] and *D. Sun*[1]
1. Department of Physics, North Carolina State University, Raleigh, NC, United States

R4-03. **Independent Geometrical Control of Spin and Charge Resistances in Curved Spintronics.** K. Das[1], D. Makarov[2], P. Gentile[3,4], M. Cuoco[3,4], B. Van Wees[1], C. Ortix[5,4] and *I.J. Vera-Marun*[6] *1. Physics of Nanodevices, Zernike Institute for Advanced Materials, Rijksuniversiteit Groningen, Groningen, Netherlands; 2. Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; 3. CNR-SPIN, c/o Universita degli Studi di Salerno, Fisciano, Italy; 4. Dipartimento di Fisica "E. R. Caianiello", Universita degli Studi di Salerno, Fisciano, Italy; 5. Institute for Theoretical Physics, Center for Extreme Matter and Emergent Phenomena, Universiteit Utrecht, Utrecht, Netherlands; 6. Department of Physics and Astronomy, The University of Manchester, Manchester, United Kingdom*

R4-04. **Simultaneous Observation of Anti-Damping and Inverse Spin Hall Effect in $La_{0.67}Sr_{0.33}MnO_3$/Pt Bilayers.** *P. Gupta*[1], B.B. Singh[1], K. Roy[1], A. Sarkar[2], M. Waschk[2], T. Brueckel[2] and S. Bedanta[1] *1. Laboratory for Nanomagnetism and Magnetic Materials (LNMM), School Of Physical Sciences, National Institute of Science Education and Research, Jatni- 752050, India; 2. Forschungszentrum Jülich GmbH, Jülich Centre for Neutron Science (JCNS-2) and Peter Grünberg Institut (PGI-4), Jarafit-52425, Germany*

R4-05. **Impact of Symmetry on Anisotropic Magnetoresistance in Textured Ferromagnetic Thin Films.** *A. Philippi-Kobs*[1,2], A. Farhadi[2], L. Matheis[2], D. Lott[3], A. Chuvilin[4,5] and H. Oepen[2] *1. Deutsches Elektronen-Synchrotron DESY, Hamburg, Germany; 2. Universitat Hamburg, Hamburg, Germany; 3. Helmholtz-Zentrum Geesthacht, Geesthacht, Germany; 4. CIC nanoGUNE, San Sebastian, Spain; 5. Ikerbasque, Bilbao, Spain*

R4-06. **Spin Seebeck Effect and Anomalous Nernst Effect in Ferrimagnetic TbCo Alloys.** *A. Yagmur*[1], S. Sumi[1], H. Awano[1] and K. Tanabe[1] *1. Toyota Technological Institute, Nagoya, Japan*

R4-07. **Wave-Diffusion Approach to Spin Current Dynamics in Magnetic Multilayers Driven by THz Fields.** *M. Burgard*[1], D.M. Nenno[2] and H. Schneider[1] *1. Physics, Technische Universitat Kaiserslautern, Kaiserslautern, Germany; 2. Harvard University John A Paulson School of Engineering and Applied Sciences, Cambridge, MA, United States*

R4-08. **Influence of Carriers in Spin Pumping in Organic Semiconductors.** *C. Nicolaides*[1] and T. Trypiniotis[1] *1. Physics, Panepistemio Kyprou Schole Thetikon kai Epharmosmenon Epistemon, Nicosia, Cyprus*

R4-09. **Microwave and Thermally Driven Spin Currents in $Tm_3Fe_5O_{12}$/Pt With Perpendicular Magnetic Anisotropy.** *G.L. da Silva Vilela*[1,2], J.E. Abrao[3], E. Santos[3], Y. Yao[4,5], J.B. Mendes[6], R.L. Rodríguez-Suárez[7], W. Han[4,5], S.M. Rezende[3], A. Azevedo[3] and J.S. Moodera[2,8] *1. Física de Materiais, Universidade de Pernambuco Escola Politecnica de Pernambuco, Recife, Brazil; 2. Plasma Science and Fusion Center, and Francis Bitter Magnet Laboratory, Massachusetts Institute of Technology, Cambridge, MA, United States; 3. Departamento de Física, Universidade Federal de Pernambuco, Recife, Brazil; 4. International Center for Quantum Materials, Peking University, Beijing, China; 5. Collaborative Innovation Center of Quantum Matter, Beijing, China; 6. Departamento de Física, Universidade Federal de Vicosa, Viçosa, Brazil; 7. Facultad de Física, Pontificia Universidad Catolica de Chile, Santiago, Chile; 8. Department of Physics, Massachusetts Institute of Technology, Cambridge, MA, United States*

R4-10. **Non-Volatile Electric Control of Spin–Charge Conversion in a SrTiO3 Rashba System.** ***(Invited)*** *P. Noël*[1,4], F. Trier[2], L. Vincente Arche[2], J. Bréhin[2], D. Vaz[3,2], V. Garcia[2], S. Fusil[2], A. Barthelemy[2], L. Vila[4], M. Bibes[2] and J. Attané[4] *1. DMATL, Eidgenossische Technische Hochschule Zurich, Zurich, Switzerland; 2. Unité Mixte de Physique, CNRS, Thales, Université Paris-Saclay, Palaiseau, France, Palaiseau, France; 3. CIC nanoGUNE, San Sebastian, Spain; 4. SPINtronique et Technologie des Composants, Grenoble, France*

R4-11. **Spin Pumping From Acoustically Driven Parametric Spin Waves in a Hybrid Magnon-Phonon Resonator.** *N. Polzikova*[1], S. Alekseev[1], V. Luzanov[2], A. Raevskiy[2] and S. Nikitov[1] *1. Kotelnikov Institute of Radio Engineering and Electronics of Russian Academy of Sciences, Moscow, Russian Federation; 2. Fryazino branch Kotelnikov Institute of Radio Engineering and Electronics of Russian Academy of Sciences, Fryazino, Russian Federation*

R4-12. **Monte Carlo Simulation of Ultrafast Nonequilibrium Spin and Charge Transport in Iron.** *J. Briones*[1], H. Schneider[1] and B. Rethfeld[1] *1. Department of Physics and Research Center OPTIMAS, University of Kaiserslautern, Kaiserslautern, Germany*

FRIDAY AFTERNOON 12:30

LIVE Q&A 18

Session R5
SOFT MAGNETIC MATERIALS (Poster Session)

Arkady Zhukov, Co-Chair
Basque Foundation for Science, San Sebastian, Spain
Gaoyuan Ouyang, Co-Chair
Iowa State University, Ames, IA, United States

R5-01. **Magnetic Correlations and Coercivity in Nanocrystalline Alloys With Grain-Size Distribution.** *A. Bolyachkin*[1], E. Dengina[1] and S. Komogortsev[2] *1. Ural Federal University, Yekaterinburg, Russian Federation; 2. Kirensky Institute of Physics, Federal Research Center KSC SB RAS, Krasnoyarsk, Russian Federation*

R5-02. **Magnetic Critical Behavior, Hall Effect, and Magnetic Interactions in $Fe_{73.5-x}Cr_xCu_1Nb_3Si_{13.5}B_9$ Metallic Glasses on the Road to Percolation.** *A. Rosales-Rivera*[1], N.A. Salazar-Henao[1], R. Gonzalez-Sánchez[1], J. López Tabares[1], A.A. Velazques-Salazar[1] and F.D. Saccone[2] *1. Laboratorio de Magnetismo y Materiales Avanzados, Universidad Nacional de Colombia, Sede Manizales, Manizales, Colombia; 2. Departamento de Física, Facultad de Ingeniería, Universidad de Buenos Aires, Buenos Aires, DC, Argentina*

R5-03. **Electronic Structure of Amorphous Fe-P-C-Ge Soft Magnet.** J. Han[1], M. Choi[2], H. Won[2], *H.C. Yim*[1] and Y. Hong[2] *1. Physics, Sookmyung Women's University, Yongsan-gu, The Republic of Korea; 2. Electrical & Computer Engineering, The University of Alabama College of Arts and Sciences, Tuscaloosa, AL, United States*

R5-04. **Simulation of Magnetic Field Modulation of Magnetic Flux Concentrator.** *J. Peng*[1,2], F. Jin[1,2], L. Xu[1,2], J. Jiang[1,2], B. Yang[1,2], K. Dong[1,2], W. Mo[1,2] and J. Song[1,2] *1. School of Automation, China University of Geosciences, Wuhan, China; 2. Hubei key Laboratory of Advanced Control and Intelligent Automation for Complex Systems, Wuhan, China*

R5-05. **Mild Electro-Mechanical Processing of Water-Quenched Amorphous Microwires for Property Improvements.** *A. Valeriano Inchausti*[1], X. Zhang[2], A. Jacas[1], R. Pérez del Real[1], M. Butta[3,1], L. Lewis[2,1] and M. Vazquez[1] *1. Materials for Emergent Technologies, Instituto de Ciencia de Materiales de Madrid, Madrid, Spain; 2. Northeastern University College of Engineering, Boston, MA, United States; 3. Ceske vysoke uceni technicke v Praze Fakulta elektrotechnicka, Praha, Czechia*

R5-06. **Tensile, Torsion and Bending Stresses Modulation of Co-Based Microwire's Domain Structure and Magnetoimpedance Effect.** *Y. Wang*[1], F. Qin[1], T. Feng[1], D. Estevez[1] and H. Peng[1] *1. Zhejiang University, Hangzhou, China*

R5-07. **On the Path to New Magnetic Cores: Electromagnetic Simulations of Amorphous Magnetic Microwires for Inductive Applications.** C. Johnson[1], *X. Zhang*[2], R. Pérez del Real[3], S. Pakdelian[4], M. Vazquez[3], L. Lewis[2,5] and B. Lehman[1] *1. Electrical and Computer Engineering, Northeastern University, Boston, MA, United States; 2. Mechanical and Industrial Engineering, Northeastern University, Boston, MA, United States; 3. Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain; 4. Electrical and Computer Engineering, University of Massachusetts Lowell, Lowell, MA, United States; 5. Chemical Engineering, Northeastern University, Boston, MA, United States*

R5-08. **Influence of Stress Relief on the Domain Wall Velocity of Rapidly Quenched Amorphous Submicron Wires.** S. Corodeanu[1], C. Hlenschi[1], C. Rotarescu[1], H. Chiriac[1], N. Lupu[1] and *T. Óvári*[1] *1. Department of Magnetic Materials and Devices, National Institute of Research and Development for Technical Physics, Iasi, Romania*

R5-09. **High-Induction FeCo Films: Green Synthesis and Magnetic Properties.** *E. Denisova*[1,2], L. Chekanova[1], S. Komogortsev[1,2], I. Nemtsev[3] and R. Iskhakov[1] *1. Kirensky Institute of Physics Federal Research Center KSC SB RAS, Krasnoyarsk, Russian Federation; 2. Siberian Federal University, Krasnoyarsk, Russian Federation; 3. Federal Research Center "Krasnoyarsk Science Center of the Siberian Branch of the Russian Academy of Sciences", Krasnoyarsk, Russian Federation*

R5-10. **Research on Core Loss of Soft Magnetic Composites Based on 3D Modeling.** *Y. Yang*[1], Y. Wang[1] and C. Liu[1] *1. Hebei University of Technology, Tianjin, China*

R5-11. **Comparative Analysis of High-Frequency Magnetic Properties of C-Type Amorphous and Nanocrystalline at Different Air Gap.** Y. Li[1], *H. Liu*[1], H. Sun[1] and Z. Wan[1] *1. State Key Laboratory of Reliability and Intelligence of Electrical Equipment, Hebei University of Technology, Tianjin, China*

R5-12. **Magnetic and Magnetocaloric Properties of the Nanocrystalline $Pr_{0.7}Ba_{0.2}Ca_{0.1}MnO_3$ Sample.** M. [1], *P. Bisht*[1], A. Kumar[1] and R.N. Mahato[1] *1. School Of Physical Sciences, Jawaharlal Nehru University, New Delhi, India*

R5-13. **Synthesis and Characterization of Fe_3O_4-HfO_2 Nanoparticles by Magnetization and Hyperfine Interactions Measurements.** *I.T. Matos*[1], T.S. Sales[1], G. Cabrera-Pasca[2], A. Burimova[1], R.N. Saxena[1], L.F. Pereira[1], L. Otubo[1] and A.W. Carbonari[1] *1. Instituto de Pesquisas Energéticas e Nucleares, IPEN-CNEN/SP, São Paulo, Brazil; 2. Universidade Federal de Pará, Abaetetuba, PA, Brasil, Pará, Brazil*

R5-14. **Effect of v-Doping on the Magnetic Transition of Fe-Rich $(Mn,Fe)_{1.9}(P,Si)$ Compounds.** *O. Hamutu*[1], N.v. van Dijk[1] and E. Brück[1] *1. Technische Universiteit Delft Faculteit Technische Natuurwetenschappen, Delft, Netherlands*

R5-15. **Eddy Current Loss Reduction in Axial-Flux Motors Using 3D Printing.** *H. Pyo*[1], S. Yang[1] and W. Kim[1] *1. Electrical Engineering, Gachon University, Seongnam, The Republic of Korea*

R5-16. **Neutron Diffraction Studies of the $(Cr_{84}Re_{16})_{100-x}v_x$ Alloy System.** *S. Jacobs*[1], A. Prinsloo[1], A. Venter[2], Z. Sentsho[2], A. Studer[3] and C. Sheppard[1] *1. Physics, University of Johannesburg, Auckland Park, South Africa; 2. South African Nuclear Energy Corporation Ltd, Pretoria, South Africa; 3. Australian Nuclear Science and Technology Organisation, Kirrawee, NSW, Australia*

R5-17. **Spin Glass Behaviour in $(Cr_{84}Re_{16})_{100-x}Mn_x$ Alloys.** *S. Jacobs*[1], C. Sheppard[1], P. de Camargo[2] and A. Prinsloo[1] *1. Physics, University of Johannesburg, Auckland Park, South Africa; 2. Physics, Universidade Federal de Sao Carlos, Sao Carlos, Brazil*

*Best student presentation award finalist

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