MONDAY ORAL PRESENTATIONS

8:00 AM WELCOME AND INSTRUCTIONS

8:15 AM *I1.01.01
CLIFFORD G. SHULL PRIZE WINNER: Tailoring Instruments to the Science and the Source: 35 Years at the NCNR Dan A. Neumann; National Institute of Standards and Technology, United States

9:45 AM BREAK

9:45 AM *I1.01.02
PLENARY: The Dark Energy of Quantum Materials Laura Greene; Florida State University, United States

Monday Morning, June 6, 2022

10:15 AM A1.01.01
Development of Neutron Scattering Facilities at the McMaster Nuclear Reactor Patrick Clancy; McMaster University, Canada

10:45 AM A1.01.02
Reactor Institute Delft 2.0 Jeroen Plompe; Delft University of Technology, Netherlands

11:15 AM A1.01.04
Neutron Beamline Shielding Studies for the HFIR Beryllium Reflector Replacement Project Kyle Grammer and Wei Lu; Oak Ridge National Laboratory, United States

11:30 AM A1.01.05
Future of Development Beamlines at the High Flux Isotope Reactor after the upcoming HFIR Beryllium Reflector Replacement Lowell Crow; Oak Ridge National Laboratory, United States

11:45 AM A1.01.06
The Cold Source Upgrade Project at the NIST Center for Neutron Research Rodrigo Vilaseca, Daniel Adler, Donald Pierce, Brian J. Kirby and Dan A. Neumann; NIST, United States

12:00 PM B1.01.01
Preliminary Neutronics Design of a Second Target Station at the ORNL’s SNS Igor Renee; Franz X. Gallmeier, Kristel Ghoos, Tucker McClanahan, Thomas Miller, Kumar Mohindroo, Wouter de Wet and Lukas Zavorka; Oak Ridge National Laboratory, United States

12:15 PM B1.01.02
Development of Polarized Neutron at the China Spallation Neutron Source Tianhao R. Wang1,2 and Xin Tong1,2; China Spallation Neutron Source, China; 2Institute of high energy physics, China

Session Chair: Martin Greven
Session Chair: John Ankner
Session Chair: Patrick Clancy
Session Chair: Martin Greven

Monday Morning, June 6, 2022

10:15 AM B1.01.01
Neutron Diffraction Studies on the Magnetic Properties of YFe2As2, Ge-Fe, and YFe2As2-As Rebecca L. Dally1; Peter Siegfried2,3, Hari Bhandari2, David Jones2, Dina Michel2,3, Madhav Ghimire2, Lekhanath Poudel4, Markus Bleuel1, Jeffrey W. Lynn1, Igor Mazin2, and Nirnal Ghimire2,3; National Institute of Standards and Technology, United States; 1George Mason University, United States; 2TriBhuvan University, Nepal

10:45 AM B1.01.02
Weyl Mediated Holical Magnetism in NdAsI and NdAIGe, Jonathan Gaudet1,2, Hung-Yu Yang1, Santu Baidya1, Baozhu Lu1, Guanyong Xu1, Yang Zhao2, Jose A. Rodriguez-Rivera1,2, Christina Hoffmann1, Lisa DeBeer-Schmitt1, Adam Aczel1, David Graf2, Darius Torchinsky4, Predrag Nikolic3, David Vanderbilt2, Taffi Fazel1 and Collin Broholm3,4; 1National Institute of Standards and Technology, United States; 2University of Maryland, United States; 3Johns Hopkins University, United States; 4Boston College, United States; 5Rutgers University, United States; 6Temple University, United States; 7Oak Ridge National Laboratory, United States; 8Iowa State University of Science and Technology, United States; 9Oak Ridge National Laboratory, United States

11:15 AM B1.01.03
Field-Induced Fan-like Magnetic Orders in Topological EnulnAs; Studied by Single-Crystal Neutron Diffraction Simon X. Riberolles1, Thais Victa Trevisan1,2, Brinda Kuthanazhi1,2, Feng Ye1, D. C. Johnston1,2, Sergey L. Bud’ko1,2, Paul C. Canfield1,2, R. J. McQueeney1,2, Peter P. Orth1 and Benjamin G. Ueland1; 1Arms Laboratory, United States; 2Iowa State University of Science and Technology, United States; 3Oak Ridge National Laboratory, United States

Hard Condensed Matter

SESSION B1.01: Magnetism and Topological Band Structures
Session Chair: Martin Greven
Session Chair: John Ankner
Session Chair: Patrick Clancy
Session Chair: Martin Greven

Monday Morning, June 6, 2022

10:15 AM *B1.01.01
Neutron Diffraction Studies on the Magnetic Properties of YFe2As2, Ge-Fe, and YFe2As2-As Rebecca L. Dally1; Peter Siegfried2,3, Hari Bhandari2, David Jones2, Dina Michel2,3, Madhav Ghimire2, Lekhanath Poudel4, Markus Bleuel1, Jeffrey W. Lynn1, Igor Mazin2, and Nirnal Ghimire2,3; National Institute of Standards and Technology, United States; 1George Mason University, United States; 2TriBhuvan University, Nepal

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11:15 AM B1.01.03
Field-Induced Fan-like Magnetic Orders in Topological EnulnAs; Studied by Single-Crystal Neutron Diffraction Simon X. Riberolles1, Thais Victa Trevisan1,2, Brinda Kuthanazhi1,2, Feng Ye1, D. C. Johnston1,2, Sergey L. Bud’ko1,2, Paul C. Canfield1,2, R. J. McQueeney1,2, Peter P. Orth1 and Benjamin G. Ueland1; 1Arms Laboratory, United States; 2Iowa State University of Science and Technology, United States; 3Oak Ridge National Laboratory, United States

Plenary and Prize Session

SESSION I1.01: Plenary and Prize Session
Session Chairs: Peter Gehring, Young Lee, Katie Weigandt and Stephen Wilson
Monday Morning, June 6, 2022
UMC Conference Room 235

8:15 AM *I1.01.01
CLIFFORD G. SHULL PRIZE WINNER: Tailoring Instruments to the Science and the Source: 35 Years at the NCNR Dan A. Neumann; National Institute of Standards and Technology, United States

9:10 AM *I1.01.02
PLENARY: The Dark Energy of Quantum Materials Laura Greene; Florida State University, United States

9:45 AM BREAK

Advances in Neutron Facilities, Instrumentation and Software

SESSION A1.01: Facilities
Session Chair: John Ankner
Monday Morning, June 6, 2022
UMC West Ballroom 208

10:15 AM A1.01.01
Development of Neutron Scattering Facilities at the McMaster Nuclear Reactor Patrick Clancy; McMaster University, Canada

10:45 AM A1.01.02
Reactor Institute Delft 2.0 Jeroen Plompe; Delft University of Technology, Netherlands

11:15 AM A1.01.03

* Invited Paper

12:15 PM A1.01.08
Development of Polarized Neutron at the China Spallation Neutron Source Tianhao R. Wang1,2 and Xin Tong1,2; China Spallation Neutron Source, China; 2Institute of high energy physics, China
11:15 AM B1.01.04
Single Pair of Weyl Points in a Time-Reversal Symmetry Broken Semi-Metal Keith Taddei; Li Yinhai; Daniadma Sanjeev; Yu Li; Jie Xing; Clarina dela Cruz; Daniel Phelan; Athena Sefat; and David Parker; Oak Ridge National Laboratory, United States; MURR, United States; Argonne National Laboratory, United States; University of South Carolina, United States

11:30 AM B1.01.05
Spin Dynamics in the Antiferromagnetic Topological Insulator MnBiTe3 Bing Li; Simon X. Riberolles; Daniel M. Pajerowski; J.-Q. Yan and E.J. McQueeney; Ames Laboratory, United States; Iowa State University of Science and Technology, United States; Oak Ridge National Laboratory, United States

11:45 AM B1.01.06
Topological Magnons in a Honeycomb Lattice Magnet CoTiO3 Bo Yuan; Matthew Stone; Guojun Shu; Fangcheng Chou; Patrick Clancy; Young-June Kim; University of Toronto, Canada; Max Planck Institute for the Structure and Dynamics of Matter, Germany; Oak Ridge National Laboratory, United States; National Taiwan University of Science and Technology, Taiwan; National Taiwan University, Taiwan; McMaster University, Canada

12:00 PM B1.01.07
Gapless Dirac magnons in CrCl3 Despina Louca; John Schneeloch; Yu Tao; Yongjiang Cheng; and Luke Daemen; University of Virginia, United States; Oak Ridge National Laboratory, United States

12:15 PM B1.01.08
Spin Excitations in Co-doped FeSn Tao Xie1, Li You1, Daminda Sanjeeva1, Yu Li2, Jie Xing3, Clarina dela Cruz1, Daniel Phelan4, Athena Sefat5 and David Parker1; Oak Ridge National Laboratory, United States; MURR, United States; Argonne National Laboratory, United States; University of South Carolina, United States

Soft Matter

SESSION C1.01: Field-Driven Structures in Soft Matter
Session Chair: Xiandan Gu
Monday Morning, June 6, 2022
UMC Conference Room 235

10:15 AM "C1.01.01
Altering Block Copolymer (BCP) Self-Assembly and Phase Behavior via Magnetic Field Processing Grace V. Kresge, Karthika Suresh and Michelle A. Calabrese; University of Minnesota Twin Cities, United States

10:45 AM C1.01.02
Measuring and Modeling Interactions Between Orientable Nanoparticles in Flow Patrick T. Corona, Jiamin Zhang, L. Gary Leal and Matthew Helgeson; University of California Santa Barbara, United States

11:00 AM C1.01.03
Simultaneous Measurement of Structure and Rheology of Rod Like Systems at High Shear Rates Katie M. Weigand; Ryan P. Murphy, Steve Kuei, Paul Salipante and Steven D. Hudson; National Institute of Standards and Technology, United States

11:15 AM C1.01.04
Rheo-Small Angle Neutron Scattering Measurements of Shear-Thickening Colloidal Suspensions with Varying Interparticle Friction Yu-Fan J. Lee1, Scott Brown2 and Norman Wagner1; 1University of Delaware, United States; 2The Chemours Company, United States

11:30 AM C1.01.05
An Analytical Method for Reconstructing the Orientation Ordering of Soft Matter Constituents from Their Scattering Anisotropy Guan-Rong Huang1, Jan Michael Carrillo1, Yangyang Wang1, Changwoo Do2, Yuya Shimohara3, Takeshi Egami1, Lionel Porcar2, Yun Liu1, Bobby G. Sumpter3 and Wei-Ren Chen1; Oak Ridge National Laboratory, United States; Institut Laue-Langevin, France; National Institute of Standards and Technology, United States

11:45 AM C1.01.06
Extracting Meaning from Alignment Factor Peter Gilbert1, Yun Liu1,2 and Paul D. Butler1; NIST Center for Neutron Research, United States; University of Delaware, United States

12:00 PM C1.01.07
Probing Topological Transitions of Inverse Worm-like Micelles Subject to Transient Shear Flow using Dielectric RheoSANS Noah J. Cho1 and Jeffrey J. Richards2; 1Corning Korea, Korea (the Republic of); 2Northwestern University, United States

Neutron Physics

SESSION G1.01: Neutron Physics I
Session Chair: Dusan Sarenac
Monday Morning, June 6, 2022
UMC Aspen Room 285, 287, 289

10:15 AM "G1.01.01
Pendellösung Interferometry Measurement of the Neutron Charge Radius and Constraints on New Physics Benjamin Heacock1, Fujii Takahiro2, Robert W. Hahn3, Albert Henins4, Katsuya Hirota5, Takuya Hosobata6, Michael G. Huber7, Masaki Kitaguchi8, Dmitry Pushin9, Hirohiko Shimizu10, Masahiro Takeda11, Robert Valdillez12, Yutaka Yamagata13 and Albert Young14; 1National Institute of Standards and Technology, United States; 2Nagoya University, Japan; 3Tulane University, United States; 4RIKEN, Japan; 5University of Waterloo, Canada; 6North Carolina state University, United States

10:45 AM G1.01.02
Measuring Higher Order Neutron-Silicon Structure Factors with Pendellösung Interferometry Using a Pulsed Beam Robert Valdillez1, Leah Broussard2, Matthew J. Frost3, Robert W. Hahn1, Benjamin Heacock1, Colin Heikes1, Albert Henins4, Katsuya Hirota5, Shannon F. Hoogerheide6, Takuya Hosobata6, Michael G. Huber7, Masaki Kitaguchi8, Dmitry Pushin9, Hirohiko Shimizu10, Masahiro Takeda11, Fujii Takahiro2, Yukata Yamagata13 and Albert Young14; 1North Carolina State University, United States; 2Oak Ridge National Laboratory, United States; 3University of Colorado Boulder, United States; 4National Institute of Standards and Technology, United States; 5Northrop Grumman, United States; 6Nagoya University, Japan; 7RIKEN, Japan; 8University of Waterloo, Canada

11:00 AM G1.01.03
Quantum Information Model for Neutron Diffraction Shows Promise for Neutron Optics Design Olivier Nahman-Lévesque1, Dusan Sarenac2, David Cory3, Benjamin Heacock1, Michael G. Huber7 and Dmitry Pushin9; 1University of Waterloo, Canada; 2National Institute of Standards and Technology, United States
11:15 AM G1.01.04
Neutron Interferometry and Current Advances
Dmitry Pushin1, Benjamin Heacock2, Michael G. Huber3, Dusan Sarenac4, Chandra B. Shahi5, Ivar Taminiau6 and David Cory7,8; 1University of Waterloo, United States; 2National Institute of Standards and Technology, United States; 3University of Maryland, United States

11:30 AM G1.01.05
Generation and Detection of Structured Waves of Neutrons and Light
Charles W. Clark1, Dusan Sarenac2, Melissa E. Henderson2, Husseyin Ekinci2, Chandra B. Shahi3, David Cory4, Lisa DeBeer-Schnit1, Michael G. Huber5, Connor L. Kapahi6 and Dmitry Pushin7; 1National Institute of Standards and Technology, United States; 2University of Waterloo, Canada; 3Oak Ridge National Laboratory, United States

11:45 AM G1.01.06
Spin-Orbit Correlations in Neutron Beams
Dusan Sarenac1, Connor L. Kapahi2, Ivar Taminiau3, Kirill Zherchenkov4 and Dmitry Pushin5; 1University of Waterloo, Canada; 2National Institute of Standards and Technology, United States; 3Joint Quantum Institute, National Institute of Standards and Technology and University of Maryland, United States; 4Tulich Centre for Neutron Science at Heinz Maier-Leibnitz Zentrum, Germany

12:00 PM G1.01.07
Measurements of the Neutron’s Charge Distribution: a History
Robert Valdillez1, Benjamin Heacock2, Fujii Takahiro3, Masaki Kitaguchi4, Hiroshi Shimizu5, Katsuya Hirota6, Masahiro Takeda7, Yukata Yamagata8, Dmitry Pushin9 and Albert Young10; 1NIST, United States; 2North Carolina State University, United States; 3Nagoya University, Japan; 4RIKEN, Japan; 5University of Waterloo, Canada; 6Institute for Quantum Computing, Canada

12:15 PM G1.01.08
Precision Measurement of the Gravitational Constant via Three-Phase Grating Neutron Interferometry
Connor L. Kapahi1, Dusan Sarenac2, Charles W. Clark3, David Cory4,5, Benjamin Heacock6, Michael G. Huber7, Youngju Kim8 and Dmitry Pushin9; 1Oak Ridge National Laboratory, United States; 2University of Waterloo, Canada; 3Institute for Quantum Computing, Canada; 4National Institute of Standards and Technology, United States

Hard Condensed Matter

1:45 PM *B1.02.01
Correlated Structural Inhomogeneity in Oxide Superconductors
Martin Greven; University of Minnesota, United States

2:15 PM B1.02.02
Large Change of Interlayer Vibrational Coupling with Stacking in Mo6W4Te7: John Schneeloch1, Yu Tao2, Jaime A. Fernandez-Baca3, Guangyong Xu4 and Despina Louca5; 1University of Virginia, United States; 2Oak Ridge National Laboratory, United States; 3National Institute of Standards and Technology, United States

2:30 PM B1.02.03
Role of Magnetic Defects and Defect-Engineering of Magnetic Topological Insulators
Farhan Islam1,2, Daniel M. Pajerowski3,4, jiaqiang yan1, R. J. McQueeney2 and David Vaknin12; 1Iowa State University of Science and Technology, United States; 2Ames Laboratory, United States; 3Oak Ridge National Laboratory, United States
Simulations of the Structure and Dynamics of Conjugated Polymers via Combined Neutron Scattering and Molecular Dynamics

Unraveling the Side Chain Effects on Solution Structure of Donor-Mixed Solutions

Effect of Polystyrene Additives and Solvent Quality on the Conformation and Self-Assembly of Conjugated Polymers in Mixed Solutions

Combining Inelastic Neutron Scattering and Molecular Dynamics Simulation to Probe Conjugated Polymer Dynamics

Advances in Neutron Facilities, Instrumentation and Software

Structural Materials and Engineering
Materials Chemistry and Energy

SESSION E1.01: Materials Chemistry and Energy I
Session Chair: Graeme Luke
Monday Afternoon, June 6, 2022
UMC Aspen Room 285, 287, 289

3:45 PM *E4.04.01
Excess Vibrational Entropy in Metallic and Molecular Glasses
Hillary Smith1, Claire N. Saunders2, Camille Bernai2, Stefan H. Lohani3, Douglas L. Albenzuy4, Jiao Lin5, Mario Demetriou6 and Brent Fultz7; 1Swarthmore College, United States; 2Caltech, United States; 3Oak Ridge National Laboratory, United States; 4Glassimetal, United States

4:15 PM E4.04.02
The Two-Dimensional Nature of Dynamic Disorder in Hybrid Metal Halide Perovskite Semiconductors
Nicholas Weadock1, Tyler C. Sterling1, Matthew Krogstad2, Feng Ye3, David Voneshen4, Julian Vigil5, Ballal Ahamed6, Peter Gehring7, Hans-Georg Steinrueck8, Elif Ertelkin9, Hemamala Karunadu9, Dmitry Reznik10 and Michael Toney11; 1University of Colorado Boulder, United States; 2Argonne National Laboratory, United States; 3Oak Ridge National Laboratory, United States; 4Rutherford Appleton Laboratory, United Kingdom; 5Stanford University, United States; 6University of Illinois at Urbana-Champaign, United States; 7National Institute of Standards and Technology, United States; 8Universität Paderborn, Germany

4:45 PM E4.04.04
Neutron Scattering to Characterize Adsorbents and Their Hosts
Craig M. Brown1, Ryan Klein1, Benjamin A. Trump1 and Hayden A. Evans2; 1NIST Center for neutron Research, United States; 2National Renewable Energy Laboratory, United States

5:15 PM E4.04.06
Diffusion Dynamics of FLiNaK Molten Salt Characterized with Quasi-Elastic Neutron Scattering
Brent J. Heuser1, Golam Rakib2 and Yang Zhang; 1Oak Ridge National Laboratory, United States; 2McMaster University, Canada

Biology, Biophysics and Biotechnology

SESSION D1.01: Structure and Dynamics of Proteins and Peptide Assemblies
Session Chairs: Elizabeth Kelley and Haden Scott
Monday Afternoon, June 6, 2022
UMC Conference Room 235

4:00 PM *D1.01.01
Supramolecular Self-Assembly of Computationally Designed Coiled Coil Building Blocks
Nairit J. Sinha1; 1University of California, Santa Barbara, United States

4:30 PM D1.01.02
Studying Internal Dynamics of the Monoclonal Antibody with SANS and NSF
Rosin Donnelly1,2,3, Yun Liu2,3 and Norman Wagner2,3; 1University of Delaware, United States; 2NIST Center for Neutron Scattering, United States

4:45 PM D1.01.03
Small-Angle Scattering to Understand Preservative-Induced Aggregation of Poloxamer 188 in Pharmaceutical Formulations
Rachel R. Ford1, Peter Gilbert1, Ken Qian2, Norman Wagner1 and Yun Liu3; 1University of Delaware, United States; 2Eli Lilly & Company, United States; 3University of Delaware, United States

5:00 PM D1.01.04
Investigating Aggregation Surfaces In Thawed Bispecific Antibody Fragments
Julia Greenfield1; 1National Institute of Standards and Technology, United States

Hard Condensed Matter

SESSION B1.03: Novel Magnetic Structures and Excitations
Session Chair: Rebecca Daily
Monday Afternoon, June 6, 2022
UMC East Ballroom 212

4:00 PM *B1.03.01
Coexisting Singlet and Ordered Spins in a Complex Quasi-2D magnet Cu3B2O6
Bo Yuan1, Kemp Plumb2, Matthew Stone3, Yiming Qiu4, Nicholas Butch5, Guanyong Xu6, Patrick Clancy7 and Young-June Kim8; 1Max Planck Institute for the Structure and Dynamics of Matter, Germany; 2Brown University, United States; 3Oak Ridge National Laboratory, United States; 4National Institute of Standards and Technology, United States; 5McMaster University, Canada; 6University of Toronto, Canada

4:30 PM B1.03.02
Longitudinal Magnon Decay and Renormalization in BaFeSiO6
Seunghwan Do1, Hao Zhang2, Travis J. Williams3, Tao Hong4, Ovidiu Garlea1, Jose A. Rodriguez-Rivera1, Tae-Hwan Jang4, Sang-Wook Cheong5, Jae-Hoon Park6, Cristian Batista7 and Andrew D. Christianson8; 1Oak Ridge National Laboratory, United States; 2The University of Tennessee, Knoxville, United States; 3NIST Center For Neutron Research, United States; 4MPPHC-CPM, Max Planck POSTECH/Korea Research Initiative, Korea (the Republic of); 5Rutgers, The State University of New Jersey, United States

4:45 PM B1.03.03
Magnetic Structures and Dynamics in CuMnAs and Related CuSb-type Antiferromagnets
Daniel Shoemaker1; 1University of Illinois at Urbana-Champaign, United States

5:00 PM B1.03.04
Bootstrapped Dimensional Crossover of a Spin Density Wave in Layered Nickelate
Anjana M. Samarakoon1, Joerg Stempfli2, Feng Ye2, Yiming Qu2, Stephan Rosenkranz2, Michael Norman2, John Mitchell2 and Daniel Pelcian3; 1Argonne National Laboratory, United States; 2Oak Ridge National Laboratory, United States; 3National Institute of Standards and Technology, United States

5:15 PM B1.03.05
Chemically-Induced Magnetic Dead Shells in Superparamagnetic Ni Nanoparticles from Polarized Small-Angle Neutron Scattering
Bhaskar Das1, Joseph Batley1, Kathryn L. Krycka2, julie A. Borchers2, Patrick Quartenier2, Caroline Korostynski3, My Nguyen4, Ishita Kamboj5, Eryan Aydil6 and Chris Leighton7; 1University of Minnesota, United States; 2National Institute of Standards and Technology, United States; 3New York University, United States
TUESDAY ORAL PRESENTATIONS

* Invited Paper

Plenary and Prize Session

SESSION I2.01: Plenary and Prize Session
Session Chairs: Peter Gehring, Young Lee, Katie Weigandt and Stephen Wilson
Tuesday Morning, June 7, 2022
UMC Conference Room 235

8:15 AM FELLOWS ANNOUNCEMENT

8:30 AM *I2.01.01
SCIENCE PRIZE WINNER: Magnons are not Forever Martin Mourigal; Georgia Institute of Technology, United States

9:10 AM *I2.01.02
PLENARY: SANS Contrast Variation Experiments on Multi-Component Biological Complexes: What’s the Big Deal? Susan Krueger; National Institute of Standards and Technology, United States

9:45 AM BREAK

Advances in Neutron Facilities, Instrumentation and Software

SESSION A2.05: Instrumentation: Hard Matter
Session Chair: Ken Herwig
Tuesday Morning, June 7, 2022
UMC West Ballroom 208

10:15 AM *A2.05.01
BIFROST: A Multiplexing Indirect Geometry Time-of-Flight Spectrometer for Extreme Environments Rasmus Toft-Petersen1,2, Liam Whitelegg2, Bjorn C. Hauback1, Philippe Bourges4, Christof Niedermayer5, Henrik M. Ronnow6, Kim Lefmann7 and Niels B. Christensen1; 1Technical University of Denmark, Denmark; 2European Spallation Source, Sweden; 3Institute for Energy Technology, Norway; 4Laboratoire Léon Brillouin, France; 5Paul Scherrer Institut, Switzerland; 6Swiss Federal Institute of Technology Lausanne, Switzerland; 7Niels Bohr Institute, Denmark

10:45 AM A2.05.02
Update on the Cold Spectrometer Project, PoLAR, at the NCNR Leland W. Harriger1, Stephen D. Wilson2, Jeffrey Lynn1, Dan A. Neumann1, Jeremy Cook1, Donald Pierce3 and nancy hadad1; 1National Institute of Standards and Technology, United States; 2University of California, Santa Barbara, United States
11:00 AM A2.05.03
Progress on the Design of Centaur, the Small- and Wide-Angle Neutron Scattering Diffractometer/Spectrometer at the Second Target Station of SNS
Shuo Qian; Oak Ridge National Laboratory, United States
Liviu Hozoi; United States; Institute of Technology, United States; and Technology, United States

11:15 AM A2.05.04
An Update on PIONEER, a Single-Crystal Neutron Diffractometer at the Second Target Station
Yaobin Liu and Peter Torres; Oak Ridge National Laboratory, United States

11:30 AM A2.05.05
Development of the Multi-Analyzer Neutron Triple Axis (MANTA) Spectrometer at ORNL
Travis J. Williams1, Garrett E. Granroth2, Adam Azez1, Barry Winn1, Adit Desai2, Marcus Daum3, and Martin Mourigal3; Oak Ridge National Laboratory, United States; 2Georgia Institute of Technology, United States

11:45 AM A2.05.06
Upgrade of the BT-8 Diffractometer for Stress and Texture
Thomas Gnaupel-Herold1, Justin Milner2 and Ed Binkley3; 1NIST, United States; 2NASA GRC, United States

12:00 PM A2.05.07
Polychromatic Multiplexing Stress-Strain Diffractometer
Sean Faylin1, Jay T. Cremer1 and Boris Khaykovich1; 1Massachusetts Institute of Technology, United States; 2Adelphi Technology, Inc., United States

12:15 PM A2.05.08
Concept for a Hybrid Neutron Diffraction/Small Angle Scattering Instrument for Nuclear Energy Applications
Kenneth C. Littrell and Georg Ehlers; Oak Ridge National Laboratory, United States

Hard Condensed Matter

SESSION B2.04: Frustrated Magnetism
Session Chair: Kemp Plumb
Tuesday Morning, June 7, 2022
UMC East Ballroom 212

10:15 AM B2.04.01
Neutron Scattering Studies of Rare-earth-based Quantum Spin Liquid Candidates
Sara Harrrifard; Duke University, United States

10:45 AM B2.04.02
Evolution of Field-Induced and Impurity-Induced Magnetic Order in the Quantum Spin Liquid Candidate NaYbSe
Ganesh Pokhare1, Soren Bear and Stephen D. Wilson; University of California, Santa Barbara, United States

11:00 AM B2.04.03
Anomalous Crystalline Electric Field Excitation in Triangular Lattice Cerium Materials
Mitchell Bordelon1,2, Brenden Ortiz2, Pritam Bhattacharya1, Lorenzo Posthumus1, Ganesh Pokhare1, Paul Sarte2, Thorben Petersen1, Mohamed Eldeeb3, Garrett E. Granroth2, Xiaoling Wang2, Mark Sherwin2, Clarina dela Cruz3, Ulrich Roessler1, Liviu Hozoi1, Martin Mourigal3, Stuart Calder1, Craig M. Brown1, Daniel M. Pajerowski1, Arnab Basarjee1, Douglas L. Abernathy2, Eric Bauer1, Priscila Rosa1 and Stephen D. Wilson2; 1Los Alamos National Laboratory, United States; 2University of California, Santa Barbara, United States; 3Institute for Theoretical Solid State Physics, Germany; 4Oak Ridge National Laboratory, United States; 5Georgia Institute of Technology, United States; 6National Institute of Standards and Technology, United States

Soft Matter

SESSION C2.04: Grafted Polymers and Nanocomposites
Session Chair: John Riley
Tuesday Morning, June 7, 2022
UMC Conference Room 235

10:15 AM C2.04.01
Molecular Bottlebrushes: Scattering Measurements and Simulations
Michael J. Hore and Raj Mukamkama; Case Western Reserve University, United States

10:45 AM C2.04.02
Vanadium Ion Dynamics of Ionomer Nanocomposites
Xueling Wang; Apoorva Balwani, Maysara S. Silva1, Madhusudan Tyagi1, Stephen Creager1 and Eric M. Davis1; 1Clemson University, United States; 2National Institute of Standards and Technology (NIST) Center for Neutron Research (NCNR), United States

11:00 AM C2.04.03
Dynamically Tunable Structural Color from Micrometer-domains
Yuxin Xu and Yun Liu; 1National Institute of Standards and Technology, United States; 2University of Delaware, United States
The Impact of Graft Type on the Assembly of Nanoscale Organic Hybrid Materials in Solution using Small Angle Neutron Scattering
Md Ashraful Haque¹, Tony G. Fertie², Sara T. Hamilton², Ah-Hyung Park² and Mark Dadmun¹,²,³; ¹University of Tennessee, Knoxville, United States; ²Oak Ridge National Laboratory, United States; ³National Institute of Standards and Technology, United States; ⁴Institut Laue-Langevin, France; ⁵Research Center Juelich GmbH, Germany

Emerging Applications of Neutron Scattering in Engineering, Arts and Sciences

Soft Matter
SESSION C2.05: Surfactants and Emulsions
Session Chair: John Riley
Tuesday Afternoon, June 7, 2022
UMC Conference Room 235

1:45 PM *C2.05.01
Using Neutrons to Probe the Structure of PFAS Surfactant
Michelle Tanjanou; University at Buffalo, The State University of New York, United States

2:15 PM C2.05.02
Controllable Nanostructures via a Bicellar Template – Characterized by Contrast-Variation SANS
Chung-Hao Liu and Mu-Ping Nieh; University of Connecticut, United States

2:30 PM C2.05.03
Chemical and Physical Control on the Nanostructures of Ionic Amphilic Oligomer Assemblies: Elucidated by Spectroscopy and Neutron Reflectivity
Zening Liu, Hanyu Wang, Tianyu Li, Lu Lin, John Katareas, Kunlan Hong, Jim Browning, Benjamin Doughty and Charles P. Collier; Oak Ridge National Laboratory, United States

2:45 PM C2.05.04
Self-Association in Pluronic-Cationic Surfactant Mixed System: A Scattering and Molecular Dynamics Approach
Ketan C. Kuperkar¹,²,¹; German Perez-Sanchez¹ and Pratap Bahadur¹; ¹Veer Narmad South Gujarat University (VNSGU), Surat, India; ²Campus Universitario de Santiago, Portugal

3:00 PM C2.05.05
Variation of Bicontinuous Microemulsion Surface Structures on Hydrophilic and Amphiphilic Substrates
Luke Heroux; Lawrence Berkeley National Laboratory, United States

3:15 PM C2.05.06
Measuring Co-surfactant Demixing Across Internal Nanodroplet Interfaces by SANS
Tanvi Sheth, Nairiti Sinha and Matthew Helgeson; University of California, Santa Barbara, United States

Hard Condensed Matter
SESSION B2.05: Spin Glass and Complex Magnetic Structures
Session Chair: Martin Mourigal
Tuesday Afternoon, June 7, 2022
UMC East Ballroom 212

2:00 PM B2.05.01
Highly Tunable Magnetic Phases in Transition Metal Dichalcogenides Feₓ1-xNbS₂: Shan Wu¹,²,³, Zhijun Xu¹, Shannon Haley¹, Sophie Weber¹, Eran Manii¹,², Yiming Qiu¹, Adam Aczel¹, Jeffrey Neaton¹,², James Analytis¹,² and Robert Birgeneau¹,²; ¹University of California, Berkeley, United States; ²Lawrence Berkeley National Laboratory, United States; ³NIST Center for Neutron Research, United States; ⁴Oak Ridge National Laboratory, United States

11:30 AM C2.04.05
The Microscopic Structure and Dynamics of PEO-Silica Nanocomposite: Effect of Nanoparticle Size on Short-Time Polymer Dynamics
Ji-hyuk Kim¹, Antonia Faraoone², Orsolya Czakkel³, Michael Ohl³, Stephan Forster¹ and Norman Wagner¹; ¹University of Delaware, United States; ²National Institute of Standards and Technology, United States; ³Institut Laue-Langevin, France; ⁴Research Center Juelich GmbH, Germany
2:30 PM B2.05.02
Inelastic Neutron Scattering Study of the Anisotropic Spin Glass
Fe2TiO5
Yu Li1, P. G. LaBarre2, Daniel M. Pajerowski3, A. P. Ramirez4, Stephan Rosenkranz1 and Daniel Phelan1; 1Argonne National Laboratory, United States; 2Univ. California Santa Cruz, United States; 3Oak Ridge National Laboratory, United States

2:45 PM B2.05.03
Freezing of a Disorder Induced Spin Liquid with Strong Quantum Fluctuations
Xiao Hu1, Daniel M. Pajerowski2, Depei Zhang2, Andrey Podlesnyak2, Yiming Qu1, Qing Huang1, Haidong Zhou1, Israel Klich2, Alexander I. Kolesnikov2, Matthew Stone2 and Seung-Hun Lee1; 1University of Virginia, United States; 2Oak Ridge National Laboratory, United States; 3National Institute of Standards and Technology, United States; 4The University of Tennessee, Knoxville, United States

3:00 PM B2.05.05
Competing Magnetic Ground States of NaCo2(SeO3)2(OH): A New Sawtooth Structure with Co2+ and Se(OH)2
Duminda Sanjeeva1, Ovidiu Garlea1 and Keith Tadder1; 1University of Missouri, United States; 2Oak Ridge National Laboratory, United States

Neutron Physics

SESSION G2.02: Neutron Physics II
Session Chair: Leah Broussard
Tuesday Afternoon, June 7, 2022
UMC Aspen Room 285, 287, 289

2:00 PM G2.02.01
Fundamentals of Entangled Neutron Beams
Gerardo Ortiz1,2; 1Indiana University, United States; 2Indiana University Quantum Science and Engineering Center, United States

2:30 PM G2.02.02
How Entangled Neutron Beams Unveil Chiral Spin Orders
Abu Ashik Md Irfan and Gerardo Ortiz; Indiana University, United States

2:45 PM G2.02.03
Spin-textured Neutron Beams and Orbital Angular Momentum
Sam McKay1,2,3, Quan Le Thi1,2, Fankang Li2, Abu Irfan1,2, Jiazhao Shen1,2,3, Eric B. Dews1,2,3, Stephen J. Kuhn1,2,3, David V. Baxter1,2,3, Gerardo Ortiz1,2,3 and Roger Pynn1,2,3; 1Indiana University, United States; 2Oak Ridge National Laboratory, United States

3:00 PM G2.02.04
New Determination of the 3He Neutron Incoherent Scattering Length
Earl Babcock; Juelich Centre for Neutron Science, Germany

Emerging Applications of Neutron Scattering in Engineering, Arts and Sciences

SESSION H2.02: Emerging ML Applications—Diffraction to Dynamics
Session Chair: Alan Tennant
Tuesday Afternoon, June 7, 2022
UMC West Ballroom 208

2:00 PM H2.02.01
Using AI to Determine Space Group from Neutron Powder Diffraction Data
William Ratcliff1,2; 1Haotong Liang2, Aaron G. Kusne1,2 and Ichiro Takeuchi2; 2NIST, United States; 3University of Maryland, United States

2:15 PM H2.02.02
Super-resolution Dispersions Measured by Direct Geometry Spectrometers
Jiao Lin1, Gabriele Sala1, Matthew Stone2 and Andrew D. Christianson1; 1Oak Ridge National Lab, United States; 2Oak Ridge National Laboratory, United States

2:30 PM H2.02.03
A Method for Determining Mid-Range Order in Semi-Crystalline Materials using Inelastic Neutron Scattering and Density Functional Theory
Makenna Dettmann1, Lucas S. Cavalcante1, John Anthony2 and Adam Moule3; 1University of California, Davis, United States; 2University of Kentucky, United States

2:45 PM H2.02.04
Machine Learning for Sample Alignment in Neutron Scattering Experiments
Abdourahmane Diene1, Kevin Bruhwiler1, Chris Hall1, Jonathan Edelen1, Stuart Calder2 and Christina Hoffmann2; 1RadiaSoft LLC, United States; 2Oak Ridge National Laboratory, United States

3:00 PM H2.02.05
Autonomous Discovery of the Magnetic Order Parameter with ANDIE, the Autonomous Neutron Diffraction Explorer
Austin McNamad1, Matthias D. Frontzek2, Andrei T. Savic2, Mathieu Doucer3, Efrain E. Rodriguez3,4, Kate Moose3, Jessica Opsahl-Ong3, Daniel Samarov3, Ichiro Takeuchi3,4, William Ratcliff3,4 and Aaron G. Kusne1,2; 1National Institute of Standards and Technology, United States; 2Oak Ridge National Laboratory, United States; 3University of Maryland, United States; 4Maryland Quantum Materials Center, United States; 5Cornell University, United States; 6Rice University, United States

3:15 PM H2.02.06
Modeling Multi-Crystalline and Amorphous INS Spectra: Simulation Methods, Accuracy, and Expanse
Makenna Dettmann1, Lucas S. Cavalcante1, Daniel Yong1, Nir Goldman2 and Adam Moule3; 1UC Davis, United States; 2Lawrence Livermore National Laboratory, United States
WEDNESDAY ORAL PRESENTATIONS

Plenary and Prize Session

SESSION I3.01: Plenary and Prize Session
Session Chairs: Peter Gehring, Young Lee, Katie Weigandt and Stephen Wilson
Wednesday Morning, June 8, 2022
UMC Conference Room 235

8:30 AM *I3.01.01
SUSTAINED RESEARCH PRIZE WINNER: Neutrons, Biological Membranes, and Future Directions John Katsaras; Oak Ridge National Laboratory, United States

9:10 AM *I3.01.02
PLENARY: Neutron Scattering from Exotic Magnetic Ground States Bruce D. Gaulin; McMaster University, Canada

9:45 AM BREAK

Advances in Neutron Facilities, Instrumentation and Software

SESSION A3.06: Instrumentation; Soft Matter and Imaging
Session Chair: John Barker
Wednesday Morning, June 8, 2022
UMC West Ballroom 208

10:15 AM *A3.06.01
Performance Upgrades to the BT-2 Neutron Imaging Facility Jacob M. LaManna1, Michael Cyrus Daugherty2, Youngju Kim1,2, Eli Baltic1, Daniel S. Hussey2 and David Jacobson1; 1National Institute of Standards and Technology, United States; 2University of Maryland, United States

10:45 AM A3.06.02
INFER: Dark-field Tomography of Hierarchical Structures Daniel S. Hussey1, Caitlyn M. Wolf1, Youngju Kim1,2, Sarah M. Robinson1, Michael Cyrus Daugherty2, Ryan P. Murphy3, Paul A. Kienzle1, Nikolai N. Klimov1, Michael G. Huber1, Peter N. Bajcey1, David Jacobson1, Jacob M. LaManna1 and Katie M. Weigandt1; 1National Institute of Standards and Technology, United States; 2University of Maryland, United States

11:00 AM A3.06.03
Upgrade of the Neutron Spin Echo Spectrometer at the NIST Center for Neutron Research Antonio Faronone1, Norman Wagner2, Michilino Nago3,4,5, Christoph Brocker6, Nicholas C. Maliszewskij1, Michael Monkenbusch1, Olaf Holderer7, Tadeusz Kozielewski6 and Dan A. Neumann1; 1NIST Center for Neutron Research, United States; 2University of Delaware, United States; 3University of Maryland, United States; 4Jülich Centre for Neutron Science, Germany

11:15 AM A3.06.04
The Quite Intense Kinetics Reflectometer (QIKR) at the Spallation Neutron Source (SNS) Second Target Station (STS) John F. Ankner, Danielle Wilson, Rudy Thermer, Scott Dixon and Zeke Salazar; Oak Ridge National Laboratory, United States

11:30 AM A3.06.05
Recent Advances at the Cold Neutron Imaging Instrument at High Flux Isotope Reactor Yuxuan Zhang1, Hassan Z. Bilheux1, Erik Stringfellow1, Jean Bilheux1, Jonathan Smith1, Les Butler2, Kyungmin Ham3, Wieslaw Stryjewski2 and Michael Vincent1; 1Oak Ridge National Laboratory, United States; 2Louisiana State University, United States

11:45 AM A3.06.06
Angle-encoding Radiography with Neutrons Sam McKaun1,2,1, Fankang Li1,2, David V. Baxter1,2,3 and Roger Pyon1,4; 1Indiana University, United States; 2Oak Ridge National Laboratory, United States

12:00 PM A3.06.07
Dynamic Microfluidic Modulation of Neutrons and x-rays Ryan P. Murphy, Sarah M. Robinson, Jacob M. LaManna, Caitlyn M. Wolf1, Youngju Kim, Michael Cyrus Daugherty, Michael G. Huber, Peter N. Bajcey, David Jacobson, Paul A. Kienzle, Katie M. Weigandt, Daniel S. Hussey and Nikolai N. Klimov; National Institute of Standards and Technology, United States

12:15 PM A3.06.08
The VENUS iMaging Beamline Construction Project at the Spallation Neutron Source Hassina Z. Bilheux, Tommy Thomasson, Aaron Hanks, Amy Byrd, Amy Jones, Harley Skorpenske, Erik Stringfellow, Bill McHargue, Irina Popova, Franz X. Gallmeier, Jean Bilheux, Ryan Mangus, Scott Keener and George Rennich; Oak Ridge National Laboratory, United States

Hard Condensed Matter

SESSION B3.06: Phonons and Lattice Dynamics
Session Chair: Dmitry Reznik
Wednesday Morning, June 8, 2022
UMC East Ballroom 212

10:15 AM B3.06.01
Inelastic Neutron Scattering Measurements of New Spectral Features from Nonlinear Phonon Interactions Brent Halp1, Yang Shen1, Claire N. Saunders1, Camille Bernal1, Michael E. Manley2 and Vladimir Ladygin1; 1California Institute of Technology, United States; 2Oak Ridge National Laboratory, United States

10:30 AM B3.06.02
Structural Fluctuations, Complex Ground-States and Strongly Anharmonic Phonons in Metal Halide Perovskites Olivier Delaire1, Xing He1, Tyson L. Lanigan-Atkins1, Matthew Krogstad2, Mayanak K. Gupta1, Chengjie Mao3, Daniel M. Pajerowski4, Douglas L. Abernathy5, Feng Ye5, Tao Hong1, Songxue Chi3, Yaohua Liu3, Guangyong Xu1, Zhijun Xu4, Stepan Rosenkrantz2 and Raymond Osborn2; 1Duke University, United States; 2Argonne National Laboratory, United States; 3Oak Ridge National Laboratory, United States; 4National Institute of Standards and Technology, United States; 5University of California, Riverside, United States
10:15 AM D3.01.01
Search for Broken Symmetries in Kagome Lattice Superconductor
Çaçorluk Balci, Cuong Duong, Yujiro Sakuma, Jean-Noël Raimond, Fumio Sugino, and Ryo Noda
University of California, Santa Barbara, United States

10:45 AM E3.01.02
Phonon Dynamics and Thermal Transport in Ti3V2Ge3
Yoel F. Lencina Wendi, Qiang Cai, Brian Sales, Ayman Said, and Yuzhi Oey
Oak Ridge National Laboratory, United States

11:00 AM E3.01.03
High Throughput Operando Neutron Diffraction at the Nanoscale Ordered Materials Diffractionometer (NOMAD)
Jie Liu, Zhijia Du, Xianyang Wu and Michelle Everett; Oak Ridge National Laboratory, United States
11:15 AM E3.01.04

In Situ Observation of Dynamic Electrode-Electrolyte Interfaces under Li-Mediated Electrochemical N: Reduction Conditions Sarah J. Blair1, Mathieu Doucet1, Jim Browning2, Adam C. Nieltander3, Alessandro Gallo1 and Thomas F. Jaramillo1, 2, 3, Stanford University, United States; 1SLAC National Accelerator Laboratory, United States; 2Oak Ridge National Laboratory, United States

11:30 AM E3.01.05

Lithium-Polymer Batteries—A Microscopic View! Michael Ohl1, 2, Juergen Allgaier1, Marcella Cabrera-Berg1, Changwoo Do1, Yuya Doi2, Rene Halver3, Eugene Mamontov1, Radhima Nain2, Naresh C. Osti2, Godhard Satmann1, 2, Hui Wang2, Stephan Forster1 and Takeshi Egami3, 2, Forschungszentrum Jülich GmbH, Germany; 3Univ. Tennessee, United States; 4Oak Ridge National Laboratory, United States; 5Nagoya University, Japan; 3Indian Institute of Technology Delhi, India; 3Ruhr-University Bochum, Germany; 4Stanford Linear Accelerator Center, United States

11:45 AM E3.01.06

Tuning Chemical Short-Range Order in Complex High-Entropy Liquid and Liquid-Liquid Interfaces Rene Halver1, Eugene Mamontov1, Radhima Nain2, Naresh C. Osti2, Godhard Satmann1, 2, Hui Wang2, Stephan Forster1 and Takeshi Egami3, 2, Forschungszentrum Jülich GmbH, Germany; 3Univ. Tennessee, United States; 4Oak Ridge National Laboratory, United States; 5Nagoya University, Japan; 3Indian Institute of Technology Delhi, India; 3Ruhr-University Bochum, Germany; 4Stanford Linear Accelerator Center, United States

11:50 AM E3.01.07

Advances in Neutron Facilities, Instrumentation and Software

SESSION A3.07: Instrumentation: Sample Environment
Session Chair: Sergiy Gladchenko
Wednesday Afternoon, June 8, 2022
UMC West Ballroom 208

2:00 PM A3.07.01

Advances in High-Pressure Neutron Scattering at Oak Ridge National Laboratory Mary-Ellen Donnelly, Oak Ridge National Laboratory, United States

2:30 PM A3.07.02

A Pre-Conceptual Design of a 20 – 25 T Vertical-Field Split Magnet for Neutron Scattering Mark Bird1, Scott Bole2, Ken Herwig2, Dylan Kolb-Bond1 and Jack Toth1, 2, NIMFL - FSU, United States; 3ORNL, United States

2:45 PM A3.07.03

RheoSurfR – Neutron Reflectivity-Rheology Sample Environment for Studying Soft Matter, Biology, and Materials Processing at Air-Liquid and Liquid-Liquid Interfaces Benjamin R. Thompson1, Mason Keresty2, Hannah Nevel3, Richard Dombrowski2 and Norman Wagner2, 3, University of Delaware, United States; 2STF Technologies LLC, United States

3:00 PM A3.07.04

4D Rheo-SANS: A Novel Sample Environment for Measuring Structure-Property Relationships in Soft Matter and Biological Materials Nathan Alexander1, Jonathan Kopf2, Benjamin R. Thompson1, Richard Dombrowski2 and Norman Wagner2, 3, University of Delaware, United States; 2STF Technologies LLC, United States

3:15 PM A3.07.05

Rapid and Controllable Cooling of High-Temperature Neutron Furnace Yue Xiao1, Chien-Hua Chen1, Patryk Radyjowski1, Max Demydovych1, Chad Burkholder1 and Rebecca A. Mills2, 1 Advanced Cooling Technologies, Inc, United States; 2Oak Ridge National Laboratory, United States

Hard Condensed Matter

SESSION B3.07: Orbital Physics and Beyond Dipolar Magnetism
Session Chair: Benjamin Ueland
Wednesday Afternoon, June 8, 2022
UMC East Ballroom 212

2:00 PM B3.07.01

Anisotropic Spin Wave Excitations in a Multiferroic BiFeO3 – Masaki Matsuda1, Depui Zhang1, Sachith Dissanayake1, Barry Winer1, Toshimitsu Ito2 and Randy Fishman1, Oak Ridge National Laboratory, United States; 1AIST, Japan

2:15 PM B3.07.02

Magnetism and Symmetry Lowering in the 5d Double Perovskite BaNaOsO4 Probed with Polarized Neutron Diffraction and Total Scattering Stuart Calder, Yan Wu, Jue Liu and Jiaqiang Yan; Oak Ridge National Laboratory, United States

2:30 PM B3.07.03

Dual Orbital Degeneracy Lifting in a Strongly Correlated Electron System Emil Bozin1, Robert J. Koch1, Ryan Sinclair2, Marshall McDonnell3, Runze Yu1, Milinda Abeykoon4, Simon Billinge1, Alexei Tsvelik1, Matthew Tucker1, Haidong Zhou2 and Weiguo Yin2, Brookhaven National Laboratory, United States; 3The University of Tennessee, Knoxville, United States; 4Oak Ridge National Laboratory, United States

2:45 PM B3.07.04

Lattice and Magnetic Dynamics in YVO3 Mott Insulator Studied by Neutron Scattering and First-Principles Calculations Yu Tao1, Douglas L. Abernathy2, Tianran Chen1, Taner Yildirim3, 4, Jiaqiang Yan2, 3, Jianshi Zhou4, John Goodenough5 and Despina Louca1, 2, University of Virginia, United States; 3Oak Ridge National Laboratory, United States; 4National Institute of Standards and Technology, United States; 5University of Pennsylvania, United States; 2The University of Tennessee, Knoxville, United States; 3The University of Texas at Austin, United States

3:00 PM B3.07.05

The Detection of Magneto-Electric Multipoles with Spherical Neutron Polarimetry: CuO and LiMnPO4 Jian Rui Soh1, 2, Andrea Urru1, Paola Forino1, Rasmus Toft-Petersen2, NICOLA SPALDIN3 and Henrik M. Rønnow1, 2, EPFL, Switzerland; 3Technical University of Denmark, Denmark; 2ETH Zurich, Switzerland

Soft Matter

SESSION C3.06: Bio-Inspired Soft Matter
Session Chair: Javen Weston
Wednesday Afternoon, June 8, 2022
UMC Conference Room 235

2:00 PM *C3.06.01

Understanding and Controlling the Solution Self-Assembly of Amphiphilic Polypeptoid Block Copolymers Donghai Zhang, Louisiana State University, United States
2:30 PM C3.06.02
Phase Morphology of Amorphous Solid Dispersions using Small-Angle Neutron Scattering and Neutron Interferometry Carilyn M. Wolf, Youngju Kim, Sarah M. Robinson, Michael Cyrus Daugherity, Ryan P. Murphy, Nikolai N. Klimov, Michael G. Huber, Peter N. Bajcsy, David Jacobson, Jacob M. LaManna, Paul A. Kienzl, Daniel S. Hussey and Katie M. Weigandt; National Institute of Standards and Technology, United States; 3University of Maryland, United States

2:45 PM C3.06.03
Microstructures of Starch Granules as Revealed by Scattering Techniques Yinmin Mao and Yong-Cheng Shi; 1National Institute of Standards and Technology, United States; 2University of Maryland, United States; 3Kansas State University, United States

3:00 PM C3.06.04
Glucose Induced Self-Assembly and Phase Separation in Hydrophobic Triblock Copolymer Solution and its Governing Mechanism Divya K. Patel, Ketan C. Kuperkar and Pratap Bahadur; 1Sardar Vallabhbhai National Institute of Technology (SVNIT), India; 2Veer Narmad South Gujarat University (VNSGU), India

3:15 PM C3.06.05
Diffusion Coefficients of Anisotropic Particles Measured by NSE: A Case Study Using Monoclonal Antibody Yanqin Zhai, Nicos Martys, William L. George, Joseph E. Curtis, Jannatun Nayem, Yang Zhang and Yun Liu; 1University of Illinois at Urbana-Champaign, United States; 2National Institute of Standards and Technology, United States; 3University of Delaware, United States

3:30 PM C3.06.06
Understanding the Microscopic Mechanism Behind the Dielectric Relaxation in Water using Inelastic Neutron Scattering Yadu Krishnan Sarathchandran, Yuya Shinohara, Wojciech Dmowski, Eugene Mammontov, Daniel M. Pajerowski and Takeshi Egami; 1University of Tennessee, Knoxville, United States; 2Oak Ridge National Laboratory, United States

### Structural Materials and Engineering

SESSION F3.02: Using Neutrons for Large Scale Engineering Applications
Session Chair: Jeffrey Bunn
Wednesday Afternoon, June 8, 2022
UMC Aspen Room 285, 287, 289

2:00 PM *F1.02.01
Application of Neutron Diffraction for Industrial Materials & Manufacturing Development Shenyang Huang; GE Research, United States

2:30 PM F1.02.02
Effects of Mechanical Deformation on Dislocation Density, Phase Separation and Hydrogen Diffusion in Pipeline Steel Zachary Buck, Matthew Connolly, May Martin, Dannan Lauria, Peter Bradley, Andrew Silkia, Ke Au, Yan Chen and Naresh C. Ostri; 1National Institute of Standards and Technology, United States; 2Oak Ridge National Laboratory, United States

2:45 PM F1.02.03
Damage Modes in Hydrogen-Assisted Fatigue Probed by Neutron and X-Ray Scattering Matthew Connolly, Zach Buck, May Martin, Robert Amaro, Peter Bradley, Dannan Lauria, Jun-Sang Park and Andrew Silkia; 1National Institute of Standards and Technology, United States; 2AMTT, United States; 3Argonne National Laboratory, United States

3:00 PM F1.02.04
Elevated Temperature Dislocation Density Reductions in Cold-Worked ASTM A586 High-Strength Steel Wire Junari A. Robinson, Adrian Brugger and Raimondo Betti; Columbia University, United States

### Biology, Biophysics and Biotechnology

SESSION D3.03: New Tools and Methods for Biological Scattering Experiments
Session Chairs: Rachel Ford and Jacob Kinnun
Wednesday Afternoon, June 8, 2022
UMC Conference Room 235

3:45 PM D3.03.01
Time-Resolved In-Situ Reaction SANS Study Details Structural Changes to Noncellulosic Biopolymer in Switchgrass Plant Cell Wall Sai Venkatesh Pingali, Zhi Yang, Marcus Foston, Hugh O’Neill, Volker S. Urban, Arthur Ragauskas, Barbara Evans and Brian Davison; 1Oak Ridge National Laboratory, United States; 2Massey University, New Zealand; 3Washington University in St. Louis, United States; 4The University of Tennessee, Knoxville, United States

4:00 PM D3.03.02
Developing DENSS for Neutron Contrast Variation Data -- DENSS Multiple Shao Qian; Oak Ridge National Laboratory, United States

4:15 PM D3.03.03
Structure-Based Calculation of Biomolecular Neutron Scattering Contrast Match Points with Explicit Deuteration Alan Hicks, Paul Abraham, Quo Zhang, Jeremy Smith, Hugh O’Neill and Loukas Petridis; 1Oak Ridge National Laboratory, United States; 2The University of Tennessee, Knoxville, United States

4:30 PM D3.03.04
Applying New Models to Describe Biomembrane Structure and Solvent Partitioning in Living Cell Membranes and Membrane Mimics Luoxi Tan, Micholas Smith, Haden L. Scott, John Katsaras, Sai Venkatesh Pingali, Jeremy Smith, Brian Davison, James Elkins and Jonathan Nickels; 1University of Cincinnati, United States; 2The University of Tennessee, Knoxville, United States; 3Oak Ridge National Laboratory, United States

4:45 PM D3.03.05
Low-Background Neutron Reflectometry Measurement Strategies for Solid/Liquid Interfaces David P. Hoogerheide, Joe Dura, Frank Heinrich, Brian Maranville, Paul A. Kienzl and Charles F. Majkrzak; 1National Institute of Standards and Technology, United States; 2Carnegie Mellon University, United States

### Materials Chemistry and Energy

SESSION E3.03: Materials Chemistry and Energy III
Wednesday Afternoon, June 8, 2022
UMC Aspen Room 285, 287, 289

3:45 PM E3.02.01
The Symmetry Relationship Between Magnetic Order and Toroidal Moments in LiMn2/3P2O12 (M = Co, Fe) Stephanie Onewuch and Efrain E. Rodriguez; University of Maryland, United States
4:00 PM E3.02.02
Electronic Conduction Induced Dendrite Formation in Solid Electrolytes Pudong Han; Rensselaer Polytechnic Institute, United States

4:15 PM E3.02.03
Raising the Transition Temperature of Olivines Li1.4FeMn0.6PO4, Through Selective Li-Deintercalation Timothy J. Diethrich and Efrain E. Rodriguez; University of Maryland, College Park, United States

4:30 PM E3.02.04
Van Hove Correlation Function of Magnesium Chloride Molten Salt Yuuya Shinohara; University of Tokyo, Japan

4:45 PM E3.02.05
Mapping the Light Elements in Complex Oxides for High-rate Lithium-ion Batteries Kent Griffith and Kenneth R. Poeppelemeier; Northwestern University, United States

5:00 PM *E3.02.06
Exploring Oxygen Motion Through Perovskites La0.5Sr0.5CoO3, FeO0.5 with In Situ Diffraction Allyson M. Fyr-Petit, Mara Milhander1, and Jose Gonzalez Jimenez2,3; California State University, Fullerton, United States; 2Rutgers, The State University of New Jersey, United States

5:15 PM E3.02.07
Nematic Correlation Length in Iron-Based Superconductors Probed by Inelastic X-Ray Scattering Dmitry Reznik; University of Colorado-Boulder, United States

4:00 PM E3.03.01
Machine Learning for Neutron Reflectometry Mathieu Doucet, William Heller and Richard Archibald; Oak Ridge National Laboratory, United States

4:15 PM E3.03.02
Davis Computational Spectroscopy workflow - from structure to spectra Lucas Samir Ramalho Cavalcante, Makena Dettmann, Ambarish Kulkarni and Adam Moule; UC Davis, Brazil

4:30 PM E3.03.03
Machine Learning-Enabled Inverse Analysis of Small Angle Scattering Data Graham W. Roberts, Mu-Ping Nieh, Anson Ma and Qian Yang; University of Connecticut, United States

4:45 PM E3.03.04
Machine Learning Augmented Computational Reverse-Engineering Analysis for Scattering Experiments of Assembled Mixtures of Nanoparticles Christian Hell and Arthi Jayaraman; University of Delaware, United States

5:00 PM E3.03.05
Designing an Active Learning Agent for Autonomous Small-Angle Scattering Tyler B. Martin, Aaron G. Kusne, Austin McDonnald and Peter A. Beauchamp; National Institute of Standards and Technology, United States

**Hard Condensed Matter**

SESSION B3.08: Unconventional Superconductors and Related Materials Session Chair: Shan Wu Wednesday Afternoon, June 8, 2022 UMC East Ballroom 212

4:00 PM *B3.08.01
Carrier Tuning of Stoner Ferromagnetism in Ca(Co1-xFe)xO3+δ As; Benjamin G. Ueland1,2, Santanu Pakhira1,2, Bing Li3,2, Aashish Sapkota1,2, N. S. Sangeeth1,2, Toby G. Perring1, Yongbin Lee1, Liqin Ke1, D. C. Johnston1,2 and R. J. McQueeney1,2; Ames Laboratory, United States; 1Iowa State University of Science and Technology, United States; 2IFMIE, University of Kentucky, United States; 3STFC Rutherford Appleton Laboratory, United Kingdom

4:30 PM B3.08.02
Understanding Charge Density Wave superlattice structure and potential Quantum Spin Liquid behavior in 1T-TaS2 and 1T-TaSe2 Sharon S. Philip and Despina Louca; University of Virginia, United States

4:45 PM B3.08.03
Structural Correlations in the Hole-Doped Cuprate HgBaCuO4+δ Zachary W. Anderson1,2, Damjan Peč1, Matthew Krogstad1, Nikolaos Biniskos2, Bijiqiong Yu2, Yaohua Liu3,4, Lisa Thompson1, Jack Zwettler1, Richard Spiciker1, Nina G. Bielinski2, Feng Ye1, Stephen Rosenkranz3, Raymond Osborn1 and Martin Greven1; 1University of Minnesota, United States; 2University of Zagreb, Croatia; 3Argonne National Laboratory, United States; 4Forschungszentrum Jülich GmbH, Germany; 5Oak Ridge National Laboratory, United States

5:00 PM B3.08.04
Magnetic Fluctuations in Superconducting and Non-Superconducting 11 Iron Chalcogenides Igor Zaliznyak1, Yangmu Li1,2, Ovidiu Garlea1, Andrei T. Savici1, Zhijun Xu1,2, Gu Genda1 and John Tranquada1; Brookhaven National Laboratory, United States; 2Institute of Physics, China; 3Oak Ridge National Laboratory, United States; 4National Institute of Standards and Technology, United States

**Emerging Applications of Neutron Scattering in Engineering, Arts and Sciences**

SESSION H3.03: Emerging ML Applications—Soft Matter and Chemistry Session Chair: Tyler Martin Wednesday Afternoon, June 8, 2022 UMC West Ballroom 208
THURSDAY
ORAL
PRESENTATIONS

Plenary and Prize Session

SESSION I4.01: Plenary and Prize Session
Session Chairs: Peter Gehring, Young Lee, Katie Weigandt and Stephen Wilson
Thursday Morning, June 9, 2022
UMC Conference Room 235

8:45 AM *I4.01.01
OUTSTANDING STUDENT RESEARCH PRIZE WINNER:
Magnetic Phase Transitions and Spin-Wave Dynamics in Y1−xLa2TiO5 and Y1−xCa4TiO5
Sajna Hameed; University of Minnesota Twin Cities, United States

9:10 AM *I4.01.02
PLEANARY: Neutrons for Clean Bioenergy
Jeremy Smith; University of Tennessee/Oak Ridge National Laboratory, United States

9:40 AM POSTER AWARD ANNOUNCEMENT

9:45 AM BREAK

Advances in Neutron Facilities, Instrumentation and Software

SESSION A4.09: Neutron Devices and Ancillary Equipment
Session Chairs: Mary-Ellen Donnelly and Fankang Li
Thursday Morning, June 9, 2022
UMC West Ballroom 208

10:15 AM *A4.09.01
Status of the Second Target Station Project
Ken Herwig; Oak Ridge National Laboratory, United States

10:45 AM *A4.09.02
Correcting Divergent Beam Aberrations in a Neutron Resonance Spin Echo (NRSE) instrument
Stephen J. Kuhn1,2,3, Sam McKay1, Fankang Li4, Eric B. Dees5, Robert Dalglish6, Steven R. Parnell7, Stephen J. Kuhn1, Fankang Li4, Sam McKay1, Jiazhou Shen5 and Roger Pynn1,6,7; 1Indiana University, United States; 2Rutherford Appleton Lab, United Kingdom; 3TU Delft, Netherlands; 4Oak Ridge National Laboratory, United States

11:00 AM *A4.09.04
The Strange Invisibility of Cold Neutrons in Highly Neutron Absorbing B4C—Towards a Novel Family of Neutron Optics
Malik Manzir1,2,3; 1University of South Africa, South Africa; 2iThemba LABS-National Research Foundation of South Africa, South Africa

11:15 AM A4.09.05
Development of an Enhanced Solid-State Neutron Detector
Hank Thurston1,2,3 and Elias Garratt1,2,3; 1Hillsdale College, United States; 2Trinary Capital, LLC, United States

11:30 AM A4.09.06
A Superconducting Device for Widening the Effective Angle in Quasi-Elastic Spin-Echo Neutron Scattering Experiments
Erik B. Dees1, Robert Dalglish2, Steven R. Parnell3, Stephen J. Kuhn1, Fankang Li4, Sam McKay5, Jiazhou Shen5 and Roger Pynn6,7; 1Indiana University, United States; 2Rutherford Appleton Lab, United Kingdom; 3TU Delft, Netherlands; 4Oak Ridge National Laboratory, United States

11:45 AM A4.09.07
Low Temperature Goniometer for Neutron Research
Serpiv Gladchenko; National Institute of Standards and Technology, United States

12:00 PM A4.09.09
High Resolution Larmor Diffraction at Oak Ridge National Laboratory
Kalish Burren1,2,3, Masaaki Matsuda4, Jaime A. Fernandez-Baca1, Chengjie Mao2, Olivier Delaire3 and Fankang Li4; 1Oak Ridge National Laboratory, United States; 2Duke University, United States

12:15 PM A4.09.10
In-Situ He polarization for JCNS instrumentation
Earl Babcock; Juelich Centre for Neutron Science, Germany

Hard Condensed Matter

SESSION B4.10: Spin Textures and Helimagnets
Session Chair: Andrew Christianson
Thursday Morning, June 9, 2022
UMC East Ballroom 212

10:15 AM *B4.10.01
Skyrmion Lattice Manipulation with Electric and Thermal Currents
Morten R. Eskildsen; University of Notre Dame, United States

10:45 AM B4.10.02
Neutron Diffraction Study of Complex Helical Magnetic Ordering in Ni-doped EuCoO3: Single Crystals
Tianxiong Han1,2, Simon X. Riberoles1, Benjamin G. Ueland1, R. J. McQueeney1,2, Yan Wu1, Santanu Pakhira1 and D. C. Johnston1,2; 1Ames Laboratory, United States; 2Iowa State University of Science and Technology, United States; 3Oak Ridge National Laboratory, United States

11:00 AM B4.10.03
Three-Dimensional Neutron Tomography of a Bulk Skyrmion Lattice
Melissa E. Henderson1,2,3, Benjamin Heacock2,3, Markus Bleuel1,2, Benoit Leveque3, Mathew Pula3, Dusan Sarenac4, Kirill Zherenkov5, David Cory1,2 and Dmitry Pushin6,7; 1Institute for Quantum Computing, University of Waterloo, Canada; 2NIST Center for Neutron Research, United States; 3McMaster University, Canada; 4Julich Centre for Neutron Science, Germany

11:15 AM B4.10.05
Novel Magnetic Structures in M1/3TaS2
Junjie Yang and Yunpeng Gao; New Jersey Institute of Technology, United States
11:30 AM B4.10.06
Field-Tunable Toroidal Moment in a Chiral-Lattice Magnet Huibo Cao1, Lei Ding1, Xianghan Xu1, Harald Jeschke2, Xiaojian Bai3, Erxi Feng4, Admasu Alemayehu5, Jaewook Kim6, Fei Huang7, Qiang Zhang1, Xiaxin Ding8, Neil Harrison9, Vivian Zapf9, Daniel Khomskii9, Igor Mazin10 and Sang-Wook Cheong10; Oak Ridge National Laboratory, United States; Rutgers University, United States; Okayama University, Japan; “Los Alamos National Laboratory, United States; II. Physikalisches Institut, Universität zu Köln, Germany; George Mason University, United States

11:45 AM B4.10.07
Slow Relaxation with Signature of Glassiness in Non-Centrosymmetric Helimagnet ScFeGe3 Sunnil Sinha1,2,3 Nemanja Nikolic1,2,3,4,5,6,7,8 and Martin Wissink1,2,3,4,5,6,7,8; Purdue University, United States; Oak Ridge National Laboratory, United States; KU Leuven, Belgium; Zhejiang University, China; The University of Auckland, New Zealand; KIT Forbidden Technology, United States; “National Institute of Standards and Technology, United States

12:00 PM B4.10.09
Depth Profiles of Hybrid Magnetic Skyrmions Determined by Neutron Scattering WlNC Liyanage1, Nan Tang2, Lizabeth Quigley1,2, Sergio Montoya3, Julie A. Borchers4, Alexander Grutter4, Sunnil Sinha1, Brian Maranville1, Eric Fullerton3, Lisa DeBeer-Schmitt3 and Dustin A. Gilbert1,2; The University of Tennessee, Knoxville, United States; Purdue, United States; University of California, San Diego, United States; National Institute of Standards and Technology, United States; Oak Ridge National Laboratory, United States

12:15 PM B4.10.10
Revisiting Static and Dynamic Magnetic Correlations in the Chiral Helimagnet Cr1/3NbS2 Lisa DeBeer-Schmitt1, Lazar Kish1, Adam Aze1,1, Travis J. Williams1, Huibo Cao1,1, Timothy Charlton1, Nirmal Ghimire1, Jacob Ruff1, Michael A. McGuire1, Stephen J. Kuhn2, Morten R. Eskildsen1 and David Mandrus3; IORNL, United States; University of Illinois at Urbana-Champaign, United States; George Mason University, United States; Cornell University, United States; Oak Ridge National Laboratory, United States; Indian University-Bloomington, United States; University of Notre Dame, United States; The University of Tennessee, Knoxville, United States

Soft Matter

SESSION C4.07: Nanoparticles, Methods, and General Soft Matter
Session Chair: Javen Weston
Thursday Morning, June 9, 2022
UMC Conference Room 235

10:15 AM *C4.07.01
Frustrated Coulombic and Cation Size Effects on Nanoscale Boehmite Aggregation: A Tumbler Small- and Ultra-Small-Angle Neutron Scattering Study Lawrence M. Anovitz1, Patricia Haestia2, Nikhil Rampal3, Andrew G. Stack4, Jay A. LaVerme5, Xin Zhang3, Geregory K. Schenter1, Jaehun Chun1, Benjamin A. Legg3, Lili Liu1, Markus Bleuel1, Cedric Gagnon6 and David F. Mildner7; Oak Ridge National Laboratory, United States; “University of Notre Dame, United States; Physical Sciences Division, United States; National Institute of Standards and Technology, United States

10:45 AM C4.07.02
Investigating the Oxidation of Atmospheric Aerosols using Neutron Reflectometry Rebecca Welbourn1 and Martin King2; ISIS Neutron & Muon Source, United Kingdom; “Royal Holloway University of London, United Kingdom

11:00 AM C4.07.03
How Much Crosslinking Causes a Polymer Chain to Become a Nanoparticle? Jacob Fischer1, La Han2, Tonomori Saito3 and Mark Dadmun1,2; The University of Tennessee, United States; Oak Ridge National Laboratory, United States

11:15 AM C4.07.04
Molecular Deformation and Relaxation Dynamics of Ionomers Revealed by Complementary Small-Angle Scattering Techniques Christopher N. Lam, Wei-Ren Chen and Yanpeng Wang; Oak Ridge National Laboratory, United States

11:30 AM C4.07.05
Rapid Automated Morphology Identification and Parameter Determination from Small Angle Scattering Data via Machine Learning Graham W. Roberts, Mu-Ping Nieh, Anson Ma and Qian Yang; University of Connecticut, United States

11:45 AM C4.07.06
Automated SANS/SAXS Exploration of Soft Materials with the Autonomous Formulation Laboratory Peter A. Beauchage and Tyler B. Martin; National Institute of Standards and Technology, United States

12:00 PM C4.07.07
Measurement of Time-Resolved Adsorption Profiles in PMMA-Methanol System with Neutron Imaging Martin Wissink1, Michael Kass1, Charles E. Finney1, Jacob M. LaManna2, David Jacobson2 and Hassina Z. Bilheux3; Oak Ridge National Laboratory, United States; National Institute of Standards and Technology, United States

12:15 PM C4.07.08
Studying Morphology Transitions on Sequential Annealing of Lamellar Block Copolymer Thin Films via Neutron Reflectivity Kabhiit Sharma1, Maninderjeet Singh1, Sushil K. Satija2, John F. Ankner1, Jack Douglas2 and Alamgir Karim1; University of Houston, United States; National Institute of Standards and Technology, United States

12:30 PM C4.07.09
Thermodynamic Interactions in Polydiene/Polyolefin Blends Megan L. Robertson1, Jiabin Qu and Ramanan Krishnamoorti; University of Houston, United States

12:45 PM C4.07.10
Specific Salt Effects on Equilibrium and Flow Structure of Wormlike Micelles Javen S. Weston1, Nour Alawami1 and Katie M. Weigand2; The University of Tulsa, United States; National Institute of Standards and Technology, United States