MONDAY ORAL PRESENTATIONS

Plenary and Prize Session
SESSION A1.01: Plenary and Prize Session
Session Chairs: Matthew Helgeson, Despina Louca, Efrain Rodriguez and Patrick Woodward
Monday Morning, June 25, 2018
Salon A

8:00 AM
Welcome and Introduction by Patrick Woodward, The Ohio State University/ACNS Conference Chair and Despina Louca, University of Virginia/NSSA President

8:15 AM *A1.01.01
CLIFFORD G. SHULL PRIZE WINNER: Fundamental Quantum Mechanics Explored by Neutron Interferometry
Samuel A. Werner1,2; 1University of Missouri, United States; 2National Institute of Standards and Technology, United States.

8:45 AM BREAK

9:00 AM
SESSION A1.01: Plenary and Prize Session
Session Chairs: Matthew Helgeson, Despina Louca, Efrain Rodriguez and Patrick Woodward
Monday Morning, June 25, 2018
Salon A

9:15 AM
* Invited Paper

9:45 AM BREAK

10:00 AM
SESSION C1.01: Magnetic and Multiferroic Thin Films
C1.01.01
Atomically Engineered Ferroic Layers Yield a Room-Temperature Magnetoelectric Multiferroic
Julia Mundy1,2; 1Oak Ridge National Laboratory, United States; 2University of Missouri, United States.

10:15 AM *C1.01.02
Unexpected Structural and Magnetic Depth Dependence of YIG Thin Films
Haile Ambaye1, Joshaniel Cooper2, Christian Kinane2, Sean Langridge2 and Arthur Glavic1; 1Oak Ridge National Laboratory, United States; 2ISIS Neutron and Muon Source, Rutherford Appleton Laboratory, Harwell Campus, United Kingdom; 1Paul Scherrer Institut, Switzerland.

11:00 AM C1.01.03
Polarized Neutron Reflectometry Studies of Ion Irradiation Induced Magnetic Order Multilayering in FeRh Thin Films
Steven Bennett1, Andreas Herklots2, Cory Cress3, Anton Ievlev4, Christopher Rouleau4, Igor Mazin5 and Valeria Lauter; 1U.S. Naval Research Laboratory, United States; 2Martin Luther University Halle-Wittenberg, Germany; 3U.S. Naval Research Laboratory, United States; 4Oak Ridge National Laboratory, United States; 5Oak Ridge National Laboratory, United States.

11:15 AM C1.01.04
Short-Range Magnetic Correlations in Quasicrystalline i-Tb-Cd
Alan I. Goldman1,2, Pinaki Das1,2, Andreas Kreyssig1,2, Gregory Tucker1,2, Andrey Podlesnyak1, Feng Ye1, Masaaki Matsuda1, Tai Kong1,2, S. L. Bud’ko1,2, P. C. Canfield1,2, Rebecca Flint1 and R. J. McQueeney1,2; 1Iowa State University, United States; 2Ames Laboratory, United States; 3Oak Ridge National Laboratory, United States.

11:30 AM C1.01.05
Nanoscale Magnetic Behavior Localization in Exchange Strength Modulated Ferromagnets
Brian J. Kirby1, Lorenzo Fallarino2, Patricia Riego3, Brian Maranville1, Casey Miller1 and Andreas Berger1; 1National Institute of Standards and Technology, United States; 2Helmholtz-Zentrum Dresden-Rossendorf, Germany; 3CIC nanoGUNE Consolidor, Spain; 4Universidad del Pas Vasco, Spain; 5Rochester Institute of Technology, United States.

11:45 AM C1.01.06
Understand the Nature of the Magnetoelectric Coupling in Molecular Multiferroic (ND4)[FeCl(D2O)] via Neutron Scattering Studies
Wei Tian, Huibo Cao, Gabriele Sala, Tao Hong, Randy Fishman and Jaime Fernandez-Baca; Oak Ridge National Laboratory, United States.

12:00 PM C1.01.07
Effective Exchange Stiffness of Fe3O4—Comparison of Bulk and Nanoparticles
Kathryn L. Krycka1, James J. Rhyne1, Julie A. Borchers1, Yumi Ijiri2, Daniel B. Gopman3, Nicholas Butch1, Samuel D. Oberdick1, Ahmed M. Abdelgawad1 and Sara A. Majetich1; 1National Institute of Standards and Technology, United States; 2Oberlin College, United States; 3National Institute of Standards and Technology, United States; 4National Institute of Standards and Technology, United States; 5Carnegie Mellon University, United States.

Biological Structures and Dynamics
SESSION E1.01: Membrane Biophysics Studied Using Neutrons
Session Chairs: Xiang-Qiang (Rosie) Chu and Joseph Curtis
Monday Morning, June 25, 2018
Salon C

10:15 AM *E1.01.01
Filling a ‘Blind Spot’ in Structural Biology—Neutron Reflectometry and the Structure of Membrane-Associated Protein Complexes
Mathias Lösche1,2; 1Carnegie Mellon University, United States; 2National Institute of Standards and Technology, United States.

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10:45 AM H1.01.02
Microstructural Characterization and Mechanical Properties of 3D Printed Stainless Steel
Soo Yeol Lee, Hobyung Chae, E-Wen Huang, Stefanus Harjo and Ke An; Chungnam National University, Korea (the Republic of); National Chiao Tung University, Taiwan; J-PARC Center, Japan Atomic Energy Agency, Japan; Oak Ridge National Laboratory, United States.

11:00 AM H1.01.03
Microstructural Characterization of Ferrous and Non-Ferrous Alloy Response to Heat Treatment or Service Conditions by SANS
Kenneth C. Littrell; Oak Ridge National Laboratory, United States.

11:15 AM H1.01.04
Probing Structural Information in Concrete and Shale Using the NIST Neutron and X-Ray Tomography (NeXT) System
Jacob M. LaManna, Daniel S. Hussey, Eli Balcit and David Jacobson; National Institute of Standards and Technology, United States.

11:30 AM H1.01.05
Identifying Organic and Inorganic Components of Shale Rocks Using Simultaneous Neutron/X-Ray Imaging
Wei-Shan Chiang, Daniel Georgi, Jacob M. LaManna, Daniel S. Hussey, David Jacobson, Jin-Hong Chen and Yun Liu; Aramco Service Company at Houston, United States; National Institute of Standards and Technology, United States; University of Delaware, United States.

11:45 AM H1.01.06
Structural Evolution in Granular Hard Spheres—From Localized Icosahedral Ordering Towards the Crystal-Like Ordering
Indu Dhiman, Simon A. Kimber and Tapan Chatterjee; Oak Ridge National Laboratory, United States; Institut Laue-Langevin, France.

Advances in Neutron Methods

SESSION B1.01: Advances in Diffuse Scattering
Session Chairs: Katharine Page
Monday Afternoon, June 25, 2018
Salon C

1:45 PM *B1.01.01
Neutron and X-Ray Scattering Studies of Metallic Glass-Forming Liquids
Ken Kelton, 1, 2; Washington University in St. Louis, United States; Washington University in St. Louis, United States.

2:15 PM B1.01.02
LiquidLib—A Comprehensive Toolbox for Analyzing Classical and Ab Initio Molecular Dynamics Simulations of Liquids and Liquid-Like Matter with Applications to Neutron Scattering Experiments
Nathan Walker; University of Illinois at Urbana-Champaign, United States.

2:30 PM B1.01.03
Neutronics Calculations for the New DISCOVER Beam Line at SNS
Thomas Huegle, Katharine Page and Van B. Graves; Oak Ridge National Laboratory, United States.

2:45 PM B1.01.04
ADDIE—ADvanced Diffraction Environment—A Software Environment for Analyzing Neutron Total Scattering
Data
3:00 PM B1.01.05
Pegasus Workflow for Modeling Diffuse Scattering Data
Vickie Lynch1, George Papadimitriou1, Rafael Ferreira Da Silva2, Ross Whitfield1, Raymond Osborn1 and Ewa Deelman2; 1Oak Ridge National Laboratory, United States; 2Information Sciences Institute, United States; 3Argonne National Laboratory, United States.

3:15 PM B1.01.06
Analysis and Feature Detection of Diffuse Scattering from Complex Materials Thomas Proffen; Oak Ridge National Laboratory, United States.

3:30 PM BREAK
SESSION B1.02: Interferometers and Polarization
Session Chairs: Jaime Fernandez-Baca
Monday Afternoon, June 25, 2018
Salon C

4:00 PM *B1.02.01
Quantum Information Enabled Neutron Physics
David Cory1,2,3, Dusan Sarenac1, Joachim Nsofini1, Michael G. Huber4, Charles W. Clark5, Muhammad Ari6 and Dmitry Pushin1; 1University of Waterloo, Canada; 2Institute for Quantum Computing, Canada; 3Canadian Institute for Advanced Research, Canada; 4National Institute of Standards and Technology, United States; 5Joint Quantum Institute, National Institute of Standards and Technology and University of Maryland, United States.

4:30 PM B1.02.02
Applications of Dynamic Nuclear Polarization to Neutron Scattering Josh Pierce; Oak Ridge National Laboratory, United States.

4:45 PM B1.02.03
New Cold Neutron Polarization Development Beamline at the High Flux Isotope Reactor for Advancement of Larmor Techniques Lowell Crow1, Lee Robertson1 and Bill Hamilton2; 1Oak Ridge National Laboratory, United States; 2Oak Ridge National Laboratory (Retired), United States.

5:00 PM B1.02.04
Wide-Angle Polarization Analysis Capability on MACS and the First Results Wangchun Chen1,2,3, Thomas R. Gentile1, Yiming Qiu1, Tao Hong1, Shannon Watson1, Md T. Hassan3; and Collin Broholm1; 1University of Maryland, United States; 2National Institute of Standards and Technology, United States; 3Oak Ridge National Laboratory, United States; 4Johns Hopkins University, United States.

5:15 PM B1.02.05
Capability of Ultra-High-Resolution Structure and Dynamics Measurements at Oak Ridge National Laboratory Fankang Li1, Alexander Thaler1, Hao Feng2, Lowell Crow1, Steven Parnell1, Masaaki Matsuda1, Roger Pynn2; and Jaime Fernandez-Baca1; 1Oak Ridge National Laboratory, United States; 2Indiana University, United States; 3Delft University of Technology, Netherlands.

Hard Condensed Matter
SESSION C1.02: Skyrmions and Related Materials
Session Chair: Suzanne te Velthuis
Monday Afternoon, June 25, 2018
Salon A

1:45 PM *C1.02.01
Spin Excitations of the Skyrmion Lattice in MnSi
David M. Fobes1,2,1; Los Alamos National Laboratory, United States; 2Los Alamos National Laboratory, United States.

2:15 PM C1.02.02
Precipitating Ordered Skyrmion Lattices from Helical Spaghetti Dustin A. Gilbert1,2, Alexander J. Grutter1, Paul Neves2, Guo-Jiun Shu3,4, Gergely Zimanyi5, Brian Maranville1, Fang-Cheng Chou1, Kathryn L. Krycka1, Nicholas Butler2,2, Sunxian Huang2 and Julie A. Borchers1; 1National Institute of Standards and Technology, United States; 2University of Maryland, United States; 3National Taiwan University, Taiwan; 4National Taiwan University of Technology, Taiwan; 5University of California, Davis, United States; 6University of Miami, United States.

2:30 PM C1.02.03
Observation of Long Wavelength Modulation near Metamagnetic Transition in Non-Centrosymmetric Helimagnet ScFeGe Sunil K. Karna1, J. K. Hebert1, W. A. Phelan1, Q. Zhang1, D. P. Young1, R. Jin1, G. Cao3, Y. Wu4, Huibo Cao5, W. Tian3, C. R. Dela Cruz3, P. W. Adams1, C. Dhillon6, A. Khasanov1, A. Roy4, P. T. Sprunger4,5, M. A. Khan1, W. Xie1, D. A. Browneg1, R. Chapa1 and John DiTusa1; 1Louisiana State University, United States; 2Oak Ridge National Laboratory, United States; 3University of North Carolina, United States; 4Louisiana State University, United States; 5Louisiana State University, United States.

2:45 PM C1.02.04
Inelastic Neutron Scattering Study of Itinerant Helimagnet MnSi Xiang Chen1,2, Matthew Stone1, Alexander I. Kolesnikov1, Dmitry Reznik1,2, Kevin Bedell and Stephen Wilson1; 1University of California, Santa Barbara, United States; 2Boston College, United States; 3Oak Ridge National Laboratory, United States; 4University of Colorado, Boulder, United States.

3:00 PM C1.02.05
Small-Angle Neutron Scattering and Magnetization Study of Skyrmion Phase in Zn and Ag Doped CuOSeO2, Sheng Ran1,2,3, Dustin A. Gilbert1, Julie A. Borchers2, Paul Neves1,2 and Nicholas Butler2,1; 1University of Maryland, United States; 2National Institute of Standards and Technology, United States.

3:15 PM C1.02.06
Nonreciprocal Magnons and Symmetry-Breaking in the Noncentrosymmetric Antiferromagnet α-CuFe2O4, Yang Zhao1,2, Ganatee Gitgeapong1, Kittiwit Matan1, Pharat Piyawongwathana8, Taku J. Sato1, Nicholas Butch1, Yiming Qiu1 and Leland W. Harriger1; 1National Institute of Standards and Technology, United States; 2University of Maryland, United States; 3Mahidol University, Thailand; 4Tohoku University, Japan.

3:30 PM BREAK
2:45 PM D1.01.04
Aqueous Self-Assembly of Amphiphilic Bottlebrush Block Copolymers Luqing Qi, Mohammed Alabaoirat, John Matson and Rafael Verduzco; Rice University, United States; Virginia Tech, United States.

3:00 PM D1.01.05
Neutron Reflectometry Views Thin-Film Chemistry—Structure, Reactive Modification and Entropic Death John F. Ankner, Brad Lokitz, Bethany Aden, Camille Kite, Benjamin W. Hopkins, Anna Zetterberg and S M. Kilbey; Oak Ridge National Laboratory, United States; The University of Tennessee, Knoxville, United States.

3:15 PM D1.01.06
Self-Assembly of Donor-Acceptor Conjugated Polymers Induced by Miscible Poor Solvents Yu Yin Xi and Lilo D. Pozzo; University of Washington, United States.

3:30 PM BREAK

SESSION D1.02: Liquids and Suspensions
Session Chair: Rafael Verduzco
Monday Afternoon, June 25, 2018
Salon B

4:00 PM *D1.02.01
Structure and Dynamic of Protic Ionic Liquids Robert Hayes; Rutgers, The State University of New Jersey, United States.

4:30 PM D1.02.02
Ioffe-Regel Localization of Acoustic Excitations in Liquids Zhikun Cai, Abhishek Jaiswal and Yang Zhang; University of Illinois at Urbana-Champaign, United States; Beckman Institute for Advanced Science and Technology, United States; University of Illinois at Urbana-Champaign, United States.

4:45 PM D1.02.03
Microscopic Origin of the Logarithmic Relaxation Process in Molecular Glass-Forming Liquids Suresh M. Chatthoth; City University of Hong Kong, Hong Kong.

5:00 PM D1.02.04
Kosmotrope and Chaotrope Salts Influence on Water Structural Relaxation Investigated by Coherent Quasielastic Neutron Scattering Antonio Farago; Erkan Senses and Eugene Mamontov; National Institute of Standards and Technology, United States; Koç University, Turkey; Oak Ridge National Laboratory, United States.

5:00 PM SESSION C1.04: Topological Materials
Session Chair: Stuart Calder
Monday Afternoon, June 25, 2018
Salon A

4:00 PM *C1.03.01
Emergent Magnetism in Artificial Magnetic Honeycomb Lattice of Ultra-Small Connected Element Deepak K. Singh; University of Missouri, United States.

4:30 PM C1.03.02
Magnetoism of Manganese/Iridate Bilayers Suzanne G. te Velthuis, Stephan Rosenkranz, Xiao Wang, Javier Tornos, Fernando Gallego, David J. Keavney, John W. Freeland, Yongseong Choi, Joerg Strempfer, Daniel Haskel, Brian J. Kirby, Timothy R. Charlton and Jacobo Santamaria; Argonne National Laboratory, United States; Bryn Mawr College, United States; Universidad Complutense de Madrid, Spain; Argonne National Laboratory, United States; National Institute of Standards and Technology, United States; Oak Ridge National Laboratory, United States.

4:45 PM C1.03.03
The High-Pressure Lattice Structures of a Weyl Semimetal MoTe$_2$; Sachith Distansayake, Junjie Yang and Despina Louca; Oak Ridge National Laboratory, United States; University of Virginia, United States; Central Michigan University, United States.

5:00 PM C1.03.04
Stacking Disorder near the 1T’-T$_0$ Transition in MoTe$_2$; John Schneloch, Despina Louca, Junjie Yang and Chunrui Duan; University of Virginia, United States; Central Michigan University, United States.

5:15 PM C1.03.05
Pressure and Strain Dependent Control of Structure and Band Topology in the Superconducting Type-II Weyl Semimetal Candidate MoTe$_2$; Colin Heikes, I-Lin Liu, Nicholas Butch, William Ratcliff, Taner Yildirim, Yan Wu and Huibo Cao; National Institute of Standards and Technology, United States; University of Maryland, United States; Oak Ridge National Laboratory, United States.

5:30 PM C1.03.06
Transition in MoTe$_2$ Stacking Disorders; Anna Zetterberg, Bethany Aden, Camille Kite, Benjamin W. Hopkins, Anna Zetterberg and S. M. Kilbey; Oak Ridge National Laboratory, United States; The University of Tennessee, Knoxville, United States.

SESSION C1.03: Topological Materials
Session Chair: Stuart Calder
Monday Afternoon, June 25, 2018
Salon A

4:00 PM *C1.03.01
Emergent Magnetism in Artificial Magnetic Honeycomb Lattice of Ultra-Small Connected Element Deepak K. Singh; University of Missouri, United States.

4:30 PM C1.03.02
Magnetoism of Manganese/Iridate Bilayers Suzanne G. te Velthuis, Stephan Rosenkranz, Xiao Wang, Javier Tornos, Fernando Gallego, David J. Keavney, John W. Freeland, Yongseong Choi, Joerg Strempfer, Daniel Haskel, Brian J. Kirby, Timothy R. Charlton and Jacobo Santamaria; Argonne National Laboratory, United States; Bryn Mawr College, United States; Universidad Complutense de Madrid, Spain; Argonne National Laboratory, United States; National Institute of Standards and Technology, United States; Oak Ridge National Laboratory, United States.

4:45 PM C1.03.03
The High-Pressure Lattice Structures of a Weyl Semimetal MoTe$_2$; Sachith Distansayake, Junjie Yang and Despina Louca; Oak Ridge National Laboratory, United States; University of Virginia, United States; Central Michigan University, United States.

5:00 PM C1.03.04
Stacking Disorder near the 1T’-T$_0$ Transition in MoTe$_2$; John Schneloch, Despina Louca, Junjie Yang and Chunrui Duan; University of Virginia, United States; Central Michigan University, United States.

5:15 PM C1.03.05
Pressure and Strain Dependent Control of Structure and Band Topology in the Superconducting Type-II Weyl Semimetal Candidate MoTe$_2$; Colin Heikes, I-Lin Liu, Nicholas Butch, William Ratcliff, Taner Yildirim, Yan Wu and Huibo Cao; National Institute of Standards and Technology, United States; University of Maryland, United States; Oak Ridge National Laboratory, United States.

5:30 PM C1.03.06
Transition in MoTe$_2$ Stacking Disorders; Anna Zetterberg, Bethany Aden, Camille Kite, Benjamin W. Hopkins, Anna Zetterberg and S. M. Kilbey; Oak Ridge National Laboratory, United States; The University of Tennessee, Knoxville, United States.
Neutrons for Energy and Sustainability

SESSION F1.01: Neutron Scattering in Clean Energy
Session Chairs: Ashfia Huq and Lilo Pozzo
Monday Afternoon, June 25, 2018
Salon D

1:45 PM *F1.01.01
Direct Probe of the Dynamic Modes Limiting Charge Mobility in Molecular Semiconductors Adam Moule¹, Thomas Harrelson¹, Varuni Dantanarayana¹, John Anthony², Enrique Gomez³, Roland Faller⁴ and Alesandro Troisi⁴; ¹University of California, Davis, United States; ²University of Kentucky, United States; ³The Pennsylvania State University, United States; ⁴University of Liverpool, United Kingdom.

2:15 PM F1.01.02
Charting the Decomposition Pathways of Energy Materials with In Situ Neutron Total Scattering Daniel Olds, Jue Liu and Katharine Page; Oak Ridge National Laboratory, United States.

3:00 PM F1.01.03
Neutron Scattering Study of Phonon Confinement in Silicon Nanoparticles Chen Li¹, Lorenzo Mangolini¹, Shuonian Chen¹, Devin Cole², Douglas L. Abernathy², Andrew D. Christianson², Luke Daemen³ and Yongjiang Cheng³; ¹University of California, Riverside, United States; ²University of California, Riverside, United States; ³Oak Ridge National Laboratory, United States.

Materials Chemistry and Synthesis

SESSION G1.01: Structures and Interfaces
Session Chair: Mario Bieringer
Monday Afternoon, June 25, 2018
Salon D

4:00 PM *G1.01.01
Unifying Local and Average Structures in Binary Chalcogenides Simon A. Kimber; Oak Ridge National Laboratory, United States.

4:30 PM G1.01.02
Solid-Gas Interactions in Porous Material Investigated in Operando with Stroboscopic Isotope Contrasted Neutron Total Scattering Arnold Paecklar³, Daniel Olds¹, Keith V. Lawler¹, Katharine Page¹, Jue Liu¹, Peter F. Peterson², Paul M. Forster², Rucker Gerald³, Mariano Ruiz-Rodriguez³, Michael Olsen¹, Michelle Pawel¹, Steven Overbury¹ and James R. Neilson¹; ¹Colorado State University, United States; ²Oak Ridge National Laboratory, United States; ³University of Nevada, Las Vegas, United States; ⁴Oak Ridge National Laboratory, United States.

4:45 PM G1.01.03
Neutron Diffraction and Raman Spectroscopic Study of Bioactive Silica Based Glasses Margit Fabian; Centre for Energy Research, Hungary.

5:00 PM G1.01.04
Ferroelectric Distortion in BaTiO₃ Nanocrystals with Polar and Non-Polar Capping Ligands Katharine Page¹, Tedi-Marie Usher¹ and Gabriel Caruntu¹; ¹Oak Ridge National Laboratory, United States; ²Central Michigan University, United States.

5:15 PM G1.01.05
Negative Thermal Expansion and Magnetoelastic Coupling in the Breathing Pyrochlore Lattice Material LiGaCr₂S₈ Ganesh Pokhare³, Andrew May³, David Parker³, Hasitha Suriya Arachchige³, Ashfia Huq³, Michael McGuire³, Lekh Poudel³, Simon A. Kimber³, Georg Ehlers³, Stuart Calder³, David Mandrus³ and Andrew D. Christianson³; ³The University of Tennessee, United States; ⁴Oak Ridge National Laboratory, United States; ⁵Oak Ridge National Laboratory, United States; ⁶The University of Tennessee, Knoxville, United States; ⁷Oak Ridge National Laboratory, United States.
TUESDAY ORAL PRESENTATIONS

* Invited Paper

Plenary and Prize Session
SESSION A2.01: Plenary and Prize Session
Session Chairs: Matthew Helgeson, Despina Louca, Efrain Rodriguez and Patrick Woodward
Tuesday Morning, June 26, 2018
Salon A

8:15 AM
Fellows Announcement by Despina Louca, University of Virginia/NSSA President

8:30 AM *A2.01.01
SCIENCE PRIZE WINNER: Structured Neutron Waves
Dmitry Pushin1, Muhammad Arif2, Charles W. Clark2,3, Benjamin Heacock2, Ian Hincks2, Michael G. Huber2, Joachim Nsofini1, Dusan Sarenac1, Chandra B. Shahi1 and David Cory6,7,8; 1University of Waterloo, Canada; 2National Institute of Standards and Technology, United States; 3Joint Quantum Institute, University of Maryland, United States; 4North Carolina State University, United States; 5Institute for Quantum Computing, University of Waterloo, Canada; 6Institute for Quantum Computing, University of Waterloo, Canada; 7Perimeter Institute for Theoretical Physics, Canada; 8Canadian Institute for Advanced Research, Canada.

9:10 AM *A2.01.02
PLENARY: A Thin-Film Approach to Manipulating Quantum Materials
Darrel G. Schlom1,2, Cornell University, United States; 1Kavli Institute at Cornell for Nanoscale Science, United States.

9:45 AM BREAK

Hard Condensed Matter
SESSION C2.01: Electronic and Lattice Excitations
Session Chair: Andy Christianson
Tuesday Morning, June 26, 2018
Salon A

10:15 AM *C2.01.01
Measuring Band Excitations with Inelastic Neutron Scattering
Raymond Osborn; Argonne National Laboratory, United States.

10:45 AM C2.01.02
Phonon Anharmonicity and the High-Temperature Continuous Phase Transition in SnSe and SnS
Olivier Delaire1, Jennifer Niedziela2, Dipanshu Bansal3, Tyson L. Lamigan-Atkins1, Shan Yang1, Chen Li1, Jiawang Hong1, Daniel Pajerowski2, Georg Ehlers1, Tao Hong2 and Andrew May2; 1Duke University, United States; 2Oak Ridge National Laboratory, United States; 3University of California, Riverside, United States.

11:00 AM C2.01.03
Selective Phonon Quasiparticle Breakdown in Superionic CuCrSe2, Jennifer Niedziela2,3, Dipanshu Bansal1, Andrew May1,2, Jingxuan Ding1,4, Georg Ehlers1, Douglas L. Abernathy3, Ayman Said4 and Olivier Delaire1; 1Oak Ridge National Laboratory, United States; 2Oak Ridge National Laboratory, United States; 3Duke University, United States; 4Oak Ridge National Laboratory, United States; 1Oak Ridge National Laboratory, United States; 2Oak Ridge National Laboratory, United States; 3California Institute of Technology, United States; 4Oak Ridge National Laboratory, United States.

11:15 AM C2.01.04
Phonon Dispersions, Anharmonicity, the Quantum Zero Point and the Thermal Expansion of Silicon
Dennis Kim1, Olle Hellman1, Hillary Smith1, Jennifer Niedziela2 and Douglas L. Abernathy3; 1California Institute of Technology, United States; 2Oak Ridge National Laboratory, United States; 3Oak Ridge National Laboratory, United States.

11:30 AM C2.01.05
Superionic Diffusion and Anharmonic Lattice Dynamics in AgCrSe2
Muhammad Arif1, Jennifer Niedziela2, Dipanshu Bansal1, Andrew May1, Georg Ehlers1, Douglas L. Abernathy3, Ayman Said4 and Olivier Delaire1; 1Duke University, United States; 2Oak Ridge National Laboratory, United States; 3Oak Ridge National Laboratory, United States; 4Argonne National Laboratory, United States.

11:45 AM C2.01.06
Direct Evidence of Phonon Instability Driving Geometric Improper Ferroelectricity in Multiferroic YMnO3
Dipanshu Bansal1, Jennifer Niedziela2, Ryan Sinclair2, Ovidiu Garlea1, Douglas L. Abernathy3, Songxue Chi2, Yang Ren1, Haidong Zhou1 and Olivier Delaire1; 1Duke University, United States; 2Oak Ridge National Laboratory, United States; 3University of Tennessee, Knoxville, United States; 4The University of Tennessee, Knoxville, United States; 5Oak Ridge National Laboratory, United States; 6Argonne National Laboratory, United States.

Soft Matter
SESSION D2.01: Rheology of Complex Fluids
Session Chair: Yangyang Wang
Tuesday Morning, June 26, 2018
Salon B

10:15 AM *D2.01.01
Molecular Alignment During Uniaxial Deformation of Well-Entangled α-olefin Molecular Bottlebrushes—A Time-Resolved Extended Rheo-SANS Study
Carlos R. López-Barrón1,2, Yiming Zheng3, Andy Tsou4, John Hagadorn2 and Joseph Throckmorton4; 1ExxonMobil Chemical Company, United States; 2University of Minnesota, United States; 3University of Tennessee, Knoxville, United States; 4Duke University, United States.

10:45 AM D2.01.02
Shear-Induced Aggregation of Colloidal Suspensions in Associative Polymers
Juntae Kim, Nino Ruocco, Patrick T. Corona and Matthew E. Helgeson; University of California, Santa Barbara, United States.

11:00 AM D2.01.03
Static and RheoSANS of Wormlike Micelles
Steven D. Hudson1, Javen S. Weston1 and Kathleen M. Weigandt1; 1National Institute of Standards and Technology, United States; 2Georgetown University, United States; 3National Institute of Standards and Technology, United States.
11:15 AM D2.01.04
Probing Flow-Induced Microstructure of Complex Fluids in Arbitrary 2D Flows Patrick T. Corona1, Nino Ruocco1, Kathleen M. Weigandt1, L. G. Leal1 and Matthew E. Helgeson1; 1University of California Santa Barbara, United States; 2National Institute of Standards and Technology, United States.

11:30 AM D2.01.05
Direct Correlation of Spatiotemporal and Microstructural Evolution of Wormlike Micellar Solutions in Large Amplitude Oscillatory Shear (LAOS) Ching-Wei Lee and Simon Rogers; University of Illinois at Urbana-Champaign, United States.

11:45 AM D2.01.06
Origin of Nonlinear Rheology of Interacting Colloidal Glasses Zhe Wang1, Takuya Iwashita2, Lionel Porcar2, Yangyang Wang3, Yun Liu3, Takeshi Egami4 and Wei-Ren Chen5; 1Tsinghua University, China; 2Oita University, Japan; 3Institut Laue-Langevin, France; 4Oak Ridge National Laboratory, United States; 5National Institute of Standards and Technology, United States.

12:00 PM D2.01.07
Dielectric RheoSANS—An Instrument for the Simultaneous Interrogation the Rheological, Mechanical and Microstructural Properties of Complex Fluids Jeffrey J. Richards1, Norman Wagner2 and Paul D. Butler3; 1National Institute of Standards and Technology, United States; 2University of Delaware, United States.

**Neutron Physics**

SESSION I2.01: Neutron Physics I
Session Chairs: Charles Clark and Shannon Hoogerheide
Tuesday Morning, June 26, 2018
Salon D

10:15 AM I2.01.01
The BL2 Experiment—An In-Beam Measurement of the Neutron Lifetime Jimmy P. Caylor; The University of Tennessee, Knoxville, United States.

10:30 AM I2.01.02
Precision Measurement of the Radiative Decay of the Free Neutron Thomas R. Gentile1, 2; 1National Institute of Standards and Technology, United States; 2RDK II Collaboration, United States.

10:45 AM I2.01.03
The Neutron Lifetime “Problem” Geoffrey L. Greene1, 2; 1University of Tennessee, United States; 2Oak Ridge National Laboratory, United States.

11:15 AM I2.01.04
Precision Measurement of the Coherent Scattering Length of α-He Using Neutron Interferometry Robert W. Haun1, Michael G. Huber2, Tim Black3, Dmitry Pushin4, Dusan Sarenec5, Benjamin Heacock6, Chandra B. Shahi7, Muhammad Arif8 and Fred E. Wietfeldt1; 1Oak Ridge National Laboratory, United States; 2University of North Carolina at Wilmington, United States; 3University of Waterloo, Canada; 4North Carolina State University, United States; 5University of Maryland, United States.

**Advances in Neutron Methods**

SESSION B2.01: Low Q Instrumentation and Analysis
Session Chairs: Kathleen Weigandt
Tuesday Afternoon, June 26, 2018
Salon C

1:45 PM B2.01.01

2:15 PM B2.01.02
Commissioning of the vSANS Diffractometer at NIST John G. Barker; Grethe Jensen, Steven Kline, Cedric Gagnon, Charles Glinka, Paul Butler, James Moyer, Nickolas Maliszewsky, Jean P. Chabot and Chirag Parikh; National Institute of Standards and Technology, United States.
2:30 PM B2.01.03
Building a Comprehensive Repository for Small-Angle Neutron Scattering Data Caitlyn Wolf and Lilo D. Pozzo; University of Washington, United States.

2:45 PM B2.01.04
Implementation and Benchmarking of Small Angle Neutron Scattering in MCNPX Kyle Grammer and Franz X. Gallmeier; Oak Ridge National Laboratory, United States.

3:00 PM B2.01.06
Efficient Calculation of Magnetic Neutron Reflectivity in Refl1d Using the Nevot-Croce Approximation Brian Maranville1, Aaron Green2 and Paul Kienzle; 1National Institute of Standards and Technology, United States; 2University of Maryland, United States.

3:15 PM B2.01.07
The Transverse Spatial Extent of a Neutron Wave Packet Charles F. Majkrzak1, Brian Maranville1, Joseph Dura1 and Norman Berk1, 2; 1National Institute of Standards and Technology, United States; 2University of Maryland, United States.

1:45 PM *D2.02.01
Interdiffusion of Star Polymers in Thin Films Ayse Caglayan1, Guangcui Yuan1, Sushil K. Satija1, Madhusudan Tyagi2, David Uhrig1, Kunlun Hong1 and Bulent Akgun1; 1Bogazici University, Turkey; 2National Institute of Standards and Technology, United States; 3Oak Ridge National Laboratory, United States.

2:15 PM D2.02.02
The Role of Fast Polymer Dynamics as Quantified by Inelastic Neutron Scattering on the Mechanical Toughness of Polymeric Materials Kanae Ito1, Kevin A. Masser2, Adam B. Burns1, Madhusudan Tyagi1, Joseph L. Lenhart1, Albert F. Yee1 and Christopher L. Soles1; 1National Institute of Standards and Technology, United States; 2U.S. Army Research Laboratory, United States; 3National Institute of Standards and Technology, United States; 4University of Maryland, United States; 5University of California, United States.

2:30 PM D2.02.03
Segmental Diffusion in Polymer Nanocomposites with Strong NP-Polymer Interactions as Measured by QENS Eric J. Bailey1, Philip J. Griffin2, Vera Bocharova3, Madhusudan Tyagi1, 2, Joseph L. Lenhart1, Albert F. Yee1 and Christopher L. Soles1; 1National Institute of Standards and Technology, United States; 2Oak Ridge National Laboratory, United States; 3University of Maryland, United States; 4University of Pennsylvania, United States.

2:45 PM D2.02.04
Neutron Scattering and Computational Analysis of Molecular Conformation and Dynamics in Conductive Poly(3-hexylthiophene) Caitlyn Wolf and Lilo D. Pozzo; University of Washington, United States.

3:00 PM D2.02.05
Effect of Grafting Density on the Dynamics of Bottlebrush Polymers Adam B. Burns1, Christopher L. Soles1, Alice B. Chang2 and Robert H. Grubbs2; 1National Institute of Standards and Technology, United States; 2California Institute of Technology, United States.

3:15 PM D2.02.06
Neutron Scattering Studies of Deposition Induced Lateral and Vertical Phase Separation in Polymer Blend Thin Films Samantha Rinehart1 and Mark Dadmun1, 2; 1University of Maryland, United States; 2Oak Ridge National Laboratory, United States.
**Neutron Physics**

SESSION I2.02: Neutron Physics II  
Session Chairs: Charles Clark and Shannon Hoogerheide  
Tuesday Afternoon, June 26, 2018  
Salon D

1:45 PM I2.02.01  
*A Magnetostatic Cavity for Neutron Spin Filters for the CANDOR Instrument at NIST*  
Md T. Hassan1, 2, Wangchun Chen1, 2 and Shannon Watson3; 1University of Maryland, United States; 2National Institute of Standards and Technology, United States.

2:00 PM I2.02.02  
*Characterization of Neutron Phase-Grating Diffraction*  
Benjamin Heacock1, Dusan Sarenac4, 2, Muhammad Arif5, David Cory5, Michael G. Huber1, Daniel S. Hussey3, Houxun Miao3, Han Wen2 and Dmitry Pushin4, 3; 1North Carolina State University, United States; 2University of Waterloo, Canada; 3National Institute of Standards and Technology, United States; 4University of California, Berkeley, United States; 5National Institutes of Health, United States.

2:15 PM *I2.02.03  
aCORN—Measuring the Electron-Antineutrino Correlation in Neutron Beta Decay  
Fred E. Wietfeldt; Tulane University, United States.

2:45 PM I2.02.04  
*Intrinsic Orbital Momentum States of Neutrons*  
Ronald L. Cappelletti1, John Vinson1 and Terrence Jach1; 1National Institute of Standards and Technology, United States; 2National Institute of Standards and Technology, United States.

3:00 PM BREAK

**WEDNESDAY ORAL PRESENTATIONS**

* Invited Paper

**Plenary and Prize Session**

SESSION A3.01: Plenary and Prize Session  
Session Chairs: Matthew Helgeson, Despina Louca, Efrain Rodriguez and Patrick Woodward  
Wednesday Morning, June 27, 2018  
Salon A

8:30 AM *A3.01.01  
*SUSTAINED RESEARCH PRIZE WINNER: Solving Engineering Grand Challenges in Soft Matter and Complex Fluids with Neutrons*  
Norman Wagner; University of Delaware, United States.

9:10 AM *A3.01.02  
*PLENARY: Neutron Diffraction Studies of Gas Adsorption in Metal-Organic Frameworks*  
Jeffrey R. Long1, 2; 1University of California, Berkeley, United States; 2Lawrence Berkeley National Laboratory, United States.

9:45 AM BREAK

**Hard Condensed Matter**

SESSION C3.01: Frustrated Magnetism  
Session Chair: Sarah Haravifard  
Wednesday Morning, June 27, 2018  
Salon A

10:15 AM *C3.01.01  
*Continuum of Magnetic Excitations in the Heisenberg Pyrochlore Antiferromagnet NaCaNi2F7*  
Kemp Plumb; Brown University, United States.

10:45 AM C3.01.02  
*Magnetization Plateaus in Th2SrFe2O7*  
Huibo Cao1, Jaewook Kim2, W. Tian1, Yan Wu1 and Sang-Wook Cheong2; 1Oak Ridge National Laboratory, United States; 2Rutgers University, United States.

11:00 AM C3.01.03  
*The Quenching of Long Range Magnetic Order in the System Sr1-xBaxLaMnO3—A Polarized Neutron Diffraction Study*  
John E. Greedan1, Mario Bieringer2, Ross Stewart3, Mirela Dragomir2 and Paul Dube4; 1McMaster University, Canada; 2ISIS Rutherford Appleton Laboratories, United Kingdom; 3University of Manitoba, Canada.
11:15 AM C3.01.04
Transverse Acoustic Phonon Anomalies at Intermediate Wave Vectors in the Transition Metal Spinel MgV$_2$O$_4$
Tobias Weber$^{1}$, Bertrand Roessli$^{2}$, Chris Stock$^{1}$, Thomas Keller$^{3,7}$, Karin Schmalzl$^{2}$, Frédéric Bourdarot$^{1}$, Robert Georgii$^{7}$, Russell Ewings$^{3}$, Robin Perry$^{1,6,8}$ and Peter Böni$^{2}$; 1Institut Laue-Langevin (ILL), France; 2Paul Scherrer Institute, Switzerland; 3University of Edinburgh, United Kingdom; 4Max-Planck-Institut für Festkörperforschung, Germany; 5Jülich Centre for Neutron Science, France; 6CEA Grenoble, France; 7Technische Universität München, Germany; 8ISIS Pulsed Neutron and Muon Source, United Kingdom; 9Technische Universität München, Germany; 10London Centre for Nanotechnology and UCL Centre for Materials Discovery, United Kingdom.

11:30 AM C3.01.05
Magneto-Elastic Coupling Induced Vibrionic Bound State in the Spin Ice Pyrochlore Ho$_2$Ti$_2$O$_7$
Jonathan Gaudet$^{1}$, Alannah Sanjeewa$^{2}$, Connor Buhariwala$^{1}$, Gabriele Sala$^{1}$, Matthew Stone$^{2}$, Marise Sanders$^{2}$, Robert J. Cava$^{1}$ and Bruce D. Gaulin$^{1}$; 1McMaster University, Canada; 2Oak Ridge National Laboratory, United States; 3Princeton University, United States.

11:45 AM C3.01.06
Non-Dipole Spin-Ice and Other Interesting Behaviours in a New Class of Frustrated Antiferromagnets Dalmau Reig-i-Plessis$^{1}$, Adam Acel$^{2}$, Sean Van Geldern$^{1}$, Dimitri Kochkov$^{2}$, Bryan K. Clark$^{1}$ and Gregory MacDougall$^{1}$; 1University of Illinois at Urbana-Champaign, United States; 2Oak Ridge National Laboratory, United States.

12:00 PM C3.01.07
Magnetic Ground States of Manganese Vanadate Systems with Two-Dimensional Striped Triangular Lattices Ovidiu Garlea$^{1}$, Liurukara Sanjeewa$^{2,3}$, Daniel Pajerowski$^{1}$, Michael McGuire$^{1}$, Feng Ye$^{1}$ and Joseph Kolis$^{2}$; 1Oak Ridge National Laboratory, United States; 2Clemson University, United States; 3Oak Ridge National Laboratory, United States.

Biological Structures and Dynamics

SESSION E3.01: Neutron Potpourri—Labeling and Dynamics Studies
Session Chairs: Xiang-Qiang (Rosie) Chu and Joseph Curtis
Wednesday Morning, June 27, 2018
Salon C

10:15 AM *E3.01.01
Deuterium Labeling of the NISTmAb for Small Angle Neutron Scattering Contrast Variation Studies Zvi Kelman$^{1}$, 2; 1National Institute of Standards and Technology, United States; 2Institute for Bioscience and Biotechnology Research, United States.

10:45 AM E3.01.02
Towards Truly Stealth Nanodiscs for Membrane Protein Research Cheol Jeong$^{1,2}$, Ryan Franklin$^{1}$, Karen Edler$^{1}$ and Joseph Curtis$^{1}$; 1National Institute of Standards and Technology, United States; 2The University of Tennessee, Knoxville, United States; 3Hood College, United States; 4University of Bath, United Kingdom.

11:00 AM E3.01.03
NSE Studies of the Effect of Cholesterol on DOPC Lipid Membranes Rana Ashkar$^{1}$, Milka Doktorova$^{1}$, Haden L. Scott$^{1}$, Frederick Heberle$^{2}$, Elizabeth Kelley$^{2}$, Michihiro Nagao$^{3}$, Francisco Barrera$^{4}$, George Khelashvili$^{2}$ and John Katsaras$^{5}$; 1Virginia Tech, United States; 2Weill Cornell Medical College, United States; 3The University of Tennessee, United States; 4Oak Ridge National Laboratory, United States; 5National Institute of Standards and Technology, United States.

11:15 AM E3.01.04
Effective Bending Rigidity of Membranes with Rigid Inclusions Elizabeth Kelley$^{1}$, Michihiro Nagao$^{3}$ and Paul D. Butler$^{1,2,3}$; 1National Institute of Standards and Technology, United States; 2University of Delaware, United States; 3The University of Tennessee, Knoxville, United States.

11:30 AM E3.01.05
Dynamics in Crowded Environment by Neutron Spin Echo Sudipta Gupta; Louisiana State University, United States.

11:45 AM E3.01.06
Investigating Dynamics of Standard NIST Monoclonal Antibody in Solutions via Neutron Spin Echo Jannatun Nayem$^{1,3}$, Jose R. Villanueva-Valencia$^{1}$, Ramon Castaneda-Friego$^{1}$, Norman Wagner$^{1}$, Yun Li$^{4}$ and Joseph Curtis$^{1}$; 1University of Delaware, United States; 2National Institute of Standards and Technology, United States; 3Universidad de Guanajuato, Mexico.

12:00 PM E3.01.07
Impact of Temperature on Mammalian Adipose Tissue
Studied by QENS Margarita Fomina, Eugene Mamontov and Hugh O’Neill; Oak Ridge National Laboratory, United States.

Structural Materials and Engineering

SESSION H3.01: Reactor Materials and Engineering
Session Chair: I. Cevdet Noyan
Wednesday Morning, June 27, 2018
Salon D

10:15 AM *H3.01.01
Non-Destructive Isotope Specific Tomography Using Energy-Resolved Neutron Imaging Adrian S. Lesko and Sven C. Vogel; Los Alamos National Laboratory, United States.

10:45 AM H3.01.02
Analysis of Concrete Deterioration by Simultaneous Neutron and X-Ray Tomography Serge Feuze$^{1}$, Richard A. Livingston$^{1}$, Anme M. Amde$^{1}$, Jacob M. LaManna$^{2}$, David Jacobson$^{3}$ and Daniel S. Hussey$^{2}$; 1University of Maryland, United States; 2National Institute of Standards and Technology, United States.

11:00 AM H3.01.04
Phase Stability of U-10wt%Mo with Ternary Additions Daniel Malta$^{1}$, Clausen Bjorn$^{2}$, Saumyadeep Jana$^{2}$, Vineet Joshi$^{3}$, Curt A. Lavender$^{1}$ and Sean R. Agnew$^{1}$; 1University of Virginia, United States; 2Los Alamos National Laboratory, United States; 3Pacific Northwest National Laboratory, United States.
11:15 AM H3.01.05
Neutron Diffraction Techniques for Gen IV Reactor Materials
Eda Aydogan, Sven C. Vogel, Clausen Bjorn, Donald W. Brown and Stuart Maloy; Los Alamos National Laboratory, United States.

11:30 AM H3.01.06
SANS and Neutron Diffraction Studies of Fusion Reactors Materials and Components
Roberto Coppola, Eliseo Visca and Monica Valli; ENEA, Italy.

11:45 AM H3.01.07
Effects of Fast Neutron Elastic Scattering on Induced Damage in Various Low-Z Elements Used in Reactor and Waste Storage Operations
Noel A. Guardala; George Washington University, United States.

11:00 AM C3.01.05
SESSION C3.01: Complex Magnetism and Spin Dynamics Session Chair: Zahra Yamani Wednesday Afternoon, June 27, 2018 Salon A

11:15 AM C3.01.06
Fate of Quasiparticles in an S=1/2 Quantum Antiferromagnet near the Quantum Critical Point in Two Dimensions
Tao Hong1, Masashige Matsumoto2, Yiming Qiu3, Mark Turnbull4, Firas F. Awwadi5, 8, 9, 10

11:30 AM C3.01.07
High Pressure Neutron Scattering in the Diamond Cell
Bianca Haberl1, Jamie J. Molaison1 and Reinhard Boehler1, 2; Oak Ridge National Laboratory, United States; 2Carnegie Institution, United States.

3:30 PM BREAK

3:30 PM C3.02.01
SESSION C3.02: Complex Magnetism and Spin Dynamics Session Chair: Zahra Yamani Wednesday Afternoon, June 27, 2018 Salon A

1:45 PM C3.02.01
Fate of Quasiparticles in an S=1/2 Quantum Antiferromagnet near the Quantum Critical Point in Two Dimensions
Tao Hong1, Masashige Matsumoto2, Yiming Qiu3, Mark Turnbull4, Firas F. Awwadi5, 8, 9, 10

4:00 PM C3.02.02
Strain Induced Multiferroic Properties of Pseudocubic SrBaMnO3 Perovskites
Omar Chmaissem1, 2, 3; Northern Illinois University, United States; 2Argonne National Laboratory, United States.

4:45 PM C3.02.03
Recent Results from the Elastic Diffuse Scattering Spectrometer CORELLI at SNS
Feng Ye, Yaohua Liu, Christina Hoffmann, Ross Whitfield and Bryan Chakoumakos; Oak Ridge National Laboratory, United States.

5:00 PM C3.02.04
Super Resolution Reconstruction of Phonon Density of States Measured at Neutron Direct Geometry Spectrometers
Fahima Islam, Jiao Y. Lin, Garrett E. Granroth, Richard Archibald and Douglas L. Abernathy; Oak Ridge National Laboratory, United States.

5:15 PM C3.02.05
Performance of the Reactor Beam Velocity Selector at the BT-7 Thermal Triple Axis Spectrometer
Jeffrey W. Lynn, Yang Zhao, Zhiqun Xu, Nickolas Maliszewsky, Colin Wren, Mike Murbach and Jeremy Cook; National Institute of Standards and Technology, United States.

11:00 AM Session B3.01: In Situ and In Operando Methods
Session Chairs: Kathleen Weigandt and Christina Hoffman Wednesday Afternoon, June 27, 2018 Salon C

1:45 PM B3.01.01
Sans Drop—A Continuous Approach to High-Composition Resolution Structural Characterization of Multicomponent Formulations
Blake J. Bleier, Michael L. Davidson and Lynn M. Walker; Carnegie Mellon University, United States.

2:15 PM B3.01.02
µRheoSANS—Measuring Complex Fluid Structure at High Shear Rates
Kathleen M. Weigandt1, Steven D. Hudson2 and Javen S. Weston1, 3; 1National Institute of Standards and Technology, United States; 2Georgetown University, United States.

2:30 PM B3.01.03
Dynamic Nuclear Polarization for Neutron Crystallography
Anna D. Jennings1, 2, 3; Oak Ridge National Laboratory, United States.

2:45 PM B3.01.04
In Situ Thin Film Growth for Polarized Neutron Reflectometry
Wolfgang Kreuzpaintner1, Alexander Book1, Jingfan Ye2, Zahra Inanloo-Maranloo1, Michael Heigl3, Jochen Stahn1, Wolfgang Bönig1 and Manfred Albrecht; Technische Universität München, Germany; 2University of Augsburg, Germany; 3Paul Scherrer Institut, Switzerland.

3:00 PM B3.01.05
Development of a Spherical Neutron Polarimetry Apparatus at the NIST Center for Neutron Research
Jacob A. Tosado1, 2, 3, Efrain Rodriguez1, 2, 3 and Wangchun Chen1; 1University of Maryland, United States; 2National Institute of Standards and Technology, United States; 3University of Maryland, United States.

3:15 PM B3.01.06
High Pressure Neutron Scattering in the Diamond Cell
Bianca Haberl1, Jamie J. Molaison1 and Reinhard Boehler1, 2; Oak Ridge National Laboratory, United States; 2Carnegie Institution, United States.

3:30 PM BREAK

4:00 PM B3.02.01
Design of New Cold Spectrometer at the NCNR
Leland W. Harriger, Jeffrey Lynn and Dan Neumann; National Institute of Standards and Technology, United States.

4:30 PM B3.02.02
Recent Results from the Elastic Diffuse Scattering Spectrometer CORELLI at SNS
Feng Ye, Yaohua Liu, Christina Hoffmann, Ross Whitfield and Bryan Chakoumakos; Oak Ridge National Laboratory, United States.

4:45 PM B3.02.03
New Technology Developments for High Magnetic Field and Low Temperature Sample Environment in Neutron Scattering
John Burgoyne, Roman Viznichenko, Christopher King, Neil Clarke and Timothy Foster; Oxford Instruments, United Kingdom.

5:00 PM B3.02.04
Super Resolution Reconstruction of Phonon Density of States Measured at Neutron Direct Geometry Spectrometers
Fahima Islam, Jiao Y. Lin, Garrett E. Granroth, Richard Archibald and Douglas L. Abernathy; Oak Ridge National Laboratory, United States.

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Jeffrey W. Lynn, Yang Zhao, Zhiqun Xu, Nickolas Maliszewsky, Colin Wren, Mike Murbach and Jeremy Cook; National Institute of Standards and Technology, United States.

Hard Condensed Matter

SESSION C3.02: Complex Magnetism and Spin Dynamics Session Chair: Zahra Yamani Wednesday Afternoon, June 27, 2018 Salon A

1:45 PM C3.02.01
Fate of Quasiparticles in an S=1/2 Quantum Antiferromagnet near the Quantum Critical Point in Two Dimensions
Tao Hong1, Masashige Matsumoto2, Yiming Qiu3, Mark Turnbull4, Firas F. Awwadi5, 8, 9, 10

4:00 PM C3.02.02
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4:00 PM C3.02.02
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Hard Condensed Matter

SESSION C3.02: Complex Magnetism and Spin Dynamics Session Chair: Zahra Yamani Wednesday Afternoon, June 27, 2018 Salon A

1:45 PM C3.02.01
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Tao Hong1, Masashige Matsumoto2, Yiming Qiu3, Mark Turnbull4, Firas F. Awwadi5, 8, 9, 10
3:30 PM C3.02.03
Role of Substituents in Tailoring Magnetic Properties of Cubic CoCr2O4—A Neutron Diffraction Study Ram Kumar1, S. Rayaprol2, V. Siruguri2 and D. Pal1; 1Indian Institute of Technology Guwahati, India; 2UGC-DAE Consortium for Scientific Research Mumbai Center, BARC Campus, Trombay, India.

2:45 PM C3.02.04
Temperature Dependence of Spin Fluctuations in SrCo2As2, Bing Li1, Wageesha T. Jayasekara2, N. S. Sangéetha3, Abhishek Pandey4, 4, 1, 5, Douglas L. Abernathy4, D. C. Johnston5, Andreae Kreyssig6, 6, 1, 7, Alan I. Goldman7, 7, 1, 8, Benjamin Ueland8, 8, 1, 9, and R. J. McQueeney4, 4, 1, 10, 11. Iowa State University of Science and Technology, United States; 2Ames Laboratory, United States; 3Oak Ridge National Laboratory, United States; 4Texas A&M University, United States.

3:00 PM C3.02.05
Magnetic Neutron Scattering Study of Y1-xLa2TiO4 Lekhanath Poudel1, Karl Olson1, Masaaki Matsuda1, Daniel Pajerowski1 and Martin Greven1; 1University of Minnesota Twin Cities, United States; 2University of Minnesota Twin Cities, United States; 3Oak Ridge National Laboratory, United States; 4Northern Illinois University, United States.

3:15 PM C3.02.06
Single Crystal Diffuse Scattering Study of Sublattice Melting in Cu1-xSe Matthew J. Krogstad1, Alex Rette2, Mercouri Kanatzidis3, Raymond Osborn2, Stephan Rosenkranz2 and Feng Ye2; 1Argonne National Laboratory, United States; 2Oak Ridge National Laboratory, United States; 3Northern Illinois University, United States.

3:30 PM BREAK

SESSION C3.03: Heavy Fermion Materials
Session Chair: Almut Schroeder
Wednesday Afternoon, June 27, 2018
Salon A

4:00 PM *C3.03.01
Unravelling Spin Dynamics in an Unconventional Quantum Critical Point Lekhanath Poudel1, 1, 2, 3; 1National Institute of Standards and Technology, United States; 2University of Maryland, United States; 3The University of Tennessee, Knoxville, United States.

4:30 PM C3.03.02
Dark Magnon Quasiparticle in Magnetic f-Electron Metal Igor Zaliznyak1, Liusuo Wu1, William Gannon1, Alexei Tsvelik1, Georg Ehlers2, Andrey Podlesnyak2, Andrei T. Savici3, 3, 4, and Meigan Aronson1; 1Brookhaven National Laboratory, United States; 2Oak Ridge National Laboratory, United States; 3Texas A&M University, United States.

4:45 PM C3.03.03
Neutron Investigations of the Dual Nature of Magnetism in UPt3Si Jooseop Lee1, Masaaki Matsuda1, John A. Mydosh1, Igor Zaliznyak2, Alexander I. Kolesnikov3, Stefan Süllow4, Jacob P. Ruff2 and Garrett E. Granroth1; 1Oak Ridge National Laboratory, United States; 2Cornell University, United States; 3Leiden University, Netherlands; 4Brookhaven National Laboratory, United States; 5Technische Universität Braunschweig, Germany.

5:00 PM C3.03.04
Local Dynamics in Metallic Liquids Studied by Inelastic Neutron Scattering Zengquan Wang1, Wojciech Dmowski1, Hui Wang1, Takeshi Egami1, 1, 2, Robert Ashcraft1 and Ken Kelton1; 1The University of Tennessee, Knoxville, United States; 2Oak Ridge National Laboratory, United States; 3Washington University in St. Louis, United States.

5:15 PM C3.03.05
Hidden Order Signatures in the Antiferromagnetic Phases of URu2Si2, Under Chemical and Hydrostatic Pressure Travis J. Williams; Oak Ridge National Laboratory, United States.

Soft Matter

SESSION D3.01: Colloidal Systems
Session Chair: Jeffrey Richards
Wednesday Afternoon, June 27, 2018
Salon B

1:45 PM *D3.01.01
Branching and Alignment in Reverse Worm-Like Micelles Studied with Simultaneous Dielectric Spectroscopy and RheoSANS John K. Riley1, Jeffrey J. Richards1, Norman Wagner1 and Paul D. Butler1; 1National Institute of Standards and Technology, United States; 2University of Delaware, United States.

2:15 PM D3.01.02
Dynamic Equivalence Between Soft Star Polymers and Hard Spheres via Compressibility Scaling Zhe Wang1, Antonio Faradze2, Lionel Porcar3, Yangyang Wang4, Yun Liu5 and Wei-Ren Chen6; 1Tsinghua University, China; 2National Institute of Standards and Technology, United States; 3Institut Laue-Langevin, France; 4Oak Ridge National Laboratory, United States.

2:30 PM D3.01.03
pH Driven Reorientation of Cytochrome c on Silica Nanoparticles Jens Meissner1, Yao Wu1, Zhenyu Di2, Jacques Justin1, William Shelton1, Gerhard H. Findenege1 and Bhuvnesh Bhatti1; 1Louisiana State University, United States; 2Technische Universität Berlin, Germany; 3Laboratoire Léon Brillouin, France; 4Jülich Centre for Neutron Science at FRM II, Germany.

2:45 PM D3.01.04
Mapping the States of Anisotropic Particles with Short-Range Attractions Ryan P. Murphy1, 1, 2, 3; 1 and Norman Wagner2; 1National Center for Nanoscience and Technology, United States; 2University of Delaware, United States.

3:00 PM D3.01.05
New Model Porous Materials Prepared by Colloidal Self-Assembly Methods Hongyu Guo1, 1, 2 and Yun Liu1, 1, 2; 1The Institute of High Energy Physics, Chinese Academy of Sciences, China; 2National Institute of Standards and Technology, United States; 3University of Delaware, United States.

3:15 PM D3.01.06
Small Angle Neutron Scattering Study of Computationally Designed Coiled Coil Peptides and Their Higher Order 1D Assemblies Nairiti J. Sinha1, Michael J. Haider1, Dongdong Wu1, Christopher J. Kloxin1, 1, 2, Jeffery G. Saven1 and Darrin Pochan1; 1University of Delaware, United States; 2University of Pennsylvania, United States.

3:30 PM BREAK
4:00 PM *D3.02.01
Tuning Nanoparticle Dispersion in Polymer Hosts and Their Consequences on Properties Sanat Kumar; Columbia University, United States.

4:30 PM D3.02.02
Soft Nanoparticles as Novel Additives in Nanocomposites—Neutron Scattering Studies of Nanoparticle Morphology and Nano-composite Dynamics Halie Martin1, B. T. White2, Tomonori Saito1 and Mark Dadmun1, 2, 1The University of Tennessee, United States; 2Oak Ridge National Laboratory, United States.

4:45 PM D3.02.03
Elucidating the Isotope Effect on the Crystallizing Behaviors of Poly(e-caprolactone)s by Scattering Techniques Dongsook Chang1, Lengwan Li1, Changwoo Do1, Jong Keum1, Peter Bonnesen1 and Kunlun Hong1, 2, 1Oak Ridge National Laboratory, United States; 2University of Tennessee, Knoxville, United States; 3Oak Ridge National Laboratory, United States.

5:00 PM D3.02.04
Fingerprinting Molecular Relaxation of Deformed Polymers Yangyang Wang1, Christopher Lam1, Wensheng Xu1 and Wei-Ren Chen2, 1Oak Ridge National Laboratory, United States; 2Oak Ridge National Laboratory, United States.

5:15 PM D3.02.05
Analysis of SANS Patterns from 1D Symmetrically Confined Polymers James Pressly1, Rana Ashkar2, Ronald Jones1, Robert Rigglemann1 and Karen Winey1, 2, 1University of Pennsylvania, United States; 2Virginia Tech, United States; 3National Institute of Standards and Technology, United States; 4University of Pennsylvania, United States.

4:45 PM F3.01.04
Nano-Confinement Induced Disorder in the Vibrational Behavior of Propane Revealed by Neutron Scattering and MD Simulation Siddharth S. Gautam1, Alexander I. Kolesnikov2, Gernot Rother1, Sheng Dai2, Zhen-An Qiao2, 3 and David R. Cole1, 1The Ohio State University, United States; 2Oak Ridge National Laboratory, United States; 3Oak Ridge National Laboratory, United States; 4Jilin University, China.

3:00 PM F3.01.05
Electrolyte Dynamics at Optimal Composition of Ionic Liquid Mixture in Supercapacitors Naresh C. Osti1, Alejandro Gallegos2, Boris Dyatkin1, Jianzhong Wu1, Yury Gogotsi1 and Eugene Mamontov1, 1Oak Ridge National Laboratory, United States; 2University of California, Riverside, United States; 3Drexel University, United States.

3:15 PM F3.01.06
Role of Solvent Adducts in Hydrogen Dynamics of Metal Borohydrides—Neutron-Scattering Characterization Mirjana Dimitrievska1, 2, Marina Chong1, Mark E. Bowden1, Wei Zhou2, Thomas S. Autrey3 and Terrence E. Udovic2, 1National Renewable Energy Laboratory (NREL), United States; 2National Institute of Standards and Technology, United States; 3Pacific Northwest National Laboratory, United States.

3:30 PM BREAK

Materials Chemistry and Synthesis
SESSION G3.01: Functional Materials
Session Chair: Katharine Page
Wednesday Afternoon, June 27, 2018
Salon D

4:00 PM *G3.01.01
Local Structure and Dynamics in the Polymer Layer of Poly(methyl acrylate)-Grafted Nanospheres Michael J. Hore1, Case Western Reserve University, United States.

4:30 PM G3.01.02
Crystal Structures and Photoluminescence of a Two-Dimensional Perovskite Depei Zhang1, Tianran Chen1, Alexander Chen2, Wei-Liang Chen3, Maiko Kofu4, Craig M. Brown1, Guangyong Xu1, Leland W. Harriger1, Madhusudan Tyagi1, Timothy Prisk2, Changwon Park3, Mina Yoon4, Joshua Choi1 and Seung-Hun Lee1, 1University of Virginia, United States; 2University of Virginia, United States; 3National Taiwan University, Taiwan; 4Japan Proton Accelerator Research Complex, Japan; 5National Institute of Standards and Technology, United States; 6Oak Ridge National Laboratory, United States.

4:45 PM G3.01.03
Evolution of Antiferromagnetic Ordering in LiMn2FePO4 (x = 0.3, 0.5, 0.7) Stephanie Gnewuch1 and Efrain Rodriguez1, 1University of Maryland, United States.

5:00 PM G3.01.04
Linker Vacancies and Charge Balancing in Heterometallic MOFs Benjamin Trump1, Anthony Campanella2, 3, Eric Gosselin2, 3, 1Eric Bloch1, 2, 3 and Craig M. Brown1, 2, 3, 1National Institute of Standards and Technology, United States; 2University of Delaware, United States; 3University of Delaware, United States.

Neutrons for Energy and Sustainability
SESSION F3.01: Understanding Energy Storage Mechanism
Session Chairs: Ashfia Huq and Lilo Pozzo
Wednesday Afternoon, June 27, 2018
Salon D

1:45 PM *F3.01.01
Salt-Inclusion Materials—Hierarchical Materials with Potential for Sequestering Radionuclides Hans-Conrad zur Love1, 2, Ashfia Huq1 and Dileka Abeyesinghe1, 1University of South Carolina, United States; 2University of South Carolina, United States; 3Oak Ridge National Laboratory, United States.

2:15 PM F3.01.02
Linking the Mechanisms of Na-Ion Binding to the Structure of Amorphous Hard Carbon Todd W. Surta1, Zhihe Li1, David Ji1, Alex Greaney1 and Michelle Dolgos1, 1Oregon State University, United States; 2University of California, Riverside, United States.

2:30 PM F3.01.03
Quantification of Surface Heterogeneity Using Non-Invasive Generalized Porod’s Scattering Law Method Wei-Shan Chiang1, 2, Daniel Georgi1, Taner Yildirim1, Jinhong Chen1 and Yun Liu1, 2, 1National Institute of Standards and Technology, United States; 2University of Delaware, United States; 3Aramco Services Company, United States.
THURSDAY ORAL PRESENTATIONS

* Invited Paper

Plenary and Prize Session

SESSION A4.01: Plenary and Prize Session
Session Chairs: Matthew Helgeson, Despina Louca, Efrain Rodriguez and Patrick Woodward
Thursday Morning, June 28, 2018
Salon A

8:15 AM *A4.01.01
OUTSTANDING STUDENT RESEARCH PRIZE WINNER: Unconventional Spin Dynamics in Quantum Pyrochlore Magnets
Alannah Hallas; Rice University, United States.

8:55 AM *A4.01.02
PLENARY: Scattering of Neutrinos—The “Little Neutrons”
Kate Scholberg; Duke University, United States.

9:30 AM
Poster Award Announcement by Patrick Woodward, The Ohio State University/ACNS Conference Chair

9:45 AM BREAK

Advances in Neutron Methods

SESSION B4.01: Advances in Imaging and Diffraction
Session Chairs: Thomas Proffen
Thursday Morning, June 28, 2018
Salon C

10:15 AM *B4.01.01
Wavelength-Dependent Neutron Imaging Capabilities at the Spallation Neutron Source
Hassina Z. Bilheux1, Yuxuan Zhang1, Gian Song1, Qingge Xie1, Jiao Y. Lin1, Jean C. Bilheux1, Ke An1, Michael Kirka2, Ryan Dehoff2, Kristian Myhre3, Jared Johnson4, Alexandru Stoica1, Sarma Gorti2, Balasubramaniam Radhakrishnan3 and Louis J. Santodonato4; 1University of Virginia, United States; 2Oak Ridge National Laboratory, United States; 3National Institute of Standards and Technology, United States; 4Cornell University, United States.

10:45 AM
Three-Dimensional Mapping of Gadolinium and Uranium in TRISO Nuclear Fuel Kernels Using Epithermal Neutron Imaging
Yuxuan Zhang, Hassina Z. Bilheux, Kristian Myhre, Jean C. Bilheux, Jiao Y. Lin, Jared Johnson, Andrew Miskowiec and Rodney Hunt; Oak Ridge National Laboratory, United States.
11:00 AM C4.01.03
Doping Evolution of Spin Fluctuations and Their Peculiar Suppression at Low Temperature in Ca(Fe$_{1-x}$Co$_x$)$_3$As$_2$; Aashish Sapkota$^{1,2}$, Pinaki Das$^{1,2}$, A. E. Bohmer$^{1,2}$, Benjamin Ueland$^{1,2}$, Douglas L. Abernathy$^3$, S. L. Bud'ko$^{1,2}$, P. C. Canfield$^{1,2}$, Andreas Kreyssig$^{1,2}$, Alan I. Goldman$^{1,2}$ and R. J. McQueeney$^{1,2}$; Ames Laboratory, United States; Iowa State University of Science and Technology, United States; Oak Ridge National Laboratory, United States.

11:00 AM C4.01.03
Its Interplay with Superconductivity
Tianhao Wang$^1$, Xin Tong$^1$, Hassina Z. Bilheux$^1$, Nikolay Kardjilov$^3$, Indu Dhiman$^2$, Chenyang Jiang$^1$, Lowell Crow$^1$ and Lee Robertson$^2$; Oak Ridge National Laboratory, United States; Oak Ridge National Laboratory, United States; Helmholtz Zentrum, Berlin, Germany.

11:00 AM B4.01.03
Visualizing Magnetic Field Distribution Around Superconductor Using Polarized Neutron Imaging
Christina Hoffmann$^1$, Oak Ridge National Laboratory, United States.

11:15 AM B4.01.04
Single Crystal Diffraction on TOPAZ at Varying Temperature and Electric Field
Bryan Chakoumakos and Excelsus Structural Solutions, Switzerland.

11:15 AM B4.01.04
Ask the Locals—Insights Gained from Pair Distribution
Francke Frandsen$^1$, Lawrence Berkeley National Laboratory, United States; Excelsus Structural Solutions, Switzerland; Oak Ridge National Laboratory, United States.

11:30 AM B4.01.05
Rebuilding POWGEN—World’s Only Third Generation TOF Powder Diffractometer
Ashifa Hug$^1$, Melanie Kirkham$^2$, Pamela Whitfield$^3$, Simon A. Kimber$^1$, Peter F. Peterson$^1$, Andre Parizzii$^1$, Jason Hodges$^3$ and George Rennich$^1$; Oak Ridge National Laboratory, United States; Excelsus Structural Solutions, Switzerland; Oak Ridge National Laboratory, United States.

11:45 AM B4.01.06
The New WAND$^1$ Thermal Diffractometer at HFIR

12:00 PM B4.01.07
Improved Bragg Peak Integration for Neutron Crystallography by 3D Profile Fitting in Reciprocal Space
Brendan T. Sullivan$^1$, Richard Archibald$^2$, Leighton Coates$^1$, Xiaoping Wang$^1$, Franz X. Gallmeier$^1$, Jack Carpenter$^1$, Vickie Lynch$^1$ and Paul Langan$^1$; Oak Ridge National Laboratory, United States; Oak Ridge National Laboratory, United States.

Hard Condensed Matter

SESSION C4.01: Superconductivity, Spin Structure and Excitations
Session Chair: Efrain Rodriguez
Thursday Morning, June 28, 2018
Salon A

10:15 AM #C4.01.01
Ask the Locals—Insights Gained from Pair Distribution
Function Studies of Iron-Based Superconductors and Geometrically Frustrated Magnets
Benjamin Frandsen$^{1,2}$; Lawrence Berkeley National Laboratory, United States; University of California, Berkeley, United States.

10:45 AM C4.01.02
Hedgehog Spin-Vortex Crystal Order in CaK(Fe$_{0.8}$Ni$_{0.2}$)$_3$As$_3$ and Its Interplay with Superconductivity
Andreas Kreyssig$^{1,2}$, John Wilde$^{1,3}$, A. E. Bohmer$^{1,2}$, W. Tian$^1$, W. R. Meier$^{1,2}$, Bing Li$^{1,3}$, Benjamin Ueland$^{1,3}$, Mingyu Xu$^{1,3}$, S. L. Bud’ko$^{1,2}$, P. C. Canfield$^{1,2}$, R. J. McQueeney$^{1,2}$ and Alan I. Goldman$^{1,2}$; Ames Laboratory, U. S. DOE, United States; Iowa State University, United States; Oak Ridge National Laboratory, United States.

Soft Matter

SESSION D4.01: Solution Self-Assembly
Session Chair: Vivek Prabhu
Thursday Morning, June 28, 2018
Salon B

10:15 AM #D4.01.01
Structure and Dynamics of Block Copolymer Micelles with Encapsulated Cargo and Small Molecule Additives
Megan L. Robertson$^1$, Tyler Cooksey$^1$, Avantika Singh$^1$, Kim Mai Le$^1$, Shu Wang$^2$, Elizabeth Kelley$^2$, Lilin He$^2$, Sameer Vajjala Kesava$^2$, Enrique Gomez$^2$, Bryce Kidd$^2$, Xiuli Li$^1$ and Louis Madison$^2$; University of Houston, United States; National Institute of Standards and Technology Center for Neutron Research, United States; Oak Ridge National Laboratory, United States; Pennsylvania State University, United States; Virginia Tech, United States.
10:45 AM D4.01.02
Dependence of the Self-Assembly of Micelles in Aqueous Solution on the Position and Number of Ionic Monomers Gerald J. Schneider1,2; 1Louisiana State University, United States; 2Louisiana State University, United States.

11:00 AM D4.01.03
Wormlike Micelles in Cold and Sub-Zero Conditions—New Insights into the Self-Assembly of Ionic Surfactants in Polar Solvents and Solvent/Water Mixtures Niti Agrawal1, Xiuc Yue1, Yujun Feng2 and Srinivasa Raghavan1; 1University of Maryland, United States; 2Sichuan University, China.

11:15 AM D4.01.04
Nanostructure Through Computational Design—Self-Assembly of Designed Peptides or Block Copolymers for Nanomaterials Darrin Pochan; University of Delaware, United States.

11:30 AM D4.01.05
Lipid Membrane Transport Properties in Unilamellar Vesicles Measured by Quasi-Elastic Neutron Scattering Techniques Michihiro Nagao1,2, Elizabeth Kelley3, Takeshi Yamada4,5, Antonio Faraone4 and Paul D. Butler4,6; 1National Institute of Standards and Technology, United States; 2Indiana University, United States; 3Comprehensive Research Organization for Science and Society, Japan; 4University of Delaware, United States.

11:45 AM D4.01.06
Deciphering Mechanisms Behind Self-Healing in Polymeric Hydrogels Grethe V. Jensen1,2, Lutz Willner1, Pavlik Letting1 and Reidar Lund1; 1University of Delaware, United States; 2National Institute of Standards and Technology, United States; 3Forschungszentrum Jülich GmbH, Germany; 4University of Oslo, Norway.

12:00 PM D4.01.07
Characterization and Application of EO-PO Block Copolymeric Micelles for Improved Bioavailability of Hydrophobic Anticancer Drugs Sadafara A. Pillai and Sanjeev Kumar; The Maharaja Sayajirao University of Baroda, Vadodara, India.

Materials Chemistry and Synthesis

SESSION G4.01: Focus on Hydrogen
Session Chair: Mike Hore
Thursday Morning, June 28, 2018
Salon D

10:15 AM *G4.01.01
Use of Neutrons for the Development of Metal Hydrides Jacques Huot; UQTR, Canada.

10:45 AM G4.01.02
Exploring Vibrational Fluctuations in Pharmaceutical Co-Crystals by Combined Inelastic Neutrons Scattering (INS) Experiments and First-Principle Techniques Anup Pandey, Ada Sedova and Anibal Ramirez-Cuesta; Oak Ridge National Laboratory, United States.