

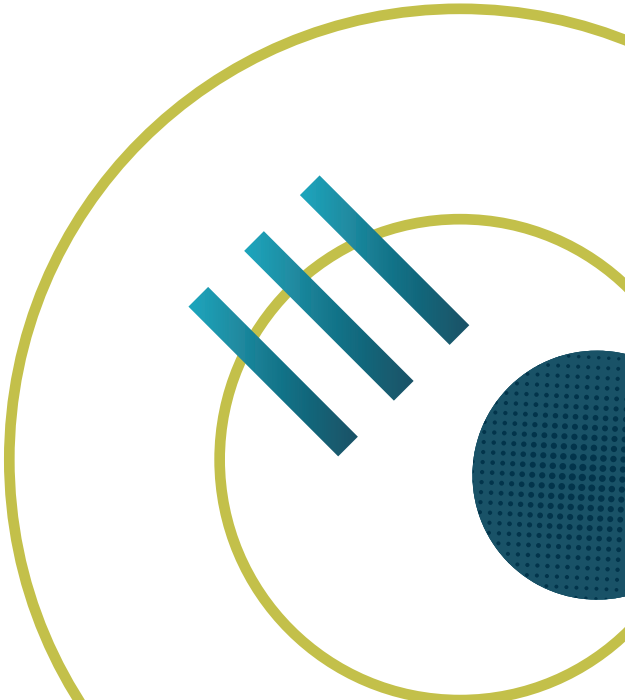


ACNS

2022

PROGRAM & EXHIBIT GUIDE

American Conference on Neutron Scattering
June 5-9, 2022 | University of Colorado Boulder



ACNS 2022

Welcome to the Conference!

On behalf of the ACNS Organizing Committee and Topic/Session Chairs, I am delighted to welcome you to the 2022 American Conference on Neutron Scattering. After more than two years of virtual interactions, it will be an enormous pleasure to learn about and discuss the latest and most exciting neutron-based research from members of our community in person.

We have worked hard to provide an outstanding technical program, and we are confident that ACNS 2022 will convey and celebrate the best and most recent advances in neutron research in North America. In your free time, we hope you will take advantage of the sights and natural beauty of the Rocky Mountains surrounding Boulder, Colorado. We look forward to meeting you, and we wish you a great conference experience.

Peter Gehring, National Institute of Standards and Technology



CONFERENCE HIGHLIGHTS

THE ACNS PROGRAM

Scientists from around the world will converge on Boulder, Colorado, this week to share ideas, present technical information and contribute to the advancement of neutron scattering. Featuring **275 oral and poster presentations**, ACNS 2022 offers a strong program of plenary, invited and contributed talks and poster sessions covering topics in advances in neutron methods instrumentation and software, hard condensed matter, soft matter, biology, biophysics and biotechnology, materials chemistry and energy, structural materials and engineering, neutron physics, and emerging applications in neutron scattering: machine learning and data science—confirming the great diversity of science that is enabled by neutron scattering.

CONFERENCE BADGE

Badges are required and must be worn at all times within the Conference venue.

RECORDING/PHOTO POLICY

Recording or photographing Conference presentations, posters, or displays is strictly prohibited without prior permission of the presenter.

TUTORIALS

Start the Conference off on Sunday with two tutorials free to Conference attendees. Featured topics are *Recent Advances in Neutron Spin Echo Science and Technology* and *Analyzing Small-Angle Scattering Data with Modern Physics*. For more details, see page 10.

WELCOME RECEPTION

Conference attendees are invited to the Welcome Reception on Sunday evening from 5:30 pm – 7:30 pm at the University Memorial Center, 2nd Floor, Outdoor South Terrace. Before the first full day of technical sessions, this is a great time to enjoy light snacks and refreshments, meet with old colleagues, make new connections and share information. The Welcome Reception is included in your registration fee.

POSTER SESSIONS/RECEPTIONS

Authors will be available for in-depth discussions Monday and Wednesday from 5:30 – 7:30 pm at the University Memorial Center, 2nd Floor, Glenn Miller Ballroom #210. These popular sessions are open to all Conference attendees. Complimentary refreshments will be served.

EXHIBIT

Be sure to visit the ACNS exhibitors Monday through Wednesday at the University Memorial Center, 2nd Floor, Glenn Miller Ballroom #210. Learn more about the latest products and services in the rapidly evolving world of neutron scattering. See page 18 for exhibit hours.

NSSA PRIZES

This year, NSSA Prizes bring special honor to four recipients: **Dan A. Neumann**, NIST Center for Neutron Research, receives the Clifford G. Shull Prize; **Martin Mourigal**, Georgia Institute of Technology, receives the Science Prize; **John Katsaras**, Oak Ridge

National Laboratory, receives the Sustained Research Prize, and **Sajna Hameed**, University of Minnesota (now at the Max Planck Institute for Solid State Research), receives the Outstanding Student Research Prize. Don't miss their special presentations throughout the week. See details on page 6-7.

CONFERENCE BANQUET

Make time for this year's Conference Banquet on Tuesday evening from 6:00 – 10:00 pm at the University Memorial Center, 2nd Floor, Outdoor South Terrace. The Banquet Speaker will be **Travis Rupp**, University of Colorado, Boulder. He will speak on "Brewing Beer in Roman Britain." Tickets for this event are required and may be purchased at the Registration Desk at \$90 per person. Admission to the Banquet is not included in the Conference registration fee.

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ACNS 2022 has been managed by
CONFERENCE SERVICES
Because the Experience Matters
www.mrs.org/conference-services



The **Neutron Scattering Society of America (NSSA)** is an organization of persons who have an interest in neutron scattering research in a wide spectrum of disciplines from materials science to physics, chemistry and biochemistry. The NSSA was formed in 1992 to provide a forum for the discussion of scientific issues, major facilities, and instrumentation needs for world-class neutron scattering research in North America. The main goal of the Society is to stimulate, promote and broaden the use of neutron scattering in science, engineering and technology.

Membership in the Society is available at no cost to individuals in academia, industry and government. Graduate students and recent PhDs are especially encouraged to join. Presently the NSSA has more than 1,200 members from 26 countries.

We encourage all Conference attendees to stop by the NSSA booth during ACNS 2022, or visit www.neutronsattering.org

TECHNICAL SESSIONS

- A: Advances in Neutron Facilities, Instrumentation and Software**
- B: Hard Condensed Matter**
- C: Soft Matter**
- D: Biology, Biophysics and Biotechnology**
- E: Materials Chemistry and Energy**
- F: Structural Materials and Engineering**
- G: Neutron Physics**
- H: Emerging Applications in Neutron Scattering: Machine Learning and Data Science**
- I: Plenary and Prize Sessions**

NSSA EXECUTIVE COMMITTEE

- President **Young Lee**, Stanford University
- Vice President **Peter Gehring**, National Institute of Standards and Technology
- Treasurer **Sara Haravifard**, Duke University
- Secretary **Flora Meilleur**, North Carolina State University / Oak Ridge National Laboratory
- Membership Secretary **Efrain Rodriguez**, University of Maryland
- Communication Secretary **Lisa DeBeer-Schmitt**, Oak Ridge National Laboratory
- Members at Large **Nitash Balsara**, University of California, Berkeley
Alannah Hallas, University of British Columbia
Hubert E. King, Jr., ExxonMobil
- Student/Postdoc Members **Yuyin Xi**, National Institute of Standards and Technology / University of Delaware
Claire Saunders, California Institute of Technology

ORGANIZING COMMITTEE

- Conference Chair **Peter M. Gehring**, National Institute of Standards and Technology
- NSSA President **Young Lee**, Stanford University

PROGRAM COMMITTEE

- Co-Chairs **Katie Weigandt**, National Institute of Standards and Technology
Stephen Wilson, University of California, Santa Barbara

Plenary and Prize Sessions

- Katie Weigandt**, National Institute of Standards and Technology
- Stephen Wilson**, University of California, Santa Barbara

Advances in Neutron Facilities, Instrumentation and Software

- Leland Harringer**, National Institute of Standards and Technology
- Hassina Bilheux**, Oak Ridge National Laboratory

Hard Condensed Matter

- Kemp Plumb**, Brown University
- Andy Christianson**, Oak Ridge National Laboratory
- Olivier Delaire**, Duke University

Soft Matter

- Megan Robertson**, University of Houston
- Javen Weston**, University of Tulsa
- John Riley**, DOW Chemical Company

Biology, Biophysics and Biotechnology

- Liz Kelley**, National Institute of Standards and Technology
- Amy Xu**, Louisiana State University

Materials Chemistry and Energy

- Michelle Dolgos**, University of Calgary
- Kiril Kovnir**, Iowa State University

Structural Materials and Engineering

- Jeffrey Bunn**, Oak Ridge National Laboratory
- Zhenzhen Yu**, Colorado School of Mines

Neutron Physics

- Leah Broussard**, Oak Ridge National Laboratory
- Dusan Sarenac**, University of Waterloo

Emerging Applications in Neutron Scattering: Machine Learning and Data Science

- Tyler Martin**, National Institute of Standards and Technology
- Alan Tennant**, Oak Ridge National Laboratory

LOCAL ORGANIZING COMMITTEE

- Steven DeCaluwe**, Colorado School of Mines
- Dmitry Reznik**, University of Colorado Boulder

SPECIAL PRESENTATIONS

Conference Room 235

MONDAY



CLIFFORD G. SHULL PRIZE WINNER

Monday, 8:15 am – 9:10 am

Dan A. Neumann

NIST Center for Neutron Research

Tailoring Instruments to the Science and the Source: 35 Years at the NCNR



PLENARY

9:10 am – 9:45 am

Laura Greene

Florida State University

The Dark Energy of Quantum Materials

TUESDAY



SCIENCE PRIZE WINNER

8:30 am – 9:10 am

Martin Mourigal

Georgia Institute of Technology

Magnons Are Not Forever



PLENARY

9:10 am – 9:45 am

Susan Krueger

National Institute of Standards and Technology Center for Neutron Research

SANS Contrast Variation Experiments on Multi-Component Biological Complexes: What's the Big Deal?

WEDNESDAY



SUSTAINED RESEARCH PRIZE WINNER

8:30 am – 9:10 am

John Katsaras

Oak Ridge National Laboratory

Neutrons, Biological Membranes and Future Directions



PLENARY

9:10 am – 9:45 am

Bruce Gaulin

McMaster University

Neutron Scattering from Exotic Magnetic Ground States

THURSDAY



OUTSTANDING STUDENT RESEARCH PRIZE WINNER

8:15 am – 8:55 am

Sajna Hameed

University of Minnesota (now at Max Planck Institute for Solid State Research)

Magnetic Phase Transitions and Spin-Wave Dynamics in $Y_{1-x}La_xTiO_3$ and $Y_{1-y}Ca_yTiO_3$



PLENARY

8:55 am – 9:30 am

Jeremy Smith

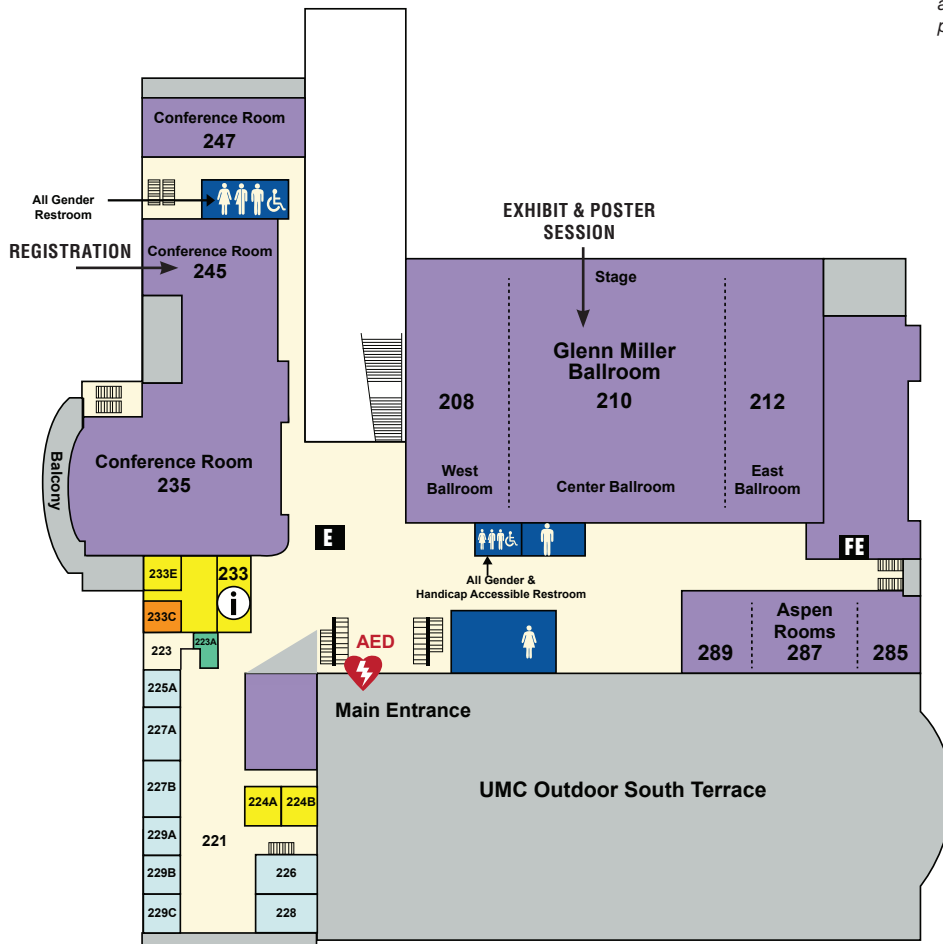
University of Tennessee and Oak Ridge National Laboratory

Neutrons for Clean Bioenergy

CONFERENCE VENUE

UNIVERSITY MEMORIAL CENTER

Second Floor



E Elevator

Travel Resources

The Conference does not endorse or sponsor any of the listings below. Information is provided as a courtesy to attendees.

INTERNET ACCESS

Complimentary Wireless Internet TO CONNECT

1. Select **UCB Guest** as your wireless network.
2. Open a web browser and go to **www.colorado.edu**. You will be automatically redirected to a registration page.
3. Review the **Guest Wireless Policy**.
4. Click on the **Agree** button.
5. You are now free to use UCB Guest Wireless for basic Internet activity for 24 hours.
6. Re-registration is required every 24 hours.

HOP BUS TRANSPORTATION

The HOP Bus provides transportation to and from Embassy Suites by Hilton and Hilton Garden Inn.

Visit boulder.colorado.gov/services/hop-bus for more information.

DINING OPTIONS

Visit mrs.org/acns-2022/restaurants to see the following on a map.

- The Sink
- Café Aion
- Ado's Kitchen
- Rosenberg's Bagels & Delicatessen
- Taco Junky
- Boss Lady Pizza
- Masala Burger
- Hilltop Food Court—6 different concepts



The Neutron Scattering Society of America is pleased to announce the **2022 Fellows of the Society**

Tuesday, 8:00 am – 8:15 am • UMC Conference Room 235

Lawrence M. Anovitz

Oak Ridge National Laboratory/University of Tennessee

“For pioneering and innovative application of neutron scattering and neutron imaging to problems in geosciences and promoting the importance of these unique capabilities to the geosciences community.”

Alamgir Karim

University of Houston

“For neutron reflectivity studies of polymer thin films, including validation of theories related to early-stage interdiffusion in polymers, chemically end-grafted polymer brushes, and soft-shear and ionic-liquid ordering of block-copolymer films.”

Susan Krueger

NIST Center for Neutron Research

“For sustained leadership in the development and application of state-of-the-art neutron scattering techniques to the elucidation of complex biomolecular structures.”

Valeria Lauter

Oak Ridge National Laboratory

“For important contributions to the understanding of novel properties of complex magnetic heterostructures using polarized neutron reflectometry, for pioneering the development and application of advanced techniques for neutron scattering at grazing incidence, and for outstanding service to the neutron scattering community.”

Young S. Lee

Stanford University

“For a sustained record of furthering research into correlated electron materials and quantum spin materials through neutron scattering studies of density wave order in exotic superconductors, the quantum spin liquid ground state of frustrated magnets, and topological phases in magnetic materials.”

Mathias Lösche

Carnegie Mellon University (retired)

“For establishing neutron reflectometry as a quantitative tool in the structural biology of lipid membranes and membrane-associated proteins.”

Despina Louca

University of Virginia

“For her leadership as NSSA President and her numerous contributions to the study of local structure of functional quantum materials using neutron scattering.”

Donald J. Pierce

NIST Center for Neutron Research

“For more than three decades of wide-ranging leadership and technical contributions to guide and instrument development at the NIST Center for Neutron Research.”

Ram Seshadri

University of California, Santa Barbara

“For innovative contributions to deciphering functional material properties through the application of neutron scattering.”

D. Alan Tennant

University of Tennessee/Oak Ridge National Laboratory

“For utilizing neutron scattering to elucidate quantum phenomena in magnetic systems, using novel computational techniques to enhance understanding of neutron scattering data, and for leading the community in the expansion of the neutron scattering technique.”

Volker S. Urban

Oak Ridge National Laboratory

“For continuous service and leadership to provide the US neutron scattering community with state-of-the-art experimental facilities on large scale structure studies, and for pioneering new applications that have expanded the use of small-angle neutron scattering and spin-echo spectroscopy.”

Stephen Wilson

University of California, Santa Barbara

“For his insightful neutron research into highly correlated electron physics and his remarkable service to the neutron scattering community.”



Through the NSSA Fellowship Program, the NSSA recognizes members who have made significant contributions to the neutron scattering community in North America in one or more of the following areas: advances in knowledge through original research and publication; innovative contributions in the application of neutron scattering; contributions to the promotion or development of neutron scattering; or techniques, service and application in the activities of the NSSA or neutron community. Each year, election to Fellowship of the Neutron Scattering Society of America is limited to no more than one half of the percent of the membership. Additionally, recipients of the Clifford G. Shull Prize and Sustained Research Prize are automatically named Fellows of the Society. Election to NSSA Fellowship recognizes outstanding contributions to neutron scattering and the North American neutron scattering community.



The Neutron Scattering Society of America is pleased to announce the 2022 recipients of its four major prizes.

Conference Room 235



CLIFFORD G. SHULL PRIZE

The Clifford G. Shull Prize in Neutron Science recognize outstanding research in neutron science and leadership promoting the North America neutron scattering community. The prize is named in honor of Clifford G. Shull, who received the Nobel Prize in 1994 for seminal developments in the field of neutron science.

Dan A. Neumann
NIST Center for Neutron Research

"For outstanding contributions, leadership, and vision to the neutron scattering community as scientist, mentor, instrument developer, and facility steward."

Dan A. Neumann is the Leader of the Neutron Condensed Matter Science Group at the NIST Center for Neutron Research (NCNR). He has spent most of his career shaping the NCNR scientific program and developing the NCNR into one of the world's foremost neutron research facilities. His stewardship of the NCNR is marked by his successes in recruiting and mentoring talented scientists, identifying and constructing world-class neutron instrumentation and forging novel partnerships to leverage NCNR resources and produce the greatest possible scientific output.

Neumann possesses a profound understanding of neutron instrumentation, and he has been unafraid to implement cutting-edge neutron optical concepts. While leading the development of the first backscattering spectrometer in North America, he decided to incorporate a novel phase-space-transform chopper that had never been built before. His efforts succeeded, increasing the flux on sample by over a factor of four, and have since been replicated at the Institut Laue-Langevin (ILL) and Heinz Maier-Leibnitz Zentrum (MLZ).

Neumann provided the scientific leadership for the expansion of the NCNR by crafting the entire instrument layout for the second guide hall, overseeing the design, construction and installation of new instruments, and reconfiguring several instruments in both the new and old guide halls to provide future instrumentation opportunities. The recently commissioned vSANS and CANDOR instruments were made possible by his carefully planned instrument layout. More recently, Neumann planned the upgrades of three of the original neutron guides and modernized the neutron optics of the instruments on these guides, which will significantly increase their performance.

Neumann has greatly expanded the U.S. neutron scattering community through the development of a variety of industrial and academic partnerships. This has been most evident through his stewardship and expansion of the joint NSF/NIST-funded Center for High Resolution Neutron Scattering (CHRNS). He was also a co-founder, with Ron Jones and Eric Lin, of the *n*Soft industrial consortium that has established a new model for fostering industrial interactions at national user facilities. Along with Norman Wagner, Neumann co-founded the Center for Neutron Scattering at the University of Delaware. This collaboration has attracted funding for a new spin-echo instrument as well as industry fund x-raying for several projects.

Due to the success of the NCNR scientific program, Neumann is one of the most highly sought scientists by facilities seeking advice on sources and instrumentation as well as reviews of existing neutron science programs. Over the past 20 years Neumann has served on 50 advisory and/or review committees for various neutron and x-ray sources worldwide.

Neumann was first introduced to neutron scattering techniques in 1983 while a graduate student at the University of Illinois at Urbana-Champaign. After receiving his PhD degree in 1987, he was hired as a staff scientist at the National Bureau of Standards Reactor Radiation Division, now the NIST Center for Neutron Research. In 1997, he was named Leader of the Chemical Physics team, which operated the NCNR neutron spectroscopy program. In 2005, he succeeded Jack Rush as Leader of the Neutron Condensed Matter Science Group. Neumann is a Fellow of the NSSA and the American Physical Society.

PRESENTATION

Tailoring Instruments to the Science and the Source: 35 Years at the NCNR
Monday, 8:15 am – 9:10 am

SCIENCE PRIZE

The Science Prize recognizes a major scientific accomplishment or important scientific contribution within the last five years using neutron scattering techniques.



Martin Mourigal
Georgia Institute of Technology

"For his significant and insightful use of inelastic neutron scattering in the study of quantum materials."

Martin Mourigal is an associate professor in experimental quantum condensed matter in the School of Physics at Georgia Institute of Technology (Georgia Tech) in Atlanta. Martin received his MSc and PhD degrees from Ecole Polytechnique Federale de Lausanne (EPFL) in Switzerland for graduate work conducted at the Institut Laue Langevin in Grenoble, France. Following a postdoctoral stint at Johns Hopkins University, he joined the faculty at Georgia Tech in 2015 and was promoted to associate professor in 2020. Martin's research group specializes in neutron scattering studies of magnetic quantum materials with a combination of spectroscopy, theoretical modeling and materials growth and characterization. Martin received the NSF CAREER Award in 2018. At Georgia Tech, he received the Sigma Xi Young Faculty Award, the Cullen-Peck Faculty Scholar Award and the Junior Faculty Teaching Excellence Award.

PRESENTATION

Magnons Are Not Forever
Tuesday, 8:30 am – 9:10 am

SUSTAINED RESEARCH PRIZE

The Sustained Research Prize recognizes a sustained contribution to a scientific subfield, or subfields, using neutron scattering techniques, or a sustained contribution to the development of neutron scattering techniques.



John Katsaras
Oak Ridge National Laboratory

"For seminal scientific contributions using neutron scattering techniques and molecular dynamics simulations that have led to a profound understanding of biomembrane structures and dynamics on the nanoscale."

John Katsaras is a senior scientist at Oak Ridge National Laboratory and for over 30 years has worked at the nexus of biology, chemistry and physics using different neutron and x-ray scattering techniques combined with theory and computer simulations. During that time, he has pioneered and developed scattering techniques that are now being used to solve salient problems related to the structure and dynamics of model and biological membranes. Most recently, he has been exploring the use of lipid bilayers as platforms for the next-generation of neuromorphic computers and as novel therapeutic targets for brain diseases.

PRESENTATION

Neutrons, Biological Membranes and Future Directions

Wednesday, 8:30 am – 9:10 am

OUTSTANDING STUDENT RESEARCH PRIZE

The Outstanding Student Research Prize recognizes outstanding accomplishments in the general area of neutron scattering by graduate or undergraduate students who have performed much of their work at North American neutron facilities.



Sajna Hameed
University of Minnesota
(now at Max Planck Institute for Solid State Research)

"For the elucidation of magnetism and plastic deformation effects in perovskite titanates via neutron scattering and complementary techniques."

Sajna Hameed obtained a BTech degree in engineering physics in 2014 from the Indian Institute of Technology Madras, Chennai, India. Following this, she completed her PhD degree in physics at the University of Minnesota in 2021. Currently, she is a postdoctoral researcher at the Max Planck Institute for Solid State Research in Stuttgart, Germany. She is a recipient of the 2015 Outstanding T.A. Award from the School of Physics and Astronomy, University of Minnesota, and the Best Student Presentation Award at the 2021 Virtual Joint Nanoscience and Neutron Scattering User Meeting.

PRESENTATION

Magnetic Phase Transitions and Spin-Wave Dynamics in $Y_{1-x}La_xTiO_3$ and $Y_{1-y}Ca_yTiO_3$

Thursday, 8:15 am – 8:55 am

DAILY SCHEDULE OF EVENTS

TECHNICAL SESSIONS

- A: Advances in Neutron Facilities, Instrumentation and Software
- B: Hard Condensed Matter
- C: Soft Matter
- D: Biology, Biophysics and Biotechnology
- E: Materials Chemistry and Energy
- F: Structural Materials and Engineering
- G: Neutron Physics
- H: Emerging Applications in Neutron Scattering: Machine Learning and Data Science
- I: Plenary and Prize Sessions

SUNDAY

EVENT	TIMES	LOCATION
Registraton	7:30 am – 7:30 pm	UMC Conference Room 245
Tutorial: Recent Advances in Neutron Spin Echo Science and Technology	1:00 pm – 6:00 pm	UMC Aspen Rooms 285, 287, 289
Tutorial: Analyzing Small-Angle Scattering Data with Modern Python	9:00 am – 5:00 pm	UMC Aspen Rooms 235
Break	10:30 am – 10:50 am	UMC Conference Room 235
Lunch (not provided by Conference)	12:30 pm – 2:00 pm	
Break	3:15 pm – 3:45 pm	UMC Conference Room 235 UMC Aspen Rooms 285, 287, 289
Welcome Reception	5:30 pm – 7:30 pm	UMC Outdoor South Terrace, 2 nd Floor

MONDAY

EVENT	TIMES	LOCATION
Registraton	7:30 am – 7:30 pm	UMC Conference Room 245
Welcome and Introductions	8:00 am – 8:15 am	UMC Conference Room 235
I1.01: Clifford G. Shull Prize Winner	8:15 am – 9:10 am	UMC Conference Room 235
Exhibit	9:00 am – 12:00 pm	UMC Center Ballroom 210
I1.01: Plenary	9:10 am – 9:45 am	UMC Conference Room 235
Break	9:45 am – 10:15 am	UMC Center Ballroom 210
B1.01: Magnetism and Topological Band Structures	10:15 am – 12:30 pm	UMC East Ballroom 212
A1.01: Facilities	10:15 am – 12:30 pm	UMC West Ballroom 208
C1.01: Field-Driven Structures in Soft Matter	10:15 am – 12:15 pm	UMC Conference Room 235
G1.01: Neutron Physics I	10:15 am – 12:30 pm	UMC Aspen Room 285, 287, 289
DEI Discussion Meeting	12:30 pm – 1:30 pm	UMC Glenn Miller Ballroom 208
Lunch (not provided by Conference)	12:30 pm – 2:00 pm	
Exhibit	1:30 pm – 4:00 pm	UMC Center Ballroom 210
B1.02: Disorder Inhomogeneity and Strong Correlations	1:45 pm – 3:30 pm	UMC East Ballroom 212
Poster Authors Set-up	2:00 pm – 5:00 pm	UMC Center Ballroom 210
A1.02: Software: Instrumentation	2:00 pm – 3:30 pm	UMC West Ballroom 208
C1.02: Conjugated Polymers	2:00 pm – 3:30 pm	UMC Conference Room 235
F1.01: Using Neutrons for Advanced Manufacturing Characterization	2:00 pm – 3:15 pm	UMC Aspen Room 285, 287, 289
Break	3:30 pm – 4:00 pm	UMC Center Ballroom 210
A1.03: Software: Data Analysis and Modeling	3:45 pm – 5:30 pm	UMC West Ballroom 208
E1.01: Materials Chemistry and Energy I	3:45 pm – 5:30 pm	UMC Aspen Room 285, 287, 289
D1.01: Structure and Dynamics of Proteins and Peptide Assemblies	4:00 pm – 5:30 pm	UMC Conference Room 235
B1.03: Novel Magnetic Structures and Excitations	4:00 pm – 5:30 pm	UMC East Ballroom 212
Exhibit	5:30 pm – 7:30 pm	UMC Center Ballroom 210
Poster Session (General Viewing) and Refreshments	5:30 pm – 7:30 pm	UMC Center Ballroom 210

TUESDAY

EVENT	TIMES	LOCATION
Registraton	7:30 am – 3:30 pm	UMC Conference Room 245
Fellows Announcement	8:15 am – 8:30 am	UMC Conference Room 235
I2.01: Science Prize Winner	8:30 am – 9:10 am	UMC Conference Room 235
Exhibit	9:00 am – 12:00 pm	UMC Center Ballroom 210
I2.01: Plenary	9:10 am – 9:45 am	UMC Conference Room 235
Break	9:45 am – 10:15 am	UMC Center Ballroom 210

TUESDAY (Continued)

EVENT	TIMES	LOCATION
B2.04: Frustrated Magnetism	10:15 am – 12:30 pm	UMC East Ballroom 212
A2.05: Instrumentation: Hard Matter	10:15 am – 12:30 pm	UMC West Ballroom 208
C2.04: Grafted Polymers and Nanocomposites	10:15 am – 12:30 pm	UMC Conference Room 235
H2.01: Emerging ML Applications—Neutrons and Beyond	10:15 am – 11:45 am	UMC Aspen Room 285, 287, 289
Lunch (not provided by Conference)	12:30 pm – 2:00 pm	
NUG User Group Meeting	12:30 pm – 1:30 pm	UMC Glenn Miller Ballroom 208
Exhibit	1:30 pm – 3:30 pm	UMC Center Ballroom 210
C2.05: Surfactants and Emulsions	1:45 pm – 3:15 pm	UMC Conference Room 235
B2.05: Spin Glass and Complex Magnetic Structures	2:00 pm – 3:15 pm	UMC East Ballroom 212
G2.02: Neutron Physics II	2:00 pm – 3:15 pm	UMC Aspen Room 285, 287, 289
H2.02: Emerging ML Applications—Diffraction to Dynamics	2:00 pm – 3:30 pm	UMC West Ballroom 208
Breakout Session: How do we improve the UX of ORNL neutron data systems?	3:45 pm – 4:45 pm	UMC Glenn Miller Ballroom 208
Conference Banquet	6:00 pm – 10:00 pm	UMC Outdoor South Terrace, 2 nd Floor

WEDNESDAY

EVENT	TIMES	LOCATION
Registraton	7:30 am – 7:30 pm	UMC Conference Room 245
I3.01: Sustained Research Prize Winner	8:30 am – 9:10 am	UMC Conference Room 235
Exhibit	9:00 am – 12:00 pm	UMC Center Ballroom 210
I3.01: Plenary	9:10 am – 9:45 am	UMC Conference Room 235
Break	9:45 am – 10:15 am	UMC Center Ballroom 210
B3.06: Phonons and Lattice Dynamics	10:15 am – 12:15 pm	UMC East Ballroom 212
A3.06: Instrumentation: Soft Matter and Imaging	10:15 am – 12:30 pm	UMC West Ballroom 208
D3.02: Insights into Lipid Membrane Properties and Protein-Lipid Interactions	10:15 am – 12:15 pm	UMC Conference Room 235
E3.02: Materials Chemistry and Energy II	10:15 am – 12:00 pm	UMC Aspen Room 285, 287, 289
Lunch (not provided by Conference)	12:30 pm – 2:00 pm	
SNS-HFIR User Group Town Hall	12:30 pm – 1:30 pm	UMC Glenn Miller Ballroom 208
Exhibit	1:30 pm – 4:00 pm	UMC Center Ballroom 210
B3.07: Orbital Physics and Beyond Dipolar Magnetism	2:00 pm – 3:15 pm	UMC East Ballroom 212
Poster Authors Set-up	2:00 pm – 5:00 pm	UMC Center Ballroom 210
A3.07: Instrumentation: Sample Environment	2:00 pm – 3:30 pm	UMC West Ballroom 208
C3.06: Bio-Inspired Soft Matter	2:00 pm – 3:45 pm	UMC Conference Room 235
F3.02: Using Neutrons for Large Scale Engineering Applications	2:00 pm – 3:15 pm	UMC Aspen Room 285, 287, 289
Break	3:30 pm – 4:00 pm	UMC Center Ballroom 210
E3.03: Materials Chemistry and Energy III	3:30 pm – 5:30 pm	UMC Aspen Room 285, 287, 289
D3.03: New Tools and Methods for Biological Scattering Experiments	3:45 pm – 5:30 pm	UMC Conference Room 235
B3.08: Unconventional Superconductors and Related Materials	4:00 pm – 5:30 pm	UMC East Ballroom 212
H3.03: Emerging ML Applications—Soft Matter and Chemistry	4:00 pm – 5:15 pm	UMC West Ballroom 208
Exhibit	5:30 pm – 7:30 pm	UMC Center Ballroom 210
Poster Session (General Viewing) and Refreshments	5:30 pm – 7:30 pm	UMC Center Ballroom 210

THURSDAY

EVENT	TIMES	LOCATION
Registraton	7:30 am – 1:00 pm	UMC Conference Room 245
I4.01: Outstanding Student Research Prize Winner	8:15 am – 8:55 am	UMC Conference Room 235
I4.01: Plenary	8:55 am – 9:30 am	UMC Conference Room 235
I4.01: Poster Award Announcements	9:30 am – 9:45 am	UMC Conference Room 235
Break	9:45 am – 10:15 am	UMC Center Ballroom 210
A4.09: Neutron Devices and Ancillary Equipment	10:15 am – 12:30 pm	UMC West Ballroom 208
B4.10: Spin Textures and Helimagnets	10:15 am – 12:30 pm	UMC East Ballroom 212
C4.07: Nanoparticles, Methods and General Soft Matter	10:15 am – 1:00 pm	UMC Conference Room 235

TUTORIALS

NSE Workshop/Tutorial Recent Advances in Neutron Spin Echo Science and Technology

Sunday, 12:45 pm – 6:00 pm

An introduction to quasielastic neutron scattering using neutron spin echo will be followed by several scientific examples in complex systems, incoherent scattering materials and magnetism. The workshop will end with talks and discussions about ongoing upgrades to the NSE instrumentation at the U.S. facilities. It is hoped that participants will get a better understanding of this polarized neutron technique, the complex instrumentation and the science that results from this technique.

Organizers

Changwoo Do, Oak Ridge National Laboratory
Georg Ehlers, Oak Ridge National Laboratory
Antonio Faraone, National Institute of Standards and Technology
Jason S. Gardner, Oak Ridge National Laboratory
Yang Yang Wang, Oak Ridge National Laboratory
YZ, University of Illinois at Urbana-Champaign

12:45 pm – 3:15 pm Afternoon Session 1

3:15 pm – 3:45 pm Break

3:45 pm – 6:00 pm Afternoon Session 2

Analyzing Small-Angle Scattering Data with Modern Python

Sunday, 9:00 am – 5:00 pm

While there exists a plethora of tools for analyzing X-ray and neutron scattering data, it is sometimes the case that these tools do not have all the features needed to support highly specialized experiments. In this case, users must either wait for the developers to add in the features or attempt to add the features themselves. However, both options can unnecessarily slow down progress of their scientific program. Here, we will teach participants how to use the Python programming language to analyze their scattering data and develop custom analysis workflows. We will start with the basics of Python itself and then continue building upon skills for loading, plotting and analysis using real-world data. Finally, provided examples will demonstrate how several Python libraries, including both general-purpose (Pandas, xArray) and specialized (sasmodels, periodictable, pyPRISM) tools, can be incorporated in these custom data approaches.

Organizers

Tyler Martin, National Institute of Standards and Technology
Caitlyn Wolf, National Institute of Standards and Technology

9:00 am – 10:30 am Morning Session 1

10:30 am – 10:50 am Break

10:50 am – 12:20 pm Morning Session 2

12:20 pm – 1:45 pm Lunch Break

1:45 pm – 3:15 pm Afternoon Session 1

3:15 pm – 3:35 pm Break

3:35 pm – 5:00 pm Afternoon Session 2

ORAL PRESENTATIONS AT-A-GLANCE

MONDAY

	UMC Conference Room 235	UMC West Ballroom 208	UMC East Ballroom 212	UMC Aspen Rooms 285, 287, 289
	I: Plenary and Prize Session			
8:00 am	Welcome and Introductions			
8:30 am	I1.01.01 Dan Alan Neumann*			
9:10 am	I1.01.02 Laura Greene*			
BREAK (9:45 am – 10:15 am)				
	C: Soft Matter	A: Advances in Neutron Facilities, Instrumentation and Software	B: Hard Condensed Matter	G: Neutron Physics
10:15 am	C1.01.01 Michelle A Calabrese*	A1.01.01 Patrick Clancy*	B1.01.01 Rebecca Lynn Dally*	G1.01.01 Benjamin Heacock*
10:30 am				
10:45 am	C1.01.02 Matthew Helgeson	A1.01.02 Jeroen Plomp	B1.01.02 Jonathan Gaudet	G1.01.02 Robert Valdillez
11:00 am	C1.01.03 Katie M. Weigandt	A1.01.03 Georg Ehlers	B1.01.03 Simon Xavier Marie Riberolles	G1.01.03 Olivier Nahman-Lévesque
11:15 am	C1.01.04 Norman Wagner	A1.01.04 Kyle Grammer	B1.01.04 Keith Taddei	G1.01.04 Dmitry Pushin
11:30 am	C1.01.05 Guan-Rong Huang	A1.01.05 Lowell Crow	B1.01.05 Bing Li	G1.01.05 Charles W. Clark
11:45 am	C1.01.06 Peter Gilbert	A1.01.06 Rodrigo Vilaseca	B1.01.06 Young-June Kim	G1.01.06 Dusan Sarenac
12:00 pm	C1.01.07 Jeffrey J. Richards	A1.01.07 Igor Remec	B1.01.07 Despina Louca	G1.01.07 Michael Garth Huber
12:15 pm		A1.01.08 Tianhao Radian Wang	B1.01.08 Tao Xie	G1.01.08 Connor Lewis Kapahi
BREAK (12:30 pm – 2:00 pm)				
	C: Soft Matter	A: Advances in Neutron Facilities, Instrumentation and Software	B: Hard Condensed Matter	F: Structural Materials and Engineering
1:45 pm			B1.02.01 Martin Greven*	
2:00 pm	C1.02.01 Lilo Danielle Pozzo*	A1.02.01 Charles A. Bouman*		F1.01.01 Hamid Eisazadeh*
2:15 pm		A1.02.02 Matthew J. Frost	B1.02.02 John Schneeloch	
2:30 pm	C1.02.02 Zhiqiang Cao	A1.02.03 Fahima Islam	B1.02.03 Farhan Islam	F1.01.02 Youngju Kim
2:45 pm	C1.02.03 Sage Scheiwiller	A1.02.04 Thomas Huegle	B1.02.04 Matthew Krogstad	F1.01.03 Thomas Gnaupel-Herold
3:00 pm	C1.02.04 Lilin He	A1.02.05 William T. Higgins	B1.02.05 Nathan D. Arndt	F1.01.04 Christopher Fancher
3:15 pm	C1.02.05 Xiaodan Gu		B1.02.06 Tyler Chase Sterling	
BREAK (3:30 pm – 4:00 pm)				
	D: Biology, Biophysics and Biotechnology	A: Advances in Neutron Facilities, Instrumentation and Software	B: Hard Condensed Matter	E: Materials Chemistry and Energy
3:45 pm		A1.03.01 Evan Carlin		E4.04.01 Hillary Smith*
4:00 pm	D1.01.01 Nairiti J. Sinha*	A1.03.02 Paul D. Butler	B1.03.01 Bo Yuan*	
4:15 pm		A1.03.03 Andrei T. Savici		E4.04.02 Nicholas Weadock
4:30 pm	D1.01.02 Roisin Donnelly	A1.03.04 Malcolm Guthrie	B1.03.02 Andrew D. Christianson	E4.04.03 Craig M. Brown
4:45 pm	D1.01.03 Rachel Rae Ford	A1.03.05 Thilo Balke	B1.03.03 Daniel Shoemaker	E4.04.04 J. Rolando Granada
5:00 pm	D1.01.04 Julia Greenfield	A1.03.06 Adam Jackson	B1.03.04 Anjana Malinge Samarakoon	E4.04.05 Tianyu Li
5:15 pm	D1.01.05 Amy Xu	A1.03.07 Yuanpeng Zhang	B1.03.05 Chris Leighton	E4.04.06 Brent J. Heuser

* Invited

Join us for this year's

CONFERENCE BANQUET

Tuesday, 6:00 pm – 10:00 pm
Outdoor South Terrace, 2nd Floor



\$90.00 per person

Tickets are available at ACNS Registration Desk

Brewing Beer in Roman Britain

Travis Rupp

(The Beer Archaeologist)
Lecturer in Classics, Art History,
Anthropology and Mechanical Engineering
University of Colorado Boulder

Travis Rupp is a full-time lecturer in classics, art history, history, anthropology and mechanical engineering at the University of Colorado Boulder where he has taught for 13 years. He teaches all things Egyptian, Near Eastern, Greek and Roman. His scholarly expertise focus on ancient food and alcohol production, ancient sport and spectacle, Pompeii and Vesuvius. He also worked at Avery Brewing Company for nine years serving as the wood cellar and research and development manager. He holds the title of beer archaeologist and founded Avery's Ales of Antiquity Series, which ran from 2016-2020. He serves on the National Advisory Board for the Chicago Brewseum, and he is the recent founder of The Beer Archaeologist LLC. As a result of his careers and passions, Travis is writing books on the beginnings of beer in the Roman military, brewing in the early monastic tradition and beer production in Revolutionary America. Recently his travels and research abroad have focused on monastic brewing in Italy from AD 400-900, brewing in Roman Britain during the 2nd century CE and beer production at Mt. Vernon and Monticello.

ORAL PRESENTATIONS AT-A-GLANCE

TUESDAY

	UMC Conference Room 235	UMC West Ballroom 208	UMC East Ballroom 212	UMC Aspen Rooms 285, 287, 289
	I: Plenary and Prize Session			
8:15 am	Fellows Announcement			
8:30 am	I2.01.01 Martin Mourigal*			
9:10 am	I2.01.02 Susan Krueger*			
BREAK (9:45 am – 10:15 am)				
	C: Soft Matter	A: Advances in Neutron Facilities, Instrumentation and Software	B: Hard Condensed Matter	H: Emerging Applications of Neutron Scattering in Engineering, Arts and Sciences
10:15 am	C2.04.01 Michael J. A. Hore	A2.05.01 Rasmus Toft-Petersen*	B2.04.01 Sara Haravifard*	H2.01.01 Mingda Li*
10:30 am		A2.05.02 Leland W. Harriger		
10:45 am	C2.04.02 Xueting Wang	A2.05.03 Shuo Qian	B2.04.02 Ganesh Pokharel	H2.01.02 Kristin Schmidt*
11:00 am	C2.04.03 Yuyin Xi	A2.05.04 Yaohua Liu	B2.04.03 Mitchell Bordelon	
11:15 am	C2.04.04 Jihyuk Kim	A2.05.05 Travis Jay Williams	B2.04.04 Yishu Wang*	H2.01.03 Daniel Ratner*
11:30 am	C2.04.05 Md Ashrafal Haque	A2.05.06 Thomas Gnaupel-Herold		
11:45 am	C2.04.06 Alamgir Karim	A2.05.07 Sean Fayfar	B2.04.05 Allen Scheie	
12:00 pm	C2.04.07 Zijie Wu	A2.05.08 Kenneth C. Littrell	B2.04.06 Aaron Thomas Breidenbach	
12:15 pm	C2.04.08 Antonia Denkova		B2.04.07 Adam Aczel	
BREAK (12:30 pm – 2:00 pm)				
	C: Soft Matter	H: Emerging Applications of Neutron Scattering in Engineering, Arts and Sciences	B: Hard Condensed Matter	G: Neutron Physics
1:45 pm	C2.05.01 Marina Tsianou			
2:00 pm		H2.02.01 William Ratcliff	B2.05.01 Shan Wu*	G2.02.01 Gerardo Ortiz*
2:15 pm	C2.05.02 Chung-Hao Liu	H2.02.02 Jiao Lin	B2.05.02 Yu Li	
2:30 pm	C2.05.03 Zening Liu	H2.02.03 Makena Dettmann	B2.05.03 Xiao Hu	G2.02.02 Abu Ashik Md Irfan
2:45 pm	C2.05.04 Ketan Chandubhai Kuperkar	H2.02.04 Abdourahmane Diaw	B2.05.05 Duminda Sanjeewa	G2.02.03 Sam McKay
3:00 pm	C2.05.05 Luke Heroux	H2.02.05 Austin McDannald		G2.02.04 Earl Babcock
3:15 pm	C2.05.06 Tanvi Sheth	H2.02.06 Adam Moule		

* Invited

Americans with Disabilities Act (ADA) Compliance

MRS, its meeting partners and event venues are responsible for complying with the Americans with Disabilities Act (ADA) including the readily achievable removal of physical barriers to access meeting rooms, sleeping rooms and common areas. This may also include reasonable provisions for auxiliary aids and services when necessary and where achievable without undue burden. MRS will make every attempt to ensure that disabled individuals are accommodated so that they can receive the full benefit of participation in our events and will modify, where possible, the policies, practices and procedures as necessary to provide goods and services to disabled individuals. Individuals with special needs should contact MRS headquarters at info@mrs.org or by calling 724.779.3003 as soon as possible, and preferably at least four weeks prior to meeting attendance to discuss reasonable accommodations. On-site needs will be met to the extent possible.



CONFERENCE BADGE

Badges must be worn at all times within the Conference venue, including all receptions.

RECORDING/PHOTO POLICY

Recording or photographing Conference presentations, posters, or displays is strictly prohibited without prior permission of the presenter.



ORAL PRESENTATIONS AT-A-GLANCE

WEDNESDAY

	UMC Conference Room 235	UMC West Ballroom 208	UMC East Ballroom 212	UMC Aspen Rooms 285, 287, 289
	I: Plenary and Prize Session			
8:30 am	I3.01.01 John Katsaras*			
9:10 am	I3.01.02 Bruce D. Gaulin*			
BREAK (9:45 am – 10:15 am)				
	D: Biology, Biophysics and Biotechnology	A: Advances in Neutron Facilities, Instrumentation and Software	B: Hard Condensed Matter	E: Materials Chemistry and Energy
10:15 am	D3.02.01 Andrew Stephen*	A3.06.01 Jacob M. LaManna*	B3.06.01 Brent Fultz	E3.01.01 Graeme Luke
10:30 am			B3.06.02 Olivier Delaire	
10:45 am	D3.02.02 Frank Heinrich	A3.06.02 Daniel Seth Hussey	B3.06.03 Chen Li	E3.01.02 Yoel Franco Lencina Wendt
11:00 am	D3.02.04 Haden Lynn Scott	A3.06.03 Antonio Faraone	B3.06.04 Camille Bernal	E3.01.03 Jue Liu
11:15 am	D3.02.05 Michihiro Nagao	A3.06.04 John Francis Ankner	B3.06.05 Susmita Roy	E3.01.04 Sarah J. Blair
11:30 am	D3.02.06 James Edward Fitzgerald	A3.06.05 Yuxuan Zhang	B3.06.06 Raphael P. Hermann	E3.01.05 Michael Ohl
11:45 am	D3.02.07 Jacob Jerald Kinnun	A3.06.06 Sam McKay	B3.06.07 Claire Nicole Saunders	E3.01.06 Katharine Page
12:00 pm	D3.02.08 Thomas Edgar Cleveland	A3.06.07 Ryan P. Murphy	B3.06.08 Michael E. Manley	
12:15 pm		A3.06.08 Hassina Z. Bilheux		
BREAK (12:30 pm – 2:00 pm)				
	C: Soft Matter	A: Advances in Neutron Facilities, Instrumentation and Software	B: Hard Condensed Matter	F: Structural Materials and Engineering
2:00 pm	C3.06.01 Donghui Zhang*	A3.07.01 Mary-Ellen Donnelly*	B3.07.01 Masaaki Matsuda	F1.02.01 Shenyang Huang
2:15 pm			B3.07.02 Stuart Calder	F1.02.02 Zachary Buck
2:30 pm	C3.06.02 Caitlyn M. Wolf	A3.07.02 Mark Bird	B3.07.03 Emil Bozin	F1.02.03 Matthew Connolly
2:45 pm	C3.06.03 Yimin Mao	A3.07.03 Benjamin R. Thompson	B3.07.04 Yu Tao	F1.02.04 Adrian Brugger
3:00 pm	C3.06.04 Divya Kishorbhai Patel	A3.07.04 Norman Wagner	B3.07.05 Jian Rui Soh	
3:15 pm	C3.06.05 Yun Liu	A3.07.05 Yue Xiao		
3:30 pm	C3.06.06 Yadu Krishnan Sarathchandran			
BREAK (3:30 pm – 4:00 pm)				
	D: Biology, Biophysics and Biotechnology	H: Emerging Applications of Neutron Scattering in Engineering, Arts and Sciences	B: Hard Condensed Matter	E: Materials Chemistry and Energy
3:45 pm	D3.03.01 Sai Venkatesh Pingali			E3.02.01 Stephanie Gnewuch
4:00 pm	D3.03.02 Shuo Qian	H3.03.01 Mathieu Doucet	B3.08.01 Benjamin G. Ueland	E3.02.02 Fudong Han
4:15 pm	D3.03.03 Alan Hicks	H3.03.02 Lucas Samir Ramalho Cavalcante	B3.08.02 Sharon S. Philip	E3.02.03 Timothy J. Diethrich
4:30 pm	D3.03.04 Jonathan Nickels	H3.03.03 Qian Yang	B3.08.03 Zachary William Anderson	E3.02.04 Yuya Shinohara
4:45 pm	D3.03.05 David P. Hoogerheide	H3.03.04 Christian Heil	B3.08.04 Igor Zaliznyak	E3.02.05 Kent Griffith
5:00 pm		H3.03.05 Tyler B. Martin	B3.08.05 Dmitry Reznik	E3.02.06 Allyson M. Fry-Petit

* Invited

THURSDAY

	UMC Conference Room 235	UMC West Ballroom 208	UMC East Ballroom 212	UMC Aspen Rooms 285, 287, 289
	I: Plenary and Prize Session			
8:15 am	I4.01.01 Sajna Hameed*			
9:10 am	I4.01.02 Jeremy Smith*			
9:40 am	I4.01.03 Poster Award Announcement			
BREAK (9:45 am – 10:15 am)				
	C: Soft Matter	A: Advances in Neutron Facilities, Instrumentation and Software	B: Hard Condensed Matter	
10:15 am	C4.07.01 Lawrence Anovitz*	A4.09.01 Ken Herwig*	B4.10.01 Morten Eskildsen*	
10:30 am				
10:45 am	C4.07.02 Rebecca Welbourn	A4.09.02 Stephen Khun	B4.10.02 Tianxiong Han	
11:00 am	C4.07.03 Mark Dadmun	A4.09.04 Malik Maaza	B4.10.03 Melissa Henderson	
11:15 am	C4.07.04 Yangyang Wang	A4.09.05 Hank thurston	B4.10.05 Junjie Yang	
11:30 am	C4.07.05 Grahm Roberts	A4.09.06 Eric Dees	B4.10.06 Huibo Cao	
11:45 am	C4.07.06 Peter Beaucage	A4.09.07 Sergiy Gladchenko	B4.10.07 Sunil Karna	
12:00 pm	C4.07.07 Martin Wissink	A4.09.09 Kaleb Burrage	B4.10.09 Dustin Gilbert	
12:15 pm	C4.07.08 Kshitij Sharma	A4.09.10 Earl Babcock	B4.10.10 Lisa DeBeer-Schmitt	
12:30 pm	C4.07.09 Mega Robertson			
12:45 pm	C4.07.10 Javen Weston			

* Invited

SPECIAL THANKS

ACNS 2022 has been funded, in part,
by the generous contributions of
these organizations.

CONFERENCE SUPPORT



www.neutronsattering.org

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STUDENT POSTER AWARDS



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CINS
CANADIAN INSTITUTE FOR
NEUTRON SCATTERING

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POSTER PRESENTATIONS AT-A-GLANCE

UMC Center Ballroom 210

Poster Authors Set-up
2:00 pm – 5:00 pm

General Viewing
5:30 pm – 7:30 pm

Posters must be removed by 8:00 pm

Monday— Poster Session I

FINAL ID #	PRESENTER
AP1.04.01	Aleksandr Ryasnyanskiy
AP1.04.02	Garrett E. Granroth
AP1.04.03	Gabriele Sala
AP1.04.04	Jiao Lin
AP1.04.05	Jiao Lin
AP1.04.06	Fankang Li
AP1.04.07	Devin Burke
AP1.04.08	Adit Desai
AP1.04.09	Patrick Clancy
CP1.03.01	Anukta Datta
CP1.03.02	Natalie Linnell Schwab
CP1.03.03	Brian Paul
CP1.03.04	Meng Zhang
CP1.03.06	Gobin Raj Acharya
FP1.01.01	Juscelino Batista Leao
FP1.01.02	Nate Peterson

Wednesday— Poster Session II

FINAL ID #	PRESENTER
AP3.08.01	Dante Quirinale
AP3.08.02	Matthew J. Frost
AP3.08.03	John G. Barker
AP3.08.04	Chenyang Jiang
AP3.08.05	Shimin Tang
AP3.08.06	Christoph Ulrich Wildgruber
AP3.08.07	Daniel M. Pajerowski
AP3.08.08	Jeroen Plomp
AP3.08.09	Gergely Nagy
BP3.09.01	Qiaochu Wang
BP3.09.02	Tsung-Han Yang
BP3.09.03	Vladimir Ladygin
BP3.09.05	Kiranmayi Dixit
BP3.09.06	Duncan H Moseley
BP3.09.07	Jian Rui Soh
BP3.09.08	Christopher Stephen Perreault

FINAL ID #	PRESENTER
BP3.09.10	George Yumnam
BP3.09.11	Peng Luo
BP3.09.12	Jiasen Guo
BP3.09.13	Haritha Rajeev
DP3.04.01	Michihiro Nagao
DP3.04.02	Manjula P. Senanayake Mudiyansele
DP3.04.03	Bryan Chakoumakos
EP3.03.01	Mathieu Doucet
EP3.03.02	Alicia Maria Manjon Sanz
EP3.03.03	Zihan Zhang
EP3.03.04	Lahari Balisetty
EP3.03.05	Dinesh K. Amarasinghe
EP3.03.06	Ryan Klein
EP3.03.07	Tianyu Li
HP3.04.01	Norhan Mahmoud Eassa

A: Advances in Neutron Facilities, Instrumentation and Software

B: Hard Condensed Matter

C: Soft Mater

D: Biology, Biophysics and Biotechnology

E: Materials Chemistry and Energy

F: Structural Materials and Engineering

G: Neutron Physics

H: Emerging Applications of Neutron Scattering in Engineering, Arts and Sciences

I: Plenary and Prize Session

USER GROUP MEETINGS

UMC West Ballroom 208

Monday, June 6

12:30 pm – 1:30 pm

DEI Discussion

Panel Discussion: Barriers to Access for Neutron Science

Facility science has traditionally been done by those who are able and willing to travel, presenting challenges for many potential users. The COVID-19 pandemic has shed new light on the possibilities for conducting experiments remotely. This panel discussion will focus on the challenges and opportunities of remote experiments and making access to neutron beam time more equitable and inclusive.

Tuesday, June 7

12:30 pm – 1:30 pm

NUG Meeting

The NCNR User Group (NUG) and NCNR staff members will provide updates regarding the status of the NBS reactor, new instruments and initiatives at the NCNR, as well as a summary of recent NUG activities.

3:45 pm – 4:45 pm

Breakout Session: How do we improve the UX of ORNL neutron data systems?

Users of ORNL neutron sources spend significant time interacting with data. These interactions span the full workflow from proposal submission, experiment planning and data reduction, and extend beyond this into analysis and publication. Together, these comprise the holistic User Experience (UX) of ORNL neutron data systems.

Many of the systems used today evolved organically and independently of each other. Consequently, there are a broad distribution of approaches, software architectures and philosophies within ORNL neutron sciences (sometimes even within a single beamline). We believe there is significant scope to improve this experience, maximizing accessibility, usability and efficiency of the data cycle.

Join us for this interactive breakout session to share your experiences, concerns, ideas and inspiration for improving the user experience of ORNL neutron data systems! As we want the discussions to focus on your interests, please visit link to vote for your favorite topics (or suggest your own!) before the session. <https://forms.gle/kPzzhf6XtgmEEjVM6>

Wednesday, June 8

12:30 pm – 1:30 pm

SNS-HFIR User Group Town Hall

Members of the SHUG Executive Committee (SHUG-EC) and Neutron Scattering Division in ORNL will join the user community to discuss recent and upcoming activities. SHUG-EC will present a proposal of the bylaw change related with the SHUG membership as well as the report of other activities. There will be a facility presentation from ORNL related to the facility upgrade and outage. It also includes an open discussion session to answer questions from the community members.



ACNS 2022 EXHIBITORS

Conference Room 210

Monday

9:00 am – 12:00 pm
1:30 pm – 3:30 pm
5:30 pm – 7:30 pm

Tuesday

9:00 am – 12:00 pm
1:30 pm – 3:30 pm

Wednesday

9:00 am – 12:00 pm
1:30 pm – 3:30 pm
5:30 pm – 7:30 pm

National Institute of Standards and Technology

NIST Center for Neutron Research

www.ncnr.nist.gov

The NCNR is part of the National Institute of Standards and Technology (NIST) located in Gaithersburg, Maryland. Its activities focus on providing neutron measurement capabilities to the U.S. research community.



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Key Products: Position Sensitive Detectors; 3He detector 8Pack; NeuAcq* Electronics System

To best serve the neutron scattering research community, Reuter-Stokes offers 3He filled position-sensitive proportional counters (known as Position-Sensitive Detectors or PSDs) or standard 3He detectors such as the NeuAcq* Electronics System and the 3He Detector 8Pack. All provide high-efficiency neutron detection with high-speed electronics in all-vacuum, partial-vacuum and non-vacuum applications.



Oak Ridge National Laboratory

neutrons.ornl.gov

Key Products: neutron beam time; student programs; collaborations

Through impactful research and world-leading scientific user facilities, Oak Ridge National Laboratory (ORNL) delivers scientific discoveries and technical breakthroughs needed to realize solutions in energy and national security and provide economic benefit to the nation. ORNL's neutron scattering facilities, the High Flux Isotope Reactor (HFIR) and the Spallation Neutron Source (SNS), are two of the world's most powerful sources of neutrons for research. The Center for Nanophase Materials Sciences (CNMS) at ORNL offers the national and international user community access to staff expertise and state-of-the-art equipment for a broad range of nanoscience research. HFIR, SNS, and CNMS provide a diverse set of tools and expertise needed for experiments in biology, materials and energy sciences, physics, engineering, and chemistry. Scientists from universities, industry, and other institutions apply each year to complete their research at these facilities free of charge in return for making their data and findings public.

INVITED SPEAKER INDEX

NAME	PAPER #	TITLE	DAY	TIME	LOCATION
Anovitz, Lawrence	C4.07.01	Frustrated Coulombic and Cation Size Effects on Nanoscale Boehmite Aggregation: A Tumbler Small- and Ultra-Small-Angle Neutron Scattering Study	Thursday	10:15 am	UMC Conference Room 235
Calabrese, Michelle	C1.01.01	Altering Block Copolymer (BCP) Self-Assembly and Phase Behavior via Magnetic Field Processing	Monday	10:15 am	UMC Conference Room 235
Clancy, Patrick	A1.01.01	Development of Neutron Scattering Facilities at the McMaster Nuclear Reactor	Monday	10:15 am	UMC West Ballroom 208
Dally, Rebecca	B1.01.01	Neutron Diffraction Studies on the Magnetic Properties of YMn6Sn6-xGex	Monday	10:00 am	UMC East Ballroom 212
Donnelly, Mary-Ellen	A3.07.01	Advances in High-Pressure Neutron Scattering at Oak Ridge National Laboratory	Wednesday	2:00 pm	UMC West Ballroom 208
Eisazadeh, Hamid	F1.01.01	Determining Residual Stress in Weldments and Additively Manufactured Parts by Neutron Diffraction	Monday	2:00 pm	UMC Aspen Rooms 285, 287, 289
Eskildsen, Morten	B4.10.01	Skyrmion Lattice Manipulation with Electric and Thermal Currents	Thursday	10:15 am	UMC East Ballroom 212
Fry-Petit, Allyson	E3.02.06	Exploring Oxygen Motion Through Perovskites La _{0.9} Sr _{0.1} Co _{1-y} FeyO _{3-δ} with In Situ Diffraction	Wednesday	4:45 pm	UMC Aspen Rooms 285, 287, 289
Gaulin, Bruce	I3.01.02	PLENARY: Neutron Scattering from Exotic Magnetic Ground States	Wednesday	9:10 am	UMC Conference Room 235
Greene, Laura	I1.01.02	PLENARY: The Dark Energy of Quantum Materials	Monday	9:10 am	UMC Conference Room 235
Greven, Martin	B1.02.01	Correlated Structural Inhomogeneity in Oxide Superconductors	Monday	1:45 pm	UMC East Ballroom 212
Hameed, Sanja	I4.01.01	OUTSTANDING STUDENT RESEARCH PRIZE WINNER: Magnetic Phase Transitions and Spin-Wave Dynamics in Y _{1-x} La _x TiO ₃ and Y _{1-y} Ca _y TiO ₃	Thursday	8:15 am	UMC Conference Room 235
Haravifard, Sara	B2.04.01	Neutron Scattering Studies of Rare-earth-based Quantum Spin Liquid Candidates	Tuesday	10:00 am	UMC East Ballroom 212
Heacock, Benjamin	G1.01.01	Pendellösung Interferometry Measurement of the Neutron Charge Radius and Constraints on New Physics	Monday	10:15 am	UMC Aspen Rooms 285, 287, 289
Herwig, Ken	A4.09.01	Status of the Second Target Station Project	Thursday	10:15 am	UMC West Ballroom 208
Hore, Michael	C2.04.01	Molecular Bottlebrushes: Scattering Measurements and Simulations	Tuesday	10:15 am	UMC Conference Room 235
Huang, Shenyan	F1.02.01	Application of Neutron Diffraction for Industrial Materials & Manufacturing Development	Wednesday	2:00 pm	UMC Aspen Rooms 285, 287, 289
Katsaras, John	I3.01.01	SUSTAINED RESEARCH PRIZE WINNER: Neutrons, Biological Membranes and Future Directions	Wednesday	8:30 am	UMC Conference Room 235
Krueger, Susan	I2.01.02	PLENARY: SANS Contrast Variation Experiments on Multi-Component Biological Complexes: What's the Big Deal	Tuesday	9:10 am	UMC Conference Room 235
LaManna, Jacob	A3.06.01	Performance Upgrades to the BT-2 Neutron Imaging Facility	Wednesday	10:15 am	UMC West Ballroom 208
Li, Mingda	H2.01.01	Machine Learning: A Data-Driven Spectrometer for Neutron Scattering	Tuesday	10:15 am	UMC Aspen Rooms 285, 287, 289
Luke, Graeme	E3.01.01	Search for Broken Symmetries in Kagome Lattice Superconductor CsV3Sb5	Wednesday	10:15 am	UMC Aspen Rooms 285, 287, 289
Mourigal, Martin	I2.01.01	SCIENCE PRIZE WINNER: Magnons are not Forever	Tuesday	8:15 am	UMC Conference Room 235
Neumann, Dan	I1.01.01	CLIFFORD G. SHULL PRIZE WINNER: Tailoring Instruments to the Science and the Source: 35 Years at the NCNR	Monday	8:15 am	UMC Conference Room 235
Ortiz, Gerardo	G2.02.01	Fundamentals of Entangled Neutron Beams	Tuesday	2:00 pm	UMC Aspen Rooms 285, 287, 289
Pozzo, Lilo	C1.02.01	Analysis of the Structure and Dynamics of Conjugated Polymers via Combined Neutron Scattering and Molecular Simulations	Monday	2:00 pm	UMC Conference Room 235
Ratner, Daniel	H2.01.03	Autonomous Control at X-Ray Sources from Accelerator to Detector	Tuesday	11:15 am	UMC Aspen Rooms 285, 287, 289
Schmidt, Kristin	H2.01.02	Accelerate Discovery of New Chemical Synthesis Pathways using Autonomous Experiments Combined with AI Agents	Tuesday	10:45 am	UMC Aspen Rooms 285, 287, 289
Sinha, Nairiti	D1.01.01	Supramolecular Self-Assembly of Computationally Designed Coiled Coil Building Blocks	Monday	3:45 pm	UMC Conference Room 235
Smith, Hillary	E4.04.01	Excess Vibrational Entropy in Metallic and Molecular Glasses	Monday	3:30 pm	UMC Aspen Rooms 285, 287, 289
Smith, Jeremy	I4.01.02	PLENARY: Neutrons for Clean Bioenergy	Thursday	9:10 am	UMC Conference Room 235
Stephen, Andrew	D3.02.01	The Orientation of KRAS at the Plasma Membrane Helps Recruit RAF Kinase	Wednesday	10:15 am	UMC Conference Room 235
Toft-Petersen, Rasmus	A2.05.01	BIFROST: A Multiplexing Indirect Geometry Time-of-Flight Spectrometer for Extreme Environments	Tuesday	10:15 am	UMC West Ballroom 208
Tsianou, Marina	C2.05.01	Using Neutrons to Probe the Structure of PFAS Surfactant Micelles	Tuesday	1:30 pm	UMC Conference Room 235
Ueland, Benjamin	B3.08.01	Carrier Tuning of Stoner Ferromagnetism in Ca(Co _{1-x} Fex) _{2-y} As ₂	Wednesday	4:00 pm	UMC East Ballroom 212
Wang, Yishu	B2.04.04	Relaxation Dynamics in Spin Ice Ho ₂ Ti ₂ O ₇	Tuesday	11:00 am	UMC East Ballroom 212
Wu, Shan	B2.05.01	Highly Tunable Magnetic Phases in Transition Metal Dichalcogenide Fe _{1/3+δ} NbS ₂	Tuesday	1:45 pm	UMC East Ballroom 212
Yuan, Bo	B1.03.01	Coexisting Singlet and Ordered Spins in a Complex Quasi-2D magnet Cu ₃ B ₂ O ₆	Monday	4:00 pm	UMC East Ballroom 212
Zhang, Donghui	C3.06.01	Understanding and Controlling the Solution Self-Assembly of Amphiphilic Polypeptoid Block Copolymers	Wednesday	2:00 pm	UMC Conference Room 235

The logo for ACNS 2022 features the text "ACNS" in a bold, black, sans-serif font, followed by a circular graphic composed of numerous small dots in shades of teal and yellow, and the year "2022" in a large, yellow, sans-serif font.

ACNS 2022

ORAL PRESENTATIONS

Monday	21
Tuesday	26
Wednesday	30
Thursday	35

MONDAY ORAL PRESENTATIONS

* Invited Paper

Plenary and Prize Session

SESSION II.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

8:00 AM WELCOME AND INSTRUCTIONS

8:15 AM *II.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 *II.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 Plomp; Delft University of Technology, Netherlands

11:00 AM A1.01.03
New Guide System and Upgraded Instrument Suite at HFIR after Beryllium Reflector Change Georg Ehlers, Amy Jones, Michael C. Hoffmann, Lowell Crow, Franz X. Gallmeier, Thomas Huegle, Matthew J. Frost, Cassie S. Sabens, Kenneth C. Littrell, Richard M. Ibberson, Lisa DeBeer-Schmitt, Garrett E. Granroth, Sai Venkatesh Pingali, Hassina Z. Bilheux, Yuxuan Zhang, Andrii Y. Kovalevskyi, Travis J. Williams, Adam Aczel and Matthias D. Frontzek; Oak Ridge National Laboratory, United States

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 A1.01.07
Preliminary Neutronics Design of a Second Target Station at the ORNL's SNS Igor Remec, Franz X. Gallmeier, Kristel Ghoos, Tucker McClanahan, Thomas Miller, Kumar Mohindroo, Wouter de Wet and Lukas Zavorcka; Oak Ridge National Laboratory, United States

12:15 PM A1.01.08
Development of Polarized Neutron at the China Spallation Neutron Source Tianhao R. Wang^{1,2} and Xin Tong^{1,2}; ¹China Spallation Neutron Source, China; ²Institute of high energy physics, China

Hard Condensed Matter

SESSION B1.01: Magnetism and Topological Band Structures
Session Chair: Martin Greven
Monday Morning, June 6, 2022
UMC East Ballroom 212

10:15 AM *B1.01.01
Neutron Diffraction Studies on the Magnetic Properties of YMn₆Sn₆Ge; Rebecca L. Dally¹, Peter Siegfried^{2,2}, Hari Bhandari², David Jones², Dina Michel^{2,2}, Madhav Ghimire³, Lekhanath Poudel¹, Markus Bleuel¹, Jeffrey W. Lynn¹, Igor Mazin^{2,2} and Nirmal Ghimire^{2,2}; ¹National Institute of Standards and Technology, United States; ²George Mason University, United States; ³Tribhuvan University, Nepal

10:45 AM B1.01.02
Weyl Mediated Helical Magnetism in NdAlSi and NdAlGe Jonathan Gaudet^{1,2,3}, Hung-Yu Yang⁴, Santu Baidya⁵, Baozhu Lu⁶, Guangyong Xu¹, Yang Zhao^{1,2}, Jose A. Rodriguez-Rivera^{1,2}, Christina Hoffmann⁷, Lisa DeBeer-Schmitt⁷, Adam Aczel⁷, David Graf⁸, Darius Torchinsky⁶, Predrag Nikolic^{9,3}, David Vanderbilt⁵, Tafti Fazel⁴ and Collin Broholm^{3,1}; 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; ⁸National High Magnetic Field Laboratory, United States; ⁹George Mason University, United States

11:00 AM B1.01.03
Field-Induced Fan-like Magnetic Orders in Topological EuIn₂As₂ Studied by Single-Crystal Neutron Diffraction Simon X. Ribberolles¹, Thais Victa Trevisan^{1,2}, Brinda Kuthanazhi^{1,2}, Feng Ye³, D. C. Johnston^{1,2}, Sergey L. Bud'ko^{1,2}, Paul C. Canfield^{1,2}, R. J. McQueeney^{1,2}, Peter P. Orth^{1,2} and Benjamin G. Ueland¹; ¹Ames Laboratory, United States; ²Iowa State University of Science and Technology, United States; ³Oak Ridge National Laboratory, United States

11:15 AM B1.01.04

Single Pair of Weyl Points in a Time-Reversal Symmetry Broken Semi-Metal Keith Taddei¹, Li Yin¹, Duminda Sanjeeva², Yu Li³, Jie Xing⁴, Clarina dela Cruz¹, Daniel Phelan³, Athena Sefat¹ and David Parker¹; ¹Oak Ridge National Laboratory, United States; ²MURR, United States; ³Argonne National Laboratory, United States; ⁴University of South Carolina, United States

11:30 AM B1.01.05

Spin Dynamics in the Antiferromagnetic Topological Insulator MnBi₂Te₃ Bing Li^{1,2}, Simon X. Riberolles^{1,2}, Daniel M. Pajerowski³, J.-Q. Yan³ and R. J. McQueeney^{1,2}; ¹Ames Laboratory, United States; ²Iowa State University of Science and Technology, United States; ³Oak Ridge National Laboratory, United States

11:45 AM B1.01.06

Topological Magnons in a Honeycomb Lattice Magnet CoTiO₃ Bo Yuan^{1,2}, Matthew Stone³, Guo-Jiun Shu⁴, Fangcheng Chou⁵, Patrick Clancy⁶ and Young-June Kim¹; ¹University of Toronto, Canada; ²Max Planck Institute for the Structure and Dynamics of Matter, Germany; ³Oak Ridge National Laboratory, United States; ⁴National Taipei University of Technology, Taiwan; ⁵National Taiwan University, Taiwan; ⁶McMaster University, Canada

12:00 PM B1.01.07

Gapless Dirac magnons in CrCl₃ Despina Louca¹, John Schneeloch¹, Yu Tao¹, Yongqiang Cheng² and Luke Daemen²; ¹University of Virginia, United States; ²Oak Ridge National Laboratory, United States

12:15 PM B1.01.08

Spin Excitations in Co-doped FeSn Tao Xie¹, Qiangwei Yin², Qi Wang², Alexander I. Kolesnikov¹, Garrett E. Granroth¹, Douglas L. Abernathy¹, Dongliang Gong³, Zhiping Yin⁴, Hechang Lei² and Andrey Podlesnyak¹; ¹Neutron Scattering Division, Oak Ridge National Laboratory, United States; ²Department of Physics and Beijing Key Laboratory of Opto-Electronic Functional Materials & Micro-Nano Devices, Renmin University of China, China; ³Department of Physics and Astronomy, University of Tennessee, United States; ⁴Center for Advanced Quantum Studies and Department of Physics, Beijing Normal University, China

Soft Matter

SESSION C1.01: Field-Driven Structures in Soft Matter

Session Chair: Xiaodan 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. Weigandt, 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 Do¹, Yuya Shinohara¹, Takeshi Egami¹, Lionel Porcar², Yun Liu³, Bobby G. Sumpter¹ and Wei-Ren Chen¹; ¹Oak Ridge National Laboratory, United States; ²Institut Laue-Langevin, France; ³National Institute of Standards and Technology, United States

11:45 AM C1.01.06

Extracting Meaning from Alignment Factor Peter Gilbert¹, Yun Liu^{1,2} and Paul D. Butler¹; ¹NIST Center for Neutron Research, United States; ²University 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, Fujiie Takuhiro², Robert W. Haun³, Albert Henins¹, Katsuya Hirota², Takuya Hosobata⁴, Michael G. Huber¹, Masaaki Kitaguchi², Dmitry Pushin⁵, Hirohiko Shimizu², Masahiro Takeda⁴, Robert Valdillez⁶, Yutaka Yamagata⁴ and Albert Young⁶; 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. Frost², Robert W. Haun³, Benjamin Heacock⁴, Colin Heikes⁵, Albert Henins⁴, Katsuya Hirota⁶, Shannon F. Hoogerheide⁴, Takuya Hosobata⁷, Michael G. Huber⁴, Masaaki Kitaguchi⁶, Dmitry Pushin⁸, Hirohiko Shimizu⁶, Masahiro Takeda⁷, Fujiie Takuhiro⁶, Yutaka Yamagata⁷ and Albert Young¹; 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 Sarenac¹, David Cory¹, Benjamin Heacock², Michael G. Huber² and Dmitry Pushin¹; 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. Huber², Dusan Sarenac¹, Chandra B. Shahi³, Ivar Taminiau¹ and David Cory^{1,1}; 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, Huseyin Ekinci², Chandra B. Shahi¹, David Cory², Lisa DeBeer-Schmitt³, Michael G. Huber¹, Connor L. Kapahi² and Dmitry Pushin²; 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. Kapahi¹, Wangchun Chen², Charles W. Clark³, David Cory¹, Michael G. Huber², Ivar Taminiau¹, Kirill Zhernenkov⁴ and Dmitry Pushin¹; 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; ⁴Jülich 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 Michael G. Huber¹, Benjamin Heacock¹, Robert Valdille², Fujie Takuhiro³, Masaaki Kitaguchi³, Hirohiko Shimizu³, Katsuya Hirota⁴, Masahiro Takeda⁴, Yutaka Yamagata⁴, Dmitry Pushin^{5,6} and Albert Young²; 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. Kapahi^{1,2}, Dusan Sarenac², Charles W. Clark³, David Cory^{1,2}, Benjamin Heacock³, Michael G. Huber³, Youngju Kim³ and Dmitry Pushin^{1,2}; ¹University of Waterloo, Canada; ²Institute for Quantum Computing, Canada; ³National Institute of Standards and Technology, United States

Hard Condensed Matter

SESSION B1.02: Disorder Inhomogeneity and Strong Correlations
Session Chair: Olivier Delaire
Monday Afternoon, June 6, 2022
UMC East Ballroom 212

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 $\text{Mo}_{1-x}\text{W}_x\text{Te}_2$ John Schneeloch¹, Yu Tao¹, Jaime A. Fernandez-Baca², Guangyong Xu³ and Despina Louca¹; 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 Islam^{1,2}, Daniel M. Pajerowski³, jiaqiang yan³, R. J. McQueeney^{1,2} and David Vaknin^{1,2}; ¹Iowa State University of Science and Technology, United States; ²Ames Laboratory, United States; ³Oak Ridge National Laboratory, United States

2:45 PM B1.02.04

Diffuse Neutron and X-Ray Scattering from Inorganic Halide Perovskites Matthew Krogstad¹, Alex Rettie², Stephan Rosenkranz¹, Duck Young Chung¹, Mercuri Kanatzidis³, Feng Ye⁴, Yaohua Liu⁴, Xing He⁵, Tyson L. Lanigan-Atkins⁵, Olivier Delaire⁵ and Raymond Osborn¹; ¹Argonne National Laboratory, United States; ²University College London, United Kingdom; ³Northwestern University, United States; ⁴Oak Ridge National Laboratory, United States; ⁵Duke University, United States

3:00 PM B1.02.05

Impact of Site-Specific Cation Disorder on the Magnetic Structure Formation and Evolution in Entropy-Stabilized Perovskite Oxides Nathan D. Arndt¹, Brianna Musico², Keon Sahebkar¹, Qiang Zhang³, Alessandro Mazza³, Veerle Keppens², T. Z. Ward³ and Ryan Need¹; ¹University of Florida, United States; ²The University of Tennessee, Knoxville, United States; ³Oak Ridge National Laboratory, United States

3:15 PM B1.02.06

Cubic on the Streets, Tetragonal in the Sheets: the Nature of Local Dynamic Order in $\text{CH}_3\text{NH}_3\text{PbI}_3$ Tyler C. Sterling¹, Nicholas Weadock^{2,2}, Ballal Ahammed³, Elif Ertekin³, Michael Toney^{2,2} and Dmitry Reznik^{1,2}; ¹University of Colorado, Boulder, United States; ²University of Colorado Boulder, United States; ³University of Illinois at Urbana-Champaign, United States

Advances in Neutron Facilities, Instrumentation and Software

SESSION A1.02: Software: Instrumentation
Session Chair: Paul Butler
Monday Afternoon, June 6, 2022
UMC West Ballroom 208

2:00 PM A1.02.01

Material Decomposition for Hyperspectral Neutron Tomography Charles A. Bouman¹, Gregory Buzzard, T¹, Mohammad Samin Nur Chowdhury¹, Singanallur Venkatakrishnan² and Hassina Z. Bilheux²; ¹Purdue University, United States; ²Oak Ridge National Laboratory, United States

2:30 PM A1.02.02

McStas2CAD: A Python-based Software Package for Scattering Instrument Concept Geometry Conversion Matthew J. Frost and Lee Robertson; Oak Ridge National Laboratory, United States

2:45 PM A1.02.03

Towards a User-friendly Workflow for Monte Carlo Neutron Scattering Simulations Fahima Islam, Garrett E. Granroth, Jiao Lin and Thomas Huegle; Neutron Scattering Division, United States

3:00 PM A1.02.04

Tally Components in McStas Thomas Huegle, Matthew J. Frost, Garrett E. Granroth and Lee Robertson; Oak Ridge National Laboratory, United States

3:15 PM A1.02.05

Neutron Velocity Selector Design and Impact on Simulation William T. Higgins, Thomas Huegle, Kenneth C. Littrell, Franz X. Gallmeier and Georg Ehlers; Oak Ridge National Laboratory, United States

Soft Matter

SESSION C1.02: Conjugated Polymers
Session Chair: Megan Robertson
Monday Afternoon, June 6, 2022
UMC Conference Room 235

2:00 PM *C1.02.01

Analysis of the Structure and Dynamics of Conjugated Polymers via Combined Neutron Scattering and Molecular Simulations Caitlyn M. Wolf¹ and Lilo D. Pozzo^{2,2}; ¹NIST, United States; ²University of Washington, United States

2:30 PM C1.02.02

Unraveling the Side Chain Effects on Solution Structure of Donor-Acceptor Conjugated Polymers Zhiqiang Cao¹, Zhaofan Li², Miao Xiong³, Guorong Ma¹, Luke Galuska¹, Song Zhang¹, Michael Ocheje⁴, Gage Mason⁴, Changwoo Do⁵, Kunlun Hong⁵, Ting Lei³, Simon Rondeau-Gagné⁴, Wenjie Xia² and Xiaodan Gu¹; ¹University of Southern Mississippi, United States; ²North Dakota State University, United States; ³Peking University, China; ⁴University of Windsor, Canada; ⁵Oak Ridge National Laboratory, United States

2:45 PM C1.02.03

Effect of Polystyrene Additives and Solvent Quality on the Conformation and Self-Assembly of Conjugated Polymers in Mixed Solutions Sage Scheiwiler, Lilo D. Pozzo and Lorenzo Guio; University of Washington, United States

3:00 PM C1.02.04

Chain Growth Kinetics of Conjugated Polymers on Ferromagnetic Nanoparticles Investigated by SANS Lilin He; Oak Ridge National Laboratory, United States

3:15 PM C1.02.05

Combining Inelastic Neutron Scattering and Molecular Dynamics Simulation to Probe Conjugated Polymer Dynamics Xiaodan Gu¹, Zhiqiang Cao¹, Wenjie Xia² and Amirhadi Alesadi²; ¹University of Southern Mississippi, United States; ²North Dakota State University, United States

Structural Materials and Engineering

SESSION F1.01: Using Neutrons for Advanced Manufacturing Characterization
Session Chair: Zhenzhen Yu
Monday Afternoon, June 6, 2022
UMC Aspen Room 285, 287, 289

2:00 PM *F1.01.01

Determining Residual Stress in Weldments and Additively Manufactured Parts by Neutron Diffraction Hamid Eisazadeh; Old Dominion University, United States

2:30 PM F1.01.02

Application of Neutron Grating Interferometry in Metal Additive Manufacturing Youngju Kim¹, Caitlyn M. Wolf², Sarah M. Robinson², Michael Cyrus Daugherty², Jacob M. LaManna², David Jacobson², Eli Baltic², Paul A. Kienzle², Katie M. Weigandt², Nikolai N. Klimov², Michael G. Huber², Peter N. Bajcsy², Ryan P. Murphy², Jongyul Kim³, Wook Jin Lee⁴, Seung Wook Lee⁴ and Daniel S. Hussey²; ¹University of Maryland, United States; ²National Institute of Standards and Technology, United States; ³Korea Atomic Energy Research Institute, Korea (the Republic of); ⁴Pusan National University, Korea (the Republic of)

2:45 PM F1.01.03

Stresses Due to Friction Stir Weld Repair of Simulated Cracks in 304L Stainless Steel Plates Thomas Gnaupel-Herold¹, Madhumanti Bhattacharyya², Indrajit Charit², Krishnan Raja², Jens Darsell³ and Saumyadeep Jana³; ¹NIST, United States; ²University of Idaho, United States; ³PNNL, United States

3:00 PM F1.01.04

Implications of Machining on Residual Stresses and Mechanical Properties of 316L Walls fabricated via Hybrid Additive Manufacturing Christopher Fancher, Rangasayee Kannan, Kyle Saleeby, Thomas Feldhausen and Peeyush Nandwana; Oak Ridge National Laboratory, United States

Advances in Neutron Facilities, Instrumentation and Software

SESSION A1.03: Software: Data Analysis and Modeling
Session Chair: Charles Bouman
Monday Afternoon, June 6, 2022
UMC West Ballroom 208

3:45 PM A1.03.01

Browser Based Visualization of Large 3D Datasets using NVIDIA IndeX Evan Carlin¹, Kevin Bruhwiler¹, Robert Nagler¹, David Bruhwiler¹, Christina Hoffmann², Andrei T. Savici², Zachary Morgan², Matthew Tucker², Alexander Kuhn³, Jörg Mensmann³, Peter Messmer³, Marc Nienhaus³, Steffen Roemer³ and Dragos Tatulea³; ¹RadiaSoft LLC, United States; ²Oak Ridge National Laboratory, United States; ³NVIDIA, Germany

4:00 PM A1.03.02

Addressing the Resource Problem Through Community. SasView: An "Open, Collaborative, Community Development" Platform for Small Angle Scattering 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

4:15 PM A1.03.03

Event Based Data Analysis and Visualization in Neutron Spectroscopy Andrei T. Savici¹, Igor Zaliznyak², Garrett E. Granroth¹ and Ovidiu Garlea¹; ¹Oak Ridge National Laboratory, United States; ²Brookhaven National Laboratory, United States

4:30 PM A1.03.04

Do We Need an ISO Standard for the Reduction of Time-of-Flight Powder Diffraction Data? Malcolm Guthrie; Oak Ridge National Laboratory, United States

4:45 PM A1.03.05

Hyperspectral Neutron CT with Material Decomposition Thilo Balke^{1,2}, Alexander Long¹, Sven C. Vogel¹, Brendt Wohlberg¹ and Charles Bouman²; ¹Los Alamos National Laboratory, United States; ²Purdue University, United States

5:00 PM A1.03.06

Simulation of Inelastic Neutron Scattering Spectra for Direct and Indirect-Geometry Instruments with AbINS Adam Jackson and Sanghamitra Mukhopadhyay; Science and Technology Facilities Council, UK, United Kingdom

5:15 PM A1.03.07

Generic Calibration Workflow for Time-of-Flight Instruments Yuanpeng Zhang; Oak Ridge National Laboratory, United States

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 Smith](#)¹, Claire N. Saunders², Camille Bernal², Stefan H. Lohaus², Douglas L. Abernathy³, Jiao Lin³, Marios Demetriou⁴ and Brent Fultz²; ¹Swarthmore College, United States; ²Caltech, United States; ³Oak Ridge National Laboratory, United States; ⁴Glassmetal, United States

4:15 PM E4.04.02

The Two-Dimensional Nature of Dynamic Disorder in Hybrid Metal Halide Perovskite Semiconductors [Nicholas Weadock](#)¹, Tyler C. Sterling¹, Matthew Krogstad², Feng Ye³, David Voneshen⁴, Julian Vigil⁵, Ballal Ahamed⁶, Peter Gehring⁷, Hans-Georg Steinrueck⁶, Elif Ertekin⁶, Hemamala Karunadasa⁵, Dmitry Reznik¹ and Michael Toney¹; 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

4:30 PM E4.04.03

Neutron Scattering to Characterize Adsorbents and Their Hosts [Craig M. Brown](#)¹, Ryan Klein², Benjamin A. Trump¹ and Hayden A. Evans¹; ¹NIST Center for Neutron Research, United States; ²National Renewable Energy Laboratory, United States

4:45 PM E4.04.04

Neutron Scattering Kernels for Methane I & II and Ethane III [J. R. Granada](#)¹, J.I. Márquez Damián², S. Rudic³ and G. Skoro³; ¹Argentine Atomic Energy Commission, Argentina; ²European Spallation Source ERIC, Sweden; ³ISIS Facility, United Kingdom

5:00 PM E4.04.05

Structure Modulation of LnMnFeO₄ upon Oxidation into LnMnFeO_{4.5} (Ln=Y, Yb, Lu) [Tianyu Li](#) and Efrain E. Rodriguez; University of Maryland, United States

5:15 PM E4.04.06

Diffusion Dynamics of FLiNaK Molten Salt Characterized with Quasi-Elastic Neutron Scattering [Brent J. Heuser](#), Golam Rakib and Yang Zhang; University of Illinois, United States

Hard Condensed Matter

SESSION B1.03: Novel Magnetic Structures and Excitations

Session Chair: Rebecca Dally
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 Yuan](#)¹, Kemp Plumb², Matthew Stone³, Yiming Qiu⁴, Nicholas Butch⁴, Guangyong Xu⁴, Patrick Clancy⁵ and Young-June Kim⁶; 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 Ba₂FeSi₂O₇ Seunghwan Do¹, Hao Zhang², Travis J. Williams¹, Tao Hong¹, Ovidiu Garlea¹, Jose A. Rodriguez-Rivera³, Tae-Hwan Jang⁴, Sang-Wook Cheong⁵, Jae-Hoon Park⁴, Cristian Batista² and [Andrew D. Christianson](#)¹; 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 Cu₂Sb-type Antiferromagnets [Daniel Shoemaker](#); University 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. Samarakoon](#)¹, Joerg Strempler¹, Feng Ye², Yiming Qiu³, Stephan Rosenkranz¹, Michael Norman¹, John Mitchell¹ and Daniel Phelan¹; 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 Quarterman², Caroline Korostynski¹, My Nguyen¹, Ishita Kamboj¹, Eray Aydil³ and [Chris Leighton](#)¹; ¹University of Minnesota, United States; ²National Institute of Standards and Technology, United States; ³New York University, United States

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 [Nairiti J. Sinha](#); University of California, Santa Barbara, United States

4:30 PM D1.01.02

Studying Internal Dynamics of the Monoclonal Antibody with SANS and NSE [Roisin Donnelly](#)^{1,1,2}, Yun Liu^{2,1} and Norman Wagner^{1,2}; 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. Ford](#)¹, Peter Gilbert¹, Ken Qian², Norman Wagner³ and Yun Liu¹; ¹NIST Center for Neutron Research, 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 Greenfield](#); National Institute of Standards and Technology, United States

5:15 PM D1.01.05

Characterize Conformational Flexibility of Monoclonal Antibodies using Small-Angle Scattering Amy Xu; Louisiana State 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-Petersen^{1,2}, Liam Whitelegg², Bjørn C. Hauback³, 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 Pierce¹ 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

11:15 AM A2.05.04

An Update on PIONEER, a Single-Crystal Neutron Diffractometer at the Second Target Station Yaohua 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. Granroth¹, Adam Aczel¹, Barry Winn¹, Adit Desai², Marcus Daum² and Martin Mourigal²; ¹Oak 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 Binkley¹; ¹NIST, United States; ²NASA GRC, United States

12:00 PM A2.05.07

Polychromatic Multiplexing Stress-Strain Diffractometer Sean Fayfar¹, Jay T. Cremer² 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 Haravifard; 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 NaYbSe₂ Ganesh Pokharel, 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 Bordelon^{1,2}, Brenden Ortiz², Pritam Bhattacharyya³, Lorenzo Posthuma², Ganesh Pokharel², Paul Sarte², Thorben Petersen³, Mohamed Eldeeb³, Garrett E. Granroth⁴, Xiaoling Wang², Mark Sherwin², Clarina dela Cruz⁴, Ulrich Roessler³, Liviu Hozoi³, Martin Mourigal⁵, Stuart Calder⁴, Craig M. Brown⁶, Daniel M. Pajerowski⁴, Arnab Banerjee⁴, Douglas L. Abernathy⁴, 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

11:15 AM *B2.04.04

Relaxation Dynamics in Spin Ice Ho₂Ti₂O₇ Yishu Wang¹, Timothy R. Reeder¹, Yoshitomo Karaki², Jonas Kindervater¹, Thomas Halloran¹, Nicholas C. Maliszewskyj³, Yiming Qiu³, Jose A. Rodriguez-Rivera³, Sergiy Gladchenko³, Seyed Koohpayeh¹, Satoru Nakatsuji⁴ and Collin Broholm¹; ¹Johns Hopkins University, United States; ²University of Ryukyus, Japan; ³NIST Center for Neutron Research, United States; ⁴The University of Tokyo, Japan

11:45 AM B2.04.05

Real Space and Time Dynamics of Heisenberg Antiferromagnet KCuF₃ Measured by Neutron Scattering Allen Scheie¹, Pontus Laurell², Bella Lake³, Stephen Nagler¹, Matthew Stone¹, Jean-Sebastian Caux⁴ and Alan Tennant^{2,1}; ¹Oak Ridge National Laboratory, United States; ²The University of Tennessee, Knoxville, United States; ³Helmholtz-Zentrum Berlin, Germany; ⁴University of Amsterdam, Netherlands

12:00 PM B2.04.06

Magnetic Structure of Single Crystalline Barlowite in an Applied Magnetic Field Aaron T. Breidenbach^{1,2}, Rebecca Smaha^{1,2}, Wei He^{1,2}, Adam Aczel³, Jeffrey Lynn^{4,5} and Young Lee^{1,1,2}; ¹Stanford University, United States; ²SLAC National Accelerator Laboratory, United States; ³Oak Ridge National Laboratory, United States; ⁴NIST Center for Neutron Research, United States; ⁵The University of Tennessee, Knoxville, United States

12:15 PM B2.04.07

Dynamical Ground State in the XY Pyrochlore Yb₂GaSbO₇ Adam Aczel¹, Paul Sarte², Joe Paddison¹, Christopher Wiebe³, Brenden Ortiz², K.H. Hong⁴, Mitchell Bordelon², Dalmau Reig-i-Plessis⁵, Matthew Stone¹, Stuart Calder¹, Daniel M. Pajerowski¹, Lucile Mangin-Thro⁶, Yiming Qiu⁷, Paul Attfield⁴, Stephen D. Wilson², Christopher Stock⁴, Haidong Zhou⁸, Alannah Hallas⁵, Eun Sang Choi⁹ and Minseong Lee¹⁰; ¹Oak Ridge National Laboratory, United States; ²University of California, Santa Barbara, United States; ³University of Winnipeg, Canada; ⁴University of Edinburgh, United Kingdom; ⁵University of British Columbia, Canada; ⁶ILL, France; ⁷National Institute of Standards and Technology, United States; ⁸The University of Tennessee, Knoxville, United States; ⁹National High Magnetic Field Laboratory, United States; ¹⁰Los Alamos National Laboratory, 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 Mukkamala; Case Western Reserve University, United States

10:45 AM C2.04.02

Vanadium Ion Dynamics of Ionomer Nanocomposites Xueting Wang¹, Apoorva Balwani¹, Mayura S. Silva¹, Madhusudan Tyagi², 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 Yuyin Xi^{1,2} and Yun Liu^{1,2}; ¹National Institute of Standards and Technology, United States; ²University of Delaware, United States

11:15 AM C2.04.04

The Microscopic Structure and Dynamics of PEO-Silica Nanocomposite: Effect of Nanoparticle Size on Short-Time Polymer Dynamics Jihyuk Kim¹, Antonio Faraone², Orsolya Czakkel³, Michael Ohl⁴, Stephan Forster⁴ 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

11:30 AM C2.04.05

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. Feric², Sara T. Hamilton², Ah-Hyung Park² and Mark Dadmun^{1,3}; ¹University of Tennessee, Knoxville, United States; ²Columbia University, United States; ³Oak Ridge National Laboratory, United States

11:45 AM C2.04.06

Study of Interdiffusion of Bilayer Polymer Grafted Nanoparticle Films at Interfaces by Neutron Reflectivity Wenjie Wu¹, Kshitij Sharma¹, John F. Ankner², Jack Douglas³ and Alamgir Karim¹; ¹University of Houston, United States; ²Oak Ridge National Laboratory, United States; ³National Institute of Standards and Technology, United States

12:00 PM C2.04.07

A New Computational Method (CREASE) to Analyze and Interpret Small Angle Scattering Profiles from Assembled Structure in Polymer Solutions Zijie Wu and Arthi Jayaraman; University of Delaware, United States

12:15 PM C2.04.08

SESANS and SANS Studies to Understand the Presence of an Initial Opaque Phase in the Self-Assembly of Di-Block Copolymers Antonia Denkova; Delft University of Technology, Netherlands

Emerging Applications of Neutron Scattering in Engineering, Arts and Sciences

SESSION H2.01: Emerging ML Applications—Neutrons and Beyond
Session Chairs: Tyler Martin and Alan Tennant
Tuesday Morning, June 7, 2022
UMC Aspen Room 285, 287, 289

10:15 AM *H2.01.01

Machine Learning: A Data-Driven Spectrometer for Neutron Scattering Mingda Li; Massachusetts Institute of Technology, United States

10:45 AM *H2.01.02

Accelerate Discovery of New Chemical Synthesis Pathways using Autonomous Experiments Combined with AI Agents Kristin Schmidt, Dmitry Zubarev, Sarath swaminathan, Renato Fontoura de Gusmao Cerqueira, Nathaniel Park, Tim Erdmann, Daniel Sanders and Jed Pitera; IBM Research, United States

11:15 AM *H2.01.03

Autonomous Control at X-Ray Sources from Accelerator to Detector Daniel Ratner; SLAC, United States

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 Micelles Marina Tsianou; 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 Amphiphilic Oligomer Assemblies: Elucidated by Spectroscopy and Neutron Reflectivity Zening Liu, Hanyu Wang, Tianyu Li, Lu Lin, John Katsaras, Kunlun Hong, Jim Browning, Benjamin Doughy 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, German Perez-Sanchez² 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^{1,2}, Adam Imel², Brian Barth², Thomas Zawodzinski² and Mark Dadmun^{2,1}; ¹Oak Ridge National Laboratory, United States; ²The University of Tennessee, Knoxville, 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 Dichalcogenide Fe_{1/3+δ}NbS₂ Shan Wu^{1,2}, Zhijun Xu³, Shannon Haley^{2,1}, Sophie Weber^{2,1}, Eran Maniv^{2,1}, Yiming Qiu³, Adam Aczel⁴, Jeffrey Neaton^{2,1}, James Analytis^{1,2} and Robert Birgeneau^{1,2}; 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

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. Ramirez², 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 Qiu³, Qing Huang⁴, Haidong Zhou⁴, Israel Klich¹, 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⁺ S = 3/2 Duminda Sanjeeva¹, Ovidiu Garlea² and Keith Taddei²; 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 Ortiz^{1,2}; 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 McKay^{1,1,1}, Quan Le Thien^{1,1}, Fankang Li², Abu Irfan^{1,1}, Jiazhou Shen^{1,1,1}, Eric B. Dees^{1,1,1}, Stephen J. Kuhn^{1,1,1}, David V. Baxter^{1,1,1}, Gerardo Ortiz^{1,1} and Roger Pynn^{1,1,1}; 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 $\Delta b'$ 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 Ratcliff^{1,2}, Haotong Liang², Aaron G. Kusne^{1,2} and Ichiro Takeuchi²; ¹NIST, United States; ²University 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. Christianson²; 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 Makena Dettmann¹, Lucas S. Cavalcante¹, John Anthony² and Adam Moule¹; 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 Diaw¹, 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 McDanald¹, Matthias D. Frontzek², Andrei T. Savici², Mathieu Doucet², Efrain E. Rodriguez^{3,4}, Kate Meuse⁵, Jessica Opsahl-Ong⁶, Daniel Samarov¹, Ichiro Takeuchi^{3,4}, William Ratcliff^{1,3} and Aaron G. Kusne^{1,3}; 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 Expenditure Makena Dettmann¹, Lucas S. Cavalcante¹, Daniel Vong¹, Nir Goldman² and Adam Moule¹; ¹UC Davis, United States; ²Lawrence Livermore National Laboratory, United States

WEDNESDAY ORAL PRESENTATIONS

* Invited Paper

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. LaManna](#)¹, Michael Cyrus Daugherty^{1,2}, Youngju Kim^{1,2}, Eli Baltic¹, Daniel S. Hussey¹ 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. Hussey](#)¹, Caitlyn M. Wolf¹, Youngju Kim², Sarah M. Robinson¹, Michael Cyrus Daugherty², Ryan P. Murphy¹, Paul A. Kienzle¹, Nikolai N. Klimov¹, Michael G. Huber¹, Peter N. Bajcsy¹, 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 Faraone](#)¹, Norman Wagner², Michihiro Nagao^{1,3,2}, Christoph Brocker^{1,3}, Nicholas C. Maliszewskyj¹, Michael Monkenbusch⁴, Olaf Holderer⁴, Tadeusz Kozielowski⁴ 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. Anknor](#), 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 Zhang](#)¹, Hassina Z. Bilheux¹, Erik Stringfellow¹, Jean Bilheux¹, Jonathan Smith¹, Les Butler², Kyungmin Ham², Wieslaw Stryjowski² and Michael Vincent²; ¹Oak Ridge National Laboratory, United States; ²Louisiana State University, United States

11:45 AM A3.06.06
Angle-encoding Radiography with Neutrons [Sam McKay](#)^{1,1,1}, Fankang Li², David V. Baxter^{1,1,1} and Roger Pynn^{1,1,1}; 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. Wolf, Youngju Kim, Michael Cyrus Daugherty, Michael G. Huber, Peter N. Bajcsy, 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 Fultz](#)¹, 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 Delaire](#)¹, Xing He¹, Tyson L. Lanigan-Atkins¹, Matthew Krogstad², Mayanak K. Gupta¹, Chengjie Mao¹, Daniel M. Pajerowski³, Douglas L. Abemathy³, Feng Ye³, Tao Hong³, Songxue Chi³, Yaohua Liu³, Guangyong Xu⁴, Zhijun Xu⁴, Stephan Rosenkranz² 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

10:45 AM B3.06.03
Mutual Spin-Phonon Driving Effects and Phonon Eigenvector Renormalization in NiO Qiyang Sun¹, Bin Wei^{1,2}, Yaokun Su¹, Hillary Smith³, Jiao Lin⁴, Douglas L. Abemathy⁴ and [Chen Li](#)^{1,1}; ¹University of California, Riverside, United States; ²Henan Key Laboratory of Materials on Deep-Earth Engineering, School of Materials Science and Engineering, China; ³Swarthmore College, United States; ⁴Oak Ridge National Laboratory, United States

11:00 AM B3.06.04

Role of Anharmonicity in the High-temperature Thermodynamics of Chromium Camille Bernal¹, Hillary Smith², Claire N. Saunders¹, Dennis S. Kim³, Douglas L. Abernathy⁴ and Brent Fultz¹; ¹California Institute of Technology, United States; ²Swarthmore College, United States; ³Massachusetts Institute of Technology, United States; ⁴Oak Ridge National Laboratory, United States

11:15 AM B3.06.05

Flattening of the Acoustic Phonon Branches in the Clathrate Ba₈Ga₁₆Ge₃₀ Susmita Roy¹, Tyler C. Sterling¹, Dan Parshall¹, Eric Toberer², Mogens Christensen³, Devashibhai T. Adroja⁴ and Dmitry Reznik^{1,5}; ¹UNIVERSITY OF COLORADO BOULDER, United States; ²Colorado School of Mines, United States; ³University of Aarhus, Denmark; ⁴ISIS Facility, STFC, Rutherford Appleton Laboratory, United Kingdom; ⁵Center for Experiments on Quantum Materials, University of Colorado Boulder, United States

11:30 AM B3.06.06

Atomic Tunneling in BaTiS₃ Raphael P. Hermann, Michael E. Manley, Duncan H. Moseley, Daniel M. Pajerowski, Barry Winn and Eugene Mamontov; Oak Ridge National Laboratory, United States

11:45 AM B3.06.07

Investigation of the Thermophysical Properties of Cuprite by Inelastic Neutron Scattering and Machine Learning Calculations Claire N. Saunders¹, Vladimir Ladygin¹, Dennis S. Kim¹, Olle Hellman², Hillary Smith³, Camille Bernal¹ and Brent Fultz¹; ¹California Institute of Technology, United States; ²Linköping University, Sweden; ³Swarthmore College, United States

12:00 PM B3.06.08

Phason Dominated Thermal Transport in Fresnoite Michael E. Manley¹, Andrew May¹, Barry Winn¹, Douglas L. Abernathy¹, Raffi Sahul² and Raphael P. Hermann¹; ¹Oak Ridge National Laboratory, United States; ²Amphenol Corporation, United States

11:15 AM D3.02.05

Relationship between Viscosity and Acyl Tail Dynamics in Lipid Bilayers Michihiro Nagao^{1,2,3}, Elizabeth Kelley¹, Antonio Faraone¹, Makina Saito⁴, Yoshitaka Yoda⁵, Masayuki Kurokuzu⁶, Shinichi Takata⁷, Makoto Seto⁶ and Paul D. Butler¹; ¹National Institute of Standards and Technology, United States; ²University of Maryland, United States; ³University of Delaware, United States; ⁴Tohoku University, Japan; ⁵Japan Synchrotron Radiation Research Institute, Japan; ⁶Kyoto University, Japan; ⁷J-PARC, Japan

11:30 AM D3.02.06

The Structural Origins of Lipid Bilayer Dynamic Response James E. Fitzgerald¹, Elizabeth Kelley², Norman Wagner¹, Michihiro Nagao² and Edward Lyman^{1,1}; ¹University of Delaware, United States; ²National Institute of Standards and Technology, United States

11:45 AM D3.02.07

Determination of Sphingomyelin Molecular Structure using SANS, SAXS, NMR, and Molecular Dynamics Jacob J. Kinnun^{1,1}, Milka Doktorova², Norbert Kučerka^{3,4}, Jianjun Pan⁵, Drew Marquardt⁶, Haden L. Scott^{1,1}, Richard Venable⁷, Richard Pastor⁷, Stephen Wassall⁸, Frederick Heberle⁹ and John Katsaras^{1,9,1}; ¹Oak Ridge National Laboratory, United States; ²University of Texas Health Science Center, United States; ³Joint Institute for Nuclear Research, Russian Federation; ⁴Comenius University, Slovakia; ⁵University of South Florida, United States; ⁶University of Windsor, Canada; ⁷National Institutes of Health, United States; ⁸Indiana University-Purdue University Indianapolis, United States; ⁹University of Tennessee, United States

12:00 PM D3.02.08

Structural Studies of mRNA Vaccines using Combined SANS/SAXS and CryoEM Thomas E. Cleveland^{1,2}, Manuel Carrasco³, Lacey Wright³ and Michael Buschmann³; ¹National Institute of Standards and Technology, United States; ²University of Maryland, United States; ³George Mason University, United States

Biology, Biophysics and Biotechnology

SESSION D3.02: Insights into Lipid Membrane Properties and Protein-Lipid Interactions

Session Chairs: Roisin Donnelly and Nairiti Sinha
Wednesday Morning, June 8, 2022
UMC Conference Room 235

10:15 AM *D3.02.01

The Orientation of KRAS at the Plasma Membrane Helps Recruit RAF Kinase Andrew Stephen; Frederick National Laboratory for Cancer Research, United States

10:45 AM D3.02.02

Characterization of Structurally Disordered Peripheral Membrane Proteins with Neutron Reflectometry Frank Heinrich^{1,2}; ¹Carnegie Mellon University, United States; ²National Institute of Standards and Technology, United States

11:00 AM D3.02.04

The Transmembrane Helix of pHLIP Slows Down Membrane Thickness Fluctuations and Translational Diffusion Haden L. Scott¹, Violeta Burns-Casamayor², Andrew Dixon³, Robert Standaert⁴, Christopher B. Stanley¹, Laura Stingaciu¹, Jan Michael Carrillo¹, Bobby G. Sumpter¹, John Katsaras¹, Wei Qiang⁵, Frederick Heberle³, Blake Mertz², Rana Ashkar⁶ and Francisco Barrera³; ¹Oak Ridge National Laboratory, United States; ²West Virginia University, United States; ³The University of Tennessee, Knoxville, United States; ⁴East Tennessee State University, United States; ⁵Binghamton University, The State University of New York, United States; ⁶Virginia Tech, United States

Materials Chemistry and Energy

SESSION E3.02: Materials Chemistry and Energy II

Session Chair: Graeme Luke
Wednesday Morning, June 8, 2022
UMC Aspen Room 285, 287, 289

10:15 AM *E3.01.01

Search for Broken Symmetries in Kagome Lattice Superconductor CsV₃Sb₅ Graeme Luke^{1,2}, Jonah Gautreau¹, Sudarshan Sharma¹, Mathew Pula¹, Yasutomo Uemura³, Stephen D. Wilson⁴, Brenden Ortiz⁴ and Yuzki Oey⁴; ¹McMaster University, Canada; ²TRIUMF, Canada; ³Columbia University, United States; ⁴University of California, Santa Barbara, United States

10:45 AM E3.01.02

Phonon Dynamics and Thermal Transport in Ti₃VSe₄ Yoel F. Lencina Wendt¹, Qingan Cai¹, Brian Sales², Ayman Said³ and Chen Lj^{2,1,1}; ¹University of California, Riverside, United States; ²Oak Ridge National Laboratory, United States; ³Argonne National Laboratory, United States

11:00 AM E3.01.03

High Throughput Operando Neutron Diffraction at the Nanoscale Ordered Materials Diffractometer (NOMAD) Jue 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 N₂ Reduction Conditions Sarah J. Blair^{1,2}, Mathieu Doucet³, Jim Browning³, Adam C. Nielanders², Alessandro Gallo² and Thomas F. Jaramillo^{1,2}; ¹Stanford University, United States; ²SLAC National Accelerator Laboratory, United States; ³Oak Ridge National Laboratory, United States

11:30 AM E3.01.05

Lithium-Polymer Batteries—A Microscopic View! Michael Ohl^{1,2}, Juergen Allgaier¹, Marcella Cabrera-Berg¹, Changwoo Do³, Yuya Doi⁴, Rene Halver¹, Eugene Mamontov³, Ridhima Nain⁵, Naresh C. Osti³, Godehard Sutmann^{1,6}, Hui Wang⁷, Stephan Forster¹ and Takeshi Egami^{3,2}; ¹Forschungszentrum Jülich GmbH, Germany; ²Univ. Tennessee, United States; ³Oak Ridge National Laboratory, United States; ⁴Nagoya University, Japan; ⁵Indian Institute of Technology Delhi, India; ⁶Ruhr-University Bochum, Germany; ⁷Stanford Linear Accelerator Center, United States

11:45 AM E3.01.06

Tuning Chemical Short-Range Order in Complex High-Entropy Oxides Katharine Page^{1,2}, Xin Wang¹ and Bo Jiang²; ¹The University of Tennessee, Knoxville, United States; ²Oak Ridge National Laboratory, United States

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 Bole¹, Ken Herwig², Dylan Kolb-Bond¹ and Jack Toth¹; ¹NHMFL - FSU, United States; ²ORNL, 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 Nevel², Richard Dombrowski² and Norman Wagner^{1,2}; ¹University 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 Wagner^{1,2}; ¹University 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; ¹Advanced 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 Masaaki Matsuda¹, Depei Zhang¹, Sachith Dissanayake¹, Barry Winn¹, Toshimitsu Ito² and Randy Fishman¹; ¹Oak Ridge National Laboratory, United States; ²AIST, Japan

2:15 PM B3.07.02

Magnetism and Symmetry Lowering in the 5d¹ Double Perovskite Ba₂NaOsO₆ 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 Abeykoon¹, Simon Billinge¹, Alexei Tsvelik¹, Matthew Tucker³, Haidong Zhou² and Weiguo Yin¹; ¹Brookhaven National Laboratory, United States; ²The University of Tennessee, Knoxville, United States; ³Oak 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 Chen³, Taner Yildirim^{3,4}, Jiaqiang Yan^{2,5}, Jianshi Zhou⁶, John Goodenough⁶ and Despina Louca¹; ¹University of Virginia, United States; ²Oak Ridge National Laboratory, United States; ³National Institute of Standards and Technology, United States; ⁴University of Pennsylvania, United States; ⁵The University of Tennessee, Knoxville, United States; ⁶The 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 Soh^{1,2}, Andrea Urru³, Paola Forino¹, Rasmus Toft-Petersen², NICOLA SPALDIN³ and Henrik M. Ronnow¹; ¹EPFL, Switzerland; ²Technical University of Denmark, Denmark; ³ETH 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 Donghui 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 Caitlyn M. Wolf¹, Youngju Kim^{2,1}, Sarah M. Robinson¹, Michael Cyrus Daugherty^{2,1}, Ryan P. Murphy¹, Nikolai N. Klimov¹, Michael G. Huber¹, Peter N. Bajcsy¹, David Jacobson¹, Jacob M. LaManna¹, Paul A. Kienzle¹, Daniel S. Hussey¹ and Katie M. Weigand¹; ¹National Institute of Standards and Technology, United States; ²University of Maryland, United States

2:45 PM C3.06.03

Microstructures of Starch Granules as Revealed by Scattering Techniques Yimin Mao^{1,2} and Yong-Cheng Shi³; 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 Hydrophilic Triblock Copolymer Solution and its Governing Mechanism Divya K. Patel¹, Ketan C. Kuperkar¹ and Pratap Bahadur²; 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 Zhai¹, Nicos Martys², William L. George², Joseph E. Curtis², Jannatun Nayem³, Yang Zhang¹ and Yun Liu^{2,3}; 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 Sarathchandran¹, Yuya Shinohara², Wojciech Dmowski¹, Eugene Mamontov², Daniel M. Pajerowski² and Takeshi Egami^{1,2}; 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 Buck¹, Matthew Connolly¹, May Martin¹, Damian Lauria¹, Peter Bradley¹, Andrew Slifka¹, Ke An², Yan Chen² and Naresh C. Osti²; 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 Connolly¹, Zack Buck¹, May Martin¹, Robert Amaro², Peter Bradley¹, Damian Lauria¹, Jun-Sang Park³ and Andrew Slifka¹; 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 Jumari 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 Pingali¹, Zhi Yang², Marcus Foston³, Hugh O'Neill¹, Volker S. Urban¹, Arthur Ragauskas⁴, Barbara Evans¹ and Brian Davison¹; 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 Shuo 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 Hicks¹, Paul Abraham¹, Qiu Zhang¹, Jeremy Smith^{2,1}, Hugh O'Neill¹ and Loukas Petridis¹; 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 Tan¹, Nicholas Smith^{2,3}, Haden L. Scott³, John Katsaras³, Sai Venkatesh Pingali³, Jeremy Smith^{2,3}, Brian Davison³, James Elkins³ and Jonathan Nickels¹; 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. Hoogerheide¹, Joe Dura¹, Frank Heinrich^{1,2}, Brian Maranville¹, Paul A. Kienzle¹ and Charles F. Majkrzak¹; 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 LiM₂Mn_{1-x}PO₄ (M = Co, Fe) Stephanie Gnewuch and Efrain E. Rodriguez; University of Maryland, United States

4:00 PM E3.02.02

Electronic Conduction Induced Dendrite Formation in Solid Electrolytes Fudong Han; Rensselaer Polytechnic Institute, United States

4:15 PM E3.02.03

Raising the Transition Temperature of Olivines $\text{Li}_{1-x}\text{Fe}_x\text{Mn}_{1-x}\text{PO}_4$ 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 Yuya Shinohara¹, Alexander S. Ivanov¹, Garrett E. Granroth¹, Douglas L. Abernathy¹ and Takeshi Egami^{2,1}; ¹Oak Ridge National Laboratory, United States; ²The University of Tennessee, Knoxville, United States

4:45 PM E3.02.05

Mapping the Light Elements in Complex Oxides for High-rate Lithium-ion Batteries Kent Griffith and Kenneth R. Poeppelmeier; Northwestern University, United States

5:00 PM *E3.02.06

Exploring Oxygen Motion Through Perovskites $\text{La}_{0.9}\text{Sr}_{0.1}\text{Co}_{1-x}\text{Fe}_x\text{O}_{3-\delta}$ with In Situ Diffraction Allyson M. Fry-Petit¹, Mara Milhander^{1,2} and Jose Gonzalez Jimenez^{1,2}; ¹California State University, Fullerton, United States; ²Rutgers, The State University of New Jersey, 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 $\text{Ca}(\text{Co}_{1-x}\text{Fe}_x)_2\text{As}_2$ Benjamin G. Ueland^{1,2}, Santanu Pakhira^{1,2}, Bing Li^{1,2}, Aashish Sapkota^{1,2}, N. S. Sangeetha¹, Toby G. Perring³, Yongbin Lee¹, Liqin Ke¹, D. C. Johnston^{1,2} and R. J. McQueeney^{1,2}; ¹Ames Laboratory, United States; ²Iowa State University of Science and Technology, 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 $\text{HgBa}_2\text{CuO}_{4+\delta}$ Zachary W. Anderson¹, Damjan Pelc², Matthew Krogstad³, Nikolaos Biniskos⁴, Biqiong Yu¹, Yaohua Liu⁵, Liam Thompson¹, Jack Zwettler¹, Richard Spieker¹, Nina G. Bielinski¹, Feng Ye⁵, Stephan Rosenkranz³, Raymond Osborn³ 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 Li^{2,1}, Ovidiu Garlea³, Andrei T. Savici³, Zhijun Xu^{4,1}, Gu Genda¹ and John Tranquada¹; ¹Brookhaven National Laboratory, United States; ²Institute of Physics, China; ³Oak Ridge National Laboratory, United States; ⁴National Institute of Standards and Technology, United States

5:15 PM B3.08.05

Nematic Correlation Length in Iron-Based Superconductors Probed by Inelastic X-Ray Scattering Dmitry Reznik; University of Colorado-Boulder, 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

4:00 PM H3.03.01

Machine Learning for Neutron Reflectometry Mathieu Doucet, William Heller and Richard Archibald; Oak Ridge National Laboratory, United States

4:15 PM H3.03.02

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 H3.03.03

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 H3.03.04

Machine Learning Augmented Computational Reverse-Engineering Analysis for Scattering Experiments of Assembled Mixtures of Nanoparticles Christian Heil and Arthi Jayaraman; University of Delaware, United States

5:00 PM H3.03.05

Designing an Active Learning Agent for Autonomous Small-Angle Scattering Tyler B. Martin, Aaron G. Kusne, Austin McDannald and Peter A. Beaucage; National Institute of Standards and Technology, United States

THURSDAY ORAL PRESENTATIONS

* Invited Paper

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

8:15 AM *I4.01.01

OUTSTANDING STUDENT RESEARCH PRIZE WINNER:
Magnetic Phase Transitions and Spin-Wave Dynamics in $Y_{1-x}La_xTiO_3$ and $Y_{1-y}Ca_yTiO_3$ [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. Kuhn](#)¹, Sam McKay¹,
Fankang Li², Eric B. Dees¹, Jiazhou Shen¹ and Roger Pynn^{1,2}; ¹Indiana
University Bloomington, United States; ²Oak 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
Maaza](#)^{1,2}; 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
Thurston](#)^{1,2,3} and Elias Garratt^{1,1}; ¹Michigan State University, United
States; ²Hillsdale College, United States; ³Trinary 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** [Eric B.
Dees](#)¹, Robert Dalgliesh², Steven R. Parnell³, Stephen J. Kuhn¹,
Fankang Li⁴, Sam McKay¹, Jiazhou Shen¹ and Roger Pynn^{1,4}; 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. [Sergiy
Gladchenko](#); National Institute of Standards and Technology, United
States

12:00 PM A4.09.09

**High Resolution Larmor Diffraction at Oak Ridge National
Laboratory** [Kaleb Burrage](#)¹, Masaaki Matsuda¹, Jaime A. Fernandez-
Baca¹, Chengjie Mao², Olivier Delaire² and Fankang Li¹; ¹Oak Ridge
National Laboratory, United States; ²Duke University, United States

12:15 PM A4.09.10

In-Situ ³He 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 $EuCo_2As_2$ Single Crystals** [Tianxiong Han](#)^{1,2}, Simon X.
Riberolles¹, Benjamin G. Ueland¹, R. J. McQueeney^{1,2}, Yan Wu³,
Santanu Pakhira¹ and D. C. Johnston^{1,2}; 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. Henderson](#)¹, Benjamin Heacock², Markus Bleuel²,
Colin Heikes², Michael G. Huber², Jeff Krzywon², Olivier Nahman-
Levesque¹, Mathew Pula³, Dusan Sarenac¹, Kirill Zhernenkov⁴, David
Cory¹ and Dmitry Pushin¹; 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 $M1/3TaS_2$ [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 Xu², Harald Jeschke³, Xiaojian Bai¹, Erxi Feng¹, Admasu Alemayehu², Jaewook Kim², Feiting Huang², Qiang Zhang¹, Xiabin Ding⁴, Neil Harrison⁴, Vivian Zapf⁵, Daniel Khomskii⁵, Igor Mazin⁶ and Sang-Wook Cheong²; ¹Oak Ridge National Laboratory, United States; ²Rutgers University, United States; ³Okayama University, Japan; ⁴Los Alamos National Laboratory, United States; ⁵II. Physikalisches Institut, Universität zu Köln, Germany; ⁶George Mason University, United States

11:45 AM B4.10.07

Slow Relaxation with Signature of Glassiness in Non-Centrosymmetric Helimagnet ScFeGe Sunil K. Karna¹, John F. DiTusa², David Young³, Wei Tian⁴ and Adam Aczel⁴; ¹Norfolk State University, United States; ²Indiana University-Purdue University Indianapolis, United States; ³Louisiana State University, United States; ⁴Oak Ridge National Laboratory, United States

12:00 PM B4.10.09

Depth Profiles of Hybrid Magnetic Skyrmions Determined by Neutron Scattering WLNC Liyanage¹, Nan Tang¹, Lizabeth Quigley^{1,2}, Sergio Montoya³, Julie A. Borchers⁴, Alexander Grutter⁴, Sunnil Sinha³, Brian Maranville⁴, Eric Fullerton³, Lisa DeBeer-Schmitt⁵ and Dustin A. Gilbert^{1,1}; ¹The University of Tennessee, Knoxville, United States; ²Purdue, United States; ³University of California, San Diego, United States; ⁴National Institute of Standards and Technology, United States; ⁵Oak Ridge National Laboratory, United States

12:15 PM B4.10.10

Revisiting Static and Dynamic Magnetic Correlations in the Chiral Helimagnet CrI₃NbS₂ Lisa DeBeer-Schmitt¹, Lazar Kish², Adam Aczel¹, Travis J. Williams¹, Huibo Cao¹, Timothy Charlton¹, Nirmal Ghimire³, Jacob Ruff⁴, Michael A. McGuire⁵, Stephen J. Kuhn⁶, Morten R. Eskildsen⁷ and David Mandrus⁸; ¹ORNL, United States; ²University of Illinois at Urbana-Champaign, United States; ³George Mason University, United States; ⁴Cornell University, United States; ⁵Oak Ridge National Laboratory, United States; ⁶Indiana University-Bloomington, United States; ⁷University of Notre Dame, United States; ⁸The 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 Huestis², Nikhil Rampal¹, Andrew G. Stack¹, Jay A. LaVerne², Xin Zhang³, Gregory K. Schenter³, Jaehun Chun³, Benjamin A. Legg³, Lili Liu³, Markus Bleuel⁴, Cedric Gagnon⁴ and David F. Mildner⁴; ¹Oak Ridge National Laboratory, United States; ²University of Notre Dame, United States; ³Physical Sciences Division, United States; ⁴National 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; ¹ISIS Neutron & Muon Source, United Kingdom; ²Royal 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, Lu Han², Tomonori Saito² and Mark Dadmun^{1,2}; ¹The University of Tennessee, United States; ²Oak 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 Yangyang 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. Beaucauge 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. Bilheux¹; ¹Oak Ridge National Laboratory, United States; ²National 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 Kshitij Sharma¹, Maninderjeet Singh¹, Sushil K. Satija², John F. Ankner³, Jack Douglas² and Alamgir Karim¹; ¹University of Houston, United States; ²National Institute of Standards and Technology, United States; ³Oak Ridge National Laboratory, United States

12:30 PM C4.07.09

Thermodynamic Interactions in Polydiene/Polyolefin Blends Megan L. Robertson, Jialin Qiu 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. Weigandt²; ¹The University of Tulsa, United States; ²National Institute of Standards and Technology, United States



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MONDAY POSTER PRESENTATIONS

Advances in Neutron Facilities, Instrumentation and

SESSION AP1.04: Poster Session I: Advances in Neutron Facilities,
Instrumentation and Software I
Session Chair: Leland Harringer
Monday Afternoon, June 6, 2022
5:30 PM - 7:30 PM
UMC Center Ballroom 210

AP1.04.01

200 W Ultra-narrow Band Pump Laser Diode System [Aleksandr Rysnyanskiy](#), Vadim Smirnov, Oleksiy Mokhun and Alexei Glebov; OptiGrate Corp., United States

AP1.04.02

Optimization of the Guide Coating for the Manta Incident Beamline [Garrett E. Granroth](#), Adam Aczel, Travis J. Williams and Thomas Huegle; Oak Ridge National Laboratory, United States

AP1.04.03

CHESSE: A Direct Geometry Chopper Spectrometer Optimised to Study Small Scatterers [Gabriele Sala](#)¹, Martin Mourigal², Olivier Delaire³, Yang Zhang⁴, Nicholas Butch⁵, Raphael P. Hermann¹, Michael E. Manley¹, Andrew D. Christianson¹, Matthew Stone¹, Thomas Huegle¹, Dante Quirinale¹ and Jiao Lin¹; ¹Oak Ridge National Laboratory, United States; ²Georgia Institute of Technology, Georgia; ³Duke University, United States; ⁴University of Illinois at Urbana-Champaign, United States; ⁵National Institute of Standards and Technology, United States

AP1.04.04

MCVINE and Preliminary Design of STS Instruments [Jiao Lin](#)¹, Thomas Huegle², Matthew J. Frost², Gabriele Sala¹, Alexandru Stoica², Ovidiu Garlea², Hassina Z. Bilheux², Yaohua Liu¹, Changwoo Do², Shuo Qian¹, Barry Winn², Eugene Mamontov², Georg Ehlers², Stuart Calder², Joe Paddison², Fahima Islam², Huiibo Cao², Ke An² and Leighton Coates¹; ¹Oak Ridge National Lab, United States; ²Oak Ridge National Laboratory, United States

AP1.04.05

CUPI2D: Complex, Unique and Powerful Imaging Instrument for Dynamics [Adrian Brugger](#)¹, Hassina Z. Bilheux² and [Jiao Lin](#)³; ¹Columbia University, United States; ²Neutron Scattering Division, United States; ³Oak Ridge National Lab, United States

AP1.04.06

The Larmor Phase Correction of MIEZE [Fankang Li](#) and Georg Ehlers; Oak Ridge National Laboratory, United States

AP1.04.07

Commissioning the New MacSANS Small Angle Neutron Scattering Instrument at the Canadian Neutron Beam Laboratory at the McMaster Nuclear Reactor [Devin Burke](#)¹, Patrick Clancy¹, Zin Tun² and Bruce D. Gaulin¹; ¹McMaster University, Canada; ²TVB Associates Inc., Canada

AP1.04.08

Design of a Multi-Analyzer Neutron Scattering Spectrometer Using Ray-Tracing Monte-Carlo Simulations [Adit Desai](#)¹, Martin Mourigal¹, Garrett E. Granroth², Travis J. Williams², Adam Aczel² and Barry Winn²; ¹Georgia Institute of Technology, United States; ²Oak Ridge National Laboratory, United States

AP1.04.09

Virtual Learning Resources for Education and Training in Neutron Scattering [Patrick Clancy](#)¹, Greg Van Gastel¹, Symphony Huang¹, Evan Smith¹, Yijia Zi¹, Taryn McMillan¹, Zahra Yamani², Drew Marquardt³, Young-June Kim⁴, Maikel Rheinstadter¹ and Bruce D. Gaulin¹; ¹McMaster University, Canada; ²Canadian Nuclear Laboratories, Canada; ³University of Windsor, Canada; ⁴University of Toronto, Canada

Soft Matter

SESSION CP1.03: Poster Session: Soft Matter
Session Chairs: John Riley and Javen Weston
Monday Afternoon, June 6, 2022
5:30 PM - 7:30 PM
UMC Center Ballroom 210

CP1.03.01

Understanding the Role of Topology on Deformation and Scission of Polymers in Dilute Solutions Under Extreme Shear Flows Using *In Situ* Neutron Scattering [Anukta Datta](#)¹, Xiaoyan Wang², Patrick Underhill² and Matthew Helgeson¹; ¹University of California, Santa Barbara, United States; ²Rensselaer Polytechnic Institute, United States

CP1.03.02

Analysis of Engineered Nafion Surfaces via Neutron Reflectometry [Natalie L. Schwab](#)^{1,2}, Yuanchao Li³, Trung van Nguyen³, Robert M. Briber¹ and Joseph A. Dura²; ¹University of Maryland, United States; ²National Institute of Standards and Technology, United States; ³University of Kansas, United States

CP1.03.03

Crystal, Liquid, or Gel: A Thermodynamic Framework for Phase Behavior in Dilute Protein Solutions with Increasing Salt Concentration [Brian Paul](#)¹, Susana Teixeira², Norman Wagner¹, Eric Furst¹ and Abraham Lenhoff¹; ¹University of Delaware, United States; ²National Institute of Standards and Technology, United States

CP1.03.04

Understanding the Role of Block Sequence on the Solution Aggregation of Polypeptoid Multi-Block Copolymers [Meng Zhang](#)¹, Yun Liu² and Donghui Zhang¹; ¹Louisiana State University, United States; ²NIST Center for Neutron Research, United States

CP1.03.06

Hofmeister Effect on Dynamics of Confined Water in Metal Ions Intercalated Graphene Oxide [Gobin R. Acharya](#)¹, Madhusudan Tyagi², Eugene Mamontov³ and Peter M. Hoffmann¹; ¹Wayne State University, United States; ²NIST Center for Neutron Research, United States; ³Oak Ridge National Laboratory, United States

Structural Materials and Engineering

SESSION FP1.01: Poster Session: Structural Materials and Engineering

Session Chairs: Jeffrey Bunn and Zhenzhen Yu

Monday Afternoon, June 6, 2022

5:30 PM - 7:30 PM

UMC Center Ballroom 210

FP1.01.01

Minimizing Helium Pressure Inhomogeneities Across Large Samples at Low Temperatures [Juscelino B. Leao](#); National Institute of Standard and Technology, United States

FP1.01.02

Development of Quantitative Texture Analysis Routines at the WAND² and HIDRA [Nate Peterson](#)¹, Christopher Fancher², Matthias D. Frontzek², Jeffrey Bunn², Edward A. Payzant², Ke An² and S. Agnew¹; ¹University of Virginia, United States; ²Oak Ridge National Laboratory, United States

WEDNESDAY POSTER PRESENTATIONS

Advances in Neutron Facilities, Instrumentation and Software

SESSION AP3.08: Poster Session II: Advances in Neutron Facilities, Instrumentation and Software II

Session Chair: Hassina Bilheux

Wednesday Afternoon, June 8, 2022

5:30 PM - 7:30 PM

UMC Center Ballroom 210

AP3.08.01

The Levitation Suite at ORNL [Dante Quirinale](#); Oak Ridge National Laboratory, United States

AP3.08.02

McStas Component Development at the Spallation Neutron Source and High Flux Isotope Reactor [Matthew J. Frost](#), Garrett E. Granroth, Thomas Huegle and Lee Robertson; Oak Ridge National Laboratory, United States

AP3.08.03

Maximizing Detector Count Rate and q-Range on Pin-Hole SANS Instruments at the NCNR [John G. Barker](#); National Institute of Standards and Technology, United States

AP3.08.04

Overview of the Polarized 3He Program at the Oak Ridge National Laboratory [Chenyang Jiang](#); Oak Ridge National Laboratory, United States

AP3.08.05

Real-Time Control and Feedback of Hyperspectral Neutron Computed Tomography at the Spallation Neutron Source [Shimin Tang](#)¹, Mohammad Samin Nur Chowdhury², Diyu Yang², Singanallur Venkatakrishnan¹, Charles Bouman², Gregory Buzzard, T² and Hassina Z. Bilheux¹; ¹Oak Ridge National Laboratory, United States; ²Purdue University, United States

AP3.08.06

Science-Driven Optimization of Neutron Instrumentation From Source to Detector [Christoph U. Wildgruber](#), Hugh O'Neill, Volker S. Urban, Shuo Qian, Serena Chen and Ken Herwig; ORNL, United States

AP3.08.07

Bragg Edge Energy Calibration for Time-of-Flight Neutron Spectroscopy [Daniel M. Pajerowski](#); Oak Ridge National Laboratory, United States

AP3.08.08

Larmor a Larmor Labeling TOF SANS Instrument [Jeroen Plomp](#)¹, Ad van Well¹, Robert Dalgliesh² and Catherine Pappas¹; ¹Delft University of Technology, Netherlands; ²ISIS, United Kingdom

AP3.08.09

Update on the Extended Q-Range Small-Angle Scattering Diffractometer at the SNS [Gergely Nagy](#), Changwoo Do, Carrie Y. Gao and William Heller; Oak Ridge National Laboratory, United States

Hard Condensed Matter

SESSION BP3.09: Poster Session: Hard Condensed Matter

Wednesday Afternoon, June 8, 2022

5:30 PM - 7:30 PM

UMC Center Ballroom 210

BP3.09.01

Magnetic Excitations in the Highly Frustrated fcc Iridate

K₂IrCl₆ Qiaochu Wang and Kemp Plumb; Brown University, United States

BP3.09.02

Fluctuating Pseudospin Dimers in J_{eff}-3/2 Cluster Mott

Insulator Tsung-Han Yang¹, Tomoya Higo², Shinya Kawamoto², Joerg Neuefeind³, Matthew Stone³, SuYin Wang⁴, Milinda Abeykoon⁵, Yu-Sheng Chen⁴, Satoru Nakatsuji² and Kemp Plumb¹; ¹Brown University, United States; ²The University of Tokyo, Japan; ³Oak Ridge National Laboratory, United States; ⁴Argonne National Laboratory, United States; ⁵Brookhaven National Laboratory, United States

BP3.09.03

Temperature Dependence of Anharmonic Effects in NaBr by Inelastic Neutron Scattering and Machine Learning Interatomic Potentials Vladimir Ladygin¹, Claire N. Saunders¹, Camille Bernal¹, Michael E. Manley², Douglas L. Abernathy² and Brent Fultz¹; ¹California Institute of Technology, United States; ²Oak Ridge National Laboratory, United States

BP3.09.05

High-Field Low-Energy Spin Dynamics in the Kitaev QSL

Candidate α -RuCl₃ Kiranmavi Dixit¹, Colin Sarkis², Barry Winn², Stephen Nagler², David Mandrus², Christian Balz² and Arnab Banerjee¹; ¹Purdue University, United States; ²Oak Ridge National Laboratory, United States

BP3.09.06

Giant Doping Response of Magnetic Anisotropy in MnTe Duncan H. Moseley, Keith Taddei, David Parker, Randy Fishman and Raphael P. Hermann; Oak Ridge National Laboratory, United States

BP3.09.07

Unveiling the Magnetic Structure of the Topological Semimetal Co₃Sn₂S₂ with Spherical Neutron Polarimetry Jian Rui Soh¹, ChangJiang Yi², Ivica Zivkovic¹, Navid Qureshi³, Anne Stunault³, Bachir Ouladdiaf², Jose Alberto Rodriguez-Velamazan³, YouGuo Shi⁴, Henrik M. Ronnow¹ and Andrew Boothroyd⁵; ¹EPFL, Switzerland; ²Max Planck Institute for Chemical Physics of Solids, Germany; ³Institut Laue-Langevin, 71 Avenue des Martyrs, France; ⁴Institute of Physics, Chinese Academy of Sciences, China; ⁵University of Oxford, Clarendon Laboratory, United Kingdom

BP3.09.08

Magnetic Structures of High-Pressure Phases of Heavy Lanthanides using a Spallation Neutron Source Christopher S. Perreault¹, Jamie J. Molaison², Yogesh Vohra¹ and Antonio Dos Santos²; ¹University of Alabama at Birmingham, United States; ²Oak Ridge National Laboratory, United States

BP3.09.10

Quantum Disordered State of Magnetic Charges in Nanoengineered Honeycomb Lattice George Yumnam¹, Yiyao Chen^{2,1}, Jiasen Guo¹, Jong Keum³, Valeria Lauter³, Pousali Ghosh¹ and Deepak K. Singh¹; ¹University of Missouri, Columbia, United States; ²Suzhou Institute of Nano-Tech and Nano-Bionics (SINANO), Chinese Academy of Sciences, China; ³Oak Ridge National Laboratory, United States

BP3.09.11

Q-dependent Collective Relaxation Dynamics of Glass-Forming Liquid Ca_{0.4}K_{0.6}(NO₃)_{1.4} Investigated by Wide-Angle Neutron Spin-Echo Peng Luo¹, Yanqin Zhai², Peter Falus³, Victoria Garcia-Sakai⁴, Monika Hartl⁵, Maiko Kofu⁶, Kenji Nakajima⁶, Antonio Faraone⁷ and Yang Zhang²; ¹University of Pennsylvania, United States; ²University of Illinois at Urbana-Champaign, United States; ³Institut Laue-Langevin, France; ⁴ISIS Neutron and Muon Facility, United Kingdom; ⁵European Spallation Source, Sweden; ⁶J-PARC Center, Japan; ⁷National Institute of Standards and Technology, United States

BP3.09.12

Anomalous Hall Effect due to Topological Magnetic Charge Correlation in Permalloy Honeycomb Lattice Jiasen Guo¹, Ashutosh Dahal¹, George Yumnam¹, Yiyao Chen², Pousali Ghosh¹, Valeria Lauter³, Vitalii Dugaev⁴, Arthur Ernst^{5,6} and Deepak K. Singh¹; ¹University of Missouri, Columbia, United States; ²Suzhou Institute of Nano-Tech and Nano-Bionics, China; ³Oak Ridge National Laboratory, United States; ⁴Rzeszow University of Technology, Poland; ⁵Johannes Kepler Universitat, Austria; ⁶Max-Planck-Institut für Mikrostrukturphysik, Germany

BP3.09.13

Structure, Dynamics of a Two-Dimensional Metal Halide Perovskite Haritha Sindhu Rajeev¹ University of Virginia, United States

Biology, Biophysics and Biotechnology

SESSION DP3.04: Poster Session: Biology, Biophysics and Biotechnology

Session Chairs: Elizabeth Kelley and Amy Xu

Wednesday Afternoon, June 8, 2022

5:30 PM - 7:30 PM

UMC Center Ballroom 210

DP3.04.01

Effect of Cholesterol on the Elastic and Viscous Properties of Saturated Lipid Bilayers – A Neutron Spin Echo Study Kuo-Chih Shih¹, Elizabeth Kelley², Paul D. Butler², Norman Wagner¹ and Michihiro Nagao^{2,3,1}; ¹University of Delaware, United States; ²National Institute of Standards and Technology, United States; ³University of Maryland, United States

DP3.04.02

Effects of 3-Dehydroshikimate Dehydratase Expression Levels in the Organization of Cellulose Microfibrils in Poplar Mutants Manjula P. Senanayake Mudiyansele¹, Chien-Yuan Lin², Aymeric Eudes², Hugh O'Neill¹ and Sai Venkatesh Pingali¹; ¹Oak Ridge National Laboratory, United States; ²Joint Bioenergy Institute, United States

DP3.04.03

Calcium Carbonate Polymorphism and Microstructure in Fish Otoliths Bryan Chakoumakos¹, Brenda M. Pracheil¹, R. Seth Wood², Alison Loeppky³, Kassandra M. Merks⁴ and W. G. Anderson⁴; ¹Oak Ridge National Laboratory, United States; ²Washington University in St. Louis, United States; ³North/South Consultants Inc, Canada; ⁴University of Manitoba, Canada

Materials Chemistry and Energy

SESSION EP3.03: Poster Session: Materials Chemistry and Energy
Wednesday Afternoon, June 8, 2022
5:30 PM - 7:30 PM
UMC Center Ballroom 210

EP3.03.01

Time-Resolved Neutron Reflectometry Study of Li-Mediated Electrochemical Nitrogen Reduction Mathieu Doucet¹, Sarah J. Blair^{2,3}, Jim Browning¹, Hanyu Wang¹, Candice Halbert¹, Adam Nielander³, Alessandro Gallo³ and Thomas F. Jaramillo^{2,3}; ¹Oak Ridge National Laboratory, United States; ²Stanford University, United States; ³SLAC National Accelerator Laboratory, United States

EP3.03.02

A Room temperature Polar and Weak-ferromagnetic Oxide with Low Dielectric Loss Nagamalleswari Katragadda¹, Pranab Mandal¹, Premakumar Yanda², A Sundaresan², S. D. Kaushik³, Weiguo Zhang⁴, P. Shiv Halasyamani⁴ and Alicia M. Manjon Sanz⁵; ¹SRM University, India; ²Jawaharlal Nehru Centre for Advanced Scientific Research, India; ³UGC-DAE Consortium for Scientific Research Mumbai Centre, R-5 Shed, BARC, India; ⁴University of Houston, United States; ⁵Oak Ridge National Laboratory, United States

EP3.03.03

Phonon Lifetimes and Mode Softening in Cubic Cs₂AgBiBr₆ Zihan Zhang¹, Nicholas Weadock², Peter Gehring³, Julian Vigil⁴, Tao Hong⁵, Johan Klarbring⁶, Adam Slavney⁷ and Michael Toney²; ¹University of Colorado, Boulder, United States; ²University of Colorado Boulder, United States; ³National Institute of Standards and Technology, United States; ⁴Stanford University, United States; ⁵Oak Ridge National Laboratory, United States; ⁶Linköping University, Sweden; ⁷Harvard University, United States

EP3.03.04

Layered Double Hydroxide Intercalated Iron Selenide Heterostructures Lahari Balisetty, Brandon Wilfong and Efrain E. Rodriguez; University of Maryland, College Park, United States

EP3.03.05

Ratiometric Thermometry Using Thermochromic Tb³⁺:Mn⁴⁺:Na₄Mg(WO₄)₃ Phosphors Dinesh K. Amarasinghe and Federico A. Rabuffetti; Wayne State University, United States

EP3.03.06

Structural Resolution and Mechanistic Insight into Hydrogen Adsorption in Flexible ZIF-7 Ryan Klein^{1,2}, Sarah Shulda², Craig M. Brown¹ and Michael McGuirk³; ¹NIST Center for Neutron Research, United States; ²National Renewable Energy Laboratory, United States; ³Colorado School of Mines, United States

EP3.03.07

Structure Investigation of the Transition Between LnMnFeO₄ and LnMnFeO_{4.5} (Ln=Y, Yb, Lu) Tianyu Li and Efrain E. Rodriguez; University of Maryland, United States

EP3.08.08

Local Ordering of Cations in Thermoelectric Alloys Vanessa Meschke¹, Andrew Novick¹, Erin Toberer¹; Physics, Colorado School of Mines, United States

Emerging Applications of Neutron Scattering in Engineering, Arts and Sciences

SESSION HP3.04: Poster Session: Emerging Applications in Neutron Scattering—Machine Learning and Data Science
Session Chairs: Tyler Martin and Alan Tennant
Wednesday Afternoon, June 8, 2022
5:30 PM - 7:30 PM
UMC Center Ballroom 210

HP3.04.01

Measuring Coefficients of Spin-Spin Correlation Functions on Quantum Hardware Norhan M. Eassa¹, Zoe Holmes², Jeffrey Cohn³, Andrew T. Somborger², Joe Gibbs², Gavin L. Hester¹, Paul Kairys⁴, Bilal Khalid¹ and Arnab Banerjee¹; ¹Purdue University, United States; ²Los Alamos National Laboratory, United States; ³IBM Almaden Research Center, United States; ⁴Oak Ridge National Laboratory, United States

AUTHOR and SESSION CHAIR INDEX

The index lists presenters, co-authors and session chairs.

Presenters will have the topic letter code followed by the session number and the paper number in **bold** type (eg: **C2.02.02**).

Invited Speaker will have an * (asterisk) before the topic letter code, session number and paper number in **bold** type (eg: ***D2.02.01**).

Session Chair will have the topic letter code and session number followed by the session number (eg: D1.01).

Co-author will have the topic letter code followed by the session number, then paper number in regular type (eg: B3.01.06).

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