

# Conference Agenda

**ORNL Users Week, October 8–11, 2007**

| <b>Monday, October 8</b><br><b>ORNL SNS, Building 8600, Iran Thomas Auditorium</b>  |  |   |
|---|--|---|
| 7:30–8:00 a.m.  | <b>Poster preview, including continental breakfast and registration</b>  |   |
| <b>Session M1: Workshop Introduction</b><br>Session Chair: Igor Zaliznyak, Brookhaven National Laboratory                                 |  |   |
| 8:00–8:30   | Welcoming remarks  | Despina Louca, SHUG Past President<br>Jim Roberto, ORNL   |
| 8:30–10:30  | Goals and vision of the Neutron Sciences Directorate   | Ian Anderson, ORNL  |
|   | Opportunities for science at HFIR and SNS  | Ken Herwig, ORNL  |
|   | Facility and instrument development  | John Haines, ORNL   |
|   | HFIR and SNS: Open for business  | Judy Trimble, ORNL  |
| 10:30–11:00   | <b>Break</b>   |   |
| 11:00–12:00   | Plenary Lecture: Neutrons and the life sciences  | Jill Trehwella, University of Sydney  |
| Noon–1:00 p.m.  | Discussions continue and lunch<br>Integrated proposal tracking system  | Elane Streets, ORNL, Room C-150   |
| <b>Session M2: Role of ORNL Instruments in Understanding Materials Challenges</b><br>Session Chair: Despina Louca, University of Virginia |  |   |
| 1:00–3:15   | Opening Remarks  | Pedro Montano, U.S. Department of Energy  |
|   | What are you going to do with all that data?<br>We can help: A centralized system for managing data                      | Steve Miller, ORNL  |
|   | Applying spin  | Collin Broholm, Johns Hopkins University  |
|   | Novel order near the quantum critical point in a simple metal  | Meigan Aronson, Brookhaven National Laboratory  |
|   | Opportunities for intense neutron sources in soft matter   | Thomas Russell, University of Massachusetts   |
| 3:15–3:45   | <b>Break</b>   |   |
| 3:30–5:00   | Tours of SNS and the High Flux Isotope Reactor<br>Integrated proposal tracking system, Room C-150, Elane Streets         |   |
| 5:00–7:00   | <b>Poster session, breakout meetings, and discussions with reception</b>   |   |
|   | HFIR and SNS instrument posters<br>Integrated proposal tracking system<br>Bio-imaging Research Initiative Steering Group | ORNL instrument scientists, SNS Lobby and Atrium<br>Elane Street, Room C-150<br>Room C-152, 6:00–7:00 |

**Tuesday, October 9**  
**ORNL Conference Center, Building 5200, Room 202**

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| 8:00–8:30  | <b>Poster preview, including continental breakfast and registration</b>  |  |  |
| 8:30 to noon   | <b>Parallel Sessions T1: Recent Advances and Identification of Future Capabilities at ORNL to Extend the Science</b>                             |  |  |
| 8:30–10:00 Session A, Room 202A<br><b>Diffraction</b><br>Session Chair: Angus Wilkinson<br>Georgia Institute of Technology   | 8:30–10:00 Session B, Room 202B<br><b>Large Scale Structure</b><br>Session Chair: Mark Dadmun<br>University of Tennessee                         | 8:30–10:00 Session C, Room 202C<br><b>Engineering Sciences</b><br>Session Chair: Xun-Li Wang<br>ORNL   |  |
| New findings at high pressure: Prospects for neutron scattering<br><i>Russell Hemley</i><br><i>Carnegie Institution</i>  | Relating the structure and mechanical properties of fibrin clots<br><i>Daniilo Pozzo</i><br><i>University of Washington</i>                      | Stress/strain determination techniques by diffraction methods: State-of-the-art and beyond<br><i>I. C. Noyan</i><br><i>Columbia University</i>   |  |
| Short range order in 214 doped perovskites—Search for static stripes<br><i>Andrei Savici</i><br><i>Johns Hopkins University</i>                                      | Ionic conductivity in block copolymer electrolytes for lithium batteries and fuel cells<br><i>Nitash Balsara</i><br><i>UC–Berkeley</i>           | Heating it and beating it with the VULCAN diffractometer<br><i>Tom Holden</i><br><i>Northern Stress Tech</i>   |  |
| New correlated electron intermetallic crystals for neutron scattering<br><i>Cedomir Petrovic</i><br><i>Brookhaven National Laboratory</i>                            | Neutron powder diffraction and proteins?<br><i>Robert von Dreele</i><br><i>Argonne National Laboratory</i>                                       | In-situ investigation of biaxial loading effects: Low-cycle fatigue, yield surfaces and more<br><i>Thomas Gnaupel-Harold</i><br><i>National Institute for Standards and Technology</i> |  |
| 10:00–10:30  | <b>Break</b>   |  |  |
| 10:30–noon Session D, Room 202A<br><b>Dynamics I</b><br>Session Chair: Stephen Shapiro<br>Brookhaven National Laboratory   | 10:30–noon Session E, Room 202B<br><b>Dynamics II</b><br>Session Chair: Li Liu<br>Rensselaer Polytechnic Institute                               | 10:30–noon Session F, Room 202C<br><b>Reflectometry</b><br>Session Chair: Greg Smith<br>ORNL   |  |
| Moving moments: The life and death of antiferromagnetic correlations in cuprate superconductors<br><i>John Tranquada</i><br><i>Brookhaven National Laboratory</i>    | How neutrons can help to study the dynamics of soft materials<br><i>Alexej Sokolov</i><br><i>University of Akron</i>                             | Polymer brushes in restricted geometries<br><i>Tonya Kuhl</i><br><i>UC–Davis</i>   |  |
| Spin dynamics and the resonance mode in the electron-doped cuprate $\text{Pr}_{.88}\text{LaCe}_{.12}\text{CuO}_{4-d}$<br><i>Stephen Wilson</i><br><i>UC–Berkeley</i> | Impact of neutrons on the understanding of dynamics in soft-matter and biophysics<br><i>Maikel Rheinstadter</i><br><i>University of Missouri</i> | Unraveling magnetic behavior in thin films with reflectometry<br><i>Suzanne te Velthuis</i><br><i>Argonne National Laboratory</i>  |  |
| Cobaltites: Emergence of magnetism from a non-magnetic insulator<br><i>Daniel Phelan</i><br><i>University of Virginia</i>  | Inelastic neutron scattering study of spin excitations in molecular nanomagnets<br><i>Tatiana Guidi</i><br><i>Hahn-Meitner Institute</i>         | Perspectives on biomembrane studies by reflectometry<br><i>David Worcester</i><br><i>University of Missouri</i>  |  |
| Noon–1:30  | <b>Lunch and science posters</b>   |  |  |

**Tuesday, October 9**  
**ORNL Conference Center, Building 5200, Room 202**

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|--|---|---|---|--|
| 1:30–3:00  | <b>Parallel Sessions T2: SNS HFIR Science Sessions—Based upon Current Instruments Recent Science Experiments and Needed Future Capabilities to Go Where the Science Is</b>                                |   |   |  |
| High-resolution spectroscopy<br>Room 214<br>Session Chair: Ken Herwig<br>ORNL<br><br>Sow-Hsin Chen, MIT<br>Georg Ehlers, ORNL<br>Eugene Mamontov, ORNL   | Reflectometry<br>Room 202A<br>Session Chair: John Ankner<br>ORNL<br><br>Dadmun, Univ of TN<br>Johs, ORNL<br>Kharlanpieva, GA Tech<br>Kilbey, Clemson  | SANS<br>Room 202B<br>Session Chair: Ken Littrell<br>ORNL  | Inelastic neutron spectroscopy<br>Room 202C<br>Session Chair: Pengcheng Dai<br>University of Tennessee/ORNL<br><br>Wei Bao, LANL<br>Rob McQueeney, Ames Lab<br>Igor Zaliznyak, BNL<br>Michel Kenzelmann, ETHZ |  |
| 3:00–3:30  | <b>Break</b>  |   |   |  |
| 3:30–5:00  | <b>Parallel Sessions T3: New Instrumentation Progress and Future Plans Including Discussion of Needed Capabilities</b>  |   |   |  |
| SANS and other instruments<br>Room 214<br>Session Chair: Greg Smith<br>ORNL<br><br>EQ-SANS—J. K. Zhao<br>USANS—Ken Littrell<br>Fundamental Physics—<br>Geoff Greene<br>SERGIS—Lee Robertson<br>VENUS—Hassina Bilheux | Diffraction I<br>Room 202A<br>Session Chair: Xun-Li Wang<br>ORNL<br><br>POWGEN3—Jason Hodges<br>NOMAD—Jorg Neuefeind<br>VULCAN—Xun-Li Wang<br>WAND—Xun-Li Wang<br>HB2A—Ovidiu Garlea<br>NRSF2—Cam Hubbard | Diffraction II<br>Room 202B<br>Session Chair: Bryan<br>Chakoumakos<br>ORNL<br><br>SNAP—Chris Tulk<br>TOPAZ—Matt Frost<br>IMAGINE—Dean Myles<br>MaNDi—Leighton Coates<br>CORELLI—Stephan Rosenkranz<br>HB-3A—Bryan Chakoumakos | Inelastic Neutron Scattering<br>Room 202C<br>Session Chair: Mark Hagen,<br>ORNL<br><br>ARCS—Doug Abernathy<br>CNCS—Georg Ehlers<br>SEQUOIA, HYSPEC, and<br>VISION—Garrett Granroth                            |  |
| 5:00–7:00  | <b>Science Posters, Breakout Sessions, and Workshop Reception</b><br>POWGEN3—Jason Hodges, Room 202C, 5:30  |   |   |  |

**Wednesday, October 10**  
**ORNL SNS, Building 8600, Iran Thomas Auditorium**

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|--|--|--|---|---|
| 7:30–8:00 a.m.   | <b>Poster preview, including continental breakfast and registration</b>  |  |   |   |
| <b>Session W1: Neutrons and Nanoscience</b><br>Session Chair: Mike Simonson, ORNL          |  |  |   |   |
| 8:00–8:30  | Nanoscience and neutron opportunities for users at ORNL  |  |   | Linda Horton, ORNL  |
| 8:30–9:15  | Plenary Lecture: Neutrons and nanoscience: Applications to self-assembling soft materials  |  |   | Alamgir Karim, NIST   |
| 9:15–10:00   | Plenary Lecture: Understanding the novel properties of nanostructured magnetized materials and the role of polarized neutron reflectometry |  |   | Michael Fitzsimmons, Los Alamos National Laboratory   |
| 10:00–10:30  | <b>Break</b>   |  |   |   |
| 10:30–noon   | SHUG Business Meeting  | Igor Zaliznyak, Brookhaven National Laboratory                                     |   |   |
| <b>Session W2: Tutorials and CNMS Open House</b>   |  |  |   |   |
| 10:30<br>to<br>2:00<br><br><i>Lunch available</i><br>11:30–1:30                            | Section A<br>SNS, Room C-156<br>Small angle scattering<br>Session Chair: J. K. Zhao<br>ORNL  | Section B<br>CNMS Room L-183<br>Reflectometry<br>Session Chair: Greg Smith<br>ORNL | Section C<br>SNS, Room C-152<br>Inelastic neutron scattering<br>Session Chair: Mark Lumsden<br>ORNL   | Section D<br>SNS, Room C-250<br>Rietveld analysis<br>Session Chairs:<br>Jason Hodges and Ashfia Huq<br>ORNL |
|  | Section E<br>CNMS, Room L-G82<br>Starting a nanofabrication project<br>(11:00–noon)  | Section F<br>CNMS, L182<br>Raman spectroscopy of nanomaterials<br>(12:30–1:30)     | Section G: Atom probe tomography<br>Section H: In situ scanning transmission electron microscopy<br>HTML, Building 4515<br>Bus departs SNS at 10:40 and returns at 1:40 |   |
| <b>Session W3: Developments in Nanoscale Materials</b><br>Session Chair: Karren More, ORNL |  |  |   |   |
| 2:00–2:45  | Plenary Lecture: Surface nanostructure and catalysis: The role of confinement and surface chemistry  |  |   | Keith Gubbins, North Carolina State University  |
| 2:45–3:15  | User research presentation: Nanoscale components for solar fuels catalysis   |  |   | James Hoefelmeyer, University of South Dakota   |
| 3:15–3:45  | <b>Break</b>   |  |   |   |
| 3:45–4:15  | User research presentation: Effects of Zr or Hf in 316SS on radiation-induced grain boundary segregation                                   |  |   | Micah Hackett, University of Michigan   |
| 4:15–5:00  | Plenary Lecture: Characterizing the solute distribution in nanocrystalline Ni-W alloys   |  |   | Andrew Detor, Lawrence Livermore National Laboratory  |
| 5:00–6:30  | <b>Session W4: Reception and Poster Session</b><br>Session Chair: Tony Haynes, ORNL  |  |   |   |
| 6:30–7:30  | <b>RIDGEDANCE Nanoscience Film Festival</b><br>Session Chairs: Chris Rouleau, ORNL, and Peter Cummings, ORNL and Vanderbilt University     |  |   |   |

**Thursday, October 11**  
**ORNL SNS, Building 8600, Iran Thomas Auditorium**

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| 8:00–8:30 a.m.   | <b>Poster preview, including continental breakfast and registration</b>  |   |
| <b>Session H1: Developments in Nanoscale Materials</b> (continued from Day 3)<br>Session Chair: Jimmy Mays, University of Tennessee                          |  |   |
| 8:30–9:15  | Plenary Lecture: Making them faster and better:<br>Flow-induced crystallization of polymers                      | Julia Kornfield, California Institute of Technology   |
| 9:15–9:45  | User research presentation: Application of atomic force microscopy to understand biomineral formation in diatoms | Mark Hildebrand, Scripps Institute, UC–San Diego      |
| 9:45–10:15   | User research presentation: Electrical characterization of materials at all length scales                        | Rosario Gerhardt, Georgia Tech                        |
| 10:15–10:45  | <b>Break</b>   |   |
| 10:45–11:15  | User research presentation: The importance of defects and dopants in carbon nanotube applications                | Mauricio Terrones, IPICYT, Mexico                     |
| <b>Session H2: Keynote Session—Future Directions in Nanoscience (continues after lunch)</b><br>Session Chair: Peter Cummings, ORNL and Vanderbilt University |  |   |
| 11:15–noon   | Keynote presentation: Nanobiomaterials: How will these products be made?   | Matthew Tirrell, UC–Santa Barbara                     |
| Noon–1:30  | <b>Lunch and CNMS User Group Business Meeting: Mike Kilbey, Acting Chair of CNMS UEC</b>                         |   |
| <b>Session H3: Keynote Session—Future Directions in Nanoscience (continued)</b><br>Session Chair: Peter Cummings, Oak Ridge and Vanderbilt University        |  |   |
| 1:30–4:30<br>(with break from 3:00–3:30)   | Keynote presentations on CNMS scientific themes:   |   |
|  | Imaging functionality at the nanoscale   | Wilson Ho, UC–Irvine                                  |
|  | Synthesis and dynamics in polymeric and hybrid materials   | Charles McCormick, University of Southern Mississippi |
|  | Emergent behavior in nanoscale systems   | Elbio Dagotto, University of Tennessee and ORNL       |
| 4:30–5:00  | <b>Discussion and closing remarks</b>  |   |