

**NSFChemBio and SENSE Workshops  
September 23-26, 2003  
Turnbull Conference Center, Florida State University  
Tallahassee, Florida**

**Sponsors**

**National Science Foundation  
University of Tennessee / Joint Institute for Neutron Sciences  
Florida State University  
Oak Ridge National Laboratory / Spallation Neutron Source  
Oak Ridge National Laboratory / Center for Nanophase Materials Sciences  
Oak Ridge Associated Universities**

**Tuesday, September 23, 2003**

7:00 am	Registration opens Vendor Exhibit Set-up
8:15	<b>Session N-I - Opening Session</b> Room 122
8:15	<b>Welcoming Remarks</b> Lee Magid, JINS Acting Director Jack Crow, NHMFL Director Art Ellis, NSF Chemistry Division Director
8:30	<b>Neutrons 101a: What Can Be Measured Using Neutrons</b> , John Root, NRC Canada
9:45	<b>Break, Fireside Lounge</b>
10:00	<b>Neutrons 101b: Instrumentation for Elastic and Inelastic Scattering Studies</b> , Kent Crawford, ORNL
11:00	<b>The European D-Lab Network</b> , Dean Myles, ORNL
11:30	<b>CNMS Facilities for Chemistry and Biology</b> , Mike Simonson, ORNL
12:00 pm	<b>A Neutron Scatterer's Dream: the Ideal Support Environment</b> , TBD
12:30	<b>Lunch, Room 121</b>

**Note:** Sessions beginning with N refer to NSFChemBio Workshop  
Sessions beginning with S refer to SENSE Workshop

**1**  
**September 19, 2003**

**Tuesday, September 23, 2003 afternoon**

1:30 pm	<b>Session N-2: Condensed Phases Room 123a</b> Chair: J. Martin	<b>Session N-3: Thin Films/Confinement Room 122</b> , Chair: J. Lal
1:30	<b>Water and Ice</b> , Alan Soper, ISIS	<b>Studying surfactant adsorption at interfaces by neutron reflectivity: the current 'state of the art' and future prospects</b> , Jeff Penfold, ISIS
2:00	<b>Unraveling Polymer Dynamics</b> , Michael Monkenbusch, Juelich	<b>Confined Complex Fluids</b> , Tonya Kuhl, University of California-Davis
2:30	<b>New Opportunities In Neutron Scattering: Local Sources and Novel Instrumentation</b> , David Baxter, Indiana	<b>Nanoporous Thin Films</b> , Shenda Baker, Harvey Mudd College
3:00	<b>Break, Fireside Lounge</b>	<b>Break, Fireside Lounge</b>
3:30	<b>Novel In-situ Studies</b> , TBD	<b>The Dynamics of Confined Quantum Tops</b> , Dan Neumann, NIST
4:00	<b>Dynamics of Materials</b> , Franz Trouw, Los Alamos	<b>Surface Adsorbed Films</b> , John Larese, University of Tennessee/Oak Ridge
4:30	<b>Discussion/Break</b>	<b>Discussion/Break</b>
5:00	<b>Session N-4, room 123a</b>	<b>Session N-5, Room 122</b>
5:00	<b>Advanced Isotopic Labeling Center and Facilities</b> (Dean Myles, Jeff Penfold)	<b>Educational Requirements and Opportunities</b> (Shenda Baker, Jim Martin, Joe Zwanziger)
6:30	<b>Session ends Buses Depart for Hotel</b>	<b>Session ends Buses Depart for Hotel</b>

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**Wednesday, September 24, 2003**

7:00 am	Registration opens		
8:05	Vendor Exhibit Opens		<b>Session S-1 - Room 122 Science Drivers for Neutron Scattering: Impact of Enhanced Sample Environment</b> <b>Welcoming Remarks</b> Lee Magid, JINS Acting Director J. E. Crow, NHMFL Director
8:15			<b>Purpose and Goals of the SENSE Workshop</b> , Ian Anderson, Oak Ridge
8:30	<b>Session N-6, Room 123b Biological/Polymer Topics</b> Chair: J. Martin <b>3D Structure and Composites</b> , Ulrich Wiesner, Cornell	<b>Session N-7, Room 123a Catalysis/Vibrational Spectroscopy</b> Chair: J. Turner <b>Catalysis Studies Using TOSCA</b> , John Tomkinson, ISIS	<b>Nanomagnetism and Neutron Scattering</b> , Ivan Schuller, University of California – San Diego
9:00			<b>Quantum Liquids and Solids</b> , Paul Sokol, Penn State
9:15	<b>SANS Bio-polymer Studies</b> , Joanna Krueger, UNC-Charlotte	<b>The application of inelastic neutron scattering spectroscopy to advance the development of reaction mechanisms in heterogeneous catalysis</b> , David Lennon, Glasgow	
9:30			<b>Frontiers in High Pressure Science</b> , Russ Hemley, Carnegie Institution of Washington
10:00	<b>Break, Fireside Lounge</b>	<b>Break, Fireside Lounge</b>	<b>Break, Fireside Lounge</b>
10:30	<b>Organic-Inorganic Composites</b> , Josef Zwanziger, Dalhousie	<b>Novel Studies Using FANS</b> , Craig Brown, NIST	<b>Highly Correlated Electron Systems</b> , Zach Fisk, Florida State
11:00	<b>Polymer Patterned Surfaces</b> , Jan Genzer, NCSU	<b>Novel Studies Using FDS</b> , Luc Daemen, Los Alamos	<b>Materials Science and Engineering Studies Using Neutron Diffraction</b> , D. W. Brown, Los Alamos
11:30	<b>Neutron Spectroscopy and Molecular Dynamics Simulation Studies of Protein Dynamics</b> , Doug Tobias, UC-Irvine	<b>Nanocomposites for electronic and biomedical applications</b> , Chris Durning, Columbia	<b>Three-Dimensional Neutron Microscopy for Structural Dynamics Investigations</b> , Ben Larson, Oak Ridge

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### Wednesday, September 24, 2003 Afternoon

<b>Combined Session of NSFChemBio and SENSE</b>	
1:00 pm	<b>Sessions N-8 and S-2, Room 122</b> <b>Beyond Traditional Neutron Science</b> <a href="#">Biological and Chemical Science Opportunities at the Center for Nanophase Materials Science</a> , Mike Simonson, Oak Ridge
1:30	<b>Dynamic Structure of Membranes: The Concerted Use of Bi-layer Diffraction and Molecular Dynamics Simulations</b> , Stephen H. White, University of California - Irvine
2:00	<a href="#">Synchrotron X-ray Studies of Liquid Surfaces</a> , Peter Pershan, Harvard
2:30	<b>Extreme Environments for Catalysis</b> , John Turner, University of Tennessee
3:00	<b>Break, Fireside Lounge</b>
3:30	<a href="#">Environments for Biological Studies</a> , John Katsaras, Chalk River
4:00	<a href="#">Polymers and Macromolecules</a> , Tom Russell, University of Massachusetts
4:30	<a href="#">Investigation of Liquid Surfaces</a> , Jarek Majewski, Los Alamos
5:00	<a href="#">Chemical Reaction Dynamics of Aerosols</a> , Barbara Wyslouzil, Worcester Polytechnic Institute
5:45	<b>Depart for National High Magnetic Field Laboratory</b> <b>Poster Session and Tour</b> <b>Buses Provided from Turnbull to the NHMFL and return to Turnbull and the hotels</b>
8:30	<b>Poster session and tour over</b> <b>Buses return to Turnbull and Hotels</b>

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Thursday, September 25, 2003

7:00 am	Registration open		
8:30	<b>Session N-9, Room 123a</b> Future Opportunities and Needs: Support Facilities Needs for Soft Matter (Paul Butler, Joanna Krueger)	<b>Session N-10, Room 123b</b> Future Opportunities and Needs: Support Facilities Needs For Hard Matter (John Larese, John Turner)	<b>Session S-3, Room 122</b> <b>Present Status of Neutron Sample Environments at High Magnetic Fields and Low Temperatures</b> , Michael Meissner, HMI, Berlin
9:00			<b>Research Capabilities at High Pressure</b> , Chris Tulk, Oak Ridge
9:30			<b>High Temperature Capabilities</b> , Trudy Kriven, University of Illinois, Urbana-Champaign
10:00	Break, Fireside Lounge	Break, Fireside Lounge	Break, Fireside Lounge

**Combined NSFChemBio and SENSE Sessions**

10:30 am	<b>Sessions N-11 and S-4, Room 122</b> <b>Funding Opportunities and New Program Initiatives</b>
10:30	<b>New Funding Programs for Mid-Scale Projects and International Cooperation</b> , Tom Weber, National Science Foundation
11:00	<b>What's New in DOE's Neutron Scattering Program</b> Helen Kerch, DOE
11:30	<b>Funding Opportunities at National Institutes of Health</b> , Michael Marron, NIH
Noon	Lunch Registration closes
1:00 pm	<b>Sessions N-12 and S-5, Room 122</b> <b>Current Opportunities for Interfaces to Neutron Scattering Research and Education</b> <b>National Science Foundation International Materials Institutes (IMI) Program, Advanced Neutron Scattering netWork for Education and Research: with a Focus on Mechanical Behavior of Materials</b> , P. K. Liaw, University of Tennessee
1:30	<b>Sessions N-13 and S-6, Room 122</b> <b>Current Neutron Scattering and Sample Environment Capabilities</b>
1:30	<b>Enabling 21<sup>st</sup> Century Science</b> , Zoe Bowden, ISIS
2:00	<b>Panel Discussion: Thoughts on Current Sample Environment Capabilities and Future Needs at U.S. Facilities</b> <b>High Flux Isotope Reactor</b> , Oak Ridge, Greg Smith <b>Intense Pulsed Neutron Source</b> , Argonne, Ray Teller <b>Los Alamos Neutron Scattering Center</b> , Los Alamos, Alan Hurd <b>NIST Center for Neutron Research</b> , NIST, Jeff Lynn <b>Spallation Neutron Source</b> , Oak Ridge, Thom Mason
3:00	Break, Fireside Lounge

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Thursday, September 25, 2003

**Combined NSFChemBio and SENSE Sessions N-14 and S-7  
Parallel Sessions: Establishing Sample Environment Priorities**

Short presentations will be followed by group discussions; summaries of these discussions will be presented Friday morning in session S-8.

3:30 pm	<b>Panel 1, Room 123a:</b> <b>Sample Environment Priorities in Nano-Magnetism and Nanosciences.</b> Chair: Frank Klose, Oak Ridge	<b>Panel 2, Room 115:</b> <b>Sample Environment Priorities in Biological and Life Sciences.</b> Chair: David L. Worcester, University of Missouri - Columbia	<b>Panel 3, Room 123b:</b> <b>Sample Environment Priorities for Quantum Liquids and Solids and Other Highly Correlated Electron Systems.</b> Chair, Jeff Lynn, NIST	<b>Panel 4, Room 110:</b> <b>Sample Environment Priorities for Polymers and Macromolecules.</b> Chair, Thomas Russell, University of Massachusetts	<b>Panel 5, Room 122:</b> <b>Sample Environment Priorities for Materials Evaluation and Systematic Studies of Pressure, Temperature, Stress, Etc.</b> Chair, Thomas Proffen, Los Alamos
	<b>In-situ X-ray Scattering Studies of Epitaxial Crystal Growth,</b> Paul F. Miceli, University of Missouri -Columbia	<b>John Katsaras,</b> Chalk River	Alex Lacerda, NHMFL, Los Alamos	<b>Greg Smith,</b> HFIR, Oak Ridge	<b>Assembling and Studying Metastable Materials Using Containerless Techniques,</b> Richard Weber, Containerless Research
	<b>Self-assembly of Epitaxial Magnetic Nanostructures,</b> Donqi Li, Argonne	Stephen H. White, UC-Irvine	Michel Kenzelmann, NIST and Johns Hopkins	<b>Lee Magid,</b> University of Tennessee/JINS	<b>Conventional Sample Environment Challenges,</b> Takeshi Egami, University of Tennessee/ORNL
	<b>Studies of Magnetic Nanostructures Using Polarized Neutrons – Current Status and Future In-situ Studies,</b> Hal Lee, ORNL	Jim Torbit, University of Pennsylvania	Meigan Aronson, University of Michigan		Chris Benmore, Argonne
	<b>Opportunities for Magnetic Field Sample Environments for Neutron Scattering,</b> Mark Bird, National High Magnetic Field Lab				

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**6**  
**September 19, 2003**

### Thursday, September 25, 2003 Afternoon

	<b>Pushing Science Frontiers with state-of-the-Art Sample Environment</b> , Rongying Jin, Oak Ridge				
5:00 pm	<b>Session ends Bus departs for Hotel</b>	<b>Session ends Bus departs for Hotel</b>	<b>Session ends Bus departs for Hotel</b>	<b>Session ends Bus departs for Hotel</b>	<b>Session ends Bus departs for Hotel</b>

### Friday, September 26, 2003 Morning

7:00 am	<b>Turnbull Conference Center Opens</b>
8:30	<b>Session S-8, Room 122 Establishing Sample Environment Priorities: Discussion of Recommendations from Breakout Sessions</b> , Chair, Jack Crow, Florida State University
8:30	<b>Panel 1 Report: <a href="#">Sample Environment Priorities in Nano-Magnetism and Nano-Sciences</a></b> , Frank Klose, ORNL
9:00	<b>Panel 2 Report: <a href="#">Sample Environment Priorities in Biological and Life Sciences</a></b> , D. Worcester, University of Missouri
9:30	<b>Panel 3 Report: <a href="#">Sample Environment Priorities for Quantum Liquids and Solids and other Highly Correlated Electron Systems</a></b> , Jeff Lynn, NIST
10:00	<b>Break, Fireside Lounge</b>
10:30	<b>Panel 4 Report: <a href="#">Sample Environment Priorities for Polymers and Macro-molecules</a></b> , Thomas Russell, University of Massachusetts
11:00	<b>Panel 5 Report: <a href="#">Sample Environment Priorities for Materials Evaluation and Systematic Studies</a></b> , T. Proffen, LANL
11:30	<b>Wrap-Up and Summary of Panel Recommendations</b>
12:30	<b>Adjourn and Box Lunch Provided</b>
12:45	<b>Begin with Working Lunch Session S-9, Room 122 Technical Workshop, Follow-up to the April 2001 Workshop at PSI</b> Chair, Ken Volin, Argonne
1:30	<b><a href="#">Sample Encapsulation Considerations in Designing High Temperature Neutron Diffraction Experiments</a></b> , Ken Volin, Argonne
	<b><a href="#">Do we still need helium-flow cryostats?</a></b> Frederic Thomas, Institut Laue Langevin
	<b><a href="#">Twin solution dilution refrigerators</a></b> , Ton Konter, Paul Scherrer Institute, Switzerland

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