

Report of MRS Fall 2015 Symposium BBB
“Liquids and Glassy Soft Materials: Theoretical and Neutron Scattering Studies”

Symposium Organizers:

Lead Organizer (Point of Contact): **Yang Zhang**

Affiliation/Organization: University of Illinois at Urbana-Champaign, Department of Nuclear, Plasma, and Radiological Engineering, Department of Materials Science and Engineering, Program of Computational Science and Engineering

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Co-Organizer: **Takeshi Egami**

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Co-Organizer: **Li Emily Liu**

Affiliation/Organization: Rensselaer Polytechnic Institute, Department of Mechanical, Aerospace, and Nuclear Engineering

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Co-Organizer: **H Eugene Stanley**

Affiliation/Organization: Boston University, Department of Physics

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Sponsors

- Neutron Sciences Directorate, Oak Ridge National Laboratory
- Neutron Scattering Society of America
- Army Research Office
- Materials Research Society

Objective of the Symposium

The objective of the symposium is to bring synergies of latest theoretical concepts and advanced neutron scattering characterizations to the understanding of universal aspects of liquids and glassy materials.

Description of Topical Focus of the Symposium:

Liquids, prototypical disordered condensed matter, are ubiquitous. Furthermore, when the temperature is carefully lowered, many liquids can be supercooled and eventually vitrified into thermodynamically unstable but kinetically trapped glassy states. The phase behaviors of liquids and glasses are exceptionally rich, and the understanding of which requires the development of new theoretical concepts and new experimental techniques. In addition, numerous soft and biological materials of amazing far-from-equilibrium complexity seem to share many intriguing features of liquids and glasses. Therefore, quantitative descriptions of the structure and dynamics of liquids and glassy soft materials and in-depth understanding of the nature of the glass transition will likely impact a wide range of disciplines in physics, chemistry, and materials science and engineering.

Due to the special scattering characteristics, neutrons have enabled a collection of powerful experimental tools, which provide detailed atomic spatial distributions as well as atomic dynamics. Historically, the quantitative treatment of liquids, such as using the intermediate scattering function, is largely influenced by early-age neutron scattering experiments. In the recent years, with the advent of the new generation of neutron sources around the world, it is possible to conduct elastic, quasi-elastic, and inelastic scattering experiments with extremely high accuracy, which, in principle, allows us to examine far more detailed predictions from theories and modeling than ever. This symposium focuses on the forefront of the liquids and glassy soft materials research and discuss the best practices of the cutting-edge neutron scattering experimental tools, as well as the related theories and multi-scale modeling and simulations.

List of symposium topics:

- Unusual phase behavior of water and supercooled water
- Physics and chemistry of liquids under confinement or near interfaces
- Structure and transport properties of ionic liquids and their novel applications
- Atomic-scale structure and dynamics of metallic liquids and their vitrification
- Fluctuations and emergent ordering at complex interfaces and in complex fluids
- Polymers and intrinsically disordered biomolecular assemblies
- New theoretical perspectives and computational methods in liquids, supercooled liquids, and glasses

Summary and Highlight of the Symposium

The symposium started on Nov. 30th, Monday and ended on Dec. 4th, Friday – a program spanning the entire week of the MRS meeting. Because of the broad coverage of materials, the symposium is very well attended. In fact, we attracted eight National Academy members, and many others among that category. It is epochal for the community.

We divided all the talks into five subareas: Metallic Liquids and Glasses (2 sessions), Water (3 sessions), Molecular Liquids and Glasses (1 session), Glassy Soft Materials (3 sessions), Others (1 session). There is also one poster session on Tuesday night.

The detailed agenda (author, title, schedule) of the symposium is attached.

The symposium is a great attempt bringing together people from the traditional metallurgy field, molecular field, and soft matter field. Such crosslinking of concepts and languages is in particular useful to bridge the gaps. Many universal phenomena across systems of different length scales are identified. There is a need of similar efforts from the community in the future.

The list of people supported with grant funds will be provided by MRS.

Brief Biographies of the Organizers

Dr. Yang Zhang is an Assistant Professor in the Department of Nuclear, Plasma, and Radiological Engineering, Department of Materials Science and Engineering, Program of Computational Science and Engineering at University of Illinois at Urbana-Champaign. He is the recipient of various awards and honors including Collins Fellow 2013, Clifford G. Shull fellowship 2010, Manson Benedict Award 2008 and the Neutron Scattering Society of America Prize 2008. His research focuses on the study of beyond-equilibrium materials using integrated neutron and synchrotron light experimental probes and atomistic modeling and simulation. The structure and dynamics of these systems are either inherently complex or driven out of equilibrium by extreme conditions. In particular, his current interests include a range of fundamental and technical problems involving slow phenomena and rare events, such as: materials beyond equilibrium and in extreme environments; extreme phase behavior of liquids; and glassy or jammed soft matters.

Dr. H. Eugene Stanley is the William Fairfield Warren Distinguished Professor and Director of the Center for Polymer Studies at Boston University. He is a member of the US National Academy of Sciences, the Brazilian Academy of Sciences, the Hungarian Physical Society, Honorary Professor at the Institute for Advanced Studies, University of Pavia, and Eötvös Loránd University. He is one of the founders of econophysics. He is the recipient of the Boltzmann Medal 2004, and the American Physical Society 2008 Julius Edgar Lilienfeld Prize, and the Teresiana Medal in Complex Systems Research given by the University of Pavia. He has received nine doctorates Honoris Causa from universities around the world. He has made seminal contributions to statistical physics and is one of the pioneers of interdisciplinary science. His current research focuses on understanding the anomalous behavior of liquid water, but he had made fundamental contributions to complex systems.

Dr. Takeshi Egami is Director of Joint Institute for Neutron Sciences and Distinguished Scientist/Professor at the University of Tennessee, Department of Materials Science and Engineering and Department of Physics and Astronomy, and the Oak Ridge National Laboratory. He is the recipient of J. D. Hanawalt Award from IUCr 2010, Senior Researcher Prize from International Symposium on Metastable and Nano Materials 2006, Bertram Eugene Warren Diffraction Physics Award from ACA 2003 and John Wheatley Scholar 2002 from LANL. His research focus is on physics of liquids and glasses, metallic systems in particular, and local methods in neutron and X-ray scattering. He and Simon Billinge (Columbia) wrote a textbook on the pair-density function (PDF) method, "Underneath the Bragg peaks: Structural analysis of complex materials".

Dr. Li Emily Liu is an Associate Professor of Engineering Physics and Nuclear Engineering in the Department of Mechanical, Aerospace, and Nuclear Engineering at Rensselaer Polytechnic Institute. She is the recipient of various honors and awards including two Outstanding Teaching Awards 2013, the School of Engineering Research Excellence Award 2012, the Career Campaign Award from the RAMP-UP Program 2009, the NRC Faculty Development Award 2008, and the PNAS Cozzarelli Prize 2006. Dr.

Liu was trained and now highly specialized in using neutron, X-ray, and light scattering experiments and MD simulations to explore properties of soft matter in real time. She is motivated by studying the structure, nano-scale dynamics, meso-scale evolution, and macroscopic functions of materials under different external environments, because it may lead to innovative theories for collective behaviors at various scales and among different groups.

Session Information							
Session Title: BBB1: Metallic Liquids and Glasses I Session Status: Admin Created Session Type: Oral Session Start Time: Mon 11/30/2015 8:30 AM Session End Time: Mon 11/30/2015 12:00 PM Duration: 210 Session Location: Sheraton, 3rd Floor, Gardner A/B Commercial Sponsor: Army Research Office; Neutron Scattering Society of America; Oak Ridge National Laboratory Session Hosts: Session Chair: Peter Derlet Session Chair: Craig Maloney Session Creator: Organizer, SympBBB Session Owners: Session Notes: Session Topic: BBB: Liquids and Glassy Soft Matter—Theoretical and Neutron Scattering Studies Session Abbreviation: BBB1 Client Session ID: 900 Session Prefix: BBB1 Include in IP: Yes Display Individual Presentation Times: Yes Display View Presentation Link in IP: Yes							
Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start time End time	Invitation Status
1			OPENING REMARKS			8:30 AM 8:45 AM	
2	2309492	BBB1.01	Strain Induced Fragility Transition and Unified Lindemann Criterion for Thermal and Mechanical Yielding in Metallic Glasses	Samwer, Konrad	Invited Speaker	8:45 AM 9:15 AM	Not Yet Invited
3	2338669	BBB1.02	Thermodynamic and Structural Fragility in Simulated Metallic Glasses	Morris, James	Oral Presentation Preferred	9:15 AM 9:30 AM	Not Yet Invited
4	2332646	BBB1.03	Fractal Arrangement of Atomic Structures in Metallic Glasses	Chen, David	Oral Presentation Preferred	9:30 AM 9:45 AM	Not Yet Invited
5	2328815	BBB1.04	Diffusional Decomposition and Glass Forming Ability of Solidifying Ternary Liquids	Katsman, Alex	Oral Presentation Preferred	9:45 AM 10:00 AM	Not Yet Invited
6			BREAK			10:00 AM 10:30 AM	
7	2337670	BBB1.05	Atomistics of Creep: Mesoscale Perspective on Amorphous Plasticity and Shear Instability	Yip, Sidney	Invited Speaker	10:30 AM 11:00 AM	Not Yet Invited
8	2330792	BBB1.06	Onset of Cooperative Dynamics in Equilibrium Metallic Glass-Forming Liquids	Jaiswal, Abhishek	Oral Presentation Preferred	11:00 AM 11:15 AM	Not Yet Invited
9	2344659	BBB1.07	Structural Evolution Correlated with Properties in Metallic Liquids	Ma, Evan	Invited Speaker	11:15 AM 11:45 AM	Not Yet Invited
10	2335084	BBB1.08	Electron Correlation Microscopy Measurements of Relaxation Dynamics in Metallic Glass-Forming Liquid with Nanometer Resolution	Voyles, Paul	Oral Presentation Preferred	11:45 AM 12:00 PM	Not Yet Invited

Session Information

Session Title: BBB2: Metallic Liquids and Glasses II
 Session Status: Admin Created
 Session Type: Oral
 Session Start Time: Mon 11/30/2015 1:30 PM
 Session End Time: Mon 11/30/2015 5:00 PM
 Duration: 210
 Session Location: Sheraton, 3rd Floor, Gardner A/B
 Commercial Sponsor: Army Research Office; Neutron Scattering Society of America; Oak Ridge National Laboratory
 Session Hosts: Session Chair: Abhishek Jaiswal
 Session Chair: James Morris
 Session Creator: Organizer, SympBBB
 Session Owners:
 Session Notes:
 Session Topic: BBB: Liquids and Glassy Soft Matter—Theoretical and Neutron Scattering Studies
 Session Abbreviation: BBB2
 Client Session ID: 901
 Session Prefix: BBB2
 Include in IP: Yes
 Display Individual Presentation Times: Yes
 Display View Presentation Link in IP: Yes

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start time End time	Invitation Status
1	2329779	BBB2.01	Liquid-to-Liquid Phase Transition in a Supercooled Metallic Liquid	Wang, Xun-Li	Invited Speaker	1:30 PM 2:00 PM	Not Yet Invited
2	2334584	BBB2.02	Local Order Inheritance from Molten State in Marginal Glass Forming Alloys	Kutsal, Mustafacan	Oral Presentation Preferred	2:00 PM 2:15 PM	Not Yet Invited
3	2329390	BBB2.03	Link between Fragility and Ordering in Metallic Liquids	Kelton, Ken	Invited Speaker	2:15 PM 2:45 PM	Not Yet Invited
4	2335106	BBB2.04	Universal Enthalpy–Entropy Compensation Rule for Deformation of Metallic Glasses	Wang, Yunjiang	Oral Presentation Preferred	2:45 PM 3:00 PM	Not Yet Invited
5			BREAK			3:00 PM 3:30 PM	
6	2321941	BBB2.05	Structural Relaxation is a Scale-Free Process	Lemaitre, Anael	Invited Speaker	3:30 PM 4:00 PM	Not Yet Invited
7	2330630	BBB2.06	Crossover from Localized to Cascade Relaxations in Metallic Glasses	Fan, Yue	Oral Presentation Preferred	4:00 PM 4:15 PM	Not Yet Invited
8	2335503	BBB2.07	Thermally Driven Plasticity in Model Amorphous Solids: A Molecular Dynamics Study	Derlet, Peter	Oral Presentation Preferred	4:15 PM 4:30 PM	Not Yet Invited
9	2337974	BBB2.08	Shear Transformation Zones: State Determined or Protocol Dependent?	Jaiswal, Prabhat	Oral Presentation Preferred	4:30 PM 4:45 PM	Not Yet Invited
10	2338820	BBB2.09	Diffusion and Localization in Elasto-Plastic Models of Amorphous Solids	Maloney, Craig	Oral Presentation Preferred	4:45 PM 5:00 PM	Not Yet Invited

Session Information

Session Title: BBB3: Water I
 Session Status: Admin Created
 Session Type: Oral
 Session Start Time: Tue 12/01/2015 8:30 AM
 Session End Time: Tue 12/01/2015 12:00 PM
 Duration: 210
 Session Location: Sheraton, 3rd Floor, Gardner A/B
 Commercial Sponsor: Army Research Office; Neutron Scattering Society of America; Oak Ridge National Laboratory
 Session Hosts: Session Chair: Eugene Mamontov
 Session Chair: Li Emily Liu
 Session Creator: Organizer, SympBBB
 Session Owners:
 Session Notes:
 Session Topic: BBB: Liquids and Glassy Soft Matter—Theoretical and Neutron Scattering Studies
 Session Abbreviation: BBB3
 Client Session ID: 902
 Session Prefix: BBB3
 Include in IP: Yes
 Display Individual Presentation Times: Yes
 Display View Presentation Link in IP: Yes

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start time End time	Invitation Status
1	2325343	BBB3.01	Evidence of Liquid-to-Liquid Phase Transition in Deeply Cooled Confined Water Shown by Neutron Scattering Studies	Chen, Sow-Hsin	Invited Speaker	8:30 AM 9:00 AM	Not Yet Invited
2	2330225	BBB3.02	Anomalous Transport Property in Supercooled Water by Volume—Temperature Replica Exchange Molecular Dynamics	Kuo, Jer-Lai	Oral Presentation Preferred	9:00 AM 9:15 AM	Not Yet Invited
3	2347987	BBB3.03	Anomalous Fluctuations, and How They Are Central to Life and High Tech Processes	Angell, C. Austen	Invited Speaker	9:15 AM 9:45 AM	Not Yet Invited
4	2335812	BBB3.04	Dynamics of Low-temperature Water Confined in Periodic Mesoporous Organosilica with Different Hydrophobic Walls	Yamaguchi, Toshio	Oral Presentation Preferred	9:45 AM 10:00 AM	Not Yet Invited
5			BREAK			10:00 AM 10:30 AM	
6	2333807	BBB3.05	Dynamics of Molecular Associates in Methanol and Methanol/Water Mixtures	Faraone, Antonio	Invited Speaker	10:30 AM 11:00 AM	Not Yet Invited
7	2331462	BBB3.06	Some Considerations on Confined Water: The Thermal Behavior of Transport Properties in Water-Glycerol and Water-Methanol Mixtures	Mallamace, Francesco	Invited Speaker	11:00 AM 11:30 AM	Not Yet Invited
8	2347557	BBB3.07	X-Ray Studies of Water: From Hot to Supercooled Conditions	Nilsson, Anders	Invited Speaker	11:30 AM 12:00 PM	Not Yet Invited

Session Information

Session Title: BBB4: Molecular Liquids and Glasses
 Session Status: Admin Created
 Session Type: Oral
 Session Start Time: Tue 12/01/2015 1:30 PM
 Session End Time: Tue 12/01/2015 5:00 PM
 Duration: 210
 Session Location: Sheraton, 3rd Floor, Gardner A/B
 Commercial Sponsor: Army Research Office; Neutron Scattering Society of America; Oak Ridge National Laboratory
 Session Hosts: Session Chair: Yang Zhang
 Session Chair: Jeffrey Sokoloff
 Session Creator: Organizer, SympBBB
 Session Owners:
 Session Notes:
 Session Topic: BBB: Liquids and Glassy Soft Matter—Theoretical and Neutron Scattering Studies
 Session Abbreviation: BBB4
 Client Session ID: 903
 Session Prefix: BBB4
 Include in IP: Yes
 Display Individual Presentation Times: Yes
 Display View Presentation Link in IP: Yes

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start time End time	Invitation Status
1	2347050	BBB4.01	The Hydration Structure of Aqueous Carbonic Acid and Carbon Dioxide from X-Ray Absorption Spectroscopy	Saykally, Richard	Invited Speaker	1:30 PM 2:00 PM	Not Yet Invited
2	2332663	BBB4.02	Molecular Dynamics Simulations of Ion-Modulated and Curvature-Dependent Hydrophobic Solvations	Huang, Kai	Oral Presentation Preferred	2:00 PM 2:15 PM	Not Yet Invited
3	2345014	BBB4.03	Molecular Liquids: Local Order and Dynamics Approaching the Glass Transition	Alba-Simionesco, Christiane	Invited Speaker	2:15 PM 2:45 PM	Not Yet Invited
4	2326012	BBB4.04	Sub-nm Photoinduced Glass Dynamics on the Amorphous Silicon Carbide Surface	Nguyen, Duc	Oral Presentation Preferred	2:45 PM 3:00 PM	Not Yet Invited
5			BREAK			3:00 PM 3:30 PM	
6	2325985	BBB4.05	Using Vapor Deposition to Control the Structure of Glasses	Ediger, Mark	Invited Speaker	3:30 PM 4:00 PM	Not Yet Invited
7	2326601	BBB4.06	Neutron Scattering in Drug Discovery	Smith, Jeremy	Invited Speaker	4:00 PM 4:30 PM	Not Yet Invited
8	2323894	BBB4.07	Structure-Solubility Relations for Amorphous Pharmaceuticals	Benmore, Chris	Invited Speaker	4:30 PM 5:00 PM	Not Yet Invited

Session Information

Session Title: BBB5: Poster Session: Liquids and Glassy Soft Materials
 Session Status: Admin Created
 Session Type: Poster
 Session Start Time: Tue 12/01/2015 8:00 PM
 Session End Time: Tue 12/01/2015 10:30 PM
 Duration: 150
 Session Location: Hynes, Level 1, Hall B
 Commercial Sponsor: Army Research Office; Neutron Scattering Society of America; Oak Ridge National Laboratory
 Session Hosts: Session Chair: Li Emily Liu
 Session Chair: Yang Zhang
 Session Creator: Organizer, SympBBB
 Session Owners:
 Session Notes:
 Session Topic: BBB: Liquids and Glassy Soft Matter—Theoretical and Neutron Scattering Studies
 Session Abbreviation: BBB5
 Client Session ID: 904
 Session Prefix: BBB11
 Include in IP: Yes
 Display Individual Presentation Times: No
 Display View Presentation Link in IP: Yes

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start time End time	Invitation Status
1		BBB5.01	Poster from NSSA			8:00 PM 10:30 PM	
2	2333952	BBB5.02	Evidence for Two Structural Relaxations in Protein Hydration Water	Camisasca, Gaia	Poster Presentation Preferred	8:00 PM 10:30 PM	Not Yet Invited
3	2333953	BBB5.03	Hopping Phenomena and Fragile to Strong Transition in Supercooled Water	De Marzio, Margherita	Poster Presentation Preferred	8:00 PM 10:30 PM	Not Yet Invited
4	2334982	BBB5.04	Structure Origins of Phase Stability in Ternary Supercooled Metallic Glass-Forming Liquids	Wei, Xiaoya	Poster Presentation Preferred	8:00 PM 10:30 PM	Not Yet Invited
5	2336046	BBB5.05	Free Energy of Formation of Small Ice Nuclei near the Widom Line in Simulations of Supercooled Water	Morris, Siobhan	Poster Presentation Preferred	8:00 PM 10:30 PM	Not Yet Invited
6	2336355	BBB5.06	Nucleation in the Metamagnet	James, Daniella	Poster Presentation Preferred	8:00 PM 10:30 PM	Not Yet Invited
7	2383069	BBB5.07	Designing Microstructures of Metallic-Glass-Matrix Composites by Flash-Annealing	Kosiba, K.	Poster Presentation Preferred	8:00 PM 10:30 PM	Not Yet Invited
8	2341664 (W)	BBB5.08	WITHDRAWN 9-16-15 Compositional-Dependence Structural Evolution and Thermodynamic Anomalies of Liquid Al _{100-x} Cu _x Alloys	Xiong, Lianghua	Oral Presentation Preferred	8:00 PM 10:30 PM	Not Yet Invited

Session Information

Session Title: BBB6: Water II
 Session Status: Admin Created
 Session Type: Oral
 Session Start Time: Wed 12/02/2015 8:30 AM
 Session End Time: Wed 12/02/2015 12:00 PM
 Duration: 210
 Session Location: Sheraton, 3rd Floor, Gardner A/B
 Commercial Sponsor: Army Research Office; Neutron Scattering Society of America; Oak Ridge National Laboratory
 Session Hosts: Session Chair: Paola Gallo
 Session Chair: Antonio Faraone
 Session Creator: Organizer, SympBBB
 Session Owners:
 Session Notes:
 Session Topic: BBB: Liquids and Glassy Soft Matter—Theoretical and Neutron Scattering Studies
 Session Abbreviation: BBB6
 Client Session ID: 905
 Session Prefix: BBB6
 Include in IP: Yes
 Display Individual Presentation Times: Yes
 Display View Presentation Link in IP: Yes

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start time End time	Invitation Status
1	2334736	BBB6.01	Water at Interfaces	Galli, Giulia	Invited Speaker	8:30 AM 9:00 AM	Not Yet Invited
2	2339271	BBB6.02	Predicting Anomalous Properties of Water Using <i>Ab Initio</i> Molecular Dynamics	Santra, Biswajit	Oral Presentation Preferred	9:00 AM 9:15 AM	Not Yet Invited
3	2322077	BBB6.03	The Family of Oxygen-Oxygen Radial Distribution Functions for Water	Head-Gordon, Teresa	Invited Speaker	9:15 AM 9:45 AM	Not Yet Invited
4	2337273	BBB6.04	Ions in Water Studied by <i>Ab-Initio</i> Molecular Dynamics and Implicit Solvation Models	Todorova, Mira	Oral Presentation Preferred	9:45 AM 10:00 AM	Not Yet Invited
5			BREAK			10:00 AM 10:30 AM	
6	2331136	BBB6.05	Quantum Tunneling of Ultra-Confined Water	Kolesnikov, Alexander	Invited Speaker	10:30 AM 11:00 AM	Not Yet Invited
7	2330653	BBB6.06	Role of Quantum Fluctuations in Dynamics of Bulk and Confined Water	Sokolov, Alexei	Invited Speaker	11:00 AM 11:30 AM	Not Yet Invited
8	2347058	BBB6.07	The Anomalous Ground State of Nano-Confined Water	Reiter, George	Invited Speaker	11:30 AM 12:00 PM	Not Yet Invited

Session Information

Session Title: BBB7: Glassy Soft Materials I
 Session Status: Admin Created
 Session Type: Oral
 Session Start Time: Wed 12/02/2015 1:30 PM
 Session End Time: Wed 12/02/2015 5:00 PM
 Duration: 210
 Session Location: Sheraton, 3rd Floor, Gardner A/B
 Commercial Sponsor: Army Research Office; Neutron Scattering Society of America; Oak Ridge National Laboratory
 Session Hosts: Session Chair: Yang Zhang
 Session Chair: Udayan Mohanty
 Session Creator: Organizer, SympBBB
 Session Owners:
 Session Notes:
 Session Topic: BBB: Liquids and Glassy Soft Matter—Theoretical and Neutron Scattering Studies
 Session Abbreviation: BBB7
 Client Session ID: 906
 Session Prefix: BBB7
 Include in IP: Yes
 Display Individual Presentation Times: Yes
 Display View Presentation Link in IP: Yes

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start time End time	Invitation Status
1	2330580	BBB7.01	Finely Controlled Cleaning of Cultural Heritage	Baglioni, Piero	Invited Speaker	1:30 PM 2:00 PM	Not Yet Invited
2	2328532	BBB7.02	Ring Polymers: Unique Topology with Dramatic Consequences for Their Molecular Dynamics	Richter, Dieter	Invited Speaker	2:00 PM 2:30 PM	Not Yet Invited
3			BREAK			2:30 PM 3:30 PM	
4	2331614	BBB7.03	Universal Trend of the Non-Exponential Rouse Mode Relaxation in Glass-Forming Polymer Systems: Experimental Facts, MD-Simulations and a Theoretical Approach Based on a Generalized Langevin Equation	Colmenero, Juan	Invited Speaker	3:30 PM 4:00 PM	Not Yet Invited
5	2326588	BBB7.04	Dynamics of Chain Exchange in Block Copolymer Micelles	Lodge, Timothy	Invited Speaker	4:00 PM 4:30 PM	Not Yet Invited
6	2338082	BBB7.05	Nanoscale Structure and Flow Behavior of Water-Swollen Block Copolymer Soft Solids with Dispersed Particles	Walker, Lynn	Invited Speaker	4:30 PM 5:00 PM	Not Yet Invited

Session Information

Session Title: BBB8: Water III
 Session Status: Admin Created
 Session Type: Oral
 Session Start Time: Thu 12/03/2015 8:30 AM
 Session End Time: Thu 12/03/2015 12:00 PM
 Duration: 210
 Session Location: Sheraton, 3rd Floor, Gardner A/B
 Commercial Sponsor: Army Research Office; Neutron Scattering Society of America; Oak Ridge National Laboratory
 Session Hosts: Session Chair: Erik LASCARIS
 Session Chair: Yang Zhang
 Session Creator: Organizer, SympBBB
 Session Owners:
 Session Notes:
 Session Topic: BBB: Liquids and Glassy Soft Matter—Theoretical and Neutron Scattering Studies
 Session Abbreviation: BBB8
 Client Session ID: 907
 Session Prefix: BBB8
 Include in IP: Yes
 Display Individual Presentation Times: Yes
 Display View Presentation Link in IP: Yes

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start time End time	Invitation Status
1	2331807	BBB8.01	Widom Lines and Dynamic Crossovers in Supercritical and Supercooled States of Water	Gallo, Paola	Invited Speaker	8:30 AM 9:00 AM	Not Yet Invited
2	2329521	BBB8.02	Mixed Quantum/Classical Modeling of the OH-Stretch Inelastic Incoherent Neutron Scattering Spectroscopy for Water	Shi, Liang	Oral Presentation Preferred	9:00 AM 9:15 AM	Not Yet Invited
3	2324041	BBB8.03	The Spatial Characteristics of the Fast and Slow Secondary Relaxations in Aqueous Systems	Mamontov, Eugene	Invited Speaker	9:15 AM 9:45 AM	Not Yet Invited
4	2329023	BBB8.04	Direct Calculation of Ice Homogeneous Nucleation Rate for a Molecular Model of Water	Haji-Akbari, Amir	Oral Presentation Preferred	9:45 AM 10:00 AM	Not Yet Invited
5			BREAK			10:00 AM 10:30 AM	
6	2347065	BBB8.05	Tuning the Liquid-Liquid Transition by Modulating the Hydrogen Bond Angular Flexibility in a Model for Water	Sciortino, Francesco	Invited Speaker	10:30 AM 11:00 AM	Not Yet Invited
7	2336144	BBB8.06	Simulations of Ice Nucleation Approaching the Liquid-Liquid Critical Point in Supercooled Water	Poole, Peter	Invited Speaker	11:00 AM 11:30 AM	Not Yet Invited
8	2343145	BBB8.07	Thermodynamics and Kinetics of Supercooled Water: A Computational Perspective	Debenedetti, Pablo	Invited Speaker	11:30 AM 12:00 PM	Not Yet Invited

Session Information

Session Title: BBB9: Glassy Soft Materials II
 Session Status: Admin Created
 Session Type: Oral
 Session Start Time: Thu 12/03/2015 1:30 PM
 Session End Time: Thu 12/03/2015 5:00 PM
 Duration: 210
 Session Location: Sheraton, 3rd Floor, Gardner A/B
 Commercial Sponsor: Army Research Office; Neutron Scattering Society of America; Oak Ridge National Laboratory
 Session Hosts: Session Chair: Wei-Ren Chen
 Session Chair: Victoria Garcia Sakai
 Session Creator: Organizer, SympBBB
 Session Owners:
 Session Notes:
 Session Topic: BBB: Liquids and Glassy Soft Matter—Theoretical and Neutron Scattering Studies
 Session Abbreviation: BBB9
 Client Session ID: 908
 Session Prefix: BBB9
 Include in IP: Yes
 Display Individual Presentation Times: Yes
 Display View Presentation Link in IP: Yes

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start time End time	Invitation Status
1	2334191	BBB9.01	Untangling Complexity in Functional Polymeric Materials through Integrated Simulation, Synthesis and Neutron Scattering	Sumpter, Bobby	Invited Speaker	1:30 PM 2:00 PM	Not Yet Invited
2	2332988	BBB9.02	Using Janus Nanoparticles to Trap Polymer Blend Morphologies during Solvent-Evaporation-Induced Demixing	Russell, Thomas	Invited Speaker	2:00 PM 2:30 PM	Not Yet Invited
3	2329472	BBB9.03	Structure and Dynamics of P3ATs from Neutron Scattering and MD Simulations	Pozzo, Lilo	Invited Speaker	2:30 PM 3:00 PM	Not Yet Invited
4			BREAK			3:00 PM 3:30 PM	
5	2347512	BBB9.04	Protein Stabilization in Organic Solvent via Designed Random Copolymer	Xu, Ting	Invited Speaker	3:30 PM 4:00 PM	Not Yet Invited
6	2335808	BBB9.05	Intrinsically Disordered States in Riboswitch, Protein, and Polyelectrolyte Chain	Mohanty, Udayan	Oral Presentation Preferred	4:00 PM 4:15 PM	Not Yet Invited
7	2338462	BBB9.06	The Effect of Competing Interactions on the Colloidal Glass Transition	Liu, Yun	Invited Speaker	4:15 PM 4:45 PM	Not Yet Invited
8	2337554	BBB9.07	Compression and Lubrication of Salt Free Polyelectrolyte Microgel Particles in Highly Compressed Suspensions by Counterion Osmotic Pressure	Sokoloff, Jeffrey	Oral Presentation Preferred	4:45 PM 5:00 PM	Not Yet Invited

Session Information

Session Title: BBB10: Glassy Soft Materials III
 Session Status: Admin Created
 Session Type: Oral
 Session Start Time: Fri 12/04/2015 8:30 AM
 Session End Time: Fri 12/04/2015 12:00 PM
 Duration: 210
 Session Location: Hynes, Level 2, Room 209
 Commercial Sponsor: Army Research Office; Neutron Scattering Society of America; Oak Ridge National Laboratory
 Session Hosts: Session Chair: Magdaleno Medina-Noyola
 Session Chair: Takeshi Egami
 Session Creator: Organizer, SympBBB
 Session Owners:
 Session Notes:
 Session Topic: BBB: Liquids and Glassy Soft Matter—Theoretical and Neutron Scattering Studies
 Session Abbreviation: BBB10
 Client Session ID: 909
 Session Prefix: BBB10
 Include in IP: Yes
 Display Individual Presentation Times: Yes
 Display View Presentation Link in IP: Yes

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start time End time	Invitation Status
1	2338950	BBB10.01	An Alternative View of the Glass Transition	Glotzer, Sharon	Invited Speaker	8:30 AM 9:00 AM	Not Yet Invited
2	2337531	BBB10.02	Liquid Crystals from Spherical Particles	Molinero, Valeria	Invited Speaker	9:00 AM 9:30 AM	Not Yet Invited
3	2338062	BBB10.03	Flow in Disordered Systems: From Fluids to Athermal Solids	Robbins, Mark	Invited Speaker	9:30 AM 10:00 AM	Not Yet Invited
4			BREAK			10:00 AM 10:30 AM	
5	2334254	BBB10.04	Flow Mechanism in Colloidal Suspensions under Shear	Chen, Wei-Ren	Invited Speaker	10:30 AM 11:00 AM	Not Yet Invited
6	2338870	BBB10.05	Spatial Structure of the Instantaneous Velocity and Finite-Time Displacement Fields in Sheared Soft Glassy Solids	Roy, Arka	Oral Presentation Preferred	11:00 AM 11:15 AM	Not Yet Invited
7	2338843	BBB10.06	SANS and Rheo-SANS Study of Particle Dispersion and Block Copolymer and Surfactant Self-Assembly in Ionic Liquids	Wagner, Norman	Invited Speaker	11:15 AM 11:45 AM	Not Yet Invited
8	2339089	BBB10.07	Polymer Dynamics, Free Volume, and Transport in Cross-Linked Polymer Networks	Frieberg, Bradley	Oral Presentation Preferred	11:45 AM 12:00 PM	Not Yet Invited

Session Information

Session Title: BBB11: Glassy Soft Materials IV
 Session Status: Admin Created
 Session Type: Oral
 Session Start Time: Fri 12/04/2015 1:30 PM
 Session End Time: Fri 12/04/2015 5:00 PM
 Duration: 210
 Session Location: Hynes, Level 2, Room 209
 Commercial Sponsor: Army Research Office; Neutron Scattering Society of America; Oak Ridge National Laboratory
 Session Hosts: Session Chair: Yun Liu
 Session Chair: Yang Zhang
 Session Creator: Organizer, SympBBB
 Session Owners:
 Session Notes:
 Session Topic: BBB: Liquids and Glassy Soft Matter—Theoretical and Neutron Scattering Studies
 Session Abbreviation: BBB11
 Client Session ID: 910
 Session Prefix: BBB11
 Include in IP: Yes
 Display Individual Presentation Times: Yes
 Display View Presentation Link in IP: Yes

Order	Control ID	Final ID	Title	Presenting Author	Presentation Type	Start time End time	Invitation Status
1	2331809	BBB11.01	Theory of Arrested Spinodal Decomposition: Physical Gels, Porous Glasses, and the Glass Transition	Medina-Noyola, Magdaleno	Invited Speaker	1:30 PM 2:00 PM	Not Yet Invited
2	2335513	BBB11.02	Neutrons for Complex Macromolecular Systems	Garcia Sakai, Victoria	Invited Speaker	2:00 PM 2:30 PM	Not Yet Invited
3	2347048	BBB11.03	Ion Containing Polymers for Battery Technology	Maranas, Janna	Invited Speaker	2:30 PM 3:00 PM	Not Yet Invited
4			BREAK			3:00 PM 3:30 PM	
5	2332198	BBB11.04	Energy Resolved Study of the Pair Correlation Function in Liquid ⁴ He.	Dmowski, Wojciech	Oral Presentation Preferred	3:30 PM 3:45 PM	Not Yet Invited
6	2330511	BBB11.05	From Single Chain Nano-Particles to All-Polymer Nano-Composites	Arbe, Arantxa	Oral Presentation Preferred	3:45 PM 4:00 PM	Not Yet Invited
7	2335675	BBB11.06	In-Situ Neutron Scattering Study of Crystallization Behaviour in Ternary Supercooled Metallic Liquids and Its Correlation to Glass Forming Ability	Lan, Si	Oral Presentation Preferred	4:00 PM 4:15 PM	Not Yet Invited
8	2330934	BBB11.07	Scattering Studies of Metallic Liquids Using the Neutron ElectroStatic Levitator (NESL) at the Spallation Neutron Source (SNS)	Vogt, Adam	Oral Presentation Preferred	4:15 PM 4:30 PM	Not Yet Invited
9	2333812	BBB11.08	Spin Glassy Behaviors and Isolated Spin Pairs in Frustrated Magnet <i>BaCr_{9p}Ga_{12-9p}O₁₉</i>	Yang, Junjie	Oral Presentation Preferred	4:30 PM 4:45 PM	Not Yet Invited
10	2336632	BBB11.09	Analyzing the Dynamics of RNA on a Nanodiamond Surface by QENS and MD Simulation Study	Goswami, Monojoy	Oral Presentation Preferred	4:45 PM 5:00 PM	Not Yet Invited