

APS Workshop 6: New Opportunities in Chemistry and Materials Sciences with Anomalous X-ray Scattering

Wednesday, May 3, Morning

- 8:00 – 8:15 Matthew Tirrell (University of Chicago)
Welcome Message
- 8:15 – 8:30 John Papanikolas (National Science Foundation)
Welcome Message
- 8:30 – 8:45 Mrinal Bera (University of Chicago)
ASAXS Facility at NSF's ChemMatCARS
- 8:45 – 9:00 Tianbo Liu (University of Akron)
Counterion Association around Nanoscale Macroions and the Consequent Self-assembly, Phase Transition, and Chiral Recognition Behaviors
- 9:00 – 9:15 Stuart Rowan (University of Chicago)
Using ASAXS to Explore Ordering in Soft Materials
- 9:15 – 9:30 Luping Yu (University of Chicago)
Foldable Semi-ladder Polymers: Novel Aggregation Behavior Investigated by Using SAXS Scattering Technique
- 9:30 – 9:45 Raymond Tu (City College of New York)
Selective Rare Earth Elements Recovery from Homogeneous Aqueous Solutions by Self-assembling Lanthanide Binding Tag Peptides
- 9:45 – 10:00 Elisa Biasin (Pacific Northwest National Laboratory)
Long-range Ordering of Electrolytes Probed with Anomalous X-ray Scattering
- 10:00 – 10:15 Coffee Break
- 10:15 – 10:30 Michael Toney (University of Colorado)
Understanding Solvation Structures in Electrolytes for Electrochemical Energy Storage
- 10:30 – 10:45 May Nyman (Oregon State University)
Where are the Metals?
- 10:45 – 11:00 Chong Liu (University of Chicago)
ASAXS for Understanding Ion Transport in Confinement
- 11:00 – 11:15 Daniel Fesenmeier (Purdue University)
Using ASAXS of Heavy Element (I)-loaded Block Copolymer Micelles to Investigate Fundamental Behavior of Novel Polymer Lung Surfactant Therapeutic

- 11:15 – 11:30 Xiaobing Zuo (Argonne National Laboratory)
Applications of ASAXS for Nanoparticle Element Mapping and Biomarkers
- 11:30 – 11:45 Mark Swihart (University of Buffalo)
High-entropy Alloy and Oxide Nanoparticles from Flame-based Aerosol Synthesis
- 11:45 – 12:00 Benjamin Hsiao (Stony Brook University)
Synchrotron-enabled Nanocellulose Research: From Basic Science to New Circular Solutions for Improving Water-food-infrastructural Nexus
- 12:00 – 12:15 Cecilia Leal (University of Illinois, Urbana-Champaign)
ASAXS Cataloguing of the Molecular Organization of Biological and Abiological Matter in Hybrid Membranes
- 12:15 – 12:30 Sumit Kewalramani (Northwestern University)
Anomalous Small-angle X-ray Scattering (ASAXS) Studies of Counterion Distribution Surrounding Soft Biomolecular Assemblies
- 12:30 – 1:30 Lunch Break

Wednesday, May 3, Afternoon

- 1:30 – 1:45 Marc Hillmyer (University of Minnesota)
Polymerization-induced Microphase Separation Approaches to Ion-containing Nanostructured Materials
- 1:45 – 2:00 Robert Moore (Virginia Tech)
ASAXS Analysis of Random and Blocky Model Semi-crystalline Ionomers
- 2:00 – 2:15 Nitash Balsara (University of California, Berkeley)
Morphology of Block Copolymer Films Determined by Resonant Soft X-ray Scattering
- 2:15 – 2:30 Mohammad Asadi (Illinois Institute of Technology)
Advanced Materials to Decarbonize Future?
- 2:30 – 2:45 Qian Chen (University of Illinois, Urbana-Champaign)
Opportunities in Understanding Macromolecular Dynamics by Integrating ASAXS and Liquid-phase TEM
- 2:45 – 3:00 Stephen O'Brien (City College of New York)
Complex Oxide Nanocrystals, Nanocomposites Films, and Exploring the Potential of ASAXS
- 3:00 – 3:15 Coffee Break

- 3:15 – 3:30 Kaitlin Landy (Northwestern University)
Programming Multicomponent Colloidal Crystal Structures Using DNA
- 3:30 – 4:45 Open discussion
- 4:45 – 5:00 Matthew Tirrell (University of Chicago)
Closing Remarks