APS Workshop 5: Fundamentals and Applications of High Energy Diffraction Microscopy

Thursday, May 4, Morning

Session 1: Fundamentals of HEDM

9:00 – 9:15  Marm Dixit (Oak Ridge National Laboratory), Michael Sangid (Purdue University), and Jun-Sang Park (Argonne National Laboratory)
Overview of Workshop and Goals, Including Future Experiments

9:15 – 10:00  Jun-Sang Park (Argonne National Laboratory)
Overview of Techniques and Overview of Beamlines

10:00 – 10:30  Hemant Sharma (Argonne National Laboratory)
HEDM Data Analysis at the APS: Status and Future Updates

10:30 – 10:45  Break

Session 2: Applications of HEDM

10:45 – 11:15  Marm Dixit (Oak Ridge National Laboratory)
Assessing Polymorphism of Garnet Solid Electrolytes with High Energy Diffraction Microscopy

11:15 – 11:45  Xuan Zhang (Argonne National Laboratory)
Application of HEDM for Nuclear Structural Materials Research

11:45 – 12:15  Paul Shade (Air Force Research Laboratory)
Application of HEDM to Study Aerospace Materials

Thursday, May 4, Afternoon

12:15 – 1:15  Lunch

Session 3: Intrgranular Measurements

1:15 – 1:45  Henrik Birkedal (Aarhus University)
Diffraction Tomography to Unravel the Hierarchical Structure of Biomineral Composites

1:45 – 2:15  Stephan Hruszkewycz (Argonne National Laboratory)
Exploiting Coherence at High X-ray Energies to Resolve Sub-grain-level Strain and Grain Boundary Structure in Bulk Polycrystals
2:15 – 2:45  Ashley Bucsek (University of Michigan)
*Current and Future Status of Point-focused High-energy Diffraction Microscopy (pf-HEDM)*

2:45 – 3:15  Michael Sangid (Purdue University) and Jonathan Almer (Argonne National Laboratory)
*Panel Discussion on First Experiments at HEXM*

3:15 – 3:30  Break

**Session 4: Advancements and Application to HEXM**

3:30 – 4:00  Sven Gustafson (Purdue University)
*Dark Field X-ray Microscopy Opportunities: Linking Length Scales to Allow for Contextualized Zoom-in Studies*

4:00 – 4:30  Lianyi Chen (University of Wisconsin-Madison)
*In-situ Characterization of Material Transformation Dynamics in Additive Manufacturing Processes*

4:30 – 5:00  Antonino Miceli (Argonne National Laboratory)
*Rapid Anomaly Detection of Structural Deformation in HEDM Data*