

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: Intragranular 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