CNM Workshop 4: Probing Fast and Ultrafast Dynamics with Time-resolved Electron Microscopy Spanning from Microseconds to Femtoseconds

Wednesday, May 7, Morning

Session I: Ultrafast Electron Microscopy

8:00 – 8:10 Ilke Arslan (Physical Sciences and Engineering, Argonne National Laboratory)
Opening Remarks

8:10 – 8:35 David Flannigan (Department of Chemical Engineering and Materials Science, University of Minnesota)
UEM Imaging of Coherent-phonon and Order-parameter Dynamics

8:35 – 9:00 Volkan Ortalan (University of Connecticut)
Title TBD

9:00 – 9:20 Haihua Liu (Center for Nanoscale Materials, Argonne National Laboratory)
Nanoscale Imaging of Surface Plasmons by Ultrafast Electron Microscopy

9:20 – 9:40 Burak Guzelturk (X-ray Science, Argonne National Laboratory)
Ultrafast Electron Diffraction on Nanocrystals: From Phonons to Polarons and Symmetry Transformations

9:40 – 10:00 Bolin Liao (Department of Mechanical Engineering, University of California-Santa Barbara)
Spatial-temporal Imaging of Photocarrier Dynamics Using Scanning Ultrafast Electron Microscopy

10:00 – 10:30 Break

Session II: Ultrafast Science

10:30 – 10:55 Haidan Wen (Materials Science, Argonne National Laboratory)
Ultrafast Spin-shear Coupling in Van der Waals Antiferromagnets

10:55 – 11:20 Paul Evans (Materials Science and Engineering, University of Wisconsin-Madison)
Ultrafast Magnetic and Ferroelectric Dynamics in Functional Complex Oxides

11:20 – 12:00 EM Tour – Building 216/212

12:00 – 1:30 Lunch Break

Wednesday, May 7, Afternoon

Session III: *In-situ* Electron Microscopy

1:30 – 1:55 Judith Yang (Center for Functional Nanomaterials, Brookhaven National Laboratory)
Dynamics of the Early Stages of Metal and Alloy Oxidation

1:55 – 2:20 Qian Chen (Department of Materials Science and Engineering, University of Illinois Urbana-Champaign)
Liquid-phase Electron Microscopy and its Automation for Colloidal Nanoparticles

2:20 – 2:40 Yuzi Liu (Center for Nanoscale Materials, Argonne National Laboratory)
Multiscale In-situ *Microscopy for Energy Materials*

2:40 – 3:00 Paul Voyles (Department of Materials Science and Engineering, University of Wisconsin-Madison)
Heterogeneous Dynamics and Crystallization of Supercooled Metallic Liquids from In-situ *5D STEM*

3:00 – 3:30 Break

Session IV: Electrically Driven Dynamics

3:30 – 3:55 Spencer Reisbick (Condensed Matter Physics and Materials Science, Brookhaven National Laboratory)
Elucidation of Strongly Correlated Dynamics Using Electrically Driven Ultrafast Electron Microscopy

3:55 – 4:20 Chris Regan (Department of Physics and Astronomy, University of California-Los Angeles)
Comprehensive, High-resolution Mapping of Ferroelectric Fields in Hafnium Zirconium Oxid

4:20 – 4:40 Daniel B. Durham (Center for Nanoscale Materials, Argonne National Laboratory)
Nanosecond Electron Microscopy of Electrically Triggered Material Dynamics

4:40 – 5:00 Workshop Organizers
Closing Discussion

5:00 Adjourn