

APS Workshop 8: Hard X-ray Imaging Techniques for Biological and Environmental Research – Current Status and Future Upgrades

Monday, May 1, Morning

- 8:30 – 8:40 Olga Antipova, Luxi Li, and Zou Finrock (Argonne National Laboratory)
Welcome
- 8:40 – 8:55 Olga Antipova (Argonne National Laboratory)
Overview of X-ray Imaging at APS
- 8:55 – 9:20 Kenneth Kemner (Argonne National Laboratory)
X-ray Imaging of Soil Aggregates and Sediment Cores to Understand Environmental System Function
- 9:20 – 9:40 Tamas Varga (Pacific Northwest National Laboratory)
Correlative X-ray Tomographic Imaging and Chemical Analyses to Better Understand Soil Biogeochemical Processes
- 9:40 – 10:00 Gyorgy Babnigg (Argonne National Laboratory)
Imaging Modalities for Understanding the Chemical Exchange and Physical Interactions in the Rhizosphere
- 10:00 – 10:20 Lingli Lu (Zhejiang University)
XRF Imaging of Cd in a Hyperaccumulator Plant Species
- 10:20 – 10:40 Break
- 10:40 – 11:00 Joseph Jakes (USDA Forest Service, Forest Products Laboratory)
Variable-humidity X-ray Fluorescence Microscopy and X-ray Computed Tomography
- 11:00 – 11:20 Andrei Smertenko (Washington State University)
Genetics of Resiliency to Cavitation in Metaxylem of Grasses
- 11:20 – 11:40 Tracy Punshon (Dartmouth College)
Use of SXRF and LAICPMS to Visualize Dynamic Ca Phenotypes in Plants: Characterizing the Role of Cation/H⁺ Exchangers in Anoxia Tolerance
- 11:40 – 12:00 Viktor Nikitin (Argonne National Laboratory)
A Laminography Technique for Scanning Biological Samples
- 12:00 End of Session 1

Tuesday, May 2, Morning

- 8:55 – 9:00 Luxi Li (Argonne National Laboratory)
Welcome
- 9:00 – 9:20 Zou Finfrock (Argonne National Laboratory)
Development of a New User Program Supporting Biological and Environmental Community after the APS-U
- 9:20 – 9:40 Brandy Stewart (University of Minnesota, Twin Cities)
An XRF Study in Mechanisms of Chromium Removal from Industrial Storm Water Using Peat Medium
- 9:40 – 10:00 Laura Sofen (Bigelow Laboratory for Ocean Sciences)
Synchrotron X-ray Fluorescence (SXRF) Spectroscopy to Measure Trace Metal Stoichiometry of Individual Phytoplankton Cells
- 10:00 – 10:20 Marie-Pierre Isaure (Université de Pau et des Pays de l'Adour)
Nano-imaging to Tackle Mercury Transformations and Methylation by Bacteria in the Environment
- 10:20 – 10:40 Break
- 10:40 – 11:00 Swarup China (Pacific Northwest National Laboratory)
Chemical Imaging of Atmospheric Particles
- 11:00 – 11:20 Tatjana Paunesku (Northwestern University)
Use of Multi-scale Hard X-ray Microscopy for Evaluation of Archival Tissues from Animals Exposed to Radioactive Particles
- 11:20 – 11:40 Jake Socha (Virginia Tech)
Full-field Imaging of Insects and Other Small Animals
- 11:40 – 12:00 Andrey Guber (Michigan State University)
Fragmentation of Soil Moisture in Soil Pores Detected by Dual-energy X-ray CT
- 12:00 – 12:20 Fabricio Marin (Argonne National Laboratory)
Processing X-ray Fluorescence Tomography Data with XRFtomo
- 12:20 Workshop Adjourns