

8TH SYNCHROTRON ENVIRONMENTAL SCIENCE SYMPOSIUM (SES-2025) PROGRAM

MONDAY, SEPTEMBER 29

8:30 AM – 9:00 AM

Registration and Coffee

9:00 AM – 9:15 AM

Welcome and Announcements

9:15 AM – 12:00 PM

MONDAY MORNING SESSION: SES-2025

Convener: Ryan Tappero (BNL)

9:15 AM [Shining Light on Soil Health: Soft X-ray Spectroscopic Studies of Soils](#)

Keynote Speaker: Prof. Derek Peak (U. Saskatchewan)

10:00 AM [The Role of Bromine in Stabilizing Peat Organic Carbon](#)

Speaker: Alessandra Leri (Marymount Manhattan College)

Morning Coffee Break (10:20 AM – 10:40 AM)

10:40 AM [The Formation, Loss, and Speciation of Reduced Organic Sulfur](#)

Speaker: Brett Poulin (UC Davis)

11:00 AM [Elucidating Biogeochemical Mechanisms for Woody Biomass
Decomposition in Aquatic Environments with Multi-Modal
Synchrotron Techniques](#)

Speaker: Matthew Reid (Cornell U.)

11:20 AM [Using X-ray computed tomography to examine the recovery in soil aggregate pore structure during prairie restoration](#)

Speaker: James O'Sullivan (ANL)

11:40 AM [Carbon Mineralization of Sulfate Wastes Containing Pb: Synchrotron Pb M3-Edge XANES Analysis of Simultaneous Heavy Metal and Carbon Sequestration](#)

Speaker: Jun Hu (Princeton U.)

Lunch Break (12:00 PM – 1:20 PM)

1:20 PM – 4:20 PM

MONDAY AFTERNOON SESSION: SES-2025

Conveners: Ajith Pattammattel (BNL) and Ryan Tappero (BNL)

1:20 PM [ALS \(Advanced Light Source\)](#)

Speaker: David Shapiro (LBNL)

1:40 PM [SSRL \(Stanford Synchrotron Light Source\)](#)

Speaker: Sam Webb (SLAC)

2:00 PM [Pb²⁺ Sorption at the Barite \(001\)–Water Interface under Hydrothermal Conditions](#)

Speaker: Peng Yang (BNL)

2:20 PM [Advances in Tender-Energy Microspectroscopy for Synchrotron Environmental Science](#)

Speaker: Paul Northrup (Stony Brook University)

Afternoon Coffee Break (2:40 PM – 3:00 PM)

3:00 PM [Exploring phosphorus and sulfur speciation in Martian and lunar regolith simulants via synchrotron-based microspectroscopy](#)

Speaker: India Reddell (Texas A&M)

3:20 PM [Wildland fire ash chemistry and the effects on post-fire nutrient cycling](#)

Speaker: Rixiang Huang (U. New York Albany)

3:40 PM [Redox and Phase Transformations of Metal\(loid\)s in Wildland Urban Inter-face Fir Ash and Heated Soils](#)

Speaker: Mohammed Baalousha (U. South Carolina)

4:00 PM [Novel imaging reveals nanoparticulate hydrothermal iron is available for ex-port to iron-poor open ocean waters](#)

Speaker: Sarick Matzen (U. Illinois Chicago)

4:20 PM – 6:20 PM

POSTER AND VENDOR SESSION RECEPTION: SES-2025

Sponsor: Quantum Detectors



TUESDAY, SEPTEMBER 30

8:30 AM – 9:00 AM

Registration and Coffee

9:00 AM – 9:15 AM

Welcome and Announcements

9:15 AM – 12:00 PM

TUESDAY MORNING SESSION: SES-2025

Conveners: Ken Kemner (ANL) and Ryan Tappero (BNL)

9:15 AM [The lab-field discrepancy in weathering rates: why we need to study the critical zone](#)

Keynote Speaker: Prof. Susan Brantley (Penn State U.)

10:00 AM [Waste mining: Challenges and opportunities for rare earth element recovery](#)

Speaker: Yuanzhi Tang (Georgia Institute of Technology)

Morning Coffee Break (10:20 AM – 10:40 AM)

10:40 AM [Geochemical Redox Fractionation of Rare Earth Elements in Acid Mine Drainage Treatment Solids: Implications for Recovery](#)

Speaker: Colleen Hoffman (NETL)

11:00 AM [XAS studies of the transformation of soil minerals in estuarine wetlands](#)

Speaker: Evert 'Eef' Elzinga (Rutgers U.)

11:20 AM [Laboratory for Observing \(An\)oxic Microsites in Soils \(LOAMS\)](#)

Speaker: Vincent Noel (SLAC)

11:40 AM [Nutrient accumulation and cycling in wetlands impacted by animal agriculture in the Southern High Plains of the US](#)

Speaker: Matthew Siebecker (Texas Tech U.)

Group Photo (12:00 PM – 12:20 PM)

Lunch Break (12:20 PM – 1:20 PM)

1:20 PM – 4:40 PM

TUESDAY AFTERNOON SESSION: SES-2025

Conveners: Juergen Thieme (U. Goettingen) and Ryan Tappero (BNL)

1:20 PM [CAMD \(Center for Advanced Microstructures and Devices\)](#)

Speaker: Amitava Roy (Louisiana State U.)

1:40 PM [NSLS-II \(National Synchrotron Light Source II\)](#)

Speaker: Ryan Tappero (BNL)

2:00 PM [Sulfur and phosphorus interactions with iron in a coastal freshwater marsh](#)

Speaker: Elizabeth Herndon (ORNL)

2:20 PM [Multi-modal, micro-spectroscopic speciation of legacy phosphorus in two U.S. mid-Atlantic agricultural soils](#)

Speaker: Kathryn Szerlag (Texas A&M)

Afternoon Coffee Break (2:40 PM – 3:00 PM)

3:00 PM [Molecular Clues for Regional Risk: Contaminant Speciation from the Shrinking Terminal Great Salt Lake](#)

Speaker: Joshua LeMonte (Brigham Young U.)

3:20 PM [Salinity influences arsenic speciation and mobility in coastal soils impacted by saltwater flooding and intrusion](#)

Speaker: Layla Izadi (U. Texas Dallas)

3:40 PM [Impact of Fungal Manganese Oxides on Zinc Mobility](#)

Speaker: Wei Ren (Oklahoma State U.)

4:00 PM [Identifying Redox Reaction Zones in Shale Using Multi-Energy Micro-XRF and XANES Linear Combination Fitting](#)

Speaker: Qingyun Li (Stony Brook University)

4:20 PM [Using Synchrotron Microscopy and Spectroscopy to Examine the Effect of Environmental Systems Conditions on Plastic Degradation Pathway](#)

Speaker: Lauren Pincus (George Washington U.)

4:40 PM – 6:00 PM

POSTER AND VENDOR SESSION: SES-2025

Wang Center (~1 hr)

6:00 PM Find ride to Old Field Club

6:30 PM – 10:00 PM

BANQUET AT OLD FIELD CLUB: SES-2025

6:30 PM [Vendor Reception](#) **HITACHI**

Sponsor: Hitachi High-Tech

7:30 PM [SES-2025 Banquet](#)  

Sponsors: Sigray Inc. and Stony Brook University

WEDNESDAY, OCTOBER 1

8:30 AM – 9:00 AM

Registration and Coffee

9:00 AM – 9:15 AM

Welcome and Announcements

9:15 AM – 12:00 PM

WEDNESDAY MORNING SESSION: SES-2025

Conveners: Tiffany Victor (BNL) and Ryan Tappero (BNL)

9:15 AM [Synchrotron Environmental Science: Perspective from the Canadian Light Source](#)

Keynote Speaker: Prof. Ingrid Pickering (U. Saskatchewan)

10:00 AM [Combining synchrotron spectromicroscopy with NanoSIMS to reveal the formation of soil organo-mineral associations](#)

Speaker: Itamar Shabtai (CT Agricultural Experiment Station)

Morning Coffee Break (10:20 AM – 10:40 AM)

10:40 AM [Trace-Level Nanoscale Chemical Mapping in Complex Environmental Matrices](#)

Speaker: Ajith Pattammattel (BNL)

11:00 AM [A Ptychographic Spectromicroscopy Workflow for Marine Nanoparticles](#)

Speaker: Brandy Toner (U. Minnesota- Twin Cities)

11:20 AM [Organic Colloid Composition in Variable-Redox Porewaters](#)

Speaker: Brandy Stewart (SLAC)

11:40 AM [Soft X-Ray Spectromicroscopy of P-O-Fe Bonds in Mineral-Organic Associations](#)

Speaker: Juergen Thieme (U. Goettingen)

Lunch Break (12:00 PM – 1:20 PM)

1:20 PM – 4:20 PM

WEDNESDAY AFTERNOON SESSION: SES-2025

Conveners: Roberto Colina Ruiz (U. of Chicago) and Ryan Tappero (BNL)

1:20 PM [CLS \(Canadian Light Source\)](#)

Speaker: Ingrid Pickering (CLS)

1:40 PM [APS \(Advanced Photon Source\)](#)

Speaker: Ken Kemner (ANL)

2:00 PM [XLEAP: a microfocus beamline under construction at the Cornell High Energy Synchrotron Source \(CHESS\)](#)

Speaker: Louisa Smieska (Cornell U.)

2:20 PM [New Research Opportunities for Environmental Scientists at GSECARS post APS Upgrade](#)

Speaker: Antonio Lanzirotti (U. of Chicago)

Afternoon Coffee Break (2:40 PM – 3:00 PM)

3:00 PM [Elucidating Novel Mechanisms Contributing to Excessive Potassium Fixation in Soils via \(Synchrotron\) X-ray Techniques](#)

Speaker: Akriti Sharma (Stephen F. Austin State U.)

3:20 PM [Speciation of Mercury on Carbon-Based Sorbents and Iron-Bearing Swelling Clays under Reduced Conditions using HERFD-XANES](#)

Speaker: Danielle Jones (UC Merced)

3:40 PM [Understanding the Toxicity of Mercury, the Most Toxic Non-Radioactive Heavy Element, using X-ray Absorption Spectroscopy](#)

Speaker: Graham George (U. Saskatchewan)

4:00 PM – 7:30 PM

TOUR OF NSLS-II BEAMLINES: SES-2025

4:20 PM Bus to Brookhaven National Laboratory (BNL)

*BE SURE TO CHECK OUT THE [COLLECTION OF ABSTRACTS LINKED TO THE “SPEAKERS, TALKS & POSTERS” TAB](#)