

Wed, August 5

8:00 AM	Registration and breakfast (provided) Break Location: Cornell University, Emerson 135
9:00 AM	
9:00 AM	Welcome Contribution Location: Cornell University, Bradfield 101, 306 Tower Road, Ithaca, NY 14853, USA Cornell University College of Agriculture and Life Sciences
9:15 AM	
9:15 AM	Introduction to XLEAP Contribution Location: Cornell University, Bradfield 101, 306 Tower Road, Ithaca, NY 14853, USA Cornell University College of Agriculture and Life Sciences Speaker: Louis J. Seeker
9:45 AM	
9:45 AM	Fundamental processes in plant nutrient homeostasis Session Location: Cornell University, Bradfield 101, 306 Tower Road, Ithaca, NY 14853, USA Cornell University College of Agriculture and Life Sciences 9:45 – 10:15 AM Plant interactions with soil composition in the extremophile <i>Arabidopsis halleri</i> Speaker Ute Kraemer 10:15 – 10:30 AM Connecting mineral nutrient homeostasis to fertility and crop yield through synchrotron-based XRF microscopy Speaker JU-CHEN CHIA
10:30 AM	
10:30 AM	Coffee break Break Location: Cornell University, Bradfield 101, 306 Tower Road, Ithaca, NY 14853, USA Cornell University College of Agriculture and Life Sciences
10:45 AM	
10:45 AM	Fundamental processes in plant nutrient homeostasis Session Location: Cornell University, Bradfield 101, 306 Tower Road, Ithaca, NY 14853, USA Cornell University College of Agriculture and Life Sciences 10:45 – 11:00 AM A tomato under the beam: Tackling the challenges of fresh-tissue SXRF analysis Speaker Paco ROMERO 11:00 – 11:15 AM Toward multimodal synchrotron imaging of pollen wall development in <i>Arabidopsis</i> Speaker Teagen Quilichini

11:15 – 11:45 AM

Transgenerational effects of water limitation on seed morphology, ionome, and performance under nutrient limiting conditions**Speaker**

David Mendoza-Cozatl

11:45 AM

11:45 AM

Lunch (provided)**Break** | **Location:** Cornell University, Emerson 135

12:45 PM

12:45 PM

Plant-soil interfaces and biogeochemical cycling**Session** |**Location:** Cornell University, Bradfield 101, 306 Tower Road, Ithaca, NY 14853, USA Cornell University College of Agriculture and Life Sciences

12:45 – 1:15 PM

Unraveling Dynamic Iron Regulation at the Plant-Microbe Interface**Speaker**

Wolfgang Busch

1:15 – 1:45 PM

Mycorrhizal-Bacterial Interactions and Resource Fluxes at the Plant-Soil Interface**Speaker**

Rachel Hestrin

1:45 – 2:00 PM

Root-secreted Coumarins Increase Phosphorus Bioavailability to Plants through Reductive Dissolution of Iron**Speaker**

Christopher Schuler

2:00 – 2:15 PM

Tracing Mineral Copper Acquisition in Grasses through Imaging and Reduction Kinetics**Speaker**

Luna Natoli

2:15 PM

2:15 PM

Coffee break**Break** |**Location:** Cornell University, Bradfield 101, 306 Tower Road, Ithaca, NY 14853, USA Cornell University College of Agriculture and Life Sciences

2:30 PM

2:30 PM

Metals and nutrient cycling in aquatic systems**Session** |**Location:** Cornell University, Bradfield 101, 306 Tower Road, Ithaca, NY 14853, USA Cornell University College of Agriculture and Life Sciences

2:30 – 3:00 PM

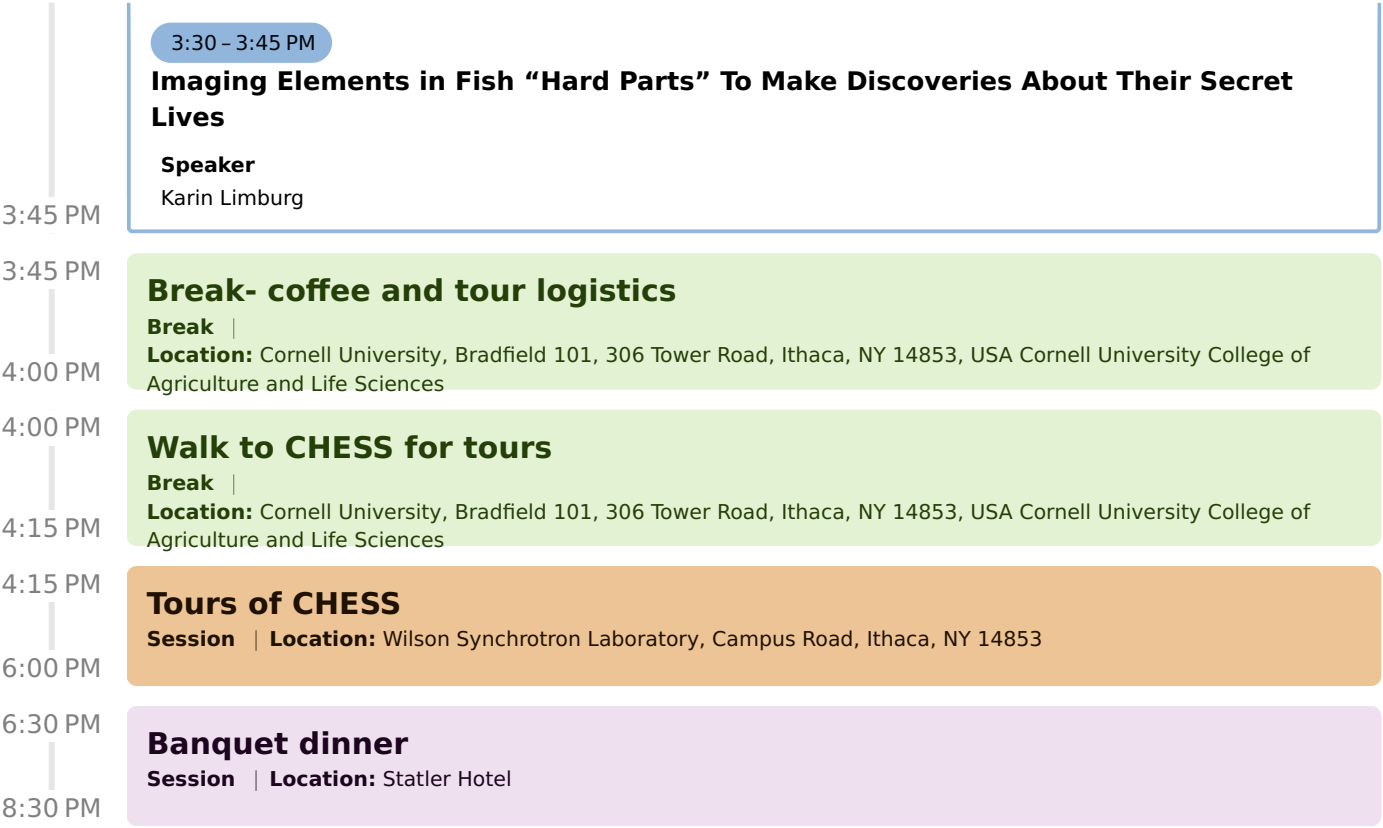
Cell Wall Architecture and Dynamics in the Streptophyte Alga, *Penium margaritaceum***Speaker**

Josephine LoRicco

3:00 – 3:30 PM

Selenium exposure differentially influences methylmercury retention in mayflies**Speaker**

Jacqueline Gerson



Thu, August 6

8:30 AM

Breakfast (provided)

Break | **Location:** Cornell University, Emerson 135

9:00 AM

9:00 AM

Announcements

Contribution |

Location: Cornell University, Bradfield 101, 306 Tower Road, Ithaca, NY 14853, USA Cornell University College of Agriculture and Life Sciences

9:15 AM

9:15 AM

Plants under stimuli (environmental stress, nanoparticles, pathogens)

Session |

Location: Cornell University, Bradfield 101, 306 Tower Road, Ithaca, NY 14853, USA Cornell University College of Agriculture and Life Sciences

9:15 – 9:45 AM

Toward Live Elemental Imaging of Anoxia Responses in Plants

Speaker

Kendal Hirschi

9:45 – 10:15 AM

Exploring plant-environment interactions through multimodal imaging at SSRL

Speaker

Shuxiao Zhang

10:15 – 10:30 AM

Meeting at the Gate: The Role of Root Barriers in Microbe-Induced Resistance

Speaker

Valeria Castaldi

10:30 – 10:45 AM

Foliar application of Nanoscale Iron and Manganese Micronutrients in full life cycle of Soybean (Glycine Max)

Speaker

Sharif Uddin Ahmed

10:45 AM

10:45 AM

Group photo

Break |

Location: Cornell University, Bradfield 101, 306 Tower Road, Ithaca, NY 14853, USA Cornell University College of Agriculture and Life Sciences

11:00 AM

11:00 AM

Coffee break

Break |

Location: Cornell University, Bradfield 101, 306 Tower Road, Ithaca, NY 14853, USA Cornell University College of Agriculture and Life Sciences

11:15 AM

11:15 AM

Plants and critical minerals

Session |

Location: Cornell University, Bradfield 101, 306 Tower Road, Ithaca, NY 14853, USA Cornell University College of Agriculture and Life Sciences

11:15 – 11:45 AM

The Microbe-Mineral Atlas and Biomining Critical Elements

Speaker

Buz Barstow

11:45 AM – 12:15 PM

Advances in Simultaneous Reduction and Nitriding of Iron Oxides using Ammonia by Harnessing Operando Cross-Scale X-Ray Scattering Measurements**Speaker**

Greeshma Gadikota

12:15 PM

12:15 PM

Lunch (provided) + optional campus walk**Break** | **Location:** Emerson Hall, Room 135

2:15 PM

2:15 PM

Plants and food safety and nutritional quality**Session** |**Location:** Cornell University, Bradfield 101, 306 Tower Road, Ithaca, NY 14853, USA Cornell University College of Agriculture and Life Sciences

2:15 – 2:45 PM

Keeping Babies Safe from Farm to Table: Food and Plant Science's Role in Baby Food Manufacturing**Speaker**

Amber Morey-Lanza

2:45 – 3:15 PM

Characterizing Impact of Heat Stress on Rice Nutritional Quality and Safety**Speaker**

Harkamal Walia

3:15 – 3:30 PM

A novel μ XRF based approach to mapping Fe Absorption across the small intestine (*Gallus gallus*)**Speaker**

Eliot Dugan

3:30 – 3:45 PM

Synchrotron XRF-based analyses of minerals distribution in tef (*Eragrostis tef*) seeds and transgenic *Arabidopsis* and rice expressing tef Iron-responsive genes**Speaker**

Ayalew Osen

3:45 – 4:00 PM

The atomic- and molecular underpinnings by which exposure to the anthropogenic exposome impacts food quality.**Speaker**

Mahesh Narayan

4:00 PM

4:00 PM

Poster session**Session** | **Location:** Cornell University, Emerson 135

4:00 – 5:30 PM

Chemical biomarker analysis of *Desmophyllum dianthus* corals in New York Bight Submarine Canyons

4:00 – 5:30 PM

Multimodal imaging at LiX for plant and environmental sciences

4:00 – 5:30 PM

Meeting at the Gate: The Role of Root Barriers in Microbe-Induced Resistance

4:00 – 5:30 PM

Investigating the Role of Copper in Arabidopsis thaliana Reproduction Using X-ray Fluorescence (XRF) Microscopy

4:00 – 5:30 PM

X-ray induced damage in monocot plants at ambient temperature

4:00 – 5:30 PM

XLEAP: A new beamline under construction at CHESS

4:00 – 5:30 PM

Imaging Elements in Fish “Hard Parts” To Make Discoveries About Their Secret Lives

4:00 – 5:30 PM

Predicting Spatial Maps of Iron Redox Heterogeneity Using Multi-Energy μ XRF

4:00 – 5:30 PM

Urea-to-Ammonia Conversion at Proteus mirabilis Modified Pt-Ni/BDD Electrodes

4:00 – 5:30 PM

Uranium Bioremediation in Water Using Geobacter Sulfurreducens Electroactive Biofilm on Boron-Doped Diamond Electrode Modified with Nano Zero Valent Iron

4:00 – 5:30 PM

Refurbished ID21 beamline (ESRF): novel tools for μ -XRF and μ -XANES data acquisition and processing

4:00 – 5:30 PM

Exploring the Role of ACA8 and ACA10 in Ion Homeostasis

5:30 PM

Fri, August 7

8:30 AM

Breakfast (provided)

Break | **Location:** Cornell University, Emerson 135

9:00 AM

9:00 AM

Announcements

Contribution |

Location: Cornell University, Bradfield 101, 306 Tower Road, Ithaca, NY 14853, USA Cornell University College of Agriculture and Life Sciences

9:15 AM

9:15 AM

Looking forward

Session |

Location: Cornell University, Bradfield 101, 306 Tower Road, Ithaca, NY 14853, USA Cornell University College of Agriculture and Life Sciences

9:15 – 9:45 AM

X-ray fluorescence microscopy, the next chapter: correlating elemental distributions with structural features

Speaker

Martina Ralle

9:45 – 10:00 AM

Optimising cryofixation of plant tissues for 2D X-ray microscopy: insights from the ID-21 beamline (ESRF)

Speaker

Gabriel Sgarbiero Montanha

10:00 – 10:15 AM

XLEAP-Enabled Opportunities for Micron-Scale Confocal X-ray Fluorescence Imaging

Speaker

Arthur Woll

10:15 AM

10:15 AM

Coffee break

Break |

Location: Cornell University, Bradfield 101, 306 Tower Road, Ithaca, NY 14853, USA Cornell University College of Agriculture and Life Sciences

10:30 AM

10:30 AM

Looking forward

Session |

Location: Cornell University, Bradfield 101, 306 Tower Road, Ithaca, NY 14853, USA Cornell University College of Agriculture and Life Sciences

10:30 – 10:45 AM

Technique-Independent Analysis Software for Biological Elemental Imaging

Speaker

Tracy Punshon

10:45 – 11:15 AM

Synthetic Biology and Programmable Plant Systems - Opening a Dialogue with Plants

Speaker

Margaret Frank

11:15 AM

11:15 AM

Discussion of operations

Session |

Location: Cornell University, Bradfield 101, 306 Tower Road, Ithaca, NY 14853, USA Cornell University College of Agriculture and Life Sciences

12:00 PM

12:00 PM

Closing remarks and time to complete survey

Contribution |

Location: Cornell University, Bradfield 101, 306 Tower Road, Ithaca, NY 14853, USA Cornell University College of Agriculture and Life Sciences

12:30 PM

12:30 PM

Boxed lunch (provided)

Break | **Location:** Emerson Hall, Room 135

1:45 PM