
ICEENN/CEINT 2018 Training Workshop Agenda

Location: Penn Pavillion
Date: Saturday September 8th , 2018
Time: 9:00am – 1:30pm

9:00 – 10:30 am – PerkinElmer Workshop presented by Dr. Chady Stephan

Course Title: Trends in Single Particle and Single Cell ICP-MS: From particles detection in complex matrices to quantification of particle number and metal content in individual unicellular organisms

Highlight: This course will briefly review the theory of SP-ICP-MS focusing on the state-of-the-art innovations in hardware and software with relation to the latest applications in Environmental, Forensic and Semiconductor sciences. We will introduce the concept of Single Cell-ICP-MS and discuss the challenges faced when analyzing cells compared to NPs with an in-depth focus on the necessary validation required to accurately quantify the number of particles and/or metal content in individual unicellular organism. The implications to human and environmental health applications of this technique will be discussed: Cisplatin uptake by cancer cell, nanoparticles uptake and transformation by fresh water algae and intrinsic metal quantification.

10:30 – 11:00am – Break

11:00 – 12:30 – TOFWERK Workshop presented by Dr. Olga Borovinskaya

Course title: New horizons in elemental analysis of nanoparticles and cells with ICP time-of-flight technology: From single particles to biological tissues

Highlight: This course will focus on inductively coupled plasma time-of-flight mass spectrometry (ICP-TOFMS) and its capabilities to perform multi-element analysis of individual nanoparticles and cells in a variety of different media. We will introduce the concept of fast high-resolution 2D and 3D imaging of nanoparticles and metals in biological tissues and whole organisms using laser ablation sampling techniques, focusing on the latest developments in this field. We will illustrate selected applications of icpTOF technology in environmental nanoscience, material science and cell biology and show how the complexity of multi-parametric information-rich TOF analyses can be reduced by applying state of the art hardware and software tools.

12:30 – 1:30 – Lunch