Room 404AB: Monday, February 17

9:30 AM – 11:00 AM
Carl Zeiss Microscopy LLC

Spectral RICS - Mapping Molecular Interactions in the Cellular Environment
Speaker: Jelle Hendrix, Professor, Hasselt University
Spectral RICS combines LSM imaging with information about the behavior of proteins in their cellular environment. This integrated approach facilitates the identification of regions exhibiting diverse molecular characteristics. Uniquely, through spectral unmixing, Spectral RICS provides an optimal foundation for investigating protein-protein binding behavior. You will learn how Spectral RICs can be used to obtain unbiased information of protein interaction, explore protein mobility within the cellular context, and integrate confocal imaging with molecular characteristics. This talk will also cover the basics of raster image correlation spectroscopy (RICs), show how Spectral RICs helps to broaden the application possibilities for RICs by providing unbiased information on protein-protein interactions, and include application examples to highlight the power of Spectral RICs.

The ZEISS Correlative Cryo Workflow: Connecting Cell Structure and Function in the Near-to-Native State
Speaker: Philipp Bastiansn, Sales Manager, Life Science EM/XRM, Carl Zeiss Microscopy LLC
Cryo-electron microscopy (cryo-EM) has transformed structural biology by providing deep insights into the architecture and dynamics of biological macromolecules and cellular structures. Recent advancements in cryo-EM techniques have improved our ability to visualize complex biological systems in near-native states. While transmission electron microscopy (TEM) offers high-resolution imaging, scanning electron microscopy (SEM) combined with focused ion beam (FIB) technology is essential for producing high-quality specimens for TEM.

This talk will present the ZEISS solution for integrating cell and structural biology through a correlative cryo workflow that combines widefield, laser scanning microscopy (LSM), and FIB-SEM. This approach enables the preparation of targeted, high-quality samples for downstream TEM imaging. Attendees will learn how to examine cellular structures in their near-native state to address fundamental questions regarding protein organization and function.

The ZEISS cryo correlative solution features hardware and software optimized for cryogenic workflows, including the localization of fluorescent macromolecules with the exceptional 3D resolution of LSM and Airyscan detection. It also includes high-contrast volume imaging and on-grid lamella thinning using ZEISS Crossbeam FIB-SEM technology. This streamlined workflow enables high-resolution fluorescence imaging correlated with high-contrast volume imaging and 3D reconstruction, while also accommodating both cryo and room temperature samples.