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Hosted by Assistant Prof Tan Yong Zi

Next-Generation Plasma FIB for High-Resolution Volume Imaging and Cryo-Lamella Preparation



By Xianjun Zhang

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Plasma-focused ion beam (Plasma-FIB) technology has emerged as a powerful platform for cellular structural biology, offering advanced capabilities for both cryogenic sample preparation and high-resolution volume imaging. Unlike conventional Ga-FIB systems, Plasma-FIB employs an inductively coupled plasma (ICP) ion source with four selectable ion species—argon, nitrogen, oxygen, and xenon - enabling optimized milling performance across diverse biological specimens. This multi-ion flexibility enhances compatibility with commonly used embedding media and preparation workflows, providing greater adaptability for different sample types and imaging conditions. Here, we demonstrate how next-generation Plasma-FIB technology enhances both high-resolution volume imaging and efficient cryo-lamella preparation, expanding the possibilities for structural biology applications.

About the Speaker

Xianjun Zhang earned her Ph.D. from ShanghaiTech University, focusing on GPCR structure using X-ray crystallography and electron microscopy. She completed postdoctoral research at USC and Caltech, studying insulin vesicle secretion in situ with cryo-electron tomography and MicroED. She joined Thermo Fisher Scientific in 2021 and is currently Product Manager for Hydra Bio Plasma FIB.



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