

# SEMINAR

## ***X-Ray Microanalysis of Nanoscale Materials in Liquids and Gases in the Analytical S/TEM***

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**12 noon – 1.00pm**

**Science Lecture Theatre S1, 16 Rainforest Walk (Building 25)**

### **Abstract**

Studies of dynamic processes in gases and liquids in the transmission and scanning transmission electron microscope (TEM/STEM) have become routine and the need to go beyond imaging to more fully characterize the microstructure under observation becomes paramount. The use of both x-ray energy dispersive spectroscopy (XEDS) and Electron Energy Loss Spectroscopy (EELS) has been realized during gas/solid reactions, however, this has not been the case for studies in liquids. This is due to two factors namely: 1) multiple inelastic scattering in the liquids making EELS impractical and 2) physical limitations which virtually preclude XEDS measurements in conventional liquid cell S/TEM holders. Recent modifications to holders and optimization of detectors has allowed us to overcome the former limitation. In this presentation we will discuss recent results using a customized holder conducted in FEI Tecnai F20, Titan ChemiSTEM and CM200F TEMs operated at 200 kV, for specimens encapsulated between a pair of 50 nm thick SiN windows in variable gap eCells.

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