

IEN and Hitachi Welcome SEMS 2015 Attendees for a Facilities Tour and Special Sample Preparation Demonstration

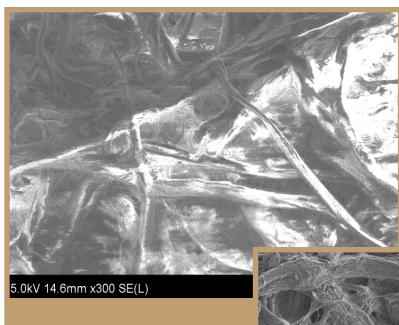
Wednesday May 20, 2015 12:00PM - 5:00PM
 Marcus Microscopy Suite, Level 0 Marcus Nanotechnology Building

Join us for a tour of the Marcus Nanotechnology's Microscopy Suite and a demonstration on new sample preparation processes using ionic liquid on Hitachi's flagship field-emission SEM, the SU8230. Demonstrations will also be given of the the new Hitachi IM4000 Ar ion milling system and the HT7700 120kV TEM during the tour. Lunch will be provided for those who register in advance.

Ionic Liquid Chemical Facts

- Organic salt in a liquid state at ambient temperature
- Low vapor pressure
- Highly conductive
- Highly hydrophilic and hyperosmotic
- Small molecule
- Chemically safe

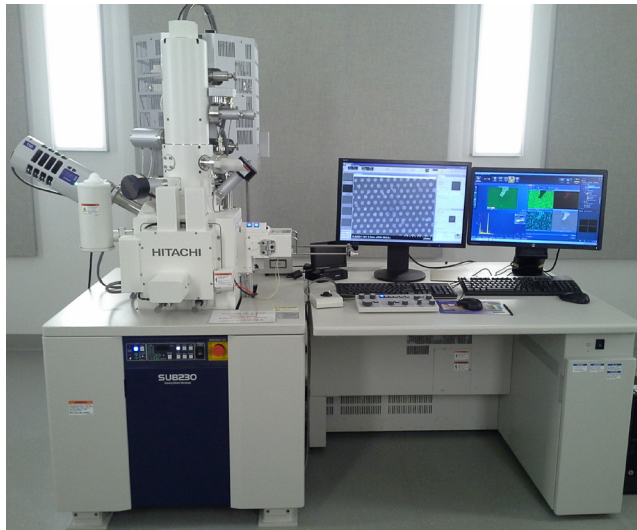
Filter Paper Imaging



Imaged Without Ionic Liquid



Imaged With Ionic Liquid



SU8230 Overview

Ultra high resolution imaging at low V_{acc}

- New high stability & "flash free" CFE gun
- Semi-in-lens type objective lens
- Deceleration function standard
- Optional Top detector high-pass filter

Signal detection systems

- Triple SE detectors(TOP/UPPER/LOWER)
- Ultra surface information, voltage contrast, composite contrast, crystallization contrast, topographic image
- Normal mode/Deceleration mode

3 Large stage & large chamber

- 5-axis motor drive stage
- Large stage & large chamber
- Maximum 150mm dia. sample (200mm dia. sample option)

Ionic Liquid Chemical Uses

- Useful for observation of non/less-conductive materials by providing conductive layer
- Replaces water and maintains shape of object without vaporization under vacuum
- Shortens sample preparation time by eliminating fixation, dehydration, freeze-drying, etc.



Hitachi IM4000 Ar Ion Milling System

- Perform both cross section cutting and wide-area sample surface fine polishing on the same machine
- 66% reduction in cross-section processing time
- Interchangeable sample stage for easy transfer from prep to imaging

HT7700 120kV TEM Overview

Dual Gap Objective Lens Imaging System

- High Contrast imaging mode for unstained biological samples and soft materials that generate low contrast.
- High Resolution imaging mode for lattice imaging of materials samples including nanoparticles.

Completely digital design- no film chamber

- Improved vacuum levels achieved = faster pump-down and less sample contamination
- 2D and 3D imaging of biological and materials samples



Transportation from the hotel to campus will be provided to attendees by Georgia Tech. Please contact Todd Walters (todd@gatech.edu) or Walter Henderson (walter.henderson@ien.gatech.edu) if you would like to participate in this tour and demonstration.