

# Workshop Electron Microscopy



### Nov 14<sup>th</sup> 2019 Thursday

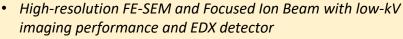
## NEW Capabilities

### BRK 1001 10am





- Located at the BNC SCIFRES Cleanroom
- Resolution → 0.8 nm at 30KV and 1 nm at 1kV
- FE-SEM optimized for high-brightness/high-current with low noise imaging.
- Unique compound lenses for Immersion mode.
- Beam deceleration for higher surface sensitivity and contrast Voltages 200eV – 30kV (20eV Deceleration)
- Unique set of electron detectors



- SEM Resolution  $\rightarrow$  0.6nm at 15kV 2kV and 1nm at 500V
- FIB Resolution → 4nm at 30kV and 500nm at 500V
- Full suit of in-column and in-lens detectors for SE, high-loss BSE, and STEM detection
- Lift out instrumentation for TEM sample preparation



FIB-SEN

**Helios** 



- Probe and Image Corrected with a HT voltage of 60-300kV
- Resolution at 300kV  $\rightarrow$  STEM **0.06 nm** and TEM **0.06nm**
- Monochromator and High Resolution EELS detector with an energy resolution of 80meV at 80kV
- Super-X EDS Detector with 4 SDDs with a resolution of < 136eV</li>
- TEM and STEM Tomography available

Free Registration

Please fill your name and information in the following line https://forms.gle/KKQJTEHn4HxJAprZ7 Lunch Provided!! Vegetarian options!!

#### **Agenda**

10:00 am – SEM Instruments at BNC, Hitachi and Apreo S in the Cleanroom, Alejandro Alcaraz

10:30 am - FIB-SEM Dual Beam Imaging and Micropatterning at BNC, Helios G4 UX, Xingtao Liu

11:00 am – Double Aberration Corrected and Monochromated S/TEM, Themis Z, Rosa E Diaz

11:30 am – Tomography in the S/TEM, Themis Z, Chris Gilpin

11:45 am – Overview of The Electron Microscopy Facilities at Purdue University, *Chris Gilpin* Lunch Session:

12:05 pm – Imaging capabilities at the Surface Analysis Laboratory, *Dmitry Zemlyanov* 

12:20 pm – FIB cross-sections of deeply scaled SiC trench and gate oxide roughness, Madan Sampath

12:35 pm – The impact of FIB on III/V Nitride Semiconductors sample prep for HRSTEM, *Trang Nguyen* 

12:50 pm - Atomic scale characterizations on nano materials in Themis Z, Jie Jin

CONTACTS

Birck\_EM@purdue.edu Rosa E. Diaz, EM Research Scientis rdiazri@purdue.edu

https://wiki.itap.purdue.edu/display/BNCWiki/

TRAINING AND SERVICES AVAILABLE

√ 1-1 Sessions and User Support

✓ Imaging and Elemental Chemical Analysi

ratterning and since-and-view

✓ Tomography and 3D reconstruction

