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**From Nano to Micro Probes: Advanced Characterization Methods**  
**University of Minnesota**

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*Twin Cities Campus, 108 Mechanical Engineering | 111 Church St. | Minneapolis, MN 55455*

**Monday August 28 | Morning Seminars**

8:10 - 8:20	Introduction to IPRIME	Bob Lewis
8:20 - 8:30	Introduction to the Characterization Facility	Greg Haugstad
8:30 - 9:10	Compositional and Chemical Analysis in the TEM	Jason Myers
9:10 - 9:50	Dual-beam FIB/SEM and analysis with EBSD/TKD and STEM EDS	Nick Seaton
9:50 - 10:20	Auger electron spectroscopy and microscopy	Geoff Rojas
10:20 - 10:40	<b>Break</b>	
10:40 - 11:20	X-ray photoelectron spectroscopy	Bing Luo
11:20 - 12:00	X-ray scattering: beyond phase identification and determination of lattice constants	Javier Garcia-Barriocanal
12:00 - 12:30	Nuclear scattering: nondestructive depth profiling and impurity analysis with RBS, FReS and PIXE	Greg Haugstad

**12:30 – 4:30 Monday Afternoon Demonstrations for confirmed participants**

12:30 – 1:30 Lunch and organization (on site for confirmed demonstration participants)

1:30 – 4:30 Monday Afternoon Demonstrations

Analytical TEM	Jason Myers
Analytical SEM	Nick Seaton
Auger spectroscopy	Geoff Rojas
X-ray photoelectron spectroscopy	Bing Luo
X-ray scattering	Javier Garcia-Barriocanal
Ion beam analysis of multilayer systems	Greg Haugstad

**Tuesday Aug. 29 | Morning Seminars**

8:25 - 8:30	Introductory remarks	Greg Haugstad
8:30 - 9:10	CryoSEM	Han Seung Lee
9:10 - 9:55	TEM image analysis and 3D reconstruction	Wei Zhang
9:55 - 10:15	<b>Break</b>	
10:15 - 11:00	Visible-light spectral confocal fluorescence imaging	Mark Sanders & Guillermo Marques
11:00 - 11:30	Confocal Raman Microscopy	Bing Luo
11:30 - 12:00	Valence band characterization by local and integral methods: STM and UPS	Geoff Rojas
12:00 - 12:30	Imaging and probing multiphase materials with advanced AFM	Greg Haugstad

**12:30 – 4:30 Tuesday Afternoon Demonstrations for confirmed participants**

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1:30 – 4:30 Tuesday Afternoon Demonstrations

CryoSEM of aqueous emulsions	Han Seung Lee
TEM 3D image reconstruction	Wei Zhang
Confocal fluorescence microscopy	Mark Sanders & Guillermo Marques
Confocal Raman microscopy	Bing Luo
Ultraviolet photomission spectroscopy	Geoff Rojas
Advanced methods in AFM of soft matter	Greg Haugstad