

Microbeam Analysis Society (MAS) 2007 Topical Workshop



Hyperspectral Imaging II

Advanced Measurement Laboratory (AML)

October 23 – 26, 2007 ♦ NIST, Gaithersburg, MD, USA

TUESDAY, OCTOBER 23

<i>AM</i>	<i>Pre-Workshop Demos</i>	<i>AML Labs</i>
9:00 – 9:30	Welcome and Orientation – Ian M. Anderson, NIST	
9:30 – 12:00	Instrument / Technique Demonstrations I	
<i>PM</i>	<i>Pre-Workshop Demos</i>	<i>AML Labs</i>
12:00 – 1:00	** Lunch and Discussion **	
1:00 – 2:00	AML Lab Tours	
2:00 – 4:30	Instrument / Technique Demonstrations II	
4:30 – 5:00	Post-Demo Discussion and Overview of Workshop Themes	
5:00 – 7:30	** Reception **	<i>Dogfish Head Alehouse</i>

WEDNESDAY, OCTOBER 24

<i>AM</i>		<i>AML Conference Room</i>
8:50 – 9:00	Welcome and Introduction – Edward P. Vicenzi, Smithsonian Institution	
9:00 – 9:40	Visualizing Spectral Images with Multivariate Statistical Analysis Paul Kotula , Sandia National Laboratories, Albuquerque, NM	
9:40 – 10:20	Benefits of Multivariate Statistical Analysis (MSA) during Hyperspectral Image Acquisition Pat Camus , Thermo Fisher Scientific, Madison, WI	
10:20 – 10:40	** Coffee Break **	
10:40 – 11:20	X-ray Energy-Dispersive Spectroscopy (XEDS) with the Silicon Drift Detector (SDD): High Output Count Rate Enables Hyperspectral Imaging in Seconds! Dale Newbury , NIST, Gaithersburg, MD	
11:20 – 12:00	Hyperspectral Phase Identification on the Basis of Semi-Quantitatively and Quantitatively Evaluated Spectra Martin Rohde , Bruker AXS Microanalysis GmbH, Berlin, Germany	
<i>PM</i>		<i>AML Conference Room</i>
12:00 – 1:30	** Lunch **	
1:30 – 1:50	Phase Images using Different Hyperspectral EDS Input Information: Examples from Nature Ed Vicenzi , Smithsonian Institution, Washington, DC	
1:50 – 2:10	Quantitative EPMA with the Silicon Drift Detector and a Comparison to WDS Capabilities Paul Carpenter , Washington University, St. Louis, MO	

2:10 – 2:30	Spectral Imaging of Direct Metal Fabrication (DMF) Ti-6Al-4V using the Thermo UltraDry Silicon Drift EDS Detector Heather Yang, University of California, Irvine, CA
2:30 – 2:50	Plenary Discussion
2:50 – 3:10	** Coffee Break **
3:10 – 3:50	Discussions with Exhibitor and Poster Presenters
3:50 – 4:30	Hyperspectral Data Analysis with Cluster Algorithms and Visualization Tools Nick Wilson, CSIRO-Minerals, Clayton, Australia
4:30 – 5:10	Quantitative Phase Mapping with the NIST-Lispix Method Jeff Davis, NIST, Gaithersburg, MD
<i>Workshop Banquet</i> <i>Courtyard by Marriot, Washingtonian Center</i>	
6:00 – 7:00	** Reception **
7:00 – 8:30	** Dinner **
8:30 – 9:00	Sponsor Presentations by Bruker AXS and Thermo Fisher Scientific

THURSDAY, OCTOBER 25

<i>AM</i> <i>AML Conference Room</i>	
9:00 – 9:40	3D Chemical Imaging using Angle-Scan Tomography in Soft X-ray Scanning Transmission X-ray Microscopes: Current Capabilities, Challenges, and Opportunities Adam Hitchcock, McMaster University, Hamilton, Canada
9:40 – 10:20	High-Resolution 3D Characterization of Nanomaterials using Tilt Tomography in the Scanning Transmission Electron Microscope Ilke Arslan, Sandia National Laboratories, Livermore, CA
10:20 – 10:40	** Coffee Break **
10:40 – 11:20	Coordinated Multi-Instrument Studies of Primordial Extraterrestrial Organics Rhonda Stroud, Naval Research Laboratory, Washington, DC
11:20 – 12:00	Hyperspectral Cathodoluminescence Analysis: Mapping at the ppm Level Colin Macrae, CSIRO-Minerals, Clayton, Australia
<i>PM</i> <i>AML Conference Room</i>	
12:00 – 1:30	** Lunch **
1:30 – 1:50	Statistical and Systematic Errors in EFTEM Spectral Imaging & Tomography Ian M. Anderson, NIST, Gaithersburg, MD
1:50 – 2:10	Combined EDS and EELS spectrum imaging of materials in the TEM Jim Bentley, Oak Ridge National Laboratory, Oak Ridge, TN
2:10 – 2:30	Non-Negative Matrix Factorization of Soft X-ray Spectromicroscopy Data Holger Fleckenstein, Stonybrook University, Stonybrook, NY
2:30 – 2:50	Plenary Discussion
2:50 – 3:10	** Coffee Break **
3:10 – 3:50	Discussions with Exhibitor and Poster Presenters
3:50 – 4:30	Statistical Analysis of Large Samplings of Particle XEDS Spectra Nicholas Ritchie, NIST, Gaithersburg, MD
4:30 – 5:10	Hyperspectral Imaging Analysis with the Sandia AXSIA Code Paul Kotula, Sandia National Laboratories, Albuquerque, NM

FRIDAY, OCTOBER 26

<i>AM</i> <i>AML Conference Room</i>	
9:00 – 10:20	Presentation of Results from Tuesday Demonstrations NIST Staff and Friends
10:20 – 10:40	** Coffee Break **
10:40 – 12:00	Closing Discussions and Drafting of Web-Based Output of Workshop
<i>END OF WORKSHOP</i> <i>Depart to Airports</i>	