

Center for Manufacturing and Metrology



College of Engineering, Technology, and Architecture
UNIVERSITY OF HARTFORD

A short course on

Applied Scanning Electron Microscopy

May 20 - 24, 2013

University of Hartford, Room Dana 102

Dr. Michael T. Postek, Senior Scientist, Physical Measurement Laboratory, NIST

Timothy K. Maugel, Director of the College of Life Sciences' Laboratory for Biological Ultrastructure, University of Maryland, College Park, MD.

Industrial, government and academic scientists have found an increasing need for the scanning electron microscope (SEM) in numerous research, production and quality control applications. Manufacturers of microscopes and accessory equipment have responded to this increased demand with advanced instruments equipped with a wide range of innovative features. To obtain maximum performance from these state-of-the-art instruments, a basic theoretical and practical knowledge of SEM and associated techniques is essential. This intensive four and one-half day course is designed to provide SEM operators with basic theoretical and practical training through the use of integrated lectures and extensive supervised hands-on laboratory exercises on contemporary SEMs equipped with modern accessories. Applied aspects of SEM is directed toward government, academic and industrial users of the SEM who are interested in learning current practical methodology in the operation of the SEM and accessory equipment. The lectures and laboratory exercises are beneficial to microscopists at all levels from novice through advanced users. Due to the limited class size, participants have the opportunity to acquire extensive hands-on experience with modern SEM instrumentation and sample preparation equipment. A total of 16 hours of lecture and a minimum of 20 hours in hands-on laboratory sessions are scheduled into this course.

Monday May 20, 2013	01:00-5:00 PM	Lectures 1 and 2: Course Introduction, Principles of the SEM
Tuesday May 21, 2013	08:00-Noon	Lectures 3 and 4: Operation of the SEM, Derivation of Signals Useful to SEM Collection of Signals
	Noon -1:00 PM	Lunch
	1:00-05:15 PM	Lab Sessions I and II
Wednesday May 22, 2013	08:00-Noon	Lectures 5 and 6: Low Accelerating Voltage, SEM Sample Preparation, SEM Based Metrology
	Noon-1:00 PM	Lunch
	1:00-05:15 PM	Lab sessions III and IV
Thursday May 23, 2013	08:00-Noon	Lectures 7 and 8: Practical X-Ray Microanalysis, Image Processing Diagnostics
	Noon-1:00 PM	Lunch
	1:00-05:15 PM	Lab sessions V and VI
Friday May 24, 2013	08:00-Noon	Lab Sessions VII and VIII
	Noon-1:00 PM	Lunch
	1:00-05:15 PM	Open Lab Sessions IX and X

Course Fee: \$2,395 per attendee.

Laboratory Sessions Include

Basic SEM Operation, Electron Detectors, Low/High Magnification/Resolution Operation, High/Low keV Operation, Qualitative and Quantitative X-ray Microanalysis, Image Analysis, Instrument Maintenance, Voltage Contrast/EBIC.

Dr. Postek is a Senior Scientist and a Supervisory Physical Scientist in the Semiconductor & Dimensional Metrology Division of the Physical Measurement Laboratory (PML) at the National Institute of Standards and Technology (NIST). He is the lead author of "Scanning Electron Microscopy: A Student's Handbook" and numerous research papers.

Timothy K. Mangel is the Director of the College of Life Sciences' Laboratory for Biological Ultrastructure at the University of Maryland, College Park, MD.

Registration Form

Short Course on Applied Scanning Electron Microscopy (May 20-24, 2013)
University of Hartford

Name: _____

Company: _____

Address: _____

Job Function: _____

Phone: _____ email : _____

Fax: _____ Cell phone: _____

Course Fees: **\$2,395**

Payment Options (please print)

- Check (**payable to** Manufacturing Metrology Laboratory, University of Hartford)
- Credit Card
 - American Express
 - Discover
 - MasterCard
 - Visa

Card # _____ Exp. Date (MM/YY) _____ CW Code _____

Billing Address (if different from above):

Street Address: _____ City _____

State/Zip _____

Name on Card _____

Please mail/fax/email the completed registration form and payment to,

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