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INTRODUCTION TO ELECTRON MICROSCOPY APPLICATIONS

An IMS Associates Program
Short Course

May 15-16, 2012

The goal of this 2 day short course is to familiarize the attendees with the applications, capabilities, and limitations of common electron microscopes and associated techniques. By the completion of the course, each attendee will have a better understanding of what can be expected of a microscopy services lab, what type of information can be obtained from each instrument/technique, and how to interpret the data provided by electron microscopy.

The techniques discussed in this short course will be Scanning Electron Microscopy (SEM), Transmission Electron Microscopy (TEM), Energy Dispersive X-ray Spectroscopy (EDXS), and Focused Ion Beam (FIB). The course will familiarize the attendees with the basic hardware and functions of the instruments, explain how images are formed and how to interpret them, and provide live demonstrations on each instrument.

Course Highlights

- Introduction and Overview of Instrument Hardware
- Sample Preparation and Handling
- Data Acquisition and Interpretation
- Capabilities and Limitations of Techniques
- Demonstrations

Who Should Attend

This course is intended for non-experts who are responsible for requesting microscope services, or who will be receiving and interpreting results.

About Your Instructor

Roger Ristau, Ph.D., Lead Analytical Scientist in the IMS Microscopy Laboratory

Dr. Ristau received M.S. and Ph.D. degrees from Lehigh University, Bethlehem, PA. He has worked as a research development scientist at Seagate, provided service and support to a wide spectrum of industries at Evans Analytical Group, and operated the TEM facility at Sandia National Lab in Livermore, CA.

Dr. Ristau joined IMS in 2004 to manage operations in the Institute's Electron Microscopy Laboratory. In addition to ensuring operation of the lab's numerous microscopes, he standardized user training and has trained hundreds of new microscope users. He acts as an expert resource for the use of the lab's instrumentation in IMS research efforts. He also supports industry outreach and materials problem solving for the IMS Associates Program.