



University of Illinois at Urbana-Champaign Fourth Advanced Materials Characterization Workshop

June 9-10, 2010



Sponsors:



This workshop will provide a **critical, comparative** and **condensed overview** of mainstream analytical techniques for materials characterization with emphasis on practical applications. The workshop will cover the following techniques:

- Atomic force microscopy (AFM)
- X-ray diffraction, reflectivity and fluorescence (XRD, XRR, XRF)
- Scanning and transmission electron microscopy (SEM, TEM, STEM); focused ion beam (FIB)
- Auger electron spectroscopy (AES) and x-ray photoelectron spectroscopy (XPS)
- Secondary ion mass spectrometry (SIMS) and Rutherford backscattering (RBS)
- Optical spectroscopy (Raman, Photoluminescence, FTIR, ellipsometry), etc.

Lectures will be presented by scientists with extensive academic and industrial experience in each technique. The following topics will be covered:

- A short review of the **fundamentals** of each analytical technique.
- Critical review of **strengths and weaknesses** of each technique: how to combine techniques to extract the best possible complementary information.
- **Comparative** review of the instrumentation options with emphasis on differences in resolution, sensitivity, detection limits, and sample requirements.
- Data acquisition **strategies** and data processing methods.
- Expert tips on how to **avoid measurement artifacts**.
- Detailed discussion of practical examples including industrial **applications** in nanotechnology, microelectronics, thin films, coatings, bioengineering, mineralogy, medical and pharmaceutical research.

This workshop will also include an **instrument vendors' show**, where industrial scientists will introduce new instrumentation and discuss new applications and technologies.

Laboratory tours displaying the main instruments available at the CMM will be offered during this workshop.

Register now – space is limited (registration required)

Registration: \$65.00 per person. This includes full access to lectures, vendors show, downloadable literature, lab tours, lunches, beverage/food during breaks, reception and networking events.

<http://cmm.mrl.illinois.edu/workshop2010>

Frederick Seitz Materials Research Laboratory

