



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

- Atomic force microscopy (AFM).
- X-ray diffraction, reflectivity and fluorescence (XRD, XRR, XRF) including high-temperature analysis.
- 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.
- New added topics: confocal microscopy, diffuse laser scattering and nanoindentation analysis.
- New this year: a separate tutorial on sample prep and analysis of biological material.

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.

The 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 analytical instruments available at the MRL will be offered during this workshop.

Register now – space is limited (registration required)

Price freeze! Same low-cost registration fee as last year: \$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.

Workshop information and registration details:
<http://cmm.mrl.illinois.edu/workshop2011>