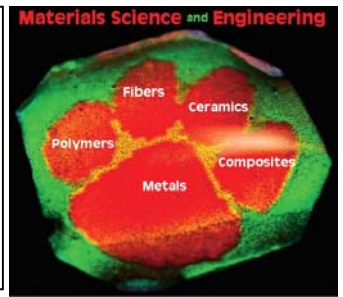


## Seminar Series

Sponsored by  
School of Materials Science and Engineering  
Thursday, September 18, 2008, 5:00 PM  
Room 200 Olin Hall



### SEM, TEM, XPS Workshop Abstract

**This presentation will give a brief overview of Scanning Electron Microscope (SEM,) Transmission Electron Microscope (TEM), and X-Ray Photoelectron Spectroscopy (XPS), as analytical tools used in research. Both SEM and TEM are microscopy techniques that use electron beams to interact with the specimen to form an image. These instruments are capable of magnification up to 250,000X for SEM and 50,000,000X for TEM. In addition to the introduction and history of these tools the fundamental instrumentation, necessary sample preparation, and techniques will be examined. Besides SEM and TEM having different magnifications capabilities, the disadvantages and advantages of the instruments are considered as part of research options. XPS, a complimentary technique to SEM and TEM, is an analytical tool which gives information on chemical composition and structure of a surface region. It can be used on any surface, most common applications occur in materials science, electrochemistry, and biology. XPS will be looked at in terms of theory, instrumentation, and techniques. Data will be presented as it is used in real life applications and the advantages and disadvantages of XPS will be discussed.**