

# Colloquium Notice

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### *X-ray microscopy: new views of the complex world*

X-ray microscopes are able to deliver images of micrometers-thick samples at tens of nanometers resolution. I describe new developments which go beyond simple imaging to look at the complexities of real life problems. By analyzing spectroscopic image sequences taken across the carbon absorption edge, one can understand nanoscale heterogeneities in organic chemistry relevant to biofuels materials as well as soil bacteria that act to alter metal toxicity. By combining fluorescence with phase contrast, one can obtain quantitative maps of trace element concentration which provides insights into problems such iron as a limiting factor in CO<sub>2</sub> uptake by the oceans. By directly inverting diffraction data one can image cells without the resolution and damage-enhancing inefficiencies of x-ray lenses. These examples illustrate how new capabilities in x-ray microscopy are providing new views of the complex world that complement the capabilities of light and electron microscopy

*Note: Joint with Chemistry Department*

Monday  
**April 6, 2009**  
Starts at 12:15 PM  
Coffee at 12:00 PM  
**Remsen 105**