

**ANALYTICAL/PHYSICAL SEMINAR**  
**MONDAY-OCTOBER 26, 2009**  
**4:00 PM IN ROOM 2006 HEB**  
**Hosted by: Dr. Jennifer Shumaker-Parry**



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*“Breaking the far-field diffraction barrier:  
Optical nanopatterning and nanoscopy enabled by chemistry”*

A technique for creating deterministic structural complexity is essential to achieve high functionality at the nanoscale, whether in electronics, photonics, or molecular biology. Scanning-electron-beam lithography (SEBL) is the most widely used method in research, but it has a number of drawbacks. SEBL tends to be slow, expensive, prone to placement errors, and not compatible with organics and biological material. Ideally one would prefer to employ benign photons in the visible or near IR range for such patterning. However, the so-called far-field diffraction barrier limits the smallest feature achievable by wavelength,  $l$  to  $\sim l/4$ . In this presentation, I will describe a technique that circumvents this barrier by means of wavelength-selective chemistry. I call the technique *Absorbance Modulation*.

Site: <http://www.lons.utah.edu/research.html>