Probing the Nanoscale with a Combination of Theory and Microscopy

Calculations based on density functional theory using high-performance computers have made enormous strides in describing the atomic-scale properties of complex materials. In parallel, aberration-corrected scanning transmission electron microscopy has reached extraordinary levels of spatial and energy resolution, in both imaging and electron-energy-loss spectroscopy. The combination of theory and microscopy provides an unparalleled probe to unravel the atomic-scale processes that control vital properties for electronic, optoelectronic, magnetic, and energy-related applications. You are invited to a journey through the wide world of complex materials structures—semiconductors, superconductors, complex oxides, graphene, ultrasmall nanoparticles—for a first-hand experience of the nanoscale. Research supported by DOE Basic Energy Sciences; primary collaborator: Steve Pennycook (ORNL).

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March 26, 2013 (Tuesday) at 3:30pm (Refreshments at 3:00pm)
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Host: Theodore Moustakas, David Campbell