

THE DEPARTMENT OF CHEMICAL ENGINEERING presents the



ELI SUTTER SPECIAL SEMINAR

CENTER FOR FUNCTIONAL NANOMATERIALS,
BROOKHAVEN NATIONAL LABORATORY
MONDAY, APRIL 21, 2014
2:00 P.M. IN WEB 1650 (ECCLES BOARDROOM)

Understanding Nanomaterials: In-Situ Imaging, Measurements, and Manipulation in the Electron Microscope

Abstract:

The promise of nanoscience lies in the fact that nanomaterials can show distinct properties that are not simply scaled-down bulk characteristics. Transmission electron microscopy (TEM) provides the necessary spatial resolution to observe individual nanostructures. Beyond imaging, TEM can be used to follow the behavior and measure properties of nanostructures over a wide range of environmental conditions. Finally, the high-energy electron beam often represents an invasive probe that can interact strongly with nano-objects. Used judiciously, this property can make it a unique tool for both activating and tracking processes at the nanoscale.

I will illustrate the power of in-situ imaging, measurements, and manipulation in the quest to understand the distinct properties of nanomaterials, their synthesis, and their transformation via controlled physical and chemical processes at the ultimate size limit.

Short Biography:

Eli Sutter is a Scientist in the Electron Microscopy Group at the Center for Functional Nanomaterials (CFN) at Brookhaven National Laboratory. She received M.S. and Ph.D. degrees in Condensed Matter Physics from Sofia University. She then held postdoctoral positions at the Swiss Federal Institute of Technology (ETH Zurich) and at the University of Wisconsin-Madison. From 2000 till 2004 she was an Assistant Professor (tenure track) in Physics at the Colorado School of Mines. She joined the CFN in 2004 where her research focuses on in-situ transmission electron microscopy at variable temperatures and in different environments, mechanisms of epitaxial growth and nanostructure formations, and 2-D materials and heterostructures. She received a Scientific American 50 award for Ultra-measurements in 2007 and the Sapphire Prize in 2011. She has authored more than 145 scientific publications and holds 4 US Patents. She is co-chair of the International Conference on Nanoscience + Technology 2014.