UAB ADVANCE
Office for the Advancement of Women in Science and Engineering

UAB Department of Physics

UAB ADVANCE Distinguished Female Visiting Scholar

Dr. Antoinette Taylor

Co-Director

Center for Integrated Nanotechnologies

Los Alamos National Laboratory

Thursday, March 6, 2008

12:45 pm—1:30 pm

"Ultrafast Dynamics in Complex Materials"

Campbell Hall Room 405

UAB ADVANCE
Office for the Advancement of Women in Science and Engineering

UAB ADVANCE Distinguished Female Visiting Scholar

12:30 –1:30pm, Thursday March 6, 2008, CH405

Ultrafast Dynamics in Complex Materials

Antoinette Taylor

Center for Integrated Nanotechnologies

Los Alamos National Laboratory

I will discuss the development and application of novel optical spectroscopic techniques to the study of ultrafast dynamics in complex materials. I will first describe all-optical pump probe and optical-pump far-infrared probe experiments for the investigation of correlated electron materials such as heavy ferminons, superconductors and magnetic materials. We have further extended these measurements to reveal dynamics in structured materials, including self-assembled semiconducting quantum dots and electromagnetic metamaterials. This talk will also include an overview of the Center for Integrated Nanotechnologies (CINT). CINT is a Department of Energy/Office of Science Nanoscale Science Research Center (NSRC), jointly operated by Sandia and Los Alamos, devoted to establishing the scientific principles that govern the design, performance, and integration of nanoscale materials. CINT is one of five NSRCs throughout the U.S. that form an integrated national program, affiliated with major facilities at the DOE's National Laboratories, to cover the diverse aspects of nanoscience and technology. This complex aspires to become a cornerstone of the nation's nanotechnology revolution, contributing to DOE's principal missions in national defense, energy, and the environment while providing an invaluable resource for universities and industries.

About Dr. Taylor:

Antoinette (Toni) Taylor received her B.S., M. S. and Ph.D. degrees in physics from Stanford University where she was a Hertz Foundation predoctoral and doctoral Fellow. She is currently the Co-Director of the Center for Integrated Nanotechnology, a joint Sandia/LANL nanoscience center funded through the Office of Science in the Department of Energy. Her research interests include ultrafast dynamics of complex materials on the nanoscale, including spin-charge-lattice interactions in correlated electron materials, nonlinear optical effects in microstructured fibers, the ultrafast dynamics of phase transitions in solids, the development of terahertz technology, metamaterials and the development of spatially and temporally local probes. She is a former Director-at-Large of the Optical Society of America and Topical Editor of Journal of the Optical Society B: Optical Physics. She is a Fellow of the American Physical Society, the Optical Society of America, and the American Association for the Advancement of Science and has held leadership positions in these societies.

UAB Department of Physics

Los Alamos NATIONAL LABORATORY EST. 1943

CINT