

## The Center for Integrated Nanotechnologies

*Dr. Robert Hwang*

*Center for Integrated Nanotechnologies*

\* *rqhwang@sandia.gov*

### ***Presentation***

***Abstract:*** The Center for Integrated Nanotechnologies (CINT) is one of five Nanoscale Science Research Centers supported by the U.S. Department of Energy's Nanoscale to promote and accelerate interdisciplinary research in nanoscale phenomena. These facilities are located at national laboratories distributed across the U.S. The distinguishing characteristic of CINT is its emphasis on exploring the path from scientific discovery to the integration of nanostructures into the micro and macro worlds. This pathway involves the experimental and theoretical exploration of behavior, the development of a wide variety of synthesis and processing approaches, and an understanding of new performance regimes, testing design, and integration of nanoscale materials and structures. Integration itself is key to the exploitation of nanomaterials, and the scientific challenges that it poses are at the heart of CINT's mission.

CINT is also unique in that it is operated as a partnership between two national laboratories, Sandia National Labs and Los Alamos National Lab. In this way CINT builds on the strength of both labs. The scientific activities within CINT are organized into four thrust areas: Nanoscale Electronics and Mechanics; Nanophotonics and Optical Nanomaterials; Soft, Biological and Composite Nanomaterials; and Theory and Simulation of Nanoscale Phenomena.

In this talk, I will describe the science and technology activities in CINT and highlight areas that may be of interest to the nanomanufacturing.

This work was performed, in part, at the Center for Integrated Nanotechnologies, a U.S. Department of Energy, Office of Basic Energy Sciences user facility operated jointly by Los Alamos and Sandia National Laboratories. Sandia National Laboratories is a multi-program laboratory operated by Sandia Corporation, a Lockheed-Martin Company, for the U. S. Department of Energy under Contract No. DE-AC04-94AL85000.