

UNIVERSITY OF NOTRE DAME
DEPARTMENT OF PHYSICS

NUCLEAR SEMINAR

Monday, January 22

Understanding and Controlling Material Properties through Focused Ion Beam Technology

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Identifying and implementing methods which create material with functionalities transcending multiple length scales is one of the grand challenges of science and technology. Even with the advent of microscopies which can probe the nanoscale many challenges remain to fully understand and utilize such material functionalities. This talk will address some efforts underway at U.S. national laboratories to meet these challenges by leveraging the control and capability offered by focused ion beam technology. At the National Institute of Standards and Technology, work which is being performed to understand the fundamental aspects of nanoparticle epitaxial growth and their application merging nanoparticle growth (bottom-up) with traditional microfabrication (top-down) processes. At Sandia Laboratories I will outline investigations demonstrating initial successes to create scalable qubit architectures in traditional microfabrication processes and the capabilities developed to meet these challenges. In both studies the ability to modulate material properties at the nanoscale using focused ion beam technology takes the lead, and highlights the versatility of control we now retain at the nanoscale.

4 pm – 5 pm
**Nuclear Science
Laboratory**
**124 Nieuwland
Science Hall**

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All interested  
persons are  
cordially invited  
to attend

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Refreshments will be
served prior to the
seminar in room 124