

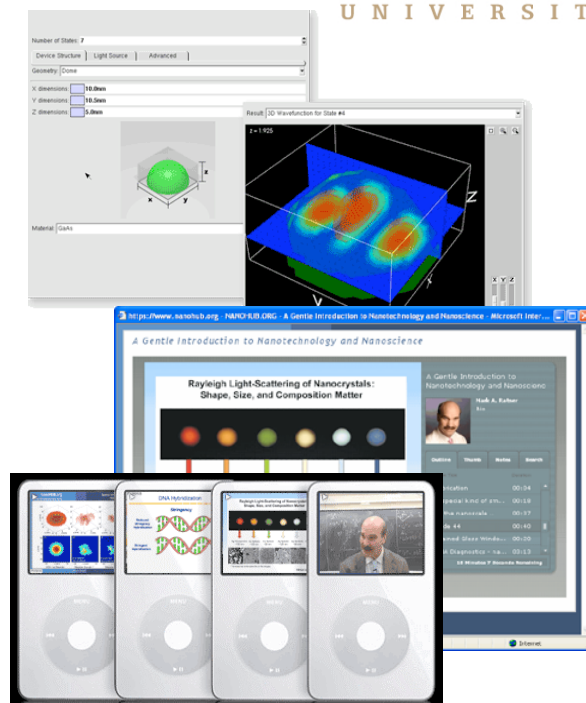
### Cyber Center Lecture Series

**HUB Technologies:  
A Fully Operational Collaborative  
Cyberinfrastructure for Research, Education,  
and Outreach**

**Shared Infrastructure Available for You  
Today!**

**Wednesday Sept. 6, 2006 2:30 p.m.  
Burton Morgan, Room 121**

**Gerhard Klimeck and Michael McLennan  
Purdue University**



Cyberinfrastructure has the potential to be an enabling technology to connect large user communities through services for research, education, computing, visualization, and collaboration. Over the next few years, significant funding opportunities to apply cyberinfrastructure to many fields of science and engineering are expected. The Network for Computational Nanotechnology (NCN) has created an infrastructure that enables exactly these capabilities for researchers and educators through its science gateway, the nanoHUB, which now serves over 14,000 users. These users can access state-of-the-art simulation tools and associated training materials, and run live simulations through any standard web browser—without the need to download, install, and support software. A software development platform that enables the simplified creation of user interfaces within a web-based development platform has been developed and used to deploy over 20 new simulation tools in the past year. Hardware accelerated visualization and transparent connections to computing services on various grids make the nanoHUB an effective computing platform for both research and education. More than 77,000 simulations were performed through the nanoHUB over the last year alone. In addition to online simulation, the nanoHUB also offers online tutorials, seminars, and learning modules using flash-based technology that can be created by any person on their own PC. The nanoHUB also provides services for online collaboration and for collaborative software development. The nanoHUB hosts material from over 250 contributors reaching far beyond the NCN personnel.

The overall HUB infrastructure developed by the NCN has broad applications to many fields of science and engineering. It is designed to serve a broad audience and has built-in capabilities to measure impact on research, education and outreach. No major additional capabilities need to be developed for this system to have immediate impact; the system is ready for adoption by other science and engineering disciplines. This presentation will outline the nanoHUB capabilities without being really nano-specific.

Dr. Gerhard Klimeck is the Technical Director of the NCN, Technical Director of the Cyber Center, and Professor of Electrical and Computer Engineering. Dr. Michael McLennan is a Senior Research Scientist at the Rosen Center for Advanced Computing and the application software architect of the nanoHUB.

***Distribute to faculty***