

# Center for High-End Computing Systems Seminar Series

## Melding Power Devices, Electrical Power Simulation, and Computer Simulation/Emulation

**Prof. David Nicol, ECE**  
**University of Illinois at Urbana-Champaign**

**Time:** 11:15 am, Monday January 26<sup>th</sup> 2009

**Location:** McBryde 110

### **Abstract**

Security of our nation's critical infrastructures is a pressing issue for our nation's safety. Systems such as the electrical power grid are controlled by computer/communication networks, and as such have the potential that an intruder remotely gain access to the network and adversely affect control of the infrastructure. Interest is high, therefore, in technology that helps protect such networks from penetration. Interest is also high, therefore, in means of assessing how effective protective technologies are. This talk describes a testbed that combines a mature simulation of electrical power generation/transmission, a powerful computer/communication network simulator, and actual hardware and software used in the power grid. Using the testbed we can demonstrate vulnerabilities in the power grid, as well as study the effectiveness of real and modeled security technologies in large-scale networks that control critical infrastructure.

### **Biography**

David M. Nicol is Professor of Electrical and Computer Engineering at the University of Illinois, Urbana-Champaign. His research interests encompass modeling and simulation, high performance computing, and security. He is co-PI of the NSF Cybertrust Center, "Trustworthy Critical Infrastructure for Power". He was elected Fellow of the IEEE, Fellow of the ACM, and was the inaugural recipient of the ACM SIGSIM Distinguished Contributions Award.