Southern Illinois University
Carbondale

Department of Physics
Seminar

“Spatiotemporal Correlations in Magnetic Interfaces Using Speckle Patterns"

By
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From
Advanced Light Source
Lawrence Berkeley National Laboratory

Friday, September 2, 2011
4:00 p.m.

Neckers Building, Room 440
(Refreshments in Neckers 493 at 3:30 p.m.)
The emerging technology of spintronics depends heavily on nanoscale architectures and confinement. Examples include ferromagnetic/antiferromagnetic sandwiches and multilayers quantum cells that form the basis of “read-heads” and storage media. Shining the magnetic interface with beam of coherent x-rays gives speckle pattern that helps in unraveling new static and dynamic properties of ferromagnetic/antiferromagnetic interfaces. By determining time and angular correlations we have discovered hidden symmetries in domain patterns and their dynamics. We will discuss lensless x-ray imaging and holography in reflection geometry, and its potential to image magnetic Bragg planes. Finally we will present results on temporal evolution of equilibrium fluctuation of a helical antiferromagnet.