



WEEKLY CALENDAR

Physics & Astronomy

202 Nicholson Hall



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Louisiana State University

October 25, 2004

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GENERAL SEMINAR

**TURNING UP THE HEAT AT ZERO TEMPERATURE:
Quantum Phase Transitions and non-Fermi Liquid Behavior**

Dr. Qimiao Si
Rice University

Thursday, October 28, 2004, 3:40 PM in Room 109 Nicholson Hall

Host: Dr. John DiTusa

Abstract

At absolute zero, phase transitions arise when quantum fluctuations are tuned. Quantum criticality has important effects at finite temperatures, including non-Fermi liquid behavior and unconventional superconductivity, as has been established in heavy fermion metals and is suspected in high temperature superconductors. I will describe some of the qualitative puzzles of the quantum critical heavy fermion metals, and their explanation in terms of a "local quantum critical" theory. A salient feature of the theory is a sudden transformation of the Fermi surface across the quantum critical point; evidence for this has just emerged from very recent Hall-effect measurements. These results go beyond the standard theories of critical phenomenon and Fermi liquid, and are expected to have wider implications for the physics of strongly correlated electrons in general.

Solid State Seminar

"AFM-Based Nanolithography with Self-Assembled Monolayers"

Dr. Jayne Garno

LSU, Chemistry Department

Monday, October 25, 2004 at 3:40 PM in Room 280 Nicholson

Congratulations To:

Dr. Jorge Pullin who was appointed to the advisory board of the Kavli Institute for Theoretical Physics at the University of California at Santa Barbara.

Reminder

Steering Committee meeting will be held on Tuesday, October 26, 2004 at 3:40 p.m. in Room 200.

Announcement:

Office of Motor Vehicles Mobile Customer Service Center will be on campus Wednesday and Thursday, October 27 & 28, 2004, from 9:00AM to 3:00PM each day. The location will be on Tower Drive (Between LSU Union and Coates Hall).

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