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Baton Rouge, Louisiana 70803-4001

WEEKLY CALENDAR

January 28, 2008

GENERAL SEMINAR

“TBA”

3:40 PM – Thursday, January 31, 2008
109 Nicholson Hall

Robert Bradford
University of Rochester

Host – William Metcalf

•Refreshments served at 3:15 PM in 201 Nicholson Hall•

Reminder:

There will be a faculty meeting on January 29, 2008 at 3:40 pm in Room 109.

Publications:

“Discovery of the Griffiths Phase in the Itinerant Magnetic Semiconductor $\text{Fe}_{1-x}\text{Co}_x\text{S}_2$,” S. Guo, **D. P. Young**, R. T. Macaluso, **D. A. Browne**, N. L. Henderson, J. Y. Chan, L. L. Henry, and **J. F. DiTusa**, Phys. Rev. Lett. 100, 017209 (2008).

Critical points that can be suppressed to zero temperature are interesting because quantum fluctuations have been shown to dramatically alter electron gas properties. Here, the metal formed by Co doping the paramagnetic insulator FeS_2 , $\text{Fe}_{1-x}\text{Co}_x\text{S}_2$ is demonstrated to order ferromagnetically at $x \approx 0.01 \pm 0.005$, where we observe unusual transport, magnetic, and thermodynamic properties. We show that this magnetic semiconductor undergoes a percolative magnetic transition with distinct similarities to the Griffiths phase, including singular behavior at x and zero temperature, Phys. Rev. Lett. 100, 017209 (2008).