

WEEKLY CALENDAR

17 April 2006



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Material Science & Engineering Seminar

3:40PM / Wednesday, 19 April 2006 / Room E-130 Howe-Russell

Host: Dr. Ilya Vekhter

Field-Induced Suppression of the Charge Order State and Shubnikov-de Haas Oscillations in Na_xCoO_2

Luis Balicas, PhD

National High Magnetic Field Laboratory
Florida State University

Li_2CoO_2 has been extensively used to build cell phones and laptop batteries. The replacement of Li by Na creates a new series of compounds showing a quite complex and rich phase diagram. For certain Na concentrations the observation of a large thermoelectric effect opens the possibility of technological applications, while the hydration of the compound having $x = 0.3$ has led to the discovery of superconductivity which several experimental techniques claim to be rather unconventional. Here we will show measurements done at high magnetic fields with the goal of addressing the electronic structure near the Fermi level, since the pairing mechanism and consequently the superconducting transition temperature critically depends on it. We will also show that high fields can provide relevant information concerning the nature of the ground states observed for certain concentrations, for instance, for the so-called charge ordered state observed for $x = 0.5$.

General Seminar

3:40PM / Thursday, 20 April 2006 / Room 109 Nicholson

**** CANCELED ****

Congratulations to:

Nickolas VanMeter, for being named 2006 Goldwater Scholar. Nick is 1 of only 3 Goldwater recipients at LSU this year.

Jerry Coleman, for being awarded a Seaborg Institute Summer Fellowship to work at Lawrence-Livermore National Laboratory this summer.

Publications:

G.W. Ford and R.F. O'Connell. Anomalous Diffusion in Quantum Brownian Motion with Colored Noise. *Physical Review A* **73**, 032103 (2006).

C.R. Hanna. Reducing Gravitational Wave False Alarms Using Signals at the Antisymmetric Port in LIGO Detectors. *Class. Quantum Grav.* **23**, S17-S22, (2006).

D. Neilsen, L. Lehner, O. Sarbach, M. Tiglio. Recent Analytical and Numerical Techniques Applied to the Einstein Equations. *Lecture Notes in Physics* **692**, pp. 223-249 (February 2006).

X.S. Wu, Y. Yang, R.L. McCarley, and P.W. Adams. Spin Proximity Effect in Ultrathin Superconducting Be-Au Bilayers. *Physical Review Letters* **96**, 127002 (2006).

B. Zink, E. Pazos, P. Diener and M. Tiglio. Cauchy-perturbative Matching Reexamined: Test in Spherical Symmetry. *Physical Review D*, **73**, 084011 (2006).