

## WEEKLY CALENDAR

August 30, 2010

### Departmental Colloquium

3:40 PM, September 2, 2010  
109 Nicholson Hall

**"Why is the Expansion of the Universe Accelerating One of the Biggest Puzzles in Cosmology!"**

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*University of Texas - Dallas*

*Host: Juhan Frank*

• *Refreshments served at 3:15 PM in 232 (Library) Nicholson Hall* •

For more than a decade, a number of cosmological observations have been indicating that the expansion of the universe is accelerating. Cosmic acceleration and the questions associated with it have become one of the most challenging and puzzling problems in cosmology. Cosmic acceleration can be caused by i) a repulsive dark energy pervading the universe, ii) an extension to general relativity that takes effect at cosmological scales of distance, or iii) the acceleration may be an apparent effect due to the fact that the expansion rate of space-time is uneven from one region to another in the universe. I will review the basics of these possibilities and provide some of our recent results on these questions.

#### PUBLICATIONS:

1. "Carbon-stabilized iron nanoparticles for environmental remediation", Di Zhang, S. Wei, C. Kaila, X. Su, J. Wu, **A.B. Karki**, **D.P. Young**, and Z. Guo, *Nanoscale* **2**, 917–919 (2010).
2. "Magnetic and thermodynamic properties of cobalt-doped iron pyrite: Griffiths phase in a magnetic semiconductor", **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. B* **81**, 144423 (2010).
3. "Charge transport in cobalt-doped iron pyrite", **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. B* **81**, 144424 (2010).
4. "Crystal growth and physical properties of  $\text{Ln}_2\text{MGa}_{12}$  (Ln=Pr, Nd, and Sm; M=Ni, Cu)", K. R. Thomas, J. Y. Cho, J. N. Millican, R. D. Hembree, **M. Moldovan**, **A. B. Karki**, **D. P. Young**, and Julia Y. Chan, *J. Cryst. Growth* **312**, 1098-1103 (2010).
5. "Dynamical cluster quantum Monte Carlo study of the single-particle spectra of strongly interacting fermion gases", **Shi-Quan Su**, **Daniel E. Sheehy**, **Juana Moreno**, and **Mark Jarrell**, *Physical Review A* **81**, 051604(R) (2010).
6. "Coherent-light-boosted, sub-shot noise, quantum interferometry", **William N Plick** **Jonathan P Dowling** and Girish S Agarwal, 2010 *New J. Phys.* **12** 083014.
7. "An invisible quantum tripwire", **Petr M Anisimov**, **Daniel J Lum**, **S Blane McCracken**, **Hwang Lee** and **Jonathan P Dowling**, 2010 *New J. Phys.* **12** 083012.