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Baton Rouge, Louisiana 70803-4001

September 17, 2007

Departmental Colloquium

"Towards measuring black hole spin"

3:40 PM - Thursday, September 20, 2007

109 Nicholson Hall

Jon Miller

University of Michigan

Host – Robert Hynes

• Refreshments served at 3:15 PM in 229 Nicholson Hall •

Constraints on black hole spin are just within reach of present techniques and instrumentation. Spin can determine how much radiation black holes can pump into their galactic environments, the nature of relativistic jets that black holes launch, and - perhaps most interestingly - the nature of the spacetime close to black hole itself. At present, no technique for constraining spin is mature, but the potential for tight constraints that can properly be called "measurements" is real. I will review current progress towards constraining the spin parameter of both stellar-endpoint black holes, and the supermassive black holes in the center of galaxies.

Welcome To:

Travis Garrett, a Postdoctoral Researcher with the General Relativity Group. He is in Room 241-D, Ext. 8-7636.

Slaven Radic, an Intern with Dr. Thomas Kutter. He is in Room 220A, Ext. 8-8318.

Congratulations To:

Dr. Luis Lehner who will be one of the participants in the invitation-only workshop "Enabling Science Discoveries through Visual Exploration", organized by the National Science Foundation in Washington, D.C. on September 27-28, 2007.

PUBLICATIONS

- "Measurement of the ν_e and Total ^8B Solar Neutrino Fluxes with the Sudbury Neutrino Observatory Phase I Data Set," The SNO Collaboration..., J. Goon, ..., T. Kutter, ... et al, Phys. Rev. C 75, 045502 (2007).
- "UBVRI Photometric Standard Stars Around the Sky At -50° Declination," by Arlo U. Landolt, 2007, Astronomical Journal, 133, 2502.

- "Scalar field confinement as a model for accreting systems," **Miguel Megevand**, Inaki Olabarrieta and **Luis Lehner**, *Class. Quantum Grav.* 24 (2007) 3235-3258.
- "Crystal growth and magnetic properties of $\text{Ln}_4\text{MGa}_{12}$ ($\text{Ln} = \text{Dy-Er}$; $\text{M} = \text{Pd, Pt}$)," Jung Young Cho, Monica Moldovan, **David P Young** and Julia Y Chan, *J. Phys.: Condens. Matter* 19, 266224 (2007).
- "Cubic Laves ferromagnet TbNi_2Mn investigated through ambient-pressure magnetization and specific heat and high pressure ac magnetic susceptibility," D. D. Jackson, S. K. McCall, S. T. Weir, A. B. Karki, **D. P. Young**, W. Qiu, and Y. K. Vohra, *Phys. Rev. B* 75, 224422 (2007).
- "Magnetic and electromagnetic evaluation of the magnetic nanoparticle filled polyurethane nanocomposites," Guo, Zhanhu, Park, Sung, Hahn, H. Thomas, Wei, Moldovan, Monica, **Karki, Amar B., Young, David P.**, *Journal of Applied Physics* 101 (9): Art. No. 09M511 May 1 2007.
- "Flexible high-loading particle-reinforced polyurethane magnetic nanocomposite fabrication through particle-surface-initiated polymerization", Z. Guo, S. Park, S. Wei, T. Pereira, M. Moldovan, **A. B. Karki, D.P. Young**, and H. Thomas Hahn, *Nanotechnology* 18, 335704 (2007).
- "Unconventional ferrimagnetic ordering of Ce in the anisotropic metal CeCrSb_3 ," D. D. Jackson, S. K. McCall, **A. B. Karki** and **D. P. Young**, *Phys. Rev. B* 76, 064408 (2007).
- "How far away is far enough for extracting numerical waveforms, and how much do they depend on the extraction method?," **Enrique Pazos**, Ernst Nils Dorband, Alessandro Nagar, **Carlos Palenzuela**, Erik Schnetter, and **Manuel Tiglio**. Invited article for *Classical and Quantum Gravity's* special issue "New Frontiers in Numerical Relativity", *Class. Quant. Grav.* 24, 12 S341 (2007).
- "Optimized High-Order Derivative and Dissipation Operators Satisfying Summation by Parts, and Applications in Three-dimensional Multi-block Evolutions", **Peter Diener**, Ernst Nils Dorband, Erik Schnetter and **Manuel Tiglio**. *Journal of Scientific Computing* 32, 1 pp 109-145 (2007).
- "Thermal radiation in photonic crystals," Marian Florescu, Kurt Busch, and **Jonathan P. Dowling**, *Phys. Rev. B [Rapid Communications]* 75, 201101 (2007).
- "Half-life of the superallowed β^+ emitter ^{18}Ne ," **E.F. Zganjar** with the TRIUMF/ISAC collaboration, *Physical Review C* 76, 025503 (2007).
- "Mesoscopic phase coherence in a quantum spin fluid," Xu, Guangyong, Broholm, C., Soh, Yeong-Ah, Aeppli, G., **DiTusa, J. F.**, Chen, Ying, Kenzelmann, M., Frost, C. D., Ito, T., Oka, K., & Takagi, H. /*SCIENCE*/ *317*, 1049-1052 (2007)
- "Probing the quantum critical behavior of CeCoIn_5 via Hall effect measurements." Singh, S., Capan, C., Nicklas, M., Rams, M., Gladun, A., Lee, H., **DiTusa, J. F.**, Fisk, Z., Steglich, F., & Wirth, S., */*PHYSICAL REVIEW LETTERS*/ *98*, 057001 (2007).
- "Alternate Scheme for Optical Cluster-State Generation without Number-Resolving Photon Detectors," Mark M. Wilde, Federico Spedalieri, **Jonathan P. Dowling**, **Hwang Lee**, *International Journal of Quantum Information*, Vol. 5, No. 4 (2007) 617-626.

