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Baton Rouge, Louisiana 70803-4001

## WEEKLY CALENDAR

November 10, 2008

### Chancellor's Distinguished Lecture

"The Quantum Criticality Conundrum"

**3:40 PM, November 13, 2008**  
**109 Nicholson Hall**

**R. B. Laughlin**

Stanford University

Host: Ilya Vekhter

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

Quantum Criticality is a set of behaviors generated by matter poised at continuous, zero-temperature phase transitions. It is thought to be relevant to all sorts of things in physics, from optical mixers to elementary particle quantum mechanics. In this talk I will review some basic concepts of quantum criticality and then address the thorny question of why so little is known about it experimentally. I will represent that the physics itself is to blame, in that it makes traditional tabletop experiments so ultrasensitive to perturbations that the experiments won't reproduce. This leads to the possibility, even likelihood, that we have been systematically misidentifying quantum criticality as something else, something mysterious and fundamental, in the correlated-electron materials. If this is the case, it may have far-reaching and unhappy implications for many-particle quantum physics and field theory.

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### Announcement:

"In addition to the recent reference to the department's research on the popular tv series "The Big Bang Theory" (see the item on the department's web page), we have two additional media stars: Juana Moreno has been invited to attend the Nanoscale Science and Engineering Education Workshop next week in Arlington. The presentations and discussions can be viewed on live webcast by registering at [http://www.nclt.us/gnseews2008/registration\\_webcast.shtml](http://www.nclt.us/gnseews2008/registration_webcast.shtml). And an interview with Geoff Clayton at the American Association of Variable Star Observers meeting recently on R Coronae Borealis stars can be viewed at <http://www.slackerastronomy.org/wordpress/2008/10/new-podcast-interview/>."

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### Publications:

- "The Calet Space Observatory for Jem-EF on the International Space Station," **J.P. Wefel, G. Case, M.L. Cherry, T.G. Guzik, J.B. Isbert**, et.al., World Scientific Publishing Co. Pte. Ltd., Villa Olmo, Como, Italy, 8-12 October 2007. Proceedings of the 10<sup>th</sup> Conference.
- "Spectroscopic study of low-lying 16N levels", D. W. Bardayan, P. D. O'Malley, **J. C. Blackmon**, K. Y. Chae, K. A. Chipps, J. A. Cizewski, R. Hatarik, K. L. Jones, R. L. Kozub, C. Matei, B. H. Moazen, C. D. Nesaraja, S. D. Pain, S. Paulauskas, W. A. Peters, S. T. Pittman, K. T. Schmitt, J. F. Shrinier, and M. S. Smith, Physical Review C 78, 052801(R) (2008).