LSU College of Science Department of Physics & Astronomy

WEEKLY CALENDAR

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Baton Rouge, Louisiana 70803-4001

WEEKLY CALENDAR

February 4 - 8, 2013

DEPARTMENTAL COLLOQUIUM

"The Discovery and Development of New Materials for Radiation Detection Applications"

3:30 PM, February 7, 2013
109 Nicholson Hall

Lynn Boatner
Oak Ridge National Laboratory

Host: Rongying Jin

• Refreshments served at 3:10 PM in 232 (Library) Nicholson Hall •

Following several decades of a relatively low level of research activity, recent national and international events have led to a significantly increased level of interest in, and support for, research that focuses on the discovery and development of new materials for the detection of radiation. In particular, emerging applications in the fields of homeland security, nuclear nonproliferation, treaty verification, and defense are placing new demands on the performance characteristics of materials and systems for both gamma ray and neutron detection. Radiation detection materials represent an extraordinarily rich cross section of materials physics that encompasses both inorganic and organic compounds, semiconductors, insulators, glasses, liquids, and gases. After a brief introduction to some of the history and physics of radiation detection materials, recent research at ORNL that has led to the discovery and ongoing development of new materials for radiation detection will be discussed. The topics to be considered will include new high performance halide scintillator single crystals, new rare-earth metal-organic single crystals for use in both gamma ray and high-energy neutron detection, glass scintillators, and recent materials challenges associated with the current critical shortage of helium-3 for use in neutron detection.

ANNOUNCEMENT:

The University will be closed on Tuesday, February 12, 2013 due to the Mardi Gras Holiday. There will be no classes on Monday, February 11, Tuesday, February 12, but classes will resume on Wednesday, February 13, 2013 at 12:30 pm.

PUBLICATIONS:

1. *"Schrödinger's Killer App — Race to Build the World's First Quantum Computer"*, **Jonathan P. Dowling**, Taylor & Francis – 456 pages, to be published May 6, 2013. http://www.taylorandfrancis.com/books/details/9781439896730

2. "Spherically symmetric gravity coupled to a scalar field with a local Hamiltonian: the complete initial-boundary value problem using metric variables", Rodolfo Gambini and **Jorge Pullin**, Classical Quantum Gravity, 30 (2013) 025012 (7 pp).