LSU LOUISIANA STATE UNIVERSITY

PHYSICS & ASTRONOMY
WEEKLY CALENDAR

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WEEKLY CALENDAR

February 14, 2011

Departmental Colloquium

Thursday, 3:40 PM, February 17, 2011
109 Nicholson Hall

"The Investigation of Nuclear Shapes"

David Kulp
Georgia Institute of Technology

Host: **Jeffery Blackmon**

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

The shapes of nuclei are fundamental to understanding nuclear stability. By deforming, a nucleus can lower its energy. This can have dramatic consequences on nuclear processes, from nucleosynthesis in stars to fundamental processes such as neutrinoless double-beta decay. The shape of a nucleus is also an important insight into a fundamental level of organization of matter: the nuclear many-body quantum problem.

Most of what we know about nuclear shapes has been inferred from nuclear spectroscopic studies of gamma-ray transition energies and intensities. However, it is becoming evident that information on gamma-ray transition strengths and moments of short-lived excited states are vital to understanding the role of shape degrees of freedom in nuclei. This presentation will cover the spectroscopic capabilities that are now achievable in addressing such issues as multiple shapes (coexistence) in nuclei, the question of shape “softness”, and even just what types of nuclear shape might be observable.