



College of
Science

Department of Physics
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Weekly Calendar

March 2 - 6, 2015

Departmental Colloquium

**“DANCEing with the Stars:
Neutron Capture and the Stellar Origins of the Heavy Elements”**

3:30 PM Thursday, March 5, 2015
119 Nicholson Hall

Aaron Couture
Los Alamos National Laboratory
HOST: Jeffery Blackmon

The heavy elements ($A > 60$) we see in the universe are primarily produced in neutron capture processes late in the stellar life cycle. Information about neutron capture reaction rates, particularly on unstable isotopes, helps us to understand where and how the heavy elements came into being. Further, they can give a diagnostic tool to probe the actual stellar environments where the heavy elements are made. The DANCE instrument at Los Alamos is designed to perform exactly these measurements on long-lived unstable isotopes. In explosive environments, even shorted-lived isotopes play a role and techniques are required to extract neutron capture reaction rates from unstable beams. I will discuss neutron capture measurements with DANCE as well as developments for current and future rare-isotope beam facilities.