

University of Notre Dame  
College of Science  
Department of Physics

## **COLLOQUIUM**

### **The CARIBU facility and the study of neutron-rich isotopes**

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the University of Chicago*

**Wednesday, October 27, 2010 4:00 p.m. NSH 118**

**(Refreshments at 3:30 p.m. NSH 202)**

The Californium Rare Ion Breeder (CARIBU) upgrade to the ATLAS superconducting linac facility is just being completed. It provides low-energy and re-accelerated beams of neutron-rich isotopes obtained from  $^{252}\text{Cf}$  fission. The fission products from a  $^{252}\text{Cf}$  source are stopped in a large high-intensity gas catcher, thermalized and extracted through an RFQ cooler, accelerated to 50 kV and mass separated in a high-resolution separator before being sent to either an ECR charge breeder for post-acceleration through the ATLAS linac or to a low-energy experimental area. This approach gives access to beams of very neutron-rich isotopes, many of which have not been available at low-energy previously, and provides unique opportunities for key studies along the r-process path.

Initial commissioning of the various CARIBU components using a 2 mCi source has just been completed and final commissioning of the whole facility with a 100 mCi source is ongoing. A brief description of the facility, insisting on the new technical developments for rapid and efficient species-independent extraction and preparation, will be presented together with commissioning results and an overview of the planned nuclear structure and nuclear astrophysics physics program.

*Host: Mark Caprio*

**ALL INTERESTED PERSONS ARE CORDIALLY INVITED TO ATTEND**