UNIVERSITY OF NOTRE DAME
DEPARTMENT OF PHYSICS

NUCLEAR SEMINAR

Monday, May 7

Decay spectroscopy of deformed, neutron-rich nuclei in the light rare-earth region

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Properties of deformed, neutron-rich nuclei in the A~160 region are important for achieving better understanding of the nuclear structure in this region where little is known owing to difficulties in the production of these nuclei at the present RIB facilities. These properties are essential ingredients in the interpretation of the rare-earth peak at A~160 in the r-process abundance distribution, since various theoretical models depend sensitively on the nuclear structure input. Predicated on these ideas, we have initiated a new experimental program at Argonne National Laboratory. The first experiment recently took place where a combination of the CARIBU radioactive beam facility with the new SATURN decay station and the X-array clover array was performed. We focused initially on several odd-odd nuclei, where decays of both the ground state and an excited isomer were investigated. Because of the spin difference, a variety of structures in the daughter nuclei were selectively populated and characterized based on their decay properties. Mass measurements using the Canadian Penning Trap aimed at measuring the excitation energy of the beta-decaying isomers were also carried out. Results from these measurements will be presented and discussed, together with data collected in this region at the RIBF facility at RIKEN, Japan.

4 pm – 5 pm

Nuclear Science Laboratory

124 Nieuwland Science Hall

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All interested persons are cordially invited to attend

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Refreshments will be served prior to the seminar in room 124