

UNIVERSITY OF NOTRE DAME
DEPARTMENT OF PHYSICS

NUCLEAR SEMINAR

Monday, October 23

Nuclear Reactions in Neutron Stars

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Electron capture- β decay cycling in neutron star crusts has the potential to significantly impact the thermal structure of a neutron star and thus its cooling profile. The strength of this process, known as Urca cooling, depends both on the abundance of the isobar chain in the crust and the nuclear properties of the nuclei involved. Due to the neutron-richness of matter in the neutron star crust, these properties are mostly experimentally-unconstrained, and astrophysical modelling of Urca cooling has to rely on theoretical calculations or systematics. An experimental technique designed to maximally measure decay radiation has been used at the National Superconducting Cyclotron Laboratory to determine the β decay transition strengths of ^{61}V . Preliminary results and future experiments will be presented.

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