

UNIVERSITY OF NOTRE DAME
DEPARTMENT OF PHYSICS

NUCLEAR SEMINAR

Monday, February 1

(α ,p) reaction Measurements with ANASEN

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Type I X-ray bursts are the most common stellar explosions in the Galaxy, occurring on the surface of neutron stars in binary systems. Slow (α ,p) reactions on certain $T_z = (Z-N)/2 = +1$ nuclei influence energy generation in the explosion and the time evolution of the system. We are developing and applying creative new techniques to better determine reactions that are important in stellar explosions like X-ray bursts. The principle challenge in directly measuring (α ,p) reactions is to construct a thick helium gas target to achieve high reaction yields with maintaining good energy resolution. The Array for Nuclear Astrophysics and Structure with Exotic Nuclei (ANASEN) is an active-target/detector which is designed for direct measurements of (α ,p) reactions with maximum sensitivity, allowing measurements with radioactive ion beam intensities of 10^5 ions/s. I will report on the development of ANASEN and the initial experimental campaigns in addition to highlighting other technical developments and experimental results.

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