UNIVERSITY OF NOTRE DAME
DEPARTMENT OF PHYSICS

SPECIAL NUCLEAR SEMINAR

Monday, June 13

The Challenges of Next Generation Neutrino Beam Targetry

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Following from the Particle Physics Project Prioritization Panel (P5) 2014 report, Fermilab is hosting a new Long-Baseline Neutrino Facility (LBNF) with greater than one megawatt of proton beam power on target and upgrade potential to greater than two megawatts. As future accelerator neutrino sources, such as LBNF, become increasingly powerful and intense, there is a pressing need to address the technical challenges presented by this high power on target. Energy deposition from high intensity primary beam induces sudden heating (thermal shock) as well as micro-structural changes (radiation damage) in the target material. As higher intensities are desired for future neutrino sources, these effects have neared the limits of the currently utilized materials. Resulting shorter, or unpredictable, target lifetimes may threaten the efficiency of the high power neutrino sources, negating the gains in going to higher power. This seminar will provide an introduction to the fundamentals of neutrino beam generation, highlight the progress of some of the R&D efforts towards meeting the targetry challenges, and outline potential collaborative R&D opportunities.

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