

Neutrino Cubes at the SNS – An Overview and Update

Authorship annotation

for the COHERENT collaboration.

Session and Location

Wednesday Session, Poster Wall #99 (Auditorium Gallery Left)

Abstract content

Neutrino induced neutrons (NINs) are an important background for coherent elastic neutrino-nucleus scattering (CEvNS) measurements at the SNS in Oak Ridge, Tn. This process has never been measured experimentally and has a large theoretical uncertainty. An understanding of this process is critical for the COHERENT collaboration in its ongoing efforts to detect and characterize CEvNS on a variety of nuclei. This interaction is also of interest to studies of r-process nucleosynthesis and super nova neutrino detectors containing lead or iron. The COHERENT collaboration has deployed two “neutrino cubes” to measure NINs in both iron and lead, with plans to measure other materials in the future. The design of the existing neutrino cubes, their current status, and future plans will be discussed. The role of neutrino cubes in the recent discovery of CEvNS is also highlighted.

Poster included in proceedings:

yes

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Session Classification : Poster Session Wednesday

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