

Abstract Submitted
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Measurement of the neutrino-induced neutron cross section in lead at the Spallation Neutron Source BRANDON BECKER, University of Tennessee, Knoxville, COHERENT COLLABORATION — COHERENT is using the intense neutrino flux produced at the Spallation Neutron Source (SNS) to investigate coherent elastic neutrino-nucleus scattering (CEvNS). The high energy neutrinos can induce reactions in the shielding material of CEvNS detectors; in particular they can excite the nucleus that will decay by emission of neutrons, producing in this way a background for the CEvNS signal. This reaction is also interesting in other contexts; for example it has been proposed as a detection mechanism for supernova neutrinos. The HALO experiment is aiming to detect supernova neutrinos by using neutrino-induced neutrons (NINs) in lead. The NIN's cross section in lead is estimated theoretically only within a factor of ~ 3 , so a careful measurement of the production cross section is of great importance. A dedicated apparatus for the measurement of NINs in lead has been deployed at SNS by the COHERENT collaboration aiming to make a precise measurement of the cross section. In these talk we will discuss the most recent results of the experiment.

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