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COHERENT's Neutrino-Induced Neutron Detectors

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Neutrino-nucleus interactions can produce excited nuclear states that can de-excite by emitting particles, including neutrons. Neutrino-induced neutrons (NINs) produced in common gamma shielding material, such as lead or iron, can pose a background for neutrino and dark matter experiments. Additionally, NIN production in lead is the primary mechanism for the Helium and Lead Observatory (HALO) to detect supernova neutrinos, and iron-based supernova NIN detectors have been proposed. As part of the COHERENT experiment, two detectors seeking to study NIN production in lead and iron have been deployed to the Spallation Neutron Source (SNS). An overview of the detector design and current status will be presented.

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