

Abstract Submitted  
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**C<sup>o</sup>sI: Coherent Neutrino Scattering with Cesium Iodide** NICOLE FIELDS, JUAN COLLAR, University of Chicago, TODD HOSSBACH, JOHN ORRELL, Pacific Northwest National Laboratory, GOPAKUMAR PERUMPILLY, BJORN SCHOLZ, University of Chicago — Coherent neutrino scattering is a process predicted by the standard model of particle physics that has not yet been observed. For low enough energy neutrinos,  $O(10\text{MeV})$ , their scattering cross section is predicted to increase with the square of the number of neutrons in a nucleus. Several difficulties must be overcome in order to observe coherent neutrino scattering, including finding a high-intensity source of these medium-energy neutrinos, a detector with a low enough threshold, and a low enough background. The Spallation Neutron Source (SNS) at Oak Ridge National Laboratory is a convenient source of medium-energy neutrinos and has the added benefit of a neutrino source with known time structure. CsI(Na) is an inorganic scintillator with a relatively high light yield of 39,000 photons/MeV and its emission spectrum is well matched with commonly used biakali photomultiplier tubes (PMTs). Background measurements of a 2 kg CsI(Na) crystal show that these crystals can be grown and encapsulated in a radioclean way.

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