

Abstract Submitted
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A tonne-scale liquid argon scintillation detector for precision CEvNS studies DANIEL SALVAT, Indiana University Bloomington, COHERENT COLLABORATION — Large-scale, low-threshold detectors offer the possibility to measure coherent elastic neutrino-nucleus scattering (CEvNS) cross-sections with high statistical precision. These measurements permit a broad collection of physics studies, such as placing improved constraints upon non-standard neutrino interactions and probing neutron distributions within nuclei. Further, a large-scale detector at a spallation target provides a highly sensitive probe of accelerator-produced dark-matter. The COHERENT collaboration has designed a ~ 750 kg liquid argon (LAr) scintillation detector to be deployed at the spallation neutron source at Oak Ridge National Laboratory with a ~ 610 kg fiducial volume viewed by an array of 3-inch photo-multiplier tubes. The detector is designed to achieve the required ~ 20 keVnr threshold needed for efficient and robust detection of nuclear recoils. In this talk, we will discuss the physics sensitivity of the detector, present the experimental design, and outline ongoing R&D to further improve scintillation light collection for future CEvNS studies with LAr.

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