

Abstract Submitted
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Characterization of NaI crystal scintillators for the COHERENT collaboration¹ ERIC ERKELA, University of Washington, COHERENT COLLABORATION — The COHERENT project aims to make a first observation of Coherent Elastic Neutrino-Nucleus Scattering (CEvNS) using a set of complimentary detector arrays located at the Spallation Neutron Source (SNS) at Oak Ridge National Laboratory. Using NaI scintillators acquired from the DHS-ASP program, we plan to construct a multi-tonne array with the capacity to detect CEvNS even in the presence of moderate background. Such an array would also have sensitivity to charged-current scattering of the SNS' pion Decay-At-Rest neutrinos with potential application to neutrinoless double-beta decay nuclear matrix element calculations. Optimization of the array design requires detailed characterization of the NaI scintillators themselves. We will show results on measurements of the light response and its linearity, as well as the energy resolution as a function of detector voltage. We also measured detector thresholds, dynamic range, and spatial and temporal variation of the detector response.

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Eric Erkela
Univ of Washington

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