

Abstract Submitted  
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**The COHERENT neutrino-nucleus scattering research program at the ORNL Spallation Neutron Source** DIANE MARKOFF, NC Central Univ, COHERENT COLLABORATION — The objective of the COHERENT project is to unambiguously measure the Coherent Elastic Neutrino ( $\nu$ ) Nucleus Scattering (CEvNS) on a suite of target nuclei. The coherent interaction observable involves nuclear recoil energies on the order of a few tens of keV which has eluded measurements for over 40 years. The COHERENT collaboration is applying new detector technologies with multiple targets and performing rigorous background and detector characterization studies to observe the expected cross section and the dependence on the square of the neutron number,  $N^2$ . The suite of targets including CsI[Na], LAr, NaI[Tl] and Ge are located at the ORNL Spallation Neutron Source which provides a high flux of pulsed neutrinos with a favorable energy distribution. Background studies include environmental neutron flux and neutron induced neutrino (NIN) rates, and characterization studies include measurements of the target material quenching factors. The CEvNS reaction rate is of interest for supernovae models, dark matter detector backgrounds, a means to study neutron distribution functions or form factors, and ultimately for neutrino physics tests of non-standard interactions and physics beyond the Standard Model. This talk will present the overall COHERENT program and detector status.

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