

Abstract Submitted  
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**Observation of Coherent Elastic Neutrino-Nucleus Scattering**

ROBERT COOPER, New Mexico State University, COHERENT COLLABORATION — Coherent elastic neutrino-nucleus scattering ( $\text{CE}\nu\text{NS}$ ) has eluded detection for over 40 years despite having the largest interaction cross-section for low-energy neutrinos. A first  $\text{CE}\nu\text{NS}$  measurement is difficult because it requires sensitivity to low-energy nuclear recoils in a potentially high-background environment. Despite this difficulty,  $\text{CE}\nu\text{NS}$  provides a valuable tool to study nuclear structure, supernovae, and neutrino oscillations. The COHERENT experiment recently made a first observation of the  $\text{CE}\nu\text{NS}$  process at a 6.7-sigma confidence level by deploying a 14.6-kg CsI[Na] scintillating crystal at the Spallation Neutron Source (SNS) at Oak Ridge National Laboratory. Beyond a first measurement, COHERENT is deploying a suite of other low-energy-threshold detector technologies to study the  $\text{CE}\nu\text{NS}$  process in detail, e.g., the neutron-number-squared dependence of the nuclear target. In this talk, I will discuss the first observation of  $\text{CE}\nu\text{NS}$  as well as describe the ongoing and future work by the COHERENT collaboration to study the  $\text{CE}\nu\text{NS}$  at the SNS.

D. Akimov et al. (COHERENT Collaboration), *Science* (03 Aug. 2017).  
[arXiv:1708.01294](https://arxiv.org/abs/1708.01294) [nucl-ex].

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