

The COHERENT experiment at Oak Ridge National Lab

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The COHERENT collaboration operates an array of detectors in the ORNL Spallation Neutron Source (SNS) “Neutrino Alley” to search for coherent elastic neutrino nucleus scattering (CEvNS) and other low-energy rare scattering processes. Our goal is to precisely measure CEvNS (and other channels) to further understanding on a wide variety of questions in astro-, particle, and nuclear physics. We observed the world’s-first events from CEvNS in 2017 with a cesium-iodide scintillation detector and have new results from an expanded data set. We followed up with a measurement on an much lighter argon nucleus, thus confirming the CEvNS hypothesis, that we published in 2020. Those measurements will be presented along with plans for further extending our physics reach with new detectors and our ongoing efforts to reduce systematic errors.

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