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The COHERENT collaboration: an effort to observe coherent, elastic, neutral-current neutrino-nucleus scattering at the Spallation Neutron Source GRAYSON RICH, Triangle Universities Nuclear Laboratory and UNC-Chapel Hill, COHERENT COLLABORATION — The phenomenon of coherent, neutral-current scattering of neutrinos from nuclei was first proposed by D.Z. Freedman in 1974, who posited that an effort to observe this effect experimentally "may be an act of hubris" owing to extreme experimental difficulties [D.Z. Freedman, Phys. Rev. D. 9, 1974]. Taking advantage of technologies which have come to maturity and new experience gained in the intervening 40 years, the newly-formed COHERENT collaboration seeks to measure for the first time coherent, elastic neutrino-nucleus scattering (CEνNS). Using neutrinos created by stopped pions at the Spallation Neutron Source (SNS) of Oak Ridge National Laboratory, several detector systems will be deployed to limit systematic uncertainties and unambiguously observe the N^2-dependence on the cross section. The current status of the efforts of the collaboration will be addressed, focusing on detector technologies and calibration of these detectors for low-energy nuclear recoils. We will also discuss the longer-term physics goals of the collaboration, including astrophysical implications of the measurements and the use CEνNS as a probe to search for non-standard neutrino interactions and as a way to measure the weak mixing angle.

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