

First observation of coherent elastic neutrino-nucleus scattering and continued efforts of the COHERENT Collaboration

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More than 40 years after its theoretical description, the process of coherent elastic neutrino-nucleus scattering ($\text{CE}\nu\text{NS}$) has been observed for the first time by the COHERENT Collaboration, using a 14.6-kg CsI[Na] detector at the Spallation Neutron Source of Oak Ridge National Lab. COHERENT and other groups continue to work towards additional $\text{CE}\nu\text{NS}$ measurements because of the breadth of physics sensitivity shown by the process, including connections to nuclear structure, astrophysics, dark sector physics, and other physics beyond the Standard Model. Details of the initial observation of $\text{CE}\nu\text{NS}$ will be presented along with an overview of the physics program within the COHERENT Collaboration, comprised of measurements of both $\text{CE}\nu\text{NS}$ on other target nuclei as well as additional neutrino processes, including charged-current interactions on iodine and neutrino-induced neutron production on lead. The complementarity of additional $\text{CE}\nu\text{NS}$ measurements will be explored, emphasizing the importance of additional, diverse experimental efforts.

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