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COHERENT Elastic Neutrino Nucleus Scattering at the SNS: CEvNS and Beyond the Standard Model Physics
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Coherent Elastic Neutrino Nucleus Scattering (CEvNS) was predicted in 1974 as a consequence of the Weak Neutral Current. Despite being well-predicted by the Standard Model, the daunting technical requirements of low-energy nuclear recoil detection associated with the process resulted in over 40 years elapsing between prediction and observation. The COHERENT Collaboration performed the first successful detection of the CEvNS process, opening a new channel for investigation of beyond the standard model physics that would present as deviations from the standard-model-predicted cross sections or spectral shape. An overview of the COHERENT experiment's current status, future plans, and the potential avenues for beyond the standard model physics investigations will be discussed.