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COHERENT status and results

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The COHERENT collaboration is devoted to study of the Coherent Elastic Neutrino-Nucleus Scattering (CEvNS) using the high-quality pion-decay-at-rest neutrino source at the Spallation Neutron Source located in the Oak Ridge National Laboratory. The CEvNS process is predicted in the Standard Model and it dominates in low-energy neutrinos interactions with matter. Its measurement provides a Standard Model test and is important for supernova explosion studies as well as for prediction of the background floor for dark matter direct detection. The COHERENT effort is a broad program of diverse experiments related to CEvNS studies including neutrino cross-sections measurements, nuclear recoil quenching factor evaluations and neutrino flux measurement. Several detectors of various types are installed at SNS to cover a broad range of nuclei. The most prominent detectors are: CsI[Na], liquid Ar, NaI[Tl], HPGe, D₂O. The CEvNS signal was clearly observed in several detectors, the results agree well with the SM prediction. This talk provides an overview of the actual program, current results and future prospects for the COHERENT.

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