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First Measurement of CEvNS on Germanium by COHERENT

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P-type Point Contact (PPC) High-Purity Germanium detectors have been a popular choice for CEvNS searches due to their sub-keV energy thresholds and kg-scale masses. Recently, the COHERENT Collaboration constructed Ge-mini: an 18-kg array of Inverted-Coaxial Point Contact (ICPC) PPC detectors. In this talk we will discuss the design, construction and performance and operation of the Ge-mini array. We will discuss analysis of data collected during the summer 2023 SNS run, in which we observe a beam-on excess of 18.4+6.7−5.9 counts with a total exposure of 7.47 GWh-kg and reject the no-CEvNS hypothesis by 3.9 sigma. This result agrees with the predicted standard model of particle physics signal rate within 1sigma.

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