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Coherent Elastic Neutrino Nucleus Scattering (CENNS) Experiment at the Fermilab Booster Neutrino Beam REX TAYLOE, Indiana Univ - Bloomington, CENNS COLLABORATION — The coherent elastic neutrino-nucleus scattering (CENNS) process is important to understand supernovae, nuclear form factors, and low-energy behavior of the Standard Model. It will also become more important as a background in direct-detection dark matter experiments. The process has yet to be observed because of the low-energy detection thresholds and neutron background reduction required. Recent advances in cryogenic detector technology now make it possible. The CENNS collaboration proposes to deploy a 1-ton-scale, single-phase, liquid argon scintillation detector near the Fermilab Booster Neutrino Beam (BNB) for a first measurement. A detector near the neutrino production target at 90 degrees off-axis will observe a low-energy flux of 10-50 MeV stopped-pion neutrinos for CENNS. The details of this effort including prototype detectors and neutron background measurements will be presented.

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