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Ionization Yield of Low-Energy Nuclear Recoils in a Dual-Phase Argon Detector TENZING JOSHI, University of California Berkeley, ADAM BERNSTEIN, Lawrence Livermore National Laboratory, MICHAEL FOXE, Purdue University, CHRIS HAGMANN, Lawrence Livermore National Laboratory, IGOR JOVANOVIC, Purdue University, KAREEM KAZKAZ, SAMUELE SANGIORGIO, Lawrence Livermore National Laboratory — Dual-phase argon detectors are the choice of several direct Dark Matter searches and have been proposed for detection of coherent neutrino-nucleus scattering (CNS). CNS is an as-yet undetected flavor-blind interaction predicted by the Standard Model. A small dual-phase argon detector, $\sim$250 g active mass, is being built at Lawrence Livermore National Laboratory to investigate the ionization yield of nuclear recoils in the energy range relevant to CNS detection, sub-10 keV. Two measurements are currently planned for this detector. The first will utilize elastic neutron scattering, taking advantage of the 80-keV resonance in ^{40}Ar, to measure ionization yield at 8 keV. The second will employ nuclear resonance fluorescence on ^{40}Ar, as a source of nuclear recoils, to map to ionization yield from 0.1-6 keV. Requirements of CNS observation are discussed along with detector commissioning and preparations for both planned measurements.

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