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NuDot: Double-Beta Decay with Direction Reconstruction in Liquid Scintillator[1] JULIETA GRUSZKO, Massachusetts Institute of Technology, THE NUDOT COLLABORATION COLLABORATION — As neutrinoless double-beta decay searches seek to reach into and beyond the inverted hierarchy regime, new strategies are needed to reject background events in kiloton-scale detectors. In monolithic liquid-scintillator-based detectors, otherwise-irreducible backgrounds like ^{8}B solar neutrino scattering could be identified by their event topology using Cherenkov light signals. NuDot is a 1-ton prototype that aims to demonstrate this technique with 1 to 2 MeV beta particles. Following a successful demonstration of the separation technique in the FlatDot test-stand, the NuDot detector was built at MIT. Preliminary results from the commissioning phase of the experiment will be shown. In the coming months, we will conduct surface measurements demonstrating direction reconstruction of calibration source beta events, followed by an underground measurement of two-neutrino double-beta decay with direction reconstruction.

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