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P1.070 NuDot: A prototype directional liquid scintillator detector

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Large liquid-scintillator-based detectors have proven to be exceptionally effective for low energy neutrino measurements due to their good energy resolution and scalability to large volumes. The addition of directional information using Cherenkov light and fast timing would enhance the scientific reach of these detectors, especially for searches for neutrino-less double-beta decay. NuDot is a 1m^3 prototype detector that will demonstrate this technique using fast photodetectors and eventually quantum-dot doped liquid scintillator. The ultimate goal is a measurement of two neutrino double-beta decay with direction reconstruction.