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Low Low Background kTon-Scale Liquid Argon Time Projection Chambers

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It is possible to increase sensitivity to low energy physics in a third or fourth DUNE-like module with better radiopurity measures and suitable modifications to a detector similar to the DUNE Far Detector design. In particular, sensitivity to supernova and solar neutrinos can be enhanced with improved MeV-scale reach. With a ^{136}Xe doping in the liquid argon, the detector can also be used for neutrinoless double beta decay searches. Furthermore, sensitivity to Weakly- Interacting Massive Particle (WIMP) Dark Matter (DM) becomes competitive with the planned world program in such a detector.

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