

Prospects for a 100-ton scale neutrino-less double-beta decay at DUNE.

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The DUNE physics program primarily focuses on signals in the GeV energy range. In recent years, DUNE's potential as a low-energy experiment has been fruitfully explored, specifically regarding its sensitivity to signals as low as 5-10 MeV such as those associated with supernova burst and solar neutrinos. In this presentation I discuss the requirements and modifications that could extend DUNE's sensitivity to energies as low as 2MeV and would enable us to further expand DUNE's physics program to searches for neutrino-less double-beta decay in xenon-doped liquid argon at the multi-ton scale. I will present the modifications we propose with corresponding sensitivity estimates for $\bar{\nu}\bar{\nu}\bar{\nu}\bar{\nu}$ measurements beyond the inverted hierarchy region, and describe the rich and diverse R&D program that this research avenue would open for DUNE.

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