

Abstract Submitted
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IsoDAR@KamLAND: Sterile Neutrinos and Beyond¹ JOSEPH SMOLSKY, M.I.T., ISODAR COLLABORATION — IsoDAR@KamLAND is a proposed short baseline $\bar{\nu}_e$ disappearance experiment designed to search for eV-scale sterile neutrinos. In a 5-year run period, IsoDAR will produce more than 10^{23} $\bar{\nu}_e$ through decay-at-rest of ${}^8\text{Li}$, produced in a high-power target bombarded by 60 MeV protons. Paired with a kiloton-scale detector such as KamLAND, IsoDAR can cover the regions favored by short baseline anomalies with a $5\text{-}\sigma$ confidence level in 5 years. If a signal is observed, IsoDAR will be able to distinguish between several sterile neutrino models. IsoDAR@KamLAND is also capable of precision electroweak measurements through $\bar{\nu}_e - e$ elastic scattering. Here we briefly describe the setup, and in detail the physics of the sterile neutrino search that is possible with IsoDAR. We also touch on the electroweak measurements and possibilities for the IsoDAR cyclotron beyond KamLAND.

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Joseph Smolsky
M.I.T.

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