

New signatures of decaying HNLs in large scale detectors

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Weakly coupled light new physics is a well motivated lamppost often referred to as a dark sector. At low masses and weak couplings, dark sector particles are generically long-lived. In this talk I will describe how neutrino-portals to a dark sector can be efficiently probed by looking for the decay of heavy neutral leptons that are produced via the upscattering of solar neutrinos within the Earth's core/mantle. Large volume detectors (such as Borexino or Super Kamiokande) can search for MeV-scale photons and electron-positrons pairs from HNLs decaying while passing through their detectors.

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Yes

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