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NUXE: a single-electron sensitive LXe Detector for Reactor CEvNS

The liquid xenon (LXe) detectors are being actively developed heavily for dark matter searches over the last decades. These detectors, which are operated in time projection chamber (TPC) mode, can strongly suppress the electronic recoil background, and detect very low energy recoils using “ionization only” channel. These excellent detector properties make it possible to detect the very low energy (sub-keV) coherent elastic neutrino-nucleus scattering (CEvNS) process from reactor neutrinos. Here we will discuss the prospects of detecting reactor CEvNS using a O(10~100) kg scale single-electron sensitive LXe detector (NUXE).

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