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【367】 Prospects for neutrino-less double beta decay detection with the DARWIN experiment

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DARk matter WImp search with liquid xenon (DARWIN) will be a direct dark matter detection experiment using a multi-ton time projection chamber at its core. While DARWIN is designed to explore the entire experimentally accessible parameter space for WIMPs, the detector will also be sensitive to other rare interactions. One ambitious goal is the search for the neutrinoless double beta decay of ^{136}Xe which has an abundance of 8.9% on natural xenon. We present the sensitivity estimation of DARWIN to this rare nuclear decay process, based on detailed Monte Carlo simulations of the backgrounds from detector materials, intrinsic sources to the xenon, as well as solar neutrinos.

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