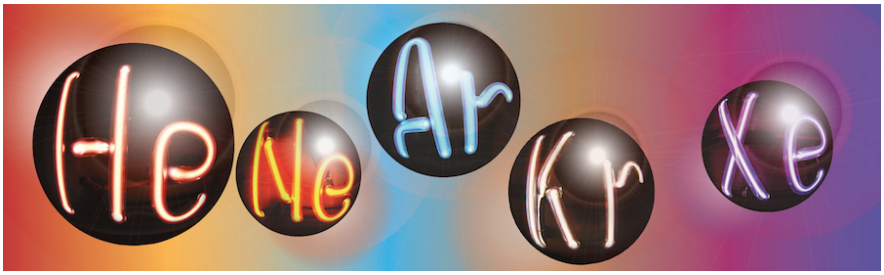

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Design and status of the CDEX-300 0νββ experiment

Tuesday, 21 October 2025 12:00 (20 minutes)

The CDEX-300 is a next generation neutrinoless double beta (0νββ) decay experiment based in China Jinping underground laboratory (CJPL). CDEX-300 aims at searching the 0νββ decay of Ge-76 in the inverted neutrino mass hierarchy using high purity germanium (HPGe) detectors. We propose to build a 200 kg scale HPGe array in the liquid argon and achieve 2.5 keV (FWHM) energy resolution and 1E-4 cts/keV/kg/yr background level in the 0νββ (2039 keV) signal region. CDEX-300 is projected to achieve a 1.9×1027 yr Ge-76 0νββ half-life 3σ discovery sensitivity with 10-yr operation. This report will outline the experimental design, background control technologies of CDEX-300 with focus on the LAr veto system.

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