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Status of AMoRE-II

Tuesday 29 August 2023 17:00 (15 minutes)

The main stage of AMoRE, AMoRE-II, is about to start its data taking. The experiment takes place 1000 meters underground at Yemilab in Jeongseon, Korea. A cryogenic system containing molybdenum-100 enriched crystal detector modules is surrounded by heavy passive shields and muon counters made of plastic scintillator panels and water Cherenkov detectors. We expect the background level to be below 10^{-4} count/keV/kg/year with a 10 keV full-width-half-maximum energy resolution at the region of interest. Starting with 90 detector modules consisting of about 29 kg of lithium-molybdate crystals, the detector will eventually be upgraded using 180 kg of crystals. Data-taking will last for more than five years. The projected sensitivity covers the half-life of neutrinoless double beta decay of molybdenum-100 up to about 4.5×10^{26} years, corresponding to the effective Majorana mass of 18 —31 meV.

Submitted on behalf of a Collaboration?

Yes

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