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A low energy threshold CdWO₄ scintillating bolometer for g_A measurement

Neutrinoless double beta decay (0νββ) is a rare nuclear transition. One of the main elements to design a 0νββ experiment is the prediction of the decay half-life, which strongly depends on the axial-vector coupling g_A. A quenched value of g_A is a source of spectral distortion in highly-suppressed single beta decay spectra. In this poster, we present the results from a test of a CdWO₄ scintillating bolometer installed in the underground laboratory of Canfranc in the CROSS facility. The aim of this test is to reconstruct the spectrum of the beta decay of ¹¹³Cd naturally present in the crystal down to an energy threshold of 8 keV. A trigger efficiency analysis was performed to have a reliable reconstruction of the spectrum. The final goal is to use the spectral shape method to derive the effective value of g_A from the precise measurement of the beta decay spectrum.

Mini-abstract

A low energy threshold CdWO₄ scintillating bolometer for g_A measurement

Experiment/Collaboration

CROSS

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