

Searching for exotic modes of $2\nu\beta\beta$ with the SuperNEMO Experiment

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Measurements of two-neutrino double beta decay ($2\nu\beta\beta$) have played a key role in advancing the understanding of neutrino properties. Further exploration of $2\nu\beta\beta$ and its possible exotic decay modes (decay with right-handed or sterile neutrinos) may provide further knowledge. The recently published improved description of the shape of $2\nu\beta\beta$ spectrum provides a methodology for precise calculations of the axial vector coupling constant g_A .

The signature of these processes should be most evident by examining the single-electron energy spectra and the distribution of the decay angle. These variables can uniquely be obtained with the SuperNEMO Demonstrator.

The detector is currently taking data for background studies. Once passive shielding is installed in the second half of 2024, the $2\nu\beta\beta$ data-taking campaign will begin. In this contribution we present how SuperNEMO can be utilized in the search for exotic $2\nu\beta\beta$.

Alternate track

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