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Modeling of GERDA Phase II data

The GERDA experiment is searching for neutrinoless double-beta ($0\nu\beta\beta$) decay of the germanium isotope ^{76}Ge . Isotopically enriched germanium diode detectors are operated submersed and in direct contact with liquid argon (LAr). Passive and active background suppression techniques such as shielding, pulse shape discrimination and vetoing are adopted to lower the rate of events that can mimic a $0\nu\beta\beta$ signal as much as possible. A good understanding of these backgrounds is essential in order to identify hardware components with particularly high residual radioactive impurities and improve material selection, detector design and active suppression techniques in future experiments. For this purpose, the full-range energy spectra of single- and two-detector events are studied before applying active background suppression. We present the simultaneous decomposition of 60.2 kg·yr of GERDA Phase II data using a Bayesian maximum likelihood approach.

Mini-abstract

Background decomposition of single- and two-detector data in Gerda Phase II

Experiment/Collaboration

GERDA Collaboration

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