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Exposure-background duality in the searches of neutrinoless double beta decay

Neutrinoless double-beta decay ($0\nu\beta\beta$) is an experimentally sensitive avenue to probe the Majorana-versus-Dirac nature and mass scales of neutrinos. This work [1] quantitatively explores the interplay between exposure and background levels in $0\nu\beta\beta$ experiments with respect to their target sensitivities at the design stage. In particular, background reduction will be playing increasingly important and investment-effective, if not determining, roles in future $0\nu\beta\beta$ experiments with sensitivity goals of approaching and covering the non-degenerate normal neutrino mass hierarchy. Advances in background suppression can substantially alleviate the necessity of unrealistically large exposure.

Mini-abstract

Exploration of exposure-background duality in the searches of neutrinoless double-beta decay.

Experiment/Collaboration

TEXONO Experiment

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