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## Sensitivity Projection for Future Double Beta Decay Experiments

Neutrinoless double- $\beta$  decay ( $0\nu\beta\beta$ ) is an experimentally sensitive avenue to probe the nature (Majorana versus Dirac) and exact mass of neutrinos. There are already intense activities worldwide committed to the experimental searches of  $0\nu\beta\beta$ . This work [1] quantitatively explore the interplay between exposure and background levels in  $0\nu\beta\beta$  experiments at their design stage. In particular, background reduction will be playing increasingly important and investment-effective roles in future  $0\nu\beta\beta$  experiments. Although the primary goal of current running and projected experiments is to probe the inverted mass hierarchy, current neutrino oscillation experiments reveal a preference for non-degenerate (ND) normal mass hierarchy (NH). Therefore the strategy of scaling the summit of  $0\nu\beta\beta$  should also take this genuine possibility into account. Present work would explore the role of background suppression in alleviating the necessity of large exposure for future  $0\nu\beta\beta$  experiments with sensitivity goals of approaching and covering ND-NH. In particular, the roles of energy resolution in suppressing the irreducible background of  $2\nu\beta\beta$  will be discussed.

[1] M.K.Singh et al., Phys. Rev. D 101, 013006 (2020).

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