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Current experiments to search for broken lepton-number symmetry through the observation of neutrinoless double-beta decay ($0\nu\beta\beta$) provide the most stringent limits on the Majorana nature of neutrinos and the effective Majorana neutrino mass ($m_{\beta}\beta$). The next-generation experiments will focus on sensitivity to the $0\nu\beta\beta$ half-life of $\mathcal{O}(10^{27} - 10^{28}$years) and $m_{\beta\beta}\sim$15meV, which would provide complete coverage of the so-called Inverted Ordering region of the neutrino mass parameter space.
With reasonably achievable advancements in sensor technology and background reduction, new, future calorimetric experiments at the 1-ton scale can increase the sensitivity by at least another order of magnitude, exploring the large fraction of the parameter space that corresponds to the neutrino mass Normal Ordering. In addition, a detector of such magnitude would also be sensitive to a number of interesting particle physics searches: this poster will also discuss searches for solar and supernova neutrinos, light dark matter and new scalar bosons, and tests of symmetry.

In-person or Virtual?

Virtual

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