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Understanding Lepton Number Violation at Future Colliders

Wednesday, 11 October 2023 16:00 (15 minutes)

A discovery of Lepton Number Violating (LNV) processes at future colliders would be a fascinating signature of new physics beyond the Standard Model (SM). It would prove that the light neutrinos have Majorana-type masses, and could allow a deep insight into the neutrino mass generation mechanism. We discuss how observable LNV can originate from collider testable low scale type I neutrino mass generation, where extra SM singlet fermions (i.e. heavy neutral leptons) are introduced, via the phenomenon of heavy neutrino-antineutrino oscillations. We report on recent progress in understanding these oscillations and argue that their effects have to be be included in order to correctly evaluate the prospects for discovering LNV.

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