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Violation of lepton number in 3 units

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The number of leptons (L) may or may not be conserved by the laws of physics. The Standard Model predicts that it is (in perturbative processes), but there is the well known possibility that new physics violates L in 1 or 2 units. The first case ($\Delta L = 1$) is associated to proton decay into mesons plus a lepton or anti-lepton; the second case ($\Delta L = 2$) is usually associated to Majorana neutrino masses and neutrinoless double beta decay. In this talk, I will discuss the possibility that leptons can only be created or destroyed in units of 3 ($\Delta L = 3$). Such a scenario can be probed both by proton decay experiments and by colliders.

Content of the contribution

Theory

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