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Constraining lepton number violating interactions with rare meson decay

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The possibility of new physics in terms of lepton number violating (LNV) interactions is intriguing out of various reasons: LNV could be tightly linked to the generation of neutrino masses of Majorana nature while at the same time having direct implications for the generation of the baryon asymmetry of our Universe. The $K \rightarrow \pi \nu \bar{\nu}$ decay is one of the most promising modes to search for physics beyond the Standard Model and is able to probe mass scales higher than other rare meson decays. Motivated by the goal of the NA62 experiment to reach SM precision in $K \rightarrow \pi \nu \bar{\nu}$, I will consider the implications of a potential deviation from the SM expectation and estimate the new physics scale associated with potential LNV effects. Finally, I will discuss the potential to discern the Majorana or Dirac nature of neutrinos in rare meson decays.

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Collaboration / Activity

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