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Neutrino masses and dark matter stability

Despite the Standard Model's great success in describing fundamental particles and their interactions, it fundamentally lacks a dark matter particle candidate to account for the Universe's observed relic abundance. Furthermore, the mechanism responsible for generating neutrino masses remains one of the Standard Model's enduring mysteries. In many compelling extensions, both dark matter stability and non-zero neutrino masses arise naturally from the spontaneous symmetry breaking of global symmetries. In this talk, we will review various theoretical scenarios that propose a common new physics origin for both dark matter stability and neutrino mass generation, and we will discuss the phenomenology of such models.

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