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Phenomenological and cosmological implications of a scotogenic three-loop neutrino mass model

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I will discuss a scotogenic model for generating neutrino masses through a three-loop seesaw. It is a minimally extended inert doublet model with a spontaneously broken global symmetry $U(1)'$ and a preserved $\mathbb{Z}_2$ symmetry. The three-loop suppression allows the new particles to have masses at the TeV scale without fine-tuning the Yukawa couplings. The model leads to a rich phenomenology while satisfying all the current constraints imposed by neutrinoless double-beta decay, charged-lepton flavor violation, and electroweak precision observables. The relatively large Yukawa couplings lead to sizable rates for charged lepton flavor violation processes, well within future experimental reach. The model could also successfully explain the W mass anomaly and provides viable fermionic or scalar dark matter candidates.

Submitted on behalf of a Collaboration?

No

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