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Neutrinos and an economic flavor model of R-parity violation

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Supersymmetry without R-parity provides a natural way to generate experimentally viable neutrino masses without the need to add new particles to the MSSM. The most general ansatz for R-parity violation introduces 48 potentially complex parameters to the superpotential. We present an economic way, based on a generic lepton-flavor-symmetry, to reduce the number of independent couplings to four. It is guided by the requirement to be compatible with tribimaximal mixing, while respecting the bounds from other sources like $\mu \rightarrow e\gamma$ or lepton-flavor-violating meson decays. We investigate the consequences for the hierarchy of neutrino masses, their absolute mass scale and possible deviations from $\theta_{13} = 0$. We further comment on a possible signature of this low energy inspired model at the LHC.

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