

Natural, R-parity violating supersymmetry and horizontal flavor symmetries

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Motivated by null LHC searches for R-parity conserving SUSY, I will present the general structure of RPV couplings in presence of a Froggatt-Nielsen horizontal symmetry. For sub-TeV SUSY, lepton number must be an accidental symmetry, while baryonic RPV allows natural low-energy SUSY. The upper limit for the magnitude of the largest RPV coupling is 10^{-3} (from dinucleon decay) while the lower limit is 10^{-9} (from missing E_T SUSY and R-hadrons searches), and displaced vertices are predicted in about half of this range.

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