

High Scale Supersymmetry and neutrino Phenomenology

Supersymmetry was proposed to be the underlying physics of the flavor puzzle. The charged lepton mass hierarchy was naturally understood. The model is predictive. CP violation in the lepton sector, and other aspects of neutrino physics, are studied. In addition to the sneutrino vacuum expectation values (VEVs), the heavy vector-like triplet also contributes to neutrino masses. Phases of the VEVs of relevant fields, complex couplings and Zino mass are considered. The approximate degeneracy of neutrino masses $m_{\nu 1}$ and $m_{\nu 2}$ can be naturally understood. The neutrino masses are then normal ordered, ~ 0.020 eV, 0.022 eV, and 0.054 eV. Large CP violation in neutrino oscillations is favored. The effective Majorana mass of the electron neutrino is about 0.02 eV.

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