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Prediction for Neutrino Masses, CP Violation and Neutrinoless Double Beta Decay from $\mathcal{T}_{13}$ Family Symmetry

I will propose a model for both quraks and leptons based on the $SU(5)$ grand unification and $\mathcal{T}_{13}$, a discrete subgroup of $SU(3)$, family symmetry. It naturally reproduces GUT-scale mass ratios of quarks and charged leptons and their mixing angles, assuming tribimaximal (TBM) seesaw mixing. It predicts normal ordering for light neutrino masses with $m_{\nu_1} = 27.6$, $m_{\nu_2} = 28.9$ and $m_{\nu_3} = 57.8\ meV$, leptonic CP violation with $\delta_{CP} = 1.32\pi$, and neutrinoless double beta decay with $|m_{\beta\beta}| = 13.02$ or $25.21\ meV$. All of these predictions can be tested in near-future experiments like DESI, WFIRST, DUNE, Hyper-K, LEGEND, CUPID etc. in 7-10 yrs.

Mini-abstract

A unified model with definite predictions for ν masses, CP violation and $0\nu\beta\beta$ decay.

Experiment/Collaboration

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