



Contribution ID: 12

Type: **Poster session**

Leptogenesis from the asymmetric texture

We discuss leptogenesis in the context of the recently proposed “asymmetric texture”, where both quark and lepton masses and mixings are explained from $SU(5)$ grand unification and \mathcal{T}_{13} family symmetry. In this setup, two large lepton mixing angles come from the tribimaximal (TBM) seesaw matrix with a phase and the small reactor angle is contributed entirely by the charged lepton sector. The phase in the TBM mixing leads to low energy Dirac and Majorana CP violation. We show that these phases generate baryon asymmetry through leptogenesis only when flavor effects are considered. We investigate thermal leptogenesis in both non-resonant and resonant regimes and constrain the range of right-handed neutrinos for successful leptogenesis. We also show that the previously undetermined sign of the TBM phase can be determined from the sign of baryon asymmetry.

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Session Classification: Neutrino Physics Session 2

Track Classification: Neutrino Physics