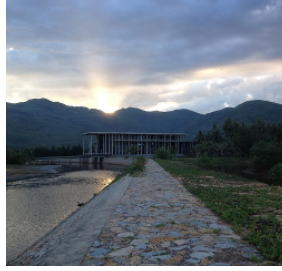


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## Leptogenesis in $E_6 \times U(1)_A$ SUSY GUT model

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The essential point is that the mass of the lightest right-handed neutrino can be enhanced in the model because it has a lot of mass terms whose mass parameters are predicted to be the same order of magnitude which is smaller than  $10^8$  GeV. We show that  $O(10)$  enhancement for the lightest right-handed neutrino mass is sufficient for the observed baryon asymmetry. Note that such mass enhancements do not change the predictions of neutrino masses and mixings at the low energy scale in the  $E_6$  model which has six right-handed neutrinos. In the calculation, we include the effects of supersymmetry and flavor in final states of the right-handed neutrino decay. We show that the effect of supersymmetry is quite important even in the strong washout regime when the effect of flavor is included. This is because the washout effects on the asymmetries both of the muon and the electron become weaker than that of the tau asymmetry.

### Summary

We study the thermal leptogenesis in the  $E_6 \times U(1)_A$  SUSY GUT model in which realistic masses and mixings of quarks and leptons can be realized. We show that the sufficient baryon number can be produced by the leptogenesis in the model, in which the mass parameter of the lightest right-handed neutrino is predicted to be smaller than  $10^8$  GeV.

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