

A minimalistic perspective on neutrino CP-violation and Leptogenesis: Modular Invariance

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Modular Invariance is a relatively new approach to the flavour problem: in special cases, only one flavon is needed to reproduce the neutrino masses and mixing parameters, with just a small number of free parameters. By combining this framework with generalised CP-symmetry, one can determine that the flavon vacuum expectation value also dictates the CP-violation of the lepton sector. Hence, one can construct models in which it is possible to accommodate not only the recent data on CP violation, but also the matter-antimatter asymmetry of the Universe through Leptogenesis. However, it is particularly challenging to build a model that is also minimalistic. Using a set of guiding principles, we demonstrate how this can be achieved using the smallest modular finite group, S_3 , which was rather underutilized before our work. Both the strengths and weaknesses of this promising approach are discussed.

Alternate track

1. Neutrino Physics

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