

Rescuing leptogenesis parameter space of inverse seesaw in standard and nonstandard cosmology

The generic inverse seesaw (ISS) framework is unable to produce an adequate amount of lepton asymmetry, which consequently fails to generate the observed baryon asymmetry of the Universe (BAU). This happens due to mainly two reasons, (i) partial cancellation of the lepton asymmetries among the pseudo-Dirac pairs, and (ii) strong wash out caused by the inverse decays. In this work we offer two possible resolutions to overcome the above mentioned challenges considering a (3,3) ISS framework. Our first proposal is based on the assumption of a non-standard cosmological era in the pre-BBN epoch, that triggers a faster expansion of the Universe, thereby reducing the washout by several orders of magnitude. The second proposition is an alternative of first which considers a non-degenerate right handed neutrino mass spectrum, resulting into a larger order of lepton asymmetry that survives the impact of strong washout to account for the observed BAU. The viable parameters space, as obtained can be tested at present and future Lepton Flavour Violation experiments e.g. MEG and MEG II.

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