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SO(10)-inspired Leptogenesis

Leptogenesis is a broad class of models in which the observed Baryon Asymmetry of the Universe arises from a first lepton asymmetry. Furthermore, being Leptogenesis a cogent embedding for the seesaw mechanism, in these models neutrinos are provided a mass that matches the mass scale suggested by oscillation experiments in a natural way. In our work we consider a specific Leptogenesis model, obtained by imposing SO(10)-inspired conditions on the seesaw parameter space. The result is an N2-dominated scenario which merges two previously disconnected phenomenologies, related to the neutrino oscillations and the Baryon Asymmetry of the Universe, in a new and predictive framework. As a consequence, adopting the SO(10)-inspired Leptogenesis model, we can predict the same seesaw low energy parameters that the neutrino experiments aim to measure. In particular we calculate the probability distribution functions for the neutrino masses and mixing parameters, given the informations from neutrino oscillation experiments and the 7 year WMAP analyses. In this way, beside confirming the presence of a lower bound on m_1 and m_ee, our analyses pointed to values of theta_13 which are in agreement with the latest results obtained by T2K.

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