



ID de Contribution: 8

Type: Non spécifié

Leptogenesis effects of lightest neutrino mass

mercredi 5 mars 2008 17:40 (5 minutes)

The effects of the lightest neutrino mass in flavoured” leptogenesis are investigated in the case when the CP-violation necessary for the generation of the baryon asymmetry of the Universe is due exclusively to the Dirac and/or Majorana phases in the neutrino mixing matrix U . The type I see-saw scenario with three heavy right-handed Majorana neutrinos having hierarchical spectrum is considered. The orthogonal” parametrisation of the matrix of neutrino Yukawa couplings, which involves a complex orthogonal matrix R , is employed. Results for light neutrino mass spectrum with normal and inverted ordering (hierarchy) are obtained. It is shown, in particular, that if the matrix R is real and CP-conserving and the lightest neutrino mass m_3 in the case of inverted hierarchical spectrum lies the interval $5 \times 10^{-4} \text{ eV} < m_3 < 7 \times 10^{-3} \text{ eV}$, the predicted baryon asymmetry can be larger by a factor of ~ 100 than the asymmetry corresponding to negligible $m_3 \cong 0$. As consequence, we can have successful thermal leptogenesis for $5 \times 10^{-6} \text{ eV} < m_3 < 5 \times 10^{-2} \text{ eV}$ even if R is real and the only source of CP-violation in leptogenesis is the Majorana and/or Dirac phase(s) in U .

Auteur principal: Dr MOLINARO, Emiliano (S.I.S.S.A.)

Co-auteurs: Prof. PETCOV, Serguey (S.I.S.S.A.); Dr SHINDOU, Tetsuo (DESY); Dr TAKANISHI, Yasutaka (S.I.S.S.A.)

Orateur: Dr MOLINARO, Emiliano (S.I.S.S.A.)

Classification de Session: Young Scientist Forum 2