

GENERATION OF THE LEPTONIC ASYMMETRY IN THE STERILE NEUTRINO HADRONIC DECAYS

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S u m m a r y

We consider the leptonic asymmetry generation in the νMSM via hadronic decays of sterile neutrinos at $T \ll T_{EW}$, when the masses of two heavier sterile neutrinos are between m_π and 2 GeV. The choice of the upper mass bound is motivated by the absence of direct experimental searches for singlet fermions with greater mass. We carried out computations at zero temperature and ignored the background effects. Combining constraints of a sufficient value of the leptonic asymmetry for the production of dark matter particles, the condition for sterile neutrino to be out of thermal equilibrium, and existing experimental data, we conclude that it can be satisfied only for the mass of a heavier sterile neutrino in the range $1.4 \text{ GeV} \lesssim M < 2 \text{ GeV}$ and only for the case of a normal hierarchy for the active neutrino mass.