

Joe Sato "Asymmetric mediator in scotogenic model"

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The scotogenic model is the Standard Model (SM) with Z_2 symmetry and the addition of Z_2 odd right-handed Majorana neutrinos and $SU(2)_L$ doublet scalar fields. We have extended the original scotogenic model by an additional Z_2 odd singlet scalar field that plays a role in dark matter. In our model, the asymmetries of the lepton and Z_2 odd doublet scalar are simultaneously produced through CP-violating right-handed neutrino decays. While the former is converted into baryon asymmetry through the sphaleron process, the latter is related to the DM density through the decay of $SU(2)_L$ doublet scalar that is named "asymmetric mediator". In this way, we provide an extended scotogenic model that predicts the energy densities of baryon and dark matter being in the same order of magnitude, and also explains the low-energy neutrino masses and mixing angles.

Session Classification: Short talks