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Flavored Leptogenesis via Scalar Doublet Decay in the Scotogenic Model

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The scotogenic model is a minimally extended model that generates small neutrino masses through radiative corrections in the dark sector. It is also known to account for the baryon asymmetry of the Universe through the decay of right-handed neutrinos. In this work, we explored an alternative leptogenesis scenario in which the scalar doublet decays into a right-handed neutrino and a lepton doublet. We calculated the resulting baryon asymmetry, considering flavor effects. As a result, we identified viable parameter regions for the masses of the right-handed neutrino and the scalar doublet, as well as for their couplings, that reproduce the observed baryon asymmetry.

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