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Dark matter and WIMPy baryogenesis in Scotogenic Model

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We propose a scenario for the common origin of dark matter and baryon asymmetry in the present Universe in the context of scotogenic model. We show that the neutral component of a inert scalar doublet is a dark matter candidate and the baryon asymmetry is achieved from the dark matter annihilation. After showing that the minimal model in this category can not satisfy all these requirements, we study a minimal extension of this model and find that the scale of leptogenesis can be as low as 5 TeV, lower than the one in vanilla leptogenesis scenario in scotogenic model along with the additional advantage of explaining the baryon-dark matter coincidence. Due to such low scale, the model remains predictive at dark matter direct detection and rare decay experiments looking for charged lepton flavour violating processes.

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