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## Dirac Leptogenesis Via Scattering

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We study the possibility of generating matter-antimatter asymmetry in the early Universe before the Electroweak phase transition by considering three Dirac right-handed neutrinos in addition to the standard model particles using the CTP formalism. In addition, we consider two off-shell heavy scalars, so the temperature of the Universe is never required to be high enough after inflation to take them on-shell. We focus on 2 by 2 scattering processes mediated through these heavy scalars where right handed neutrinos go out of the equilibrium generating lepton asymmetry which is then converted to baryon asymmetry using sphaleron processes and the results for baryon to photon ratio are compared to the observational values as obtained from Planck Mission to put experimental constraints on these models.

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