

Affleck-Dine Dirac Leptogenesis

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We present a minimal framework that realises successful Dirac Leptogenesis through the Affleck-Dine mechanism. A single right-handed neutrino and a neutrinophilic Higgs doublet are introduced to the Standard Model, which couple via a Yukawa interaction. The inflationary setting is induced by a combination of the two Higgs doublets, with their global symmetry violating interactions leading to a net charge generation via the Affleck-Dine mechanism. This simple Standard Model extension exhibits a unique and connected set of phenomenological implications including the resultant baryon asymmetry, inflationary predictions, cosmological implications, relic right-handed neutrinos, and its low energy phenomenology, while also being able to be embedded in various neutrino mass generating mechanisms.

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