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Baryogenesis for WIMPs

Thursday 29 August 2013 16:30 (24 minutes)

We propose a robust, unified framework, in which the similar baryon and dark matter cosmic abundances both arise from the physics of weakly interacting massive particles (WIMPs), with the rough quantitative success of the so-called "WIMP miracle". In particular the baryon asymmetry arises from the decay of a metastable WIMP after its thermal freezeout at or below the weak scale. A minimal model and its embedding in R-parity violating (RPV) natural SUSY are studied as examples. The new mechanism saves RPV SUSY from the potential crisis of washing out primordial baryon asymmetry. We also consider the embedding of this idea in RPV split SUSY. Phenomenological implications for the LHC and precision tests are discussed.

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