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Baryogenesis and Dark Matter In Multiple Hidden Sectors

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I will describe a unified mechanism for generating a baryon and dark matter asymmetry in models with multiple hidden sectors that are Standard Model-like but with varying Higgs mass parameters. These models have a unique cosmology with the different sectors reheated asymmetrically to relatively low temperature. A hidden sector with positive Higgs mass squared can accommodate dark matter with its baryon asymmetry, and the larger abundance of dark matter relative to baryons is explained by the fact that the dark sphaleron is active all the way down the hidden sector QCD scale. This scenario predicts that dark matter is clustered in large dark nuclei and that $\Delta N_{\rm eff} > 0.05$.

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