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Freeze-in baryogenesis via dark-matter oscillations

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We discuss the cosmology and phenomenology of freeze-in baryogenesis via dark-matter oscillations, focusing mainly on the case in which the dark matter couples to Standard Model leptons. We investigate viable models both with and without a Z_2 symmetry under which all new fields are charged, highlighting scenarios in which the baryon asymmetry is parametrically distinct from and enhanced relative to leptogenesis from sterile neutrino oscillations. The models we study predict the existence of new, electroweak-charged fields, and can be tested by a combination of collider searches, structure-formation studies, X-ray observations, and terrestrial low-energy experiments.

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