

ALP leptogenesis

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We propose a novel realisation of leptogenesis that relies on the out-of-equilibrium decay of an axion-like particle (ALP) into right-handed Majorana neutrinos (RHN) in the Early Universe. With respect to thermal leptogenesis and for any RHN mass down to a TeV, our mechanism improves by a factor of ~ 100 the tuning in the RHN mass splittings needed to reproduce the baryon asymmetry of the universe and neutrino masses. ALP leptogenesis requires $m_a > 10^4$ GeV and $f_a > 10^{11}$ GeV for the ALP mass and decay constant, and predicts an early period of matter domination by the ALP in parts of its parameter space.

We finally provide a viable supersymmetric realisation of ALP leptogenesis where the ALP is the R -axion, which accommodates GeV gravitino dark matter and predicts RHN below 10 TeV.

Title of the Poster/Talk

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