

Abstract Submitted
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Hidden-Sector Neutrinos and Freeze-In Leptogenesis¹ RAFAEL PORTO, Harvey Mudd College, INA FLOOD, University of Maryland, JANE SCHLESINGER, BRIAN SHUVE, MAXWELL THUM, Harvey Mudd College — Sterile neutrinos at the GeV scale can resolve several outstanding problems of the Standard Model (SM), such as neutrino masses and the origin of the baryon asymmetry through freeze-in leptogenesis, but they can be challenging to detect experimentally due to their small couplings to SM particles. However, in extensions of the SM with new forces or scalars, the sterile neutrinos can be produced copiously at particle colliders. We systematically investigate the impact of such interactions on the asymmetry obtained in freeze-in leptogenesis via neutrino oscillations. We find that such interactions tend to bring the sterile neutrino states into equilibrium at early times, leading to a significant reduction in the generated asymmetry. If sterile neutrinos are discovered via hidden-sector intermediate states at current or future experiments, it is likely that the couplings are too large to accommodate the observed baryon asymmetry.

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