

Neutrino decay in precision cosmology

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Neutrino decay interaction with scalar majorons naturally arises from Standard Model extensions to model neutrino mass generation. The interaction if present during the CMB epoch has the potential to disrupt neutrino free streaming and hence the CMB anisotropy spectra. This has been previously studied as a cosmological constraint on neutrino lifetime. In this work, we model the decay interaction with the full collisional Boltzmann hierarchy. The result shows the lifetime constraint from neutrino decay can be relaxed by several orders of magnitude.

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