

Axion screening of the CMB

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Cosmic microwave background (CMB) photons can convert into axion-like particles as they cross the halo magnetic fields of non-linear structure. Resonant conversion occurs when the axion mass matches the photon plasma mass, induced by the ionized gas within halos, leading to a frequency-dependent transition probability. Therefore, axions induce a frequency-dependent anisotropic screening of the CMB, which imprints secondary anisotropies in the observed CMB temperature and polarization fields. I will discuss how to compute these axion signals and their expected correlations on the sky, including cross-correlations between CMB and Large Scale Structure. I will then show that existing and future surveys can be complementary and improve upon other astrophysical axion searches for masses between 10^{-13} and 10^{-12} eV.

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