

Can QCD Axion explain the CMB anisotropy?

Thursday, 17 December 2020 16:00 (20 minutes)

In this talk, I discuss a possibility that the CMB anisotropy is dominantly generated by the primordial fluctuations of QCD axion under a circumstance that usual fluctuations by inflaton is too small to explain the anisotropy. The following conditions must be satisfied in this scenario: (i) sufficient amplitudes of the CMB anisotropy (ii) isocurvature constraint and (iii) non Gaussianity constraint. By carefully studying those conditions, I show that a large energy fraction Ω_A of the axion is necessary at the QCD phase transition, but simultaneously, it must become tiny at the present era due to the isocurvature constraint.

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