

The meso-inflationary QCD axion

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I will discuss the possibility that the axion Peccei-Quinn symmetry is spontaneously broken after the beginning of inflation. This scenario interpolates between pre-inflationary and post-inflationary axion DM cosmology with significant phenomenological differences from both. In particular, large inflationary fluctuations are produced only at scales not constrained by CMB, avoiding the strongest isocurvature constraints. Nonetheless such large fluctuations lead to the formation of axion mini-clusters and are also constrained from Lyman- α forest and future CMB spectral distortion measurements. These aspects are common to a broad class of models where DM is produced by inflationary fluctuations: I will also comment on the generic features of such a scenario.

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