



Contribution ID: 223

Type: **Talk**

Cosmology with Ultralight Dark Matter

Tuesday 9 September 2025 12:20 (40 minutes)

The presence of ultralight dark matter in the early Universe suppresses small-scale structure formation. Moreover, if it couples to the Standard Model, it can induce a variation of fundamental constants. In this talk, I will discuss the cosmological impact of an ultralight dark matter field with an effective quadratic coupling to the Standard Model, such that the fine structure constant and the mass of the electron have time-dependent, oscillatory variations. I will present CMB constraints on this scenario for a wide range of dark matter masses, associated with the oscillations occurring around BBN and the formation of the CMB.

References

associated paper will appear on arXiv in the coming weeks

Author: BODDY, Kimberly (University of Texas at Austin)

Presenter: BODDY, Kimberly (University of Texas at Austin)

Session Classification: Morning Session 2

Track Classification: Fundamental aspects of Cosmology.