



Contribution ID: 266

Type: **not specified**

## Ultralight dark matter, review and future extensions

*Tuesday 9 July 2024 10:00 (1 hour)*

The cosmological evidence supporting the existence of dark matter is extremely compelling. And while we have known how dark matter fits into the standard model of cosmology, Lambda CDM, direct observation still eludes us despite a global experimental effort ruling out large regions of once promising parameter space. This has motivated study of alternative dark matter models. One such model is Ultralight dark matter, where the particle mass is so light that wavelike phenomena impact large scale structure. This model was originally proposed to address small scale structure discrepancy between Lambda CDM and dark-matter only simulations. The mass associated with that purpose has long been ruled out. However, observations of small-scale structure continue to allow us to place a lower bound on the dark matter mass, ruling out decades of mass parameter space relying only on the dark matter's gravitational coupling. In this talk I review the field of ultralight dark matter. I will discuss the model itself and its related phenomenology and constraints. Finally, I will discuss the current direction of the field into extensions of the vanilla ultra light dark matter model and the implications of this work for constraints and pheno.

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