

Co-Decaying Dark Matter and its Cosmological Signatures

Thursday 16 May 2019 17:15 (25 minutes)

This talk will mostly follow the discussions found in <https://arxiv.org/abs/1711.04773> and <https://arxiv.org/abs/1902.04082>. We will discuss the cosmological implications of the Co-Decaying Dark Matter Model—a recently proposed mechanism for depleting the density of dark matter through the decay of nearly degenerate particles. This model generically predicts the existence of an Early Matter Dominated phase of universe evolution. We will show that this phase promotes sub-structure growth that can survive free-streaming effects to remain as compact micro-halos to the present era. In addition to micro-halos, Co-Decaying Dark Matter can foster an early universe environment conducive to the formation of near solar-mass black holes that can account for an appreciable fraction of the total present-day Dark Matter abundance.

Preferred Session

Cosmology

Comments

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Session Classification: Dark Matter