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Van de Bruck: ”Interactions in the dark sector: the cosmology of conformally and disformally coupled dark matter”

Thursday, September 28, 2017 12:20 PM (35 minutes)

A fifth force between the standard model particles is highly constrained. On the other hand, dark matter particles could interact for example via a force mediated by dark energy scalar field. Such interactions are currently constrained only by cosmological observations. In this talk I will discuss scalar-tensor theories of interacting dark matter-dark energy, allowing for both conformal and disformal couplings. I will discuss that while conformally coupled dark matter is strongly constrained by observations of CMB anisotropies and large scale structures, this is not the case for disformally coupled dark matter or mixtures between conformal and disformal couplings. After discussing the cosmological consequences of a disformal coupling term, I will present the latest constraints on both conformal and disformal couplings coming from diverse cosmological probes.