

Long range interactions and dark matter

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Dark matter interacting through a light mediator arises in many extensions of the Standard Model. This scenario has been proposed for several phenomenological reasons, in particular to enhance dark matter self-interactions and solve the putative discrepancies between collisionless cold DM and observations of galactic structures.

I will discuss several phenomenological consequences showing that a variety of indirect detection constraints (gamma-rays, CMB, anti-protons) severely constrain such model.

Then I will consider the possibility of an asymmetry in the dark matter sector. I will show that, contrary to the common lore, detectable annihilations occur even for large asymmetries. I will discuss the possibility to test this scenario with direct and indirect searches.

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Classification de Session: Dark matter candidates III

Classification de thématique: Indirect detection