

Future challenges for indirect dark matter detection from MeV to TeV

I discuss several aspects and challenges of indirect dark matter (DM) detection in a wide energy range, with particular focus on gamma-ray and antiproton channels.

I first present future prospects for detecting dark matter annihilation in the poorly constrained MeV range, discussing challenges on both the theoretical modeling and observational side. I focus on the possibility of detecting sharp spectral features with future experiments such as e-ASTROGAM, either directly originating from DM annihilation, or – in the case of leptonic channels – of secondary origin (in-flight annihilation of positrons, bremsstrahlung).

I also discuss several issues connected to the DM indirect search in the GeV domain, with focus on the inner Galaxy: The role of the secondary (Inverse Compton and Bremsstrahlung) emission from DM, the interplay with constraints from other channels, most importantly antiprotons, and the importance of the astrophysical background.

I conclude mentioning future prospects in the TeV domain and the role of future experiments such as CTA.

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