

Search for dark matter with the Cherenkov Telescope Array

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The nature of dark matter (DM) is a longstanding enigma of physics; it may consist of particles beyond the Standard Model that are still elusive to experiments.

Indirect DM searches with the Fermi Gamma-ray Space Telescope and Imaging Atmospheric Cherenkov Telescopes (IACTs) are playing a crucial role in constraining the nature of the DM particle through the study of their annihilation into gamma rays from different astrophysical structures.

The Cherenkov Telescope Array (CTA) is the next generation ground-based gamma-ray observatory. It will serve as an open observatory to a wide astrophysics community and will provide a deep insight into the non-thermal high-energy universe.

The design foresees a factor of 5-10 improvement in sensitivity in the current very high energy gamma ray domain of about 100 GeV to some 10 TeV, and an extension of the accessible energy range from well below 100 GeV to above 100 TeV

In this talk I will describe the sensitivity projections for DM searches on the various targets taking into account the latest instrument response functions expected for CTA together with estimations for the systematic uncertainties from diffuse astrophysical and cosmic-ray backgrounds

Summary

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