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Searching for dark matter with MAGIC and other gamma-ray instruments

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Abstract

MAGIC is a stereoscopic system of two Imaging Atmospheric Cherenkov Telescopes located on the Canary island of La Palma that detects gamma rays from ~ 30 GeV to ~ 100 TeV. Observations by MAGIC allow us to probe, among others, various fundamental physics topics. One of these topics is the nature and the distribution of dark matter. MAGIC is actively conducting searches for gamma-ray signals from WIMP dark matter annihilation and decay towards various targets. I will first present the state of the art of dark matter analyses using gamma-ray instruments with a focus on Cherenkov telescopes. Then I will present recent results. In particular I will cover the search for promising line emission in the Galactic Centre with MAGIC, and from a combined analysis of dwarf spheroidal galaxies observed with five different gamma-ray experiments: Fermi-LAT, HAWC, H.E.S.S., MAGIC, and VERITAS.