

Constraining the Dark Matter annihilation cross section with a combined analysis of dwarf spheroidal galaxy observations from Fermi-LAT, HAWC, H.E.S.S., MAGIC, and VERITAS

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The nature of Dark Matter (DM) is still an open question. This elusive kind of matter cannot be made of any of the known particles of the Standard Model (SM) of particle physics. Among the candidates proposed to explain the nature of DM, weakly interacting massive particles (WIMPs) are one of the preferred ones. They could be detected indirectly by observing the products of its annihilation into SM particles and gamma rays. This has led to extensive observing campaigns with ground-based and space-based gamma-ray telescopes. Limits on the DM self-annihilation cross section have been obtained independently by the Fermi-LAT, HAWC, H.E.S.S., MAGIC, and VERITAS collaborations from various DM targets. To maximize the sensitivity of DM searches, we have performed a joint likelihood analysis combining observations of dwarf spheroidal galaxies (dSphs) taken with these telescopes. We will present here the limits obtained to the DM self-annihilation cross section as a function of the DM particle mass, ranging from 5 GeV to 100 TeV.

Track

Dark Matter

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