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# 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 for modern Physics. In the particle DM paradigm, this elusive kind of matter cannot be made of any of the known particles of the Standard Model (SM) of particle physics. Many efforts have been made in order to model the nature of the DM. Among others, weakly interacting massive particles (WIMPs) are one of the most favored candidates for DM. Ground-based and space-based gamma-ray telescopes could potentially detect DM indirectly, by observing secondary products of its annihilation into SM particles. In the past years, limits on the DM self-annihilation cross section have been produced independently by the Fermi-LAT, HAWC, H.E.S.S., MAGIC, and VERITAS collaborations from a variety of DM targets. In this contribution, we will focus on the combination of observations from these five experiments in order to maximize the sensitivity of DM searches in dwarf spheroidal galaxies (dSphs), using a joint maximum likelihood approach. dSphs are one of the most promising targets for indirect DM searches, due to their proximity and their negligible contamination by astrophysical background. The obtained limits to the DM self-annihilation cross section are presented as a function of the DM particle mass, ranging from 10 GeV to 100 TeV.

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