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Search for dark matter annihilation with a combined analysis of dwarf spheroidal galaxies from Fermi-LAT, HAWC, H.E.S.S., MAGIC and VERITAS

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Dwarf spheroidal galaxies (dSphs) are among the most dark matter (DM) dominated objects, with negligible expected astrophysical gamma-ray emission. This makes nearby dSphs ideal targets for indirect searches of a DM particle signal. The accurate knowledge of their DM content makes it possible to derive robust constraints on the velocity-weighted cross section of DM annihilation. We report on a joint analysis of 20 dSphs observed by Fermi-LAT, HAWC, H.E.S.S., MAGIC, and VERITAS using a common maximum likelihood approach in order to maximize the sensitivity of DM searches towards these targets. Results for seven annihilation channels and spanning a range of DM masses from 5 GeV to 100 TeV will be presented. Furthermore, the systematic uncertainties coming from the astrophysical J-factors calculated from the dSph dynamics will be discussed by comparing results obtained using two different sets of J-factors.

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