

Abstract Submitted
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Combined Dark Matter Searches Towards Dwarf Spheroidal Galaxies with Fermi-LAT, HAWC, H.E.S.S., MAGIC, and VERITAS¹ DANIEL SALAZAR-GALLEGOS, Michigan State University, HAWC COLLABORATION², FERMI-LAT COLLABORATION, H.E.S.S. COLLABORATION, MAGIC COLLABORATION, VERITAS COLLABORATION — Solving the Dark Matter (DM) problem will likely reveal physics beyond the Standard Model. The search for DM is challenging, so searches are using a variety of techniques. For indirect DM searches, Dwarf spheroidal galaxies (dSphs) are prime targets because their ratio of DM content to baryonic is high. We propose a novel observation technique through multiple gamma-ray observatories. We established a collaboration of three Imaging Air Cherenkov Telescope (IACT) arrays: H.E.S.S., MAGIC, and VERITAS; the Fermi-LAT satellite, and the water Cherenkov detector, HAWC. Our collaboration is meant to maximize the sensitivity of DM searches towards dSphs by combining dSph data for the first time. Techniques are diverse across these experiments, so each group analyze their individual datasets from multiple dSph's in their fields of view then combine these data at the likelihood level. We use a common set of annihilation channels in analysis and a common treatment of the astrophysical factor for consistency across experiments. We use a common statistical treatment of instrumental systematic uncertainties. We present our results as limits to the velocity weighted cross section for DM-DM annihilation as a function of DM mass. Our limits will be the strictest for indirect detection to date.

¹NSF, National GEM Consortium.

²Presenter's parent collaboration

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