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A Search for Dark Matter from Dwarf Galaxies using VERITAS (15' + 5')

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In the cosmological paradigm, cold dark matter (DM) dominates the mass content of the Universe and is present at every scale. Candidates for DM include many extensions of the standard model with weakly interacting massive particles (WIMPs) in the mass range from ~ 10 GeV to greater than 10 TeV. The self-annihilation or decay of WIMPs in astrophysical regions of high DM density can produce secondary particles including very high energy (VHE) gamma rays with energy up to the DM particle mass. VERITAS, an array of atmospheric Cherenkov telescopes, sensitive to VHE gamma rays in the 85 GeV-30 TeV energy range, has been utilized for indirect DM searches. The astrophysical objects considered to be candidates for indirect DM detection by VERITAS are dwarf spheroidal galaxies (dSphs) of the Local Group and the Galactic Center, among others. This presentation reports on the observations of five dSphs, and the results from a joint DM search from these objects.

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