

Abstract Submitted
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The VERITAS Dark Matter Science Program ANDREW SMITH,
University of Utah Physics and Astronomy, VERITAS COLLABORATION — 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 a Weakly Interacting Massive Particle (WIMP) in the mass range from 50 GeV to greater than 10 TeV. The self-annihilation of WIMPs in astrophysical regions of high DM density can produce secondary particles including Very High Energy (VHE, >100 GeV) gamma rays with energies up to the DM particle mass. The VERITAS array of Cherenkov telescopes, designed for the detection of VHE gamma rays in the 100 GeV-10 TeV energy range, is an appropriate instrument for the indirect detection of DM. Among the possible astrophysical objects considered to be candidates for indirect DM detection, VERITAS has focused on observations of dwarf spheroidal galaxies (dSphs) of the Local Group, the Milky Way galactic center, and Fermi-LAT unidentified GeV sources. This presentation reports on our extensive observations of these targets and our present exclusion regions obtained on the thermally averaged annihilation cross section of the WIMP derived from these observations.

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