Dark Matter Searches with VERITAS

In the current 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. 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 these targets and the status of VERITAS dark matter program. I will also discuss the spectrum of cosmic-ray electrons (CREs) by VERITAS between 300 GeV and 5 TeV, the origin of which are not fully understood and are either astrophysical or possibly DM in origin.