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Dark Matter Searches with VERITAS

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Dark matter is the dominant matter component of the universe. Despite its dominance over baryonic matter, the true nature of dark matter is unknown. One dark matter candidate is the weakly interactive massive particle (WIMP), invoked in several extensions to the Standard Model. The self-annihilation or decay of WIMP particles in regions of high dark matter density can produce secondary Standard Model particles such as very-high-energy (VHE, $E > 100$ GeV) gamma rays, allowing for indirect detection of dark matter. Indirect searches can be performed by making VHE observations of astrophysical regions of high dark matter density. As part of its long-term plan, VERITAS, a ground-based gamma-ray observatory sensitive to gamma rays in the ~ 85 GeV to greater than 30 TeV energy range, has observed a number of these regions. These observations have yielded constraints on the annihilation cross section of dark matter particles. In this talk I will discuss VERITAS observations of dark-matter-rich regions, such as dwarf spheroidal galaxies and the Galactic Centre, in the context of indirect dark matter searches.

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