

VERITAS Observations of the Galactic Center Region at Multi-TeV Gamma-Ray Energies

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The Galactic Center region hosts a variety of powerful astronomical sources and rare astrophysical processes that emit a large flux of non-thermal radiation. We present the analysis of the very-high-energy gamma-ray emission above 2 TeV of the region around the Galactic Center known as the Central Molecular Zone using 125 hours of data taken with the VERITAS imaging-atmospheric Cherenkov telescope between 2010 and 2018. This analysis employs new shower reconstruction algorithms and instrument response functions optimized for data taken at large zenith angles such as the Galactic Center sources. We report positions and spectra for point sources VER J1745-290, G0.9+0.1, and HESS J1746-285, along with a light curve for VER J1745-290, the brightest source in the region consistent with the position of the supermassive black hole Sagittarius A*. We also measure the spectrum of the diffuse emission from the Galactic Center ridge region, which has been claimed as evidence of a Galactic PeVatron.

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Subcategory

Experimental Results

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