

# Evidence for Long-Term Gamma-Ray and X-Ray Variability from the Unidentified TeV Source HESS J0632+0

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[arxiv.org/0905.3139](http://arxiv.org/0905.3139)

HESS J0632+057 is one of only two unidentified very-high-energy gamma-ray sources which appear to be point-like within experimental resolution. It is possibly associated with the massive Be star MWC 148 and has been suggested to resemble known TeV binary systems like LS I +61 303 or LS 5039. HESS J0632+057 was observed by VERITAS for 31 hours in 2006, 2008 and 2009. During these observations, no significant signal in gamma rays with energies above 1 TeV was detected from the direction of HESS J0632+057. A flux upper limit corresponding to 1.1% of the flux of the Crab Nebula has been derived from the VERITAS data. The non-detection by VERITAS excludes with a probability of 99.993% that HESS J0632+057 is a steady gamma-ray emitter. Contemporaneous X-ray observations with Swift XRT reveal a factor of  $1.8 \pm 0.4$  higher flux in the 1-10 keV range than earlier X-ray observations of HESS J0632+057. The variability in the gamma-ray and X-ray fluxes supports interpretation of the object as a gamma-ray emitting binary.