

Multiwavelength Observations of LS I +61° 303 with Veritas, Swift, and RXTE

Contributed by V. A. Acciari et al
Saturday, 01 August 2009
Last Updated Sunday, 22 November 2009

The Astrophysical Journal Letters, Volume 700, Issue 2, pp. 1034-1041 (2009).

arXiv:0904.4422

We present results from a long-term monitoring campaign on the TeV binary LSI +61° 303 with VERITAS at energies above 500 GeV, and in the 2-10 keV hard X-ray bands with RXTE and Swift, sampling nine 26.5 day orbital cycles between 2006 September and 2008 February. The binary was observed by VERITAS to be variable, with all integrated observations resulting in a detection at the 8.8 σ ; (2006/2007) and 7.3 σ ; (2007/2008) significance level for emission above 500 GeV. The source was detected during active periods with flux values ranging from 5% to 20% of the Crab Nebula, varying over the course of a single orbital cycle. Additionally, the observations conducted in the 2007-2008 observing season show marginal evidence (at the 3.6 σ ; significance level) for TeV emission outside the apastron passage of the compact object around the Be star. Contemporaneous hard X-ray observations with RXTE and Swift show large variability with flux values typically varying between 0.5 and 3.0 $\times 10^{-11}$ erg cm $^{-2}$ s $^{-1}$ over a single orbital cycle. The contemporaneous X-ray and TeV data are examined and it is shown that the TeV sampling is not dense enough to detect a correlation between the two bands.