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Multiwavelength Analyses of Long-Term Lower Flux State Observations of Intermediate-Frequency-Peaked BL Lacertae Sources: W Comae and 3C 66A

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Intermediate-frequency-peaked BL Lacertae objects (IBLs) are a class of blazars characterized by a spectral energy distribution (SED) with a lower-energy synchrotron peak than a majority of extragalactic sources detected by ground-based imaging atmospheric Cherenkov telescopes (IACTs). Because of this shift in the SED, the peak gamma-ray flux falls outside the very-high-energy regime (VHE, >100 GeV) covered by IACTs such as VERITAS, making IBLs difficult to detect except during infrequent times of elevated flux. However, the study of these sources in a lower flux state is essential for developing a complete understanding of the blazar paradigm. We present the results of multiwavelength analyses of long-term lower flux state observations completed for two IBL sources: W Comae and 3C 66A. For both sources, data from VERITAS were analyzed for the VHE regime. The study of W Comae extends from 2008 to 2014, resulting in a 6 standard deviation (σ) detection from ~40 observing hours. Analysis of 3C 66A from 2007 to 2015, totaling ~67 hours, resulted in a 17σ lower flux state detection. We will report on the results from these VHE analyses as well as contemporaneous multiwavelength data and comment
on how these lower state IBL detections fit within the context of the blazar paradigm.

Collaboration

VERITAS

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