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Multiwavelength observations of the extreme HBL H 1426+428

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H 1426+428 is a, so called, extreme high-frequency-peaked BL Lac object (extreme HBL) located at a redshift of $z = 0.129$ that was detected on a number of occasions by the previous generation of ground-based gamma-ray telescopes (Whipple, CAT and HEGRA), with its VHE flux ranging up to 80% of the Crab Nebula (Crab Units, CU) above a few hundred GeV. Current-generation TeV observatories (VERITAS, MAGIC) have, however, only reported low-flux detections with the flux typically ranging from 1-3% CU. In this contribution we report the results of a multi-year monitoring program with VERITAS covering the period 2008-2016, which revealed an average steady flux of $\sim 2\%$ CU, with no variability detected on timescales of days to years. We incorporate multi-wavelength data including optical, Swift UVOT, Swift XRT, Swift BAT, and Fermi-LAT, and construct and model the time-averaged spectral energy distribution, constraining the low state of this extreme HBL. Additionally, in 2021 VERITAS detected a significantly elevated state of H 1426+428 compared to the 2008-2016 data sets and conducted an intensive observation program. During this period, no cutoff is detected in the observed TeV energy spectrum up to at least 6 TeV. The results of this period are presented along with contemporaneous Swift XRT and NuSTAR observations.

Collaboration name

VERITAS

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