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An unbiased survey of high-frequency-peaked BL Lac objects with VERITAS

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More than 50 high-frequency-peaked BL Lac objects (HBLs) have been detected by ground-based TeV gamma-ray observatories, making them the dominant population of extragalactic sources observed at energies above 0.1 TeV. The fluxes of HBLs are often reported only during high-flux states, biasing our understanding of the properties and duty cycle of these sources towards flares. In recent years, the VERITAS observatory has conducted an observing campaign of 36 X-ray selected HBLs, aiming to produce the first unbiased survey of HBLs at TeV energies by finding an estimate of the average TeV flux for each source, while also searching for detections of new TeV blazars. The VERITAS HBL sample consists of 21 known TeV sources and 15 blazars without previously reported TeV emission at the time of the source selection (three of which have since been announced as new detections by VERITAS). A total of 13 blazars are significantly detected in the unbiased survey dataset, which includes the first detection of the blazar RBS 1366 at TeV energies. We find that 11 sources that have been detected during flaring episodes do not show detectable levels of TeV emission when only untriggered observations are considered. The results of the full survey will be first presented in this contribution.

Collaboration(s)

VERITAS

Author: RABINOWITZ, Pazit

Presenter: RABINOWITZ, Pazit

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