

Search for VHE emission from Fast Blue Optical Transients with the VERITAS telescopes

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Fast blue optical transients (FBOTs) are extreme instances of interaction-powered supernovae which exhibit high bolometric luminosities ($\sim 10^{43}$ erg s⁻¹) with exceptionally fast rise and decay timescales (< days). Since the discovery of AT2018cow, the landmark FBOT, by the Zwicky Transient Factory (ZTF), these transients have gained increasing attention as potential particle accelerators via mechanisms of shock interactions. As a result, a very-high-energy (VHE) gamma-ray component could be produced.

I present the first target of opportunity (ToO) campaign dedicated to follow-up observations of FBOTs with the Very Energetic Radiation Imaging Telescope Array System (VERITAS). The criteria for observing both bright and distant events, as well as dimmer but closer ones, are discussed. As a result of the ToO campaign, 6.9 hours of live-time data were collected in the follow-up of AT2023ufx. This dataset was obtained over the course of four days, starting one day after the optical peak detected by ZTF-g. No detection is found for AT2023ufx, and flux upper limits are derived in the energy range of ~ 100 GeV up to 10 TeV.

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