Abstract Submitted
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Long-term very high-energy gamma-ray flux variations of Markarian 421 with VERITAS[1] EDWARD PARK[2], Santa Cruz Institute for Particle Physics and Department of Physics, University of California, Santa Cruz and Leigh High School, AIDAN CERVANTES[3], Santa Cruz Institute for Particle Physics and Department of Physics, University of California, Santa Cruz and Gonzales High School, VERITAS COLLABORATION — Flares within the jet of the prominent blazar Mrk 421 (Markarian 421) have been observed in multiple energy bands. We present a very high-energy (E ¿ 100 GeV) gamma-ray analysis based on data collected from the VERITAS (Very Energetic Radiation Imaging Telescope Array System) atmospheric Cherenkov telescopes across the time period 2007 May 6 to 2019 June 27 (about 12 years). We have found that the average spectrum of Mrk 421 can be described as a power law with an exponential cutoff. Using the power-law index and cutoff energy obtained from a fit to the full data set, we fit the spectrum for each day of observations with the normalization as the only free parameter. Mrk 421 shows several significant flares in the light curve of the integral flux above a threshold of 200 GeV. The behavior of these flares is discussed.

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