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Search for Correlations Between Gamma-Ray Flux Variability and Optical Spectral Features in Blazars NICOLAS VAZQUEZ, CAITLIN JOHNSON, OLIVIET HERVET, DAVID WILLIAMS, UC Santa Cruz — Active galactic nuclei (AGN) are galaxies with a very luminous inner part, powered by a black hole of 10ˆ6 -10ˆ9 solar masses. Matter accretes toward the center of the black hole and a fraction is shot out at speeds close to the speed of light. When the galaxy is oriented in such a way that this jet points directly towards Earth, it is known as a blazar. Blazar jets are where gamma rays and other forms of high energy radiation are emitted. This project presents an investigation into the variability of blazar activity using gamma-ray observations from the Fermi Large Area Telescope (LAT) and optical observations from the Shane 3m telescope at Lick Observatory taken of five TeV detects blazars. Results of a subset of these five sources involved in the full study will be displayed. Monthly optical spectra were taken and the resulting line intensities for each source were compared to contemporaneous gamma-ray observations. We looked for correlations between flux variability and optical line variability. Any correlation between gamma-ray flux and optical spectral features would provide great insight into understanding flux variability mechanisms and the relationship between thermal and non-thermal emission mechanisms in AGN.

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