

Abstract Submitted  
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**Studying the gamma-ray emission of the blazar Mrk 421, an 11 years data set from the Fermi-LAT space telescope** WILLIAM RYAN, University of California, Santa Cruz — The blazar Mrk 421 is the brightest HBL (High-frequency peaked BL Lac) in the sky and the only HBL with enough gamma-ray emission in its average state to build a daily (or bi-daily) light-curve from the Fermi-LAT telescope. With 11 years worth of data, 3 more years than the most recent Fermi catalog 4FGL, we can define with high accuracy the gamma-ray spectral shape of Mrk 421. I used the ‘Binned Likelihood Analysis’ technique to statistically compare four models, Log-parabola and Power-law, with and without an exponential cutoff over a spectrum spanning from 100 MeV to 513 GeV. I will be presenting the model comparisons and the one statistically favored. The final goal of this analysis is to create a day binned light-curve to study variability patterns of the source which may be linked to successive shocks accelerating particles.

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