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Observational Signatures Of The Gamma Rays From Bright Blazars And Wakefield Theory KEVORK ABAZAJIAN, NICOLAS CANAC, TOSHIKI TAJIMA, Univ of California - Irvine, TOSHIKAZU EBISUZAKI, RIKEN, Japan, SHUNSAKU HORIUCHI, Virginia Tech — Gamma-ray observations have detected a strong variability in blazar luminosity in the gamma ray over time scales as short as several minutes. We show, for the first time, that the correlation of spectrum with intensity is consistent with the behavior with luminosity of blazar SEDs along a blazar sequence for low synchrotron peak blazars. We show that the observational signatures of variability with ux are consistent with wakefield acceleration of electrons initiated by instabilities in the blazar accretion disk. This mechanism produces time variations as short as intervals of 100 seconds. The wakefield mechanism also predicts a reduction of electron spectral index with an increase in gamma-ray luminosity, which could be detected in higher energy observations well above the inverse Compton peak.

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