

Multi-waveband correlation and variability of Markarian 421

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Abstract

Markarian 421 (Mrk 421) is one of the brightest blazars and it is observed frequently which helps us with the understanding of its mechanism of radiation. Mrk 421 is a High Synchrotron Peaked (HSP) blazar, peak of the bump related with the synchrotron radiation is above 10^{16} Hz, but because of the high variability of the source, the peak was detected on higher frequencies, especially during a period of high activity. While calculating correlations between multiple wavebands, a significant correlation between X-ray and VHE band was detected, which implies that the radiation is emitted in the same region. Additional information about the emission region, strength of the magnetic field and the different timescales could be provided from spectral hysteresis patterns and time delays.

The overview of Mrk 421 observed for over a decade is presented in this seminar. We will compare multi-waveband correlation and variability in a low and high state of the source over multiple years, discuss different features and compare different models used for the modeling of the detected radiation.

Keywords: blazer, Markarian 421, correlation, variability, modeling

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