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4.5-year simultaneous multi-wavelength observation of Mrk 421 in ARGO-YBJ and Fermi overlap era

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As one of the most active blazars, Mrk421 is an excellent candidate for the study of the physical processes within the jets of AGN. Here we report on the extensive multi-wavelength observations of Mrk 421 over 4.5 years, from 2008 August to 2013 February. This source was simultaneously monitored by several experiments at different wavelengths: the ARGO-YBJ detector at gamma-ray energies above 0.3 TeV, Fermi-LAT at 0.1-300 GeV, Swift-BAT in hard X-rays, RXTE-ASM, MAXI and Swift-XRT in soft X-rays, and Swift-UVOT in the ultraviolet and optical ranges. According to the observed light curves, ten states (including seven large flares, two quiescent phases and one outburst) were selected. For the first time, the multi-wavelength spectral evolutions of Mrk 421 during different states were systematically analyzed. The one-zone synchrotron self-Compton model was adopted to investigate the intrinsic mechanisms.

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