FACT - Highlights from more than Eight Years of Unbiased TeV Monitoring

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The First G-APD Cherenkov Telescope (FACT) has been monitoring blazars at TeV energies for more than eight years. Using solid state photo sensors and performing robotic operations results in a maximized duty cycle of the instrument and minimized observational gaps, providing an unprecedented data sample of more than 14700 hours of physics data. With an unbiased observing strategy, a small sample of sources is monitored. Results of an automatic quick-look analysis are published
with low latency on an open-access website. Since 2014, close to 150 alerts including 11 astronomer's telegrams have been issued triggering target-of-opportunity observations and a variety of multi-wavelength studies.

In 2016, FACT alerted MAGIC to a high state of 1ES 2344+51.4. The combined observations revealed a renewed extreme behaviour of the source. Thanks to target-of-opportunity observations and preplanned campaigns, several rich datasets with combined observations with INTEGRAL, XMM-Newton and AstroSAT are available for Mrk 421. Furthermore, dedicated campaigns each observing season provide multi-wavelength light curves and spectral energy distributions for the brightest blazars.

The unprecedented, unbiased TeV data sample also provides the unique chance to study the duty cycle and the long-term spectral and temporal behaviour of the sources, including the search for periodic signals. Studying the long-term variability of Mrk 421 and Mrk 501 in the multi-wavelength context, correlations of different wavelengths are investigated searching for delays.

In this presentation, selected highlights from more than eights years of monitoring will be summarized, including results from deep multi-instrument campaigns and long-term studies.

Keywords

AGN; Blazars; TeV; Monitoring; MWL;

Collaboration

other (fill field below)

other Collaboration

FACT

Subcategory

Experimental Results

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