

## 5.5 years multiwavelength variability of Mrk 421: evidence of leptonic emission from radio to TeV

*Wednesday, 10 July 2019 12:15 (15 minutes)*

Mrk 421 is a high-synchrotron-peaked blazar featuring bright and persistent GeV and TeV emission. We use the longest and densest ongoing unbiased observing campaign obtained at TeV and GeV energies during 5.5 years with the FACT telescope and the Fermi LAT detector. The contemporaneous multi-wavelength observations were used to characterize the variability of the source and to constrain the underlying physical mechanisms. We study and correlate light curves obtained by nine different instruments from radio to gamma rays and found two significant results. The TeV and X-ray light curves are very well correlated with sub-day lag. The GeV light curve varies independently and accurately leads the variations observed at long wavelengths, in particular in the radio band. We find that the observations match the predictions of leptonic models and suggest that the physical conditions vary along the conical jet, where the emitting region is moving outwards and is becoming first transparent to GeV photons and later to radio.

**Primary authors:** SLIUSAR, Vitalii (University of Geneva, Department of Astronomy); Dr WALTER, Roland (Université de Genève); BALBO, Matteo (Université de Genève)

**Presenter:** SLIUSAR, Vitalii (University of Geneva, Department of Astronomy)

**Session Classification:** Relativistic outflows from extragalactic sources

**Track Classification:** Relativistic outflows from extragalactic sources