

# GeV-radio correlation in Markarian 421

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- What is this contribution about?

This contribution is about a study of long-term multi-wavelength (radio and GeV) variability of Mrk 421.

- Why is it relevant/interesting?

Correlation between GeV and radio variations in blazars, and particularly in Mrk 421, is an established fact. In Mrk 421 radio is lagging behind by about 40 days. Using just 4 parameters we were able to reproduce an over 7-years long radio light curve by convolving a proposed profile with GeV light curve.

- What have we done?

We find and characterize the connection between radio and GeV bands by finding a response function, which allows to reproduce radio light curve from GeV one.

- What is the result?

The fast-rise-slow-decay function derived for the shock propagation within a conical jet can reproduce radio light curve from GeV one. The best-fit value for the response profile also features a 44 days delay between the bands, which is compatible with the wide lag range obtained from the correlation. Such a delay corresponds to  $10^{17}$  cm/c, which is comparable with the apparent light crossing time of the Mrk 421 radio core.