Observational constraints on the blazar jet wobbling timescales

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PoS(ICRC2021)643

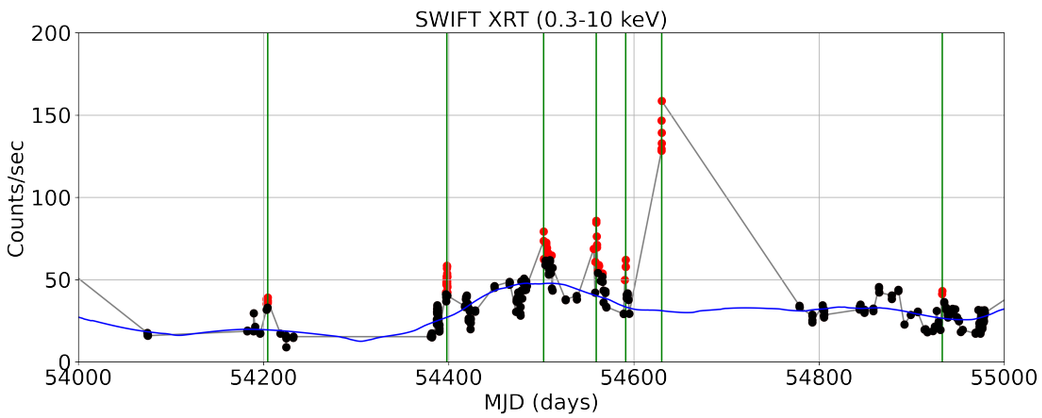
Variability of blazars

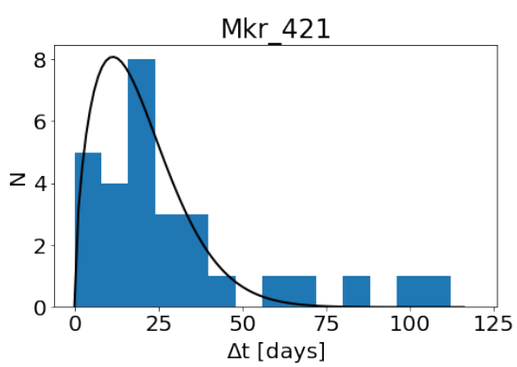
- **Blazars** are a subclass of AGNs, where the jet is aligned close to the line of sight, characterised by a rapid variability at all wavelengths
- **Can the jet wobbling be responsible for the observed high energy flares?**
- The wobbling timescale is expected to be about 10^3 - 10^4 R_g/c (Liska et al., MNRAS 474 (2018) L81)

Aims

To constrain a typical intervals between the flares for selected bright blazars and compare them with the expected wobbling timescales.

Time intervals between flares

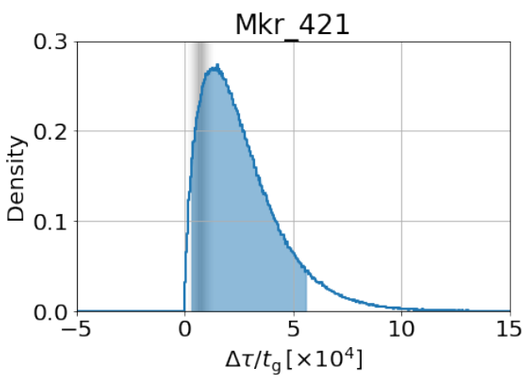




Flares detected in the *Swift*-XRT light curves

Comparison of the timescales

$$\frac{\Delta\tau}{t_g} = k\frac{\delta\Delta t}{(1+z)M_{\mathrm{SMBH}}},\ k = 8.7\times10^9\ M_\odot \mathrm{day}^{-1}$$



Possible ranges of Doppler beaming and M_{SMBH} evaluated

Observational constraints on $\Delta\tau/t_g$ compared with predictions for the wobbling scenario.