Quasi Periodic Oscillations (QPOs) in Blazars on Diverse Time Scales

A. C. Gupta[1]

[1] Aryabhatta Research Institute of Observational Sciences
E-mail(GA): acgupta30@gmail.com

Abstract

Blazars, including BL Lacertae objects (BL Lacs) and flat spectrum radio quasars (FSRQs), are subclass of radio-loud active galactic nuclei (AGN) with relativistic jets aligned nearly with the line of sight. Blazar emission extends across the entire electromagnetic (EM) spectrum and they show detectable flux variations on diverse timescales ranging from a few minutes through days and months to decades through all EM bands. The presence of quasi-periodic oscillations (QPOs) is fairly common in both black hole and neutron star binaries in our and nearby galaxies. Recently we have reported claims of QPOs detection on diverse timescales ranging from a few tens of minutes to hours to days and even months by using X-ray and optical time series data of blazars in a series of papers by my group. How to detect QPOs in time series data? What causes QPOs? What are likely the explanation of QPO detection in blazars? I will discuss these in my talk.