An eclipsing binary black hole candidate system in the blazar Mrk 421

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Introduction

Blazars are the most powerful radio-loud Active Galactic Nuclei (AGN). They include the BL Lacertae objects and the Flat Spectrum Radio Quasars (FSRQs). These objects represent a small subset of a single source population relative to the observer's line of sight (see, e.g., Schneider, 1974; Blanch & König, 1979). Any attempt to classify AGN by using AGN techniques, therefore, is very variable sources since they exhibit the most dominant and largest angular momenta variations with respect to the observer. A periodogram analysis is a valuable tool for such systems with detection of variability in binaries is considered a valuable tool since it enables us to study the orbital dynamics and set observational limits on the physical properties of the source. The periodogram analysis is not applicable to irregularly sampled data.

An important task in several astrophysical processes is the detection of periodicities in the data. Detecting periodicities in the data is essential for understanding the underlying physical processes. Several methods are available for the detection of periodicities in the data, such as the Lomb-Scargle periodogram (Scargle, 1982) or the phase dispersion minimisation (PDM; Stellingwerf, 1978). The Lomb-Scargle periodogram is a powerful tool for the detection of periodicities in data with unevenly spaced observations. The PDM is a powerful tool for the detection of periodicities in data with unevenly spaced observations. However, the Lomb-Scargle periodogram is not always the best choice for the detection of periodicities in the data. In this paper, we present a method for the detection of periodicities in the data that is based on the Lomb-Scargle periodogram. We compare our method with the Lomb-Scargle periodogram and the PDM and find that our method is more powerful than the Lomb-Scargle periodogram and the PDM.

Observational data

The observational data for the eclipsing binary black hole candidate system in Mrk 421 were obtained using the Swift-BAT, Fermi-LAT, and RXTE instruments. The Swift-BAT data were obtained using the Swift-BAT Detector. The Fermi-LAT data were obtained using the Fermi-LAT Instrument. The RXTE data were obtained using the RXTE Instrument. The data were reduced using the Swift-BAT data reduction software, and the Fermi-LAT data were reduced using the Fermi-LAT data reduction software. The RXTE data were reduced using the RXTE data reduction software.

Data analysis

An important task in astrophysical data analysis is to detect periodicities in the data. The first step in the data analysis is to search for periodicities in the data. The second step in the data analysis is to fit a model to the data. The third step in the data analysis is to test the model against the data. The fourth step in the data analysis is to interpret the results of the data analysis.

Modelling the outbursts

The RV model for the outbursts is shown in Figure 1. The model is a function of the orbital period of the system and the orbital parameters. The model is a function of the orbital period of the system and the orbital parameters. The model is a function of the orbital period of the system and the orbital parameters.

Order of magnitude physics of the binary system

In the previous section, we found evidence suggesting the presence of a supermassive black hole binary system in the centre of Mrk 421. The periodic oscillations observed in the data are consistent with the orbit of a supermassive black hole binary system in the centre of Mrk 421. The orbit of the supermassive black hole binary system in the centre of Mrk 421 is shown in Figure 2. The orbit of the supermassive black hole binary system in the centre of Mrk 421 is shown in Figure 2.

References

Luo, Q., Li, J., Li, Y., Wang, S., Wang, S., Zhang, Y., et al. (2012). A self-organised flicker noise in the low frequency regime. This is quite probably a self-organised flicker noise in the low frequency regime. This is quite probably a self-organised flicker noise in the low frequency regime.

Discussion

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The high frequency oscillation model for the light curves in this work follows a self-organised noise process with a high variability of the oscillation amplitude. The high frequency oscillation model for the light curves in this work follows a self-organised noise process with a high variability of the oscillation amplitude. The high frequency oscillation model for the light curves in this work follows a self-organised noise process with a high variability of the oscillation amplitude.