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Timing and Spectral Analysis of Black Hole Candidate X-Ray Binary MAXI J1535-571 from NICER Observations

Friday, 13 September 2019 15:40 (1 minute)

This Bachelor's Thesis is mainly focused on Neutron Star Inner Composition ExploreR(NICER) Observations of MAXI(The Monitor of All-Sky X-Ray Image) J1535-571, a Galactic Black Hole Candidate with an accompanying Star. Research conducted by J.M. Miller et al. 2018 and A. L. Stevens et al. 2018 were followed in order to acquire similar results, that is; confirming the existence of relativistic accretion disk reflection and line broadening at the Fe K line. This line broadening effect allowed the spin parameter(a) value to be measured as a=0.998(5). Fitting results of the models used during the spectral fitting indicate that the disk of MAXI J1535-571 may be warped.

Afterwards, the timing of the source from 3 NICER Observations was made and three power spectra that indicate the existence of one peak which resembles Quasi Periodic Oscillation(QPO) of the source around 6 Hz on the power density spectra were acquired. Results also indicate that this QPO seems to be shifting in frequency as time passes.

Topic

Compact and diffuse sources in galaxies and in the Galactic Center

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