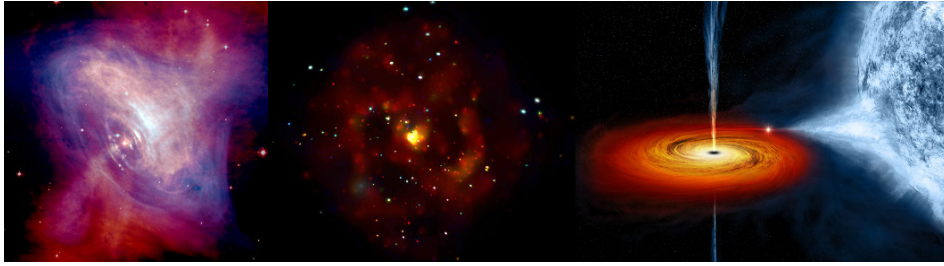


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Type-B and type-C QPOs and their association with Comptonization region and jet

Monday, April 3, 2023 3:00 PM (15 minutes)

Studying the nature of type-B/C QPOs in different scenarios can decipher their production mechanism. We have analyzed the appearance or disappearance of type-B ~ 4.5 Hz and type-C ~ 9.5 Hz QPOs of BH source H1743-322 and found no change in the disk inner radius but power-law indices are varying. Quasi-simultaneous radio observations indicate that either a corona or a jet is responsible for the events. We have also analyzed consistent near 6 Hz type-B/C QPOs in several black hole X-ray binaries using the data from RXTE & NICER. We found that the structure of the Comptonization region has to be different for type-B/C QPOs. QPO width, radio flux density, soft to hard flux ratio and inner disk temperature are following certain trends. Quasi-simultaneous radio observations and spectral studies suggest that the type-B QPOs can be related to the precession of a weak jet, though a small and weak corona is present at its base, and the type-C QPOs are associated with the base of a relatively strong jet. To explain the spectral and timing variations the geometrical Lense-Thirring precession model with a hot flow and a jet in the inner region was incorporated.

Presentation Type

Oral

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