

Corona as the energy reservoir for radio jet: a case study of GRS 1915+105

Wednesday, 17 May 2023 13:15 (1 minute)

GRS 1915+105 regularly shows type-C quasi-periodic oscillations (QPOs) in the power density spectrum, sometimes together with a broad bump at around 30-150 Hz. We study the power spectra of GRS 1915+105 with the Rossi X-ray Timing Explorer when the source was in the hard-intermediate state. We find that the rms amplitude of the bump depends strongly upon both the frequency of the type-C QPO and the hardness ratio, and is correlated with the corona temperature and anticorrelated with the radio flux at 15 GHz. The rms amplitude of the bump generally increases with energy from ~1-2 per cent at ~3 keV to ~10-15 per cent at ~30 keV. We suggest that the bump originates from the corona. Finally, we discuss the anticorrelation between the rms amplitude of the bump and the radio flux in the context of the relation between the corona and the jet, and suggest that the corona serves as the energy reservoir for the radio jet.

Primary author: ZHANG, Yuexin (Kapteyn)

Presenter: ZHANG, Yuexin (Kapteyn)

Session Classification: Poster Prizes & closing