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Title:	Studying the high-frequency variability of the galactic black-hole candidate GRS 1915+105 using data from AstroSat
Authors:	Srivastava, Srijan (/jspui/browse?type=author&value=Srivastava%2C+Srijan)
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Abstract:	Characterising the fast variability in black-hole low-mass X-ray binaries (BHXBs) can help us understand the geometrical and physical nature of the innermost regions of these sources. We looked at the High-Frequency QPO of the source GRS 1915+105 and studied its properties. We produced power-density spectra in multiple energy bands to obtain its rms and phase lags and limited the analysis to the frequency range of 0-90 Hz. In our results, rms increases with energy and is about 10 % at 30 keV and the phase lag spectrum also increases with energy indicating that the lags are hard. Here, we simultaneously fit the fractional rms and phase-lag spectra of HFQPOs using a recently established time-dependent Comptonization model, as well as the time-averaged energy spectrum using disk blackbody, Thermal comptonization and a relativistic reflection model. Using the time-dependent Comptonization model, we can get parameters of the black hole like the corona size and the feedback fraction (the fraction of photons up-scattered in the corona that returns to the disc). These parameters can help us interpret the geometry of the system.
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