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Investigation of energy-dependent nature QPO of GRS 1716-249 during its "failed" outbursts.

GRS 1716-249 is a transient galactic black hole that experienced nine months of outburst activity in 2016– 17. During its outbursts, Astrosat observed it at three different epochs with a fair amount of exposure time. We investigate whether quasi-periodic oscillation (QPO) exists and how it has evolved throughout the three epochs. We also explore the energy-dependent nature of QPOs. We model the combined broadband LAXPC and SXT spectra. We study the energy-dependent properties, such as fractional root mean square variability and time-lag variations with energy, of the QPO and its harmonic. We use the spectral information from the broadband study to identify the radiative components responsible for the variabilities. Moreover, this work attempts to demonstrate a simple model with varying inner disc temperature, heating rate, and fractional scattering with a time delay to characterize the fractional root mean square (rms) and time-lag spectra. Eventually, it will aid in describing the energy-dependent characteristics and identifying the responsible spectral parameters for the source

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