

## Tilted thin accretion disk around a spinning black hole

Inner part of a thin accretion disk around a Kerr black hole plays an important role in understanding the fundamental physics of the strong gravity regime. A tilt of such a disk about the spin axis of the black hole leaves an imprint on the observation by affecting the observed spectral and timing properties of the disk X-ray emission via LT precession. The inner part of such a disk was predicted to become aligned with the spin direction of the black hole by Bardeen-Petterson effect. But a recent X-ray observation of the accreting black hole H1743-322 suggests the inner disk could be tilted. In this work, we explore this possibility by building a model without assuming a priori that the inner disk is aligned with the black hole spin, and analytically as well as numerically study the behaviour of the radial profile of the disk tilt angle in the steady state as a function of several system parameters.

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