

The aim of this work is to review and describe the theory behind the stability of accretion disks' inner region, in the context of the model introduced by Shakura Sunyaev in their 1973 paper "Black Holes in binary Systems. Observational Appearance". This referring primarily to the observations firstly made by Lightman and Eardley in their 1974 paper "Black Holes in binary Systems: instability of Disk Accretion".

To maintain the description as simple and concise as possible, I decided to study a binary system formed by an ordinary star and a non rotating stellar black hole.

In the analysis I conducted general relativity effects and magnetic effect on the disk's matter haven't been considered.

Before talking the disk's instabilities, I started describing the concepts and formulas that describe a thin accretion disk, the physics of its stationary state and the mechanism with which it forms, trying to use general results before introducing Shakura and Sunyaev's hypothesis.