

## Accretion Disks in Astrophysics

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Many of the most luminous sources of radiation in the Universe are powered by accretion disks. We outline the basics of the theory of disk accretion on stars and compact objects. We review the main equations that describe the disk structure and evolution. The heating of disks is caused by viscosity, which also leads to a redistribution of the angular momentum of matter. A widely accepted model of viscosity is the alpha-model of turbulent viscosity. The nature of viscosity is one of the hottest topic in astrophysics. Confronting the theory and observations allows us to derive the value of the parameter, which turns out to be greater than 0.1. On the other hand, numerical simulations of the magnetohydrodynamic instabilities, which are believed to drive the viscosity, yield alpha less than 0.1. We will also discuss a new type of viscous instabilities for accretion disks.