

**Subject :** Differentially rotating system

**Title :** The importance of magnetic fields in the differentially rotating system

**Lecturer :** Mami Machida

**Outline :** Astrophysical jets emitted from X-ray binaries and AGN are pulling out huge energy from the central black hole. The energy source of these activities is the gravitational energy of the central compact object, and the accretion disk surrounding the central object help the release of the gravitational energy.

In this lecture, I will give an overview of the role of the accretion disk and the magnetic field with respect to the activity of X-ray binary and others. I will also introduce the galactic gas disk, which has a similar structure.

**Learning objectives :**

Learn characteristics of differentially rotating systems and importance of magnetic fields in those systems.

**Textbooks and references :**

Black-Hole Accretion Disks : Towards a New Paradigm, Shoji Kato, Shin Mineshige, and Jun Fukue, Kyoto University Press