

# Magnetized turbulence in astrophysical fluids

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## **Abstract**

Magnetized turbulence is omnipresent in astrophysical fluids. I will briefly introduce properties of magnetized turbulence. Astronomy deals with various length scales. In general, different descriptions should be used for different scales. On large scales, astrophysical turbulence can be described in the framework of magnetohydrodynamics (MHD). In this talk, I will consider two extreme regimes of MHD turbulence. First, I will consider MHD turbulence in the presence of a strong mean field. I will discuss energy cascade and structure of turbulence in this regime. Second, I will consider MHD turbulence in the presence of a weak/no mean field. In this regime, growth of magnetic fields is of great importance. I will show that magnetic fields can grow fast by turbulent motions and discuss its astrophysical implications. When time permits, I will discuss how we can treat magnetized turbulence near the proton gyro-scale.