

## **Unveiling the accretion scenario of black hole X-ray binaries (BH-XRBs).**

Accretion physics explores the dynamic process of matter accumulation onto massive objects like black holes. It investigates the transfer of material from the surrounding companion, elucidating phenomena such as angular momentum transfer and energy release etc. Understanding the accretion mechanisms is vital for comprehending observational features, including formation and collimation of jets, Quasi-periodic Oscillations, and transition of spectral behavior of BH-XRBs. In explaining all these findings, we develop mathematical models and make use of the observational data to decipher the intricate interplay of strong gravity, magnetic fields, radiative cooling processes and fluid dynamics. By studying these fundamental processes, we put efforts to unveil the mystery of black hole systems concurrently with theoretical as well as observational fronts.