

Chocked accretion: a hydrodynamical jet-launching mechanism

Astrophysical jets are ubiquitously found in the Universe since they are observed at different distance scales from young stellar objects to active galactic nuclei, and are closely related with different high-energy phenomena such as gamma ray bursts, micro-quasars and compact object mergers. There are, however, several important open issues that we still do not fully understand, e.g. their launching, accelerating and collimating mechanisms, to name a few. In this talk, I will address the first of these problems by presenting an extension of Bondi's classical model of spherical accretion that transforms an initially pure accretion flow into an inflow/outflow bipolar structure that can naturally account for the inner engine behind a jet-launching process, even without the intervention of magnetic fields. I will discuss this model using both numerical simulations and analytic tools, addressing both the relativistic and non-relativistic regimes.