Contribution ID: **58** Type: **Poster**

Outflowing fluxes in Radiative simulations of Ultra luminous X-ray sources

Accretion flows that transfer gas at rates exceeding the Eddington limit are optically thick but exhibit lower radiative efficiency compared to thin discs. In this study, we present Radiative General Relativistic Magnetohydrodynamic (GRRMHD) simulations of (intermediate) super-Eddington accretion onto a black hole with a mass of 10 solar masses, modeling ultra-luminous X-ray sources. Our simulations show significant gas outflows and radiative winds escaping from the polar region. We analyze the inner density and temperature structure and the decomposition the total energy flux into various components (e.g., thermal, magnetic/viscous, and radiative), illustrating how accretion processes convert the stored gravitational binding energy into radiation. Finally, we provide a rough estimation of the apparent isotropic luminosity, which is highly collimated along the polar axis.

Primary author: KARAKONSTANTAKIS, Angelos

Co-author: KLUŹNIAK, Wlodek (CAMK)

Presenter: KARAKONSTANTAKIS, Angelos

Session Classification: :special

Track Classification: Numerical simulations