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Numerical Simulations of Relativistic Radiatively driven Jets

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Relativistic jets are associated with variety of astrophysical objects like Active galactic nuclei (AGNs), Microquasars, Gamma ray burts (GRBs). The jets in AGN and Microquasars originate from the accretion disk. As they travel through the region very close to the central object they interact with the intense radiation field of the accretion disk. We perform the axisymmetric numerical simulations of radiatively driven jets and show that the radiation field can accelerate the jets to relativistic terminal speeds. The jets start with a subsonic inner boundary conditions with a very small velocity and get accelerated to relativistic speeds as they gain momentum from the radiation field. We also show that the in addition to the acceleration, the radiation field also acts as a collimating agent.

Primary author: JOSHI, RAJ KISHOR (ARIES, Nainital, India)

Presenter: JOSHI, RAJ KISHOR (ARIES, Nainital, India)

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