ICTS Astrophysics & Relativity Seminar

Title : Jets and Winds from Young Stellar Objects: New Insights from JWST

Speaker : Manoj Puravankara (Tata Institute of Fundamental Research, Mumbai)

Date : Thursday, 29 January 2026

Time : 3:30 PM (IST)

Abstract : Jets and winds are ubiquitous in the Universe, observed across a wide range of astrophysical systems—from active galactic nuclei and gamma-ray bursts to microquasars, proto-planetary nebulae, and newly formed stars. Although these outflows span orders of magnitude in scale, energetics, and kinematics, they are widely thought to share a common launch mechanism: magneto-centrifugal ejection of matter. Young stellar objects provide an exceptional laboratory for investigating this mechanism, owing to their proximity and the availability of a rich set of observational tracers that probe accretion and outflow physics from sub-au to parsec scales. Over the past decade, transformative observations from the Atacama Large Millimeter Array (ALMA), and more recently from the James Webb Space Telescope (JWST), have revolutionized our view of jets and winds from young stars. In parallel, new insights into accretion-disk physics, particularly involving non-ideal magnetohydrodynamics and magnetized disk winds, have significantly refined our understanding of accretion–ejection coupling. This talk presents an observationally driven overview of these developments, with particular emphasis on how new JWST results are reshaping our physical picture of jet and wind launching in young stellar systems.

Venue : Feynman Lecture Hall
Zoom Link: https://icts-res-in.zoom.us/j/98650680994?pwd=CmeVCafPwBypao1aIdkxBSpfcu4GvG.1
Meeting ID: 986 5068 0994
Passcode: 202010