



ICTS Astrophysics & Relativity Seminar

Title : Dynamics of Astrophysical Transients in Galactic Nuclei

Speaker : Karamveer Kaur (Technion-Israel Institute of Technology, Haifa)

Date : Thursday, 13 February 2025

Time : 3:30 PM (IST)

Abstract : Centres of many galaxies host a dense stellar system with a central massive black hole. Extreme stellar densities make this environment an efficient breeding ground of astrophysical transients, like tidal disruption events (TDEs) and extreme mass ratio inspirals. The upcoming wide field survey instruments and mHz gravitational wave detectors will revolutionize the field of nuclear transients. These transients offer a unique probe into the dynamical environment of galactic nuclei. The classical channel of weak two-body scatterings among stellar objects is the standard route to formation of these transients. I will present a semi-analytical framework that identifies the underlying self-similarity of this process and improves upon the previous estimates of transient formation rates. Then, I will discuss the non-classical channels of transient formation in an active galactic nucleus (AGN). The TDE formation rates can be enhanced more efficiently for a time-evolving AGN, which aligns with the observed nature of TDE host galaxies.

Venue : Feynman Lecture Hall

Zoom Link: <https://icts-res-in.zoom.us/j/96343743252?pwd=X9XSDGyHeD2AtrvPnp0lQbYb46urBU.1>

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