



ICTS Astrophysics & Relativity Seminar

- Title** : Long-lived sources of gravitational waves: (mini) extreme mass ratio inspirals, inspiraling primordial black holes and neutron stars
- Speaker** : Andrew Miller (National Institute for Subatomic Physics (NIKHEF), Netherlands)
- Date** : Wednesday, 18 December 2024
- Time** : 3:30 PM (IST)
- Abstract** : Standard stellar-mass binary black holes inspiral and merge in just a few seconds when observed in ground-based gravitational-wave detector data. However, future detectors will probe much lower frequencies, implying that sources of gravitational waves will spend even longer time in-band than those observed today. Such long-lived signals could result from the early inspiral of binary neutron stars, sub-solar mass primordial black holes, and (mini) extreme mass ratio inspirals, all of which could be visible in both future ground-and space-based detectors, such as Cosmic Explorer and LISA. However, data quality problems, such as gaps, glitches and non-stationary noise, and computational cost, will inhibit the observations of these systems if robust methods are not designed to handle these issues . In this talk, I will describe each of these sources individually, the problems with computation and data quality that we are likely to face in future detectors, and methods to actually perform searches for these systems that are robust against not only noise disturbances, but also deviations in the waveforms used to in the search.
- Venue** : Feynman Lecture Hall
Zoom Link: <https://icts-res-in.zoom.us/j/92610439725?pwd=jbn1uaj1LKA0yQvtsjiYoa6EZhSAJi.1>
Meeting ID: 926 1043 9725
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