



ICTS Astrophysics & Relativity Seminar (HYBRID)

Title : Standard-siren cosmology: overview of current results, challenges, and prospects

Speaker : Archisman Ghosh (Ghent University)

Date : Thursday, 17th August, 2023

Time : 03:00 PM (IST)

Abstract : Use of observed compact binaries as standard distance indicators has opened up a novel path to measuring cosmological parameters such as the Hubble constant. In this talk we focus on dark standard sirens, gravitational-wave sources without bright electromagnetic counterparts. The complementary redshift information required for the measurement in this case comes from the observed distribution of source parameters or else statistically via cross-correlation with a galaxy catalogue. We describe how the two approaches are intertwined. We discuss the results from the first three observing runs of LIGO-Virgo-KAGRA and describe major improvements to the methodology in place for O4. We also discuss possible systematic effects in such a measurement, focussing on systematic effects coming from the galaxy catalogue sector. We conclude with a discussion of future prospects looking towards the upcoming observing runs of LIGO-Virgo-KAGRA, and the future third generation gravitational-wave detector network.

Venue : **Offline:** Madhava Lecture Hall (ICTS)

Online: Please click the below link to join the seminar

<https://icts-res-in.zoom.us/j/86366465637?pwd=aHJaQWpQbTFrYzFFUE5qaDFXRGpEQT09>