



## ICTS Ph.D. Thesis Defense Seminar

**Title** : Strong Lensing of Gravitational Waves and the Tests of General Relativity

**Speaker** : Srashti Goyal, (ICTS-TIFR, Bengaluru)

**Date** : Wednesday, 11<sup>th</sup> October 2023

**Time** : 10:30 AM (IST)

**Abstract** : Gravitational waves (GWs) offer an exciting new window to the Universe. Similar to light, GWs could be gravitationally lensed by intervening matter between the source and the detector. Strong lensing would produce multiple copies of the GW signal with some time delay and relative magnification. This talk will have four parts: 1) Developing methods to identify strongly lensed GW signals using machine learning and Bayesian methods, 2) Using these methods to search for lensed signals in recent LIGO-Virgo data, 3) Using the non-detection of lensing signatures in LIGO-Virgo data to constrain GW birefringence, and 4) Exploring how future observations of lensed signals will enable precise measurement of the nature of GW polarisations, thus enabling better tests of general relativity.

**Venue** : Emmy Noether Seminar Room & Online

Zoom link: <https://icts-res-in.zoom.us/j/81584931021?pwd=w2bJUzs1m8rDlmWK50aDXU0kEzbtPf.1>

Meeting ID: 815 8493 1021

Passcode: 804118