



ICTS Astrophysics and Relativity Seminar

Title : Optimal cosmological inference with weak lensing data

Speaker : Supranta Boruah (University of Pennsylvania, USA)

Date : Wednesday, 24th April 2024

Time : 3:30 PM (IST)

Abstract : Standard cosmological analyses rely on summary statistics such as 2-point correlation functions. But we lose valuable cosmological information by compressing these large data sets into such summary statistics. In this talk, I will talk about an alternate data analysis method that relies on utilizing all available information from weak lensing galaxy catalogs. As a part of this research program we have developed a Bayesian forward-modeled map-based inference method to analyze weak lensing data sets. I will talk about several recent developments such as: i) Creation of improved mass maps with Dark Energy Survey Year 3 (DES-Y3) weak lensing data. ii) Development of fast and accurate weak lensing simulations with generative machine learning methods. iii) Expected improvement in cosmological information with map based inference and, iv) How map based inference will mitigate systematic effects in weak lensing analysis.

Venue : Feynman Lecture Hall

Zoom link: <https://icts-res-in.zoom.us/j/95043566393?pwd=WHIZSUxZQm5rdit0amZHb2VlbTlrQT09>

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