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TATA INSTITUTE OF FUNDAMENTAL RESEARCH

ICTS Astrophysics & Relativity Seminar

Title : Probing primordial dynamics using induced gravitational waves

Speaker : H. V. Ragavendra (University of Padova, Italy)

Date : Thursday , 06 August 2026

Time : 3:30 PM (IST)

Abstract : I shall discuss the phenomena where gravitational waves (GWs) are induced by primordial perturbations at higher orders of cosmological perturbation theory. Such induced GWs contain information about the primordial physics such as dynamics of inflation and interactions between various fields in the early universe. To illustrate the point, I shall discuss two of my recent analyses on scalar-induced GWs and magnetically induced GWs. In case of scalar-induced GWs, I shall present the constraints that we obtain on primordial scalar non-Gaussianity upto the level of trispectrum, using the forecasts of upcoming interferometers namely Einstein Telescope and Cosmic Explorer. In case of magnetically induced GWs, I shall discuss how we can probe the strength of Chern-Simons like interactions in scenarios of magnetogenesis, through the degree of chirality predicted for the GWs. I shall conclude with a summary and outlook of these analyses.

Venue : Feynman Lecture Hall

Zoom Meeting: <https://icts-res-in.zoom.us/j/96760170412?pwd=JlaLE5nbBeA3an4xuLCj3BLFb9zHQD.1>

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