

## ICTS Seminar

- Title** : Decoding cosmic fingerprints: constraining the generation and evolution of primordial fluctuations
- Speaker** : Dhiraj Kumar Hazra, Istituto Nazionale Di Fisica Nucleare, Bologna, Italy
- Date** : Thursday, June 7, 2018
- Time** : 3:00 PM
- Venue** : Emmy Noether Seminar Room, ICTS Campus, Bangalore
- Abstract** : It is the origin and evolution of quantum fluctuations that eventually lead to the formation of the Large Scale Structure in the Universe. The primordial perturbations emerge through the radiation and thereafter the matter dominated epochs and finally to today's dark energy dominated epoch, leaving their distinct fingerprints in the photons that we observe. In this talk, I will mainly discuss decoding three different fingerprints originating from three different epochs in the timeline of the Universe, namely, Cosmic Microwave Background, Lyman-alpha observations and galaxies. Since signals from different cosmological processes are convolved in our observations, effective joint analyses are required to converge towards the most probable model of the Universe. I will outline the standard model and few extensions beyond that agree remarkably with the present data. I will also discuss model independent reconstructions directly from the data. I will conclude with forecasts from the upcoming and proposed cosmological missions.