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New avenues to the Cosmological Gravitational Wave Background

Tuesday 16 May 2023 15:00 (20 minutes)

The Stochastic Gravitational Wave Background is one of the main targets of present and future detectors. Characterising its properties is crucial to pin down its origin and distinguish among the various possible sources. In this talk I will mainly consider the Cosmological Gravitational Wave Background (CGWB) and discuss a variety of new observables that can help reaching such a characterization. In particular I will focus on angular anisotropies of the CGWB and their cross-correlations with CMB. They do indeed retain crucial information about the primordial mechanisms that source the CGWB and about the evolution and the particle content of the universe. Therefore, they can provide a new testbed of various aspects of cosmology, from Early Universe physics (e.g., inflation, primordial black holes and primordial non-Gaussianity) to a new way to constrain cosmological parameters and test General Relativity. I will discuss the physics of CGWB anisotropies and their cross-correlations with CMB, and a few examples of future applications.

Presenter: BARTOLO, Nicola (Padua U. and INFN, Padua and Padua Observ.)