

The cosmological gravitational wave background: from theoretical modelling to detection prospects

Monday, 6 February 2023 11:05 (25 minutes)

One of the main targets for upcoming gravitational wave observatories is the detection of a cosmological stochastic gravitational wave background (SGWB). Such a signal has the potential to shed light on part of the cosmological history not accessible by other means as well as to probe new physics at energy scales beyond the reach of terrestrial experiments.

A stochastic background, for instance, can provide information on inflation at scales much smaller than the ones probed by CMB and Large Scale Structure surveys.

In this context, I will introduce the quest for primordial features in the SGWB, theoretical modelling and challenges in scenarios generating entrancing backgrounds and part of the current data analysis effort to reconstruct a stochastic signal with the Laser Interferometer Space Antenna (LISA).

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