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Characterization of SGWB: synergy between LISA and ET

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Gravitational Waves (GWs) represent a unique tool to explore the physics and the microphysics of the universe. After the GW direct detections by the LIGO/Virgo collaboration the next target of modern cosmology is the detection of primordial GWs. Even if the main probe of primordial GWs has been so far considered the Cosmic Microwave Background, we will see in this talk how we can extract information about primordial GWs at smaller scale. The space based LISA interferometer, in addition to detection and characterization of GWs of astrophysical origin, will give compelling information about the cosmological background of GWs. In this talk I will summarise part of the activity developed within the LISA Cosmology working group, and, in particular, I will discuss both on the ability of LISA to probe peculiar features of the Stochastic Gravitational Wave Background (SGWB) like non-Gaussianity and chirality and on the possibility of a model independent reconstruction of SGWB signals of different origins. These are tools which could be directly applied to Einstein Telescope to extract information about the SGWB.

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