

Modified Gravity Forecasting with Large Scale Structure in the LISA era, including a Machine Learning analysis

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In the present work we explore how modified gravity theories affect the propagation of gravitational waves produced by the merger of binary massive black holes (MBH) and also by a stochastic background. For this purpose we developed a mock of catalogs that are expected to be observed in the operating frequency band of the Laser Interferometer Space Antenna (LISA). For this proposal we develop both a Bayesian and Machine Learning analysis, the latter in order to obtain information independent of the physical model. In light of LISA's forecasts we will present preliminary results on the main parameters that deviate from general relativity, however, we can announce that LISA will provide a unique way to test, with good accuracy, the nature of gravity up to very large cosmic distances.

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