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Assessing the impact of mismodeled gaps in LISA data analysis

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The LISA data stream will have interruptions, both scheduled and un-scheduled, due to repointing of the antennae or other instrumental disturbances. These data gaps must be taken into account in our data analysis algorithms. In this talk, we discuss a direct method that can account exactly for data gaps in LISA data, both in time and Fourier domain, although computationally expensive and limited to short data segments, such as short mergers of Massive Black Hole Binaries. The method can also evaluate the impact of using improper statistical characterization of the noise properties when recovering source parameters, including for longer signals when assessing statistical consistency. These tools give us a way to quantify the impact of various approximations in our modelling of the noise. We explore the effect of mismodeling the non-stationarity induced by the gaps themselves, of mismodeling the noise level in the underlying stationary process, and of mismodeling the independence or coherence between data segments.

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