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Author: Sylvain Marsat, APC, Paris, France

Other authors:

John G. Baker, NASA GSFC, Greenbelt, MD, USA

Tito Dal Canton, NASA GSFC, Greenbelt, MD, USA

Binary black holes parameter estimation for LISA

The space-based detector LISA will detect gravitational waves from mergers of massive black hole binaries at high redshift, as well as from inspirals of stellar-mass systems, thus complementing the higher-frequency band of ground-based detectors. To explore the capabilities of LISA in recovering parameters of astrophysical systems, previous studies often used inspiral-only signals and relied on a Fisher-matrix analysis, due to computational cost limitations. Using Fourier-domain waveform models that include the merger and ringdown, together with a Fourier-domain approach to handle the time and frequency-dependent modulations, we are able to significantly accelerate likelihood computations for simulations of Bayesian parameter estimation. We present examples of such analyses for non-spinning supermassive black hole binaries, highlighting the crucial role of the higher harmonics of the signal through the merger and ringdown to break degeneracies in the analysis, and for stellar-mass black hole binaries seen in the LISA band.