

LISA Parameter Estimation with Time Domain Response

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Parameter estimation with full Bayesian inference remains one of the outstanding challenges for the LISA data analysis infrastructure. Very few studies have focused on this issue and have been reduced to the use of Fourier domain waveforms. The limiting factor of this approach is the need for the development of approximate transfer functions that replicate the TDI response in the Fourier domain and pose an extra theoretical challenge for precessing and eccentric waveforms. In this work, we explore the use of waveforms in the time domain, which would allow us to obtain the TDI response for any kind of signal, without any extra theoretical development or approximate assumptions. Apart from allowing us to do parameter estimation with templates with new physical features, it would also serve as a complementary and validation tool for the parameter estimation studies with Fourier domain waveforms. I will present the status of current parameter estimation runs with a novel GPU implementation of the IMRPhenomT waveform family and the LISA response.

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