Martina Muratore - Time delay interferometry technique for the LISA mission

Rapport sur les contributions

ID de Contribution: **1** Type: **Non spécifié**

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jeudi 4 novembre 2021 11:00 (1 heure)

LISA, the Laser Interferometer Space Antenna, is the 3rd large mission (L3) of the ESA program Cosmic Vision planned to be launched around 2034. Space-based gravitational wave observatories such as LISA have been developed for observation of sources that produce gravitational wave (GW) signals with frequencies in the mHz regime. GWs manifest themselves as a tiny fluctuation in the frequency of the laser beam measured at the phase-meter. Thus, to detect GWs with LISA we need to compete with many sources of disturbance that simulate the effect of a GW frequency modulation. Laser noise is an example of those. Therefore, one key element in the LISA data production chain is a post-processing technique called Time Delay Interferometry (TDI) aimed at suppressing the intense laser frequency noise that would completely cover the astrophysical signal. In this talk I will revisit the TDI technique for LISA and I will speak about the usage of all the possible TDI combinations we can build for the LISA science and instrument characterization.

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