# Simulation for realistic LISA configuration

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Gravitational Waves (GWs) has opened a new window for understanding the Universe. Laser interferometer space antenna (LISA) is a large mission to enhance the ability to observe GWs, in the low-frequency band ($10^{-4} - 10^{-1}$ Hz), from various astrophysical sources such as galactic binaries, black holes binaries, supermassive black holes binaries, extreme mass ratio inspirals, ... LISA will give a massive contribution to investigate the entire Universe with GWs: formation and evolution of binary systems, the history of the Universe in high redshifts, gravity effects in the dynamical strong-field regime and the early Universe. In the preparation of the LISA mission, simulation is necessary to support the instrumental development of the mission and its data analysis. We have to take care of all the effects during the long-life mission such as instrumental noises, foreground, and misleading sources, as well as the data processing algorithms to improve the quality of the data. Our work is partly a contribution to this effort. In particular, we have been developed a simulator, LISANode, for implementing the current configuration of LISA mission with various noise sources and applying an up-to-date data processing algorithm, Time Delay Interferometry (TDI), for mitigating some dominant noises. In this poster, we focus on the noise generation in LISANode and the results of noise propagation through TDI. The results indicate a good simulation of LISANode with the current instrumental model, but need to be upgraded at very soon.

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