

Optimal Data Analysis Strategies for LISA

Massimo Tinto, Shane L. Larson, and Thomas A. Prince

Jet Propulsion Laboratory,
California Institute of Technology
Pasadena, California 91109

ABSTRACT

The Laser Interferometer Space Antenna (LISA) is a three-spacecraft mission aimed to detect and study in space gravitational radiation from sources emitting in the millihertz frequency band. By exchanging coherent laser beams between pairs of spacecraft, a variety of different interferometric combinations can be synthesized by combining measurements of relative phase fluctuations. For a given gravitational wave signal, these interferometric combinations show different responses and different signal-to-noise ratios, and can be tailored to the needs of a particular gravitational wave search.

This presentation will introduce a technique for taking advantage of the differences in the antenna patterns of these interferometric combinations in order to infer astrophysical parameters from a gravitational wave signal detected with optimal signal-to-noise ratio.