

Abstract Submitted
for the APR10 Meeting of
The American Physical Society

Mitigation of Laser Frequency Noise in LISA Interferometry

JAMES IRA THORPE, NASA/GSFC — The Laser Interferometer Space Antenna (LISA) is a proposed detector of gravitational waves in the 0.1 mHz – 0.1 Hz band. LISA will measure gravitational wave strain at the 10^{-21} level by monitoring the distance between freely-falling test masses separated by baselines of 5×10^9 m with a precision of roughly 10^{-11} m. These distance measurements will be made using heterodyne interferometry with multiple light sources on moving spacecraft with changing baselines, all of which cause frequency noise to couple into the displacement measurement. I will describe how LISA interferometry mitigates the effects of laser frequency noise through active suppression and common mode rejection. Recent laboratory developments will also be discussed.

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Date submitted: 23 Oct 2009

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