

Frequency References for Gravitational Wave Missions

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The mitigation of laser frequency noise is an important aspect of interferometry for LISA-like missions. One portion of the baseline mitigation strategy in LISA is active stabilization utilizing opto-mechanical frequency references. The LISA optical bench is an attractive place to implement such frequency references due to its environmental stability and its access to primary and redundant laser systems. We have made an initial investigation of frequency references constructed using the techniques developed for the LISA and LISA Pathfinder optical benches. Both a Mach-Zehnder interferometer and triangular Fabry-Perot cavity have been successfully bonded to a Zerodur baseplate using the hydroxide bonding method. We will describe the construction of the bench along with preliminary stability results.