

LSC Six-Month Progress Report

Organization National Astronomical Observatory of Japan TAMA (NAOJ-TAMA)

Report Date August 15, 2003

The suspended-mirror detuned RSE interferometer using the third harmonic demodulation as a signal extraction method was fully locked successfully and well characterized. The frequency response of the interferometer to the mirror displacement was measured with and without the signal extraction mirror. The measured transfer function roughly agreed to the theory.

The fixed mass detuned RSE interferometer using the polarization technique was fully locked successfully. The system was made robust by optimizing the servo systems.

As for the 40m RSE prototype, the Fabry-Perot Michelson interferometer was well aligned, the mode cleaner and the PSL was characterized in detail, and the lock acquisition for the full detuned RSE interferometer has been analyzed.

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In the experiment of the suspended-mirror detuned RSE interferometer using the third harmonic demodulation as a signal extraction method, the signal-recycled Michelson interferometer was locked successfully.

In the fixed mass detuned RSE interferometer using the polarization technique, both arm cavities were locked successfully.