

# LSC Six-Month Progress Report

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**Organization** Japan NAOJ-TAMA Group

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We obtained a new room and a new vacuum system for the RSE experiment. We moved the suspended RSE into the new facility and reproduced most of the performance of the RSE interferometer. We then investigated a new detuning method and came up with the signal extraction method using the second harmonic demodulation. This requires more study to judge whether it is really feasible.

In parallel with the above-mentioned effort, we started a new table-top experiment for a polarized RSE interferometer. This is a new idea and it uses a polarization technique to lock both the signal extraction cavity and the power-recycling cavity simultaneously with only one servo system. The principle was verified by analysis and the experiment to verify it has started.