

Research Report
ICRR Inter-University Research Program 2019

Research Subject:

KAGRA commissioning during full interferometer integration

Principal Investigator:

Stefan Werner Ballmer, Associate Prof Syracuse University

Participating Researchers:

Valery Frolov, Lead Research Scientist, LIGO Livingston

ICRR contact: Osamu Miyakawa

Summary of Research Result :

The award covered part of the travel cost for Frolov and the PI Ballmer to help commissioning of the KAGRA interferometer during the summer of 2019. The commissioning work performed was on the critical path for getting the KAGRA interferometer locked for the first time. Specific items that were worked on are:

- Suspension damping work in preparation for full interferometer lock.
- Diagnostic of dual recycling cavity lock, including assessment of ITM birefringence effects and Gouy phase measurements.
- Initial Alignment and WFS (wave front sensing) setup.
- Commissioning of ALS (Arm length stabilization) system using frequency-doubled green light. The system controls common and differential arm length during the lock acquisition process before the infrared light is resonant.
- Power-Recycled Fabry-Pero Michelson locking in anticipation of the first full lock of the KAGRA interferometer.

No.