

Research Report
ICRR Inter-University Research Program 2021

Research Subject:

Noise Evaluation and Reduction of Cryogenic Mirror Suspension System in KAGRA

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Summary of Research Result :

Mirror thermal noise is one of the fundamental noises for room-temperature gravitational-wave detectors in KAGRA. One effective approach for reducing thermal noise is to cool the mirrors. There are many technical challenges that must be overcome to cool the mirrors, such as cryocooler induced vibrations and thermal drift in suspensions. During the duration of this project, the Japanese government has adopted strict exit and entry rules because of the COVID-19 pandemic. We have little chance to go to KAGRA to conduct some cooperative experiments. In the future, we will continue work on the reduction of real noise of KAGRA cryogenic payload at Kamioka site with KAGRA cryogenics subgroup members. We aim to observe more gravitational wave in later observation.

No.