



Contribution ID: 64

Type: poster

Reduction of quantum noise for gravitational wave detector KAGRA (I)

Tuesday, 24 May 2016 18:00 (0 minutes)

The design sensitivity of bKAGRA is limited by quantum noise for almost all the observation frequency band. As the first detection of gravitational waves by Advanced LIGO shows, it would be especially important to improve the sensitivity around 100 Hz, where radiation pressure noise would be dominant. To reduce radiation pressure noise and beat the standard quantum limit, a method where the ponderomotively-squeezed output field from the interferometer is detected with homodyne detection was proposed.

For the demonstration of the technique to reduce radiation pressure noise, an experiment with a cavity which has a milligram-scale suspended mirror as a end test mass is ongoing in our laboratory. In this presentation, overview and current status of the experiment are presented. Especially, a new method of intensity stabilization of light for the reduction of classical radiation pressure noise below quantum radiation pressure noise is presented.

Primary author: Mr ENOMOTO, Yutaro (ICRR, University of Tokyo)

Co-authors: Prof. FURUSAWA, Akira (University of Tokyo); Mr NAGANO, Koji (ICRR); Mr NAKANO, Masayuki (ICRR); Prof. KAWAMURA, Seiji (Institute for Cosmic Ray Research, The University of Tokyo)

Presenter: Mr ENOMOTO, Yutaro (ICRR, University of Tokyo)

Session Classification: Poster Session