

Research Result Report

ICRR Inter-University Research Program 2023

Research Subject: Noise Subtraction of KAGRA Data using Machine Learning Method: DeepClean	
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<p>Summary of Research Result :</p> <p>We have already identified the noise lines from AC power, acoustic coupling around Output Mode Cleaning (OMC) area and Pre-Stabalized Laser (PSL) area from KAGRA O4a data. The feasibility of using Machine Learning based noise subtraction pipline DeepClean to clean the noise lines are tested and the results shows that DeepClean is capable of subtracting the noise lines and increase the Signal-to-Noise Ration (SNR) of the KAGRA data.</p> <p>The GPU server for DeepClean to clean KAGRA data in low latency has been installed onsite in Kamioka and the deployment and testing of online DeepClean for KAGRA data is ongoing. We will proceed to noise hunting and noise subtraction for O4b run which KAGRA will join the observation with LIGO and Virgo in March 2025.</p> <p>Though been granted 50,000 yen for this project, actually not even 1 yen can be used to support oversea researchers for the local travel or accommodation in Japan when ever there ' s a meeting held by ICRR or discussion with the ICRR members. I suggest to modify the rules of usinig this funding so at least the local travel can be supported. Otherwise there ' s no point to open the application for oversea researchers.</p>	
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