

Progress of KAGRA Output mode Cleaner

Output Mode Cleaner (OMC) is implemented at the AS port to enhance sensitivity of GW detectors, filtering out junk light, including HOMs and RF sidebands, thereby reducing the shot noise. Since it is the last hardware part of GW detectors passing light that carries GW signals, its performance directly affects sensitivity. As for KAGRA OMC, some problems were found in O3GK. The most significant issue was its low transmissivity. We have improved it from $\sim 80\%$ to $\sim 97\%$ by changing the design and mirrors. Other minor issues have also been fixed. We report on the current status of KAGRA OMC toward O4 and how it will improve the sensitivity of KAGRA.

Author: NISHINO, Yohei (The University of Tokyo)

Co-author: ASO, Yoichi (NAOJ)

Presenter: NISHINO, Yohei (The University of Tokyo)