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Type: **Parallel session talk**

Stray light noise simulations for the Einstein Telescope and Virgo and the use of instrumented baffles

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We present an estimation of the noise induced by scattered light inside the main arms of the Einstein Telescope (ET) gravitational wave detector. Both ET configurations for high- and low-frequency interferometers are considered. As it is already the case in the existing experiments, like LIGO and Virgo, optically coated baffles are used to mitigate and suppress the noise inside the vacuum tubes. We propose baffle layouts for ET and compute the remaining scattered light noise contribution to ET sensitivity. Virgo has introduced the novel concept of instrumented baffles, with the aim to implement active monitoring of the stray light distribution close to the main mirrors. We present the technology and the comparison of the data with simulations, and show their potential to monitor the performance of the mirrors, the presence of defects and point absorbers in the mirror substrates, and to assist in the pre-alignment of the arms.

Collaboration / Activity

Virgo, ET

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