

Updated Stray Light Induced Noise Simulations in the Einstein Telescope main Arms

We present an updated 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. The new studies include the cryotrap areas close to the main mirrors, consider both 10km and 15km arms, and explore possible mis-alignments of the laser beam inside the cavity. As it is already the case in the existing experiments, baffles are used to mitigate and suppress the noise inside the vacuum tubes. New improved simulations are employed including the presence of the baffles and their serrated edges. We propose updated baffle layouts for ET and re-compute the remaining scattered light noise contribution to ET sensitivity.

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