

STRAY LIGHT PROBLEMS IN INTERFEROMETRIC GRAVITATIONAL WAVE DETECTORS

Stefan HILD¹ for the GEO600 team

¹*MPI for Gravitational Physics (AEI) and Leibniz Universität Hannover, Hannover, GERMANY*

One of the main noise sources encountered during the commissioning of 1st generation gravitational wave detectors is stray light. The actual sensitivity of GEO600 could potentially be degraded by stray light contributions of the order $1e-20$ W. Since 2nd generation GW detectors will aim for significantly increased sensitivities at low frequencies, stray light could be even more problematic. We describe the experience that was gained by studying stray light in GEO600. The understanding of stray light effects was strengthened by intentional injections of controlled stray light. A guide is given to help avoid, identify and eliminate stray light noise.