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Scattering light modelling and subtraction

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Advanced Virgo end benches were a significant source of scattered light noise during the third observing run. We describe how that noise could be subtracted using auxiliary channels during the online strain data reconstruction. We model in detail the scattered light noise coupling and demonstrate that further noise subtraction can be achieved. We also show that the fitted model parameters can be used to optically characterize the interferometer and in particular provide a novel way of establishing an absolute calibration of the detector strain data.

Primary authors: WAS, Michal (LAPP/CNRS); GOUATY, Romain (CNRS/IN2P3/LAPP); BONNAND, Romain (LAPP/CNRS)

Presenter: WAS, Michal (LAPP/CNRS)

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