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Wavefront sensing for NCPA mitigation in high contrast imaging: SHARK-VIS simulations

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Summary

Non-common path aberrations (NCPAs) represent one of the major limitations in high contrast imaging. Studying and applying optimized mitigation strategies is therefore mandatory to achieve the high contrasts needed to fulfil the science requirements.
In the framework of SHARK-VIS, the LBT high contrast imager at visible wavelenght that will see the first light in 2019, we have studied, through numerical simulations, different wavefront sensing approaches (e.g. holographic masks, extrafocal image analysis, phase diversity) aimed at the measurement of NCPAs and the optimization of their mitigation strategy. Here we present preliminary results of NCPAs sensing under different operational conditions and observing modes of SHARK-VIS, and discuss the results in terms of the expected performances of the instrument.

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