

Using a tunable Hartmann wavefront sensor for aberration measurements in ET-HF

In ET-HF it is expected that there will be optical aberrations due to thermal deformation of test masses. The aberrations will influence the sensitivity but less is known about the expected aberration order of magnitude or shape. In our study, we tackle the optical measurement of the aberration by simulating the optical read-out via a Hartmann wavefront sensor. We study the sensor components and propose an effective and customized tuning of, both, the measurement range and the sensitivity. The tuning is based on the exchange and position of the Hartmann plate without any change of the optical path. We demonstrate our design approach on a test aberration.

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