

## Measurement and mitigation of metrology/starlight static beam shear error in the MAM testbed interferometer

J. Catanzarite, M. Shao, R. Gouilloud, J. Shen, and R. Machuzak

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### Abstract:

The Microarcsecond Metrology Testbed (MAM) is a single-baseline interferometer coupled with a precision pseudostar, designed to test the capability of the SIM science interferometer to perform microarcsecond stellar astrometry over both narrow-angle (1 degree) and wide-angle (7.5 degree) fields.

Static shear alignment error between metrology and starlight beams increases an interferometer's sensitivity to tip-tilt errors in delay measurements. In order to reduce this sensitivity in the MAM testbed interferometer, we devised a technique to measure and mitigate static shear offset. We describe the technique and its implementation in the MAM testbed. We present algorithms for deriving the beam shear offset from interferometer and metrology measurements. We present experimental results showing improved performance of the interferometer after mitigation of beam shear error.