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Measuring phase with Stokes measurements

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Abstract :

We present an approach to measure the phase (or wavefront) of an optical field by performing a series of polarization measurements, known as Stokes measurements. Our technique consists of a spatial light modulator and a polarization grating, which acts as a polarizing beam-splitter for right- and left-circular polarization states. This approach exploits the amplitude and phase relationship between orthogonal states of polarization to determine the phase of an optical field. We demonstrate the effectiveness of this method by reconstructing the phase of both static and propagating optical fields such as optical vortices, Airy beams and Bessel beams.

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