

SHEARING INTERFEROMETER WITH DYNAMIC PUPIL FILL

ABSTRACT OF THE DISCLOSURE

A wavefront measurement system includes a source of electromagnetic radiation. An illumination system delivers the electromagnetic radiation to an object plane. A source of a diffraction pattern is in the object plane. A projection optical system projects the diffraction pattern onto an image plane, which includes a mechanism (e.g., a shearing grating) to introduce the lateral shear. A detector is located optically conjugate with the pupil of the projection optical system, and receives an instant fringe pattern, resulting from the interference between sheared wavefronts, from the image plane. The diffraction pattern is dynamically scanned across a pupil of the projection optical system, and the resulting time-integrated interferogram obtained from the detector is used to measure the wavefront aberration across the entire pupil.

Figure 5.