



Application

- Spherical Aberration, Coma, Astigmatism

Purpose of the Experiment

Observation of those aberrations associated with a spherical lens, including spherical aberration, coma, and astigmatism.

Description of the Experiment

The spherical aberration experiment employs a large aperture spherical lens following a slide with transparent dots at different radial distances. An expanded, collimated laser beam is incident on the slide and the large-aperture lens to illustrate variation of focal points from light rays emitting from radial positions.

The second experiment shows a typical coma pattern by imaging an off axis point source through a lens following a slide with concentric transparent rings.

The third experiment is to illustrate astigmatism of a spherical lens, which allows the measurement of the circle of least confusion between two focused lines formed by the tangential rays and the sagittal rays through a rotated lens.