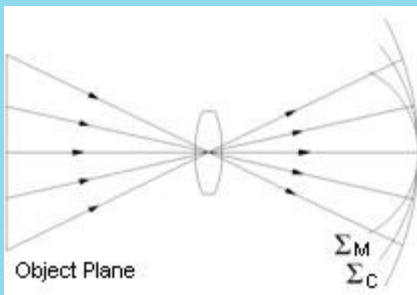
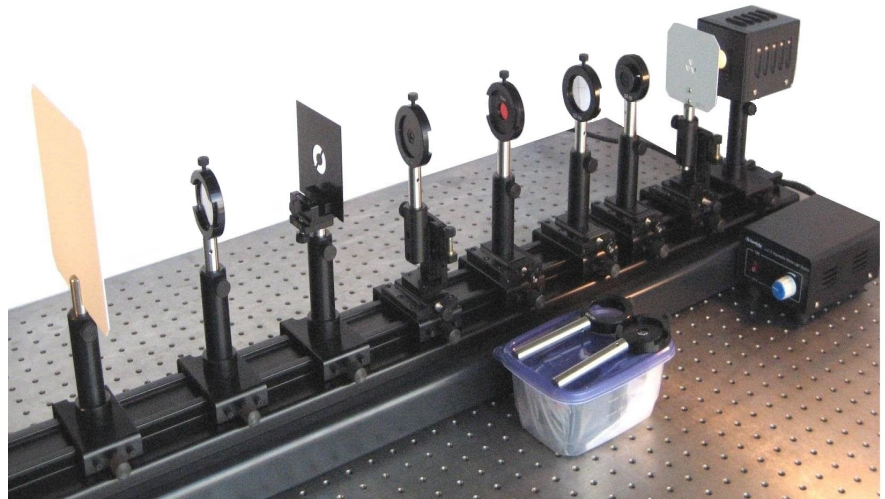
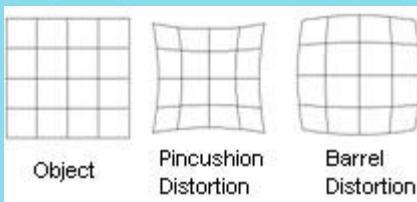


# LEOK-5 Lens Aberration and Fourier Optics Kit

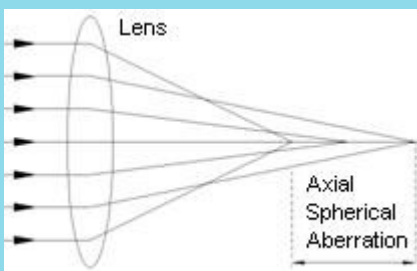
- Lens Aberration Demonstration
- Fourier Optical Processing
- Detailed instruction manual
- Easy alignment



Schematic of field curvature



Schematic of distortion



Schematic of spherical aberration

There are six basic optical aberrations affecting the ideal performance in an optical imaging system, which are chromatic aberration, spherical aberration, coma, distortion, curvature of field and astigmatism. Experiments based on this kit will help students to be familiar with these aberrations. Optical lens can perform the Fourier transform to light field on object plane. Various spatial filtering techniques are used in the reconstruction of the filtered images based on Abbe's theory of image formation. Students can get a better understanding of Fourier optics and spatial filtering through the proposed experiments.

Examples of experiments:

Lens Aberrations: spherical aberration, field curvature, astigmatism, coma, distortion, and chromatic aberration.

Fourier Optics and Spatial Filtering: low-pass filtering, high-pass filtering, and directional filtering.

## Specifications and Part List

Optical rail	Aluminum	1
Laser holder	SZ-42	1
Carrier	DGL-1-01A	3
Carrier	DGL-1-02A	2
Carrier	DGL-1-03A	2
Lens	f = 4.5, 85, 150, 225 mm	1 each
Plano-convex lens	f =85 mm	1
He-Ne laser	LLL-2 (>2.5 mW@632.8 nm)	1
Tungsten-Bromine lamp	LLC-3	1
Transmissive character		1
Iris diaphragm	SZ-15	1
Adjust slit	SZ-40	1
White screen	SZ-13	1
Color filter	Red, Blue	1 each
Plate holder	SZ-12	1
Lens holder	SZ-08	4
Adapter piece	SZ-09	1
Millimeter ruler	3 cm	1
On/Off axis aperture		1
Zero order filter		1