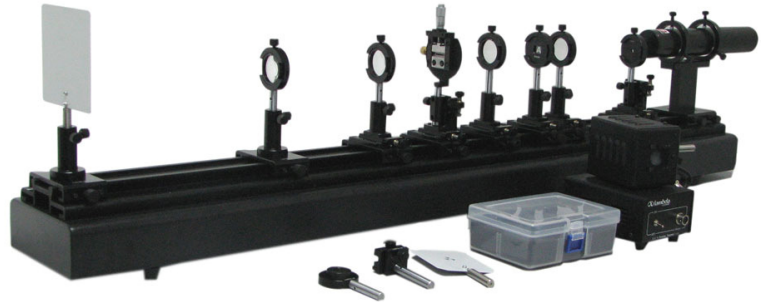


# LEOK-5 Lens Aberration and Fourier Optics Kit



- *Lens aberration demo*
- *Fourier optics processing*
- *Easy operation*
- *Cost effective*
- *7 experiments*

## Lens Aberrations

Aberrations are the failure of the optical system to produce a perfect or point image from a point object. The geometry of focusing light using spherical surfaces is simply not perfect, and spherical surfaces are used primarily due to their inherent ease of manufacturing. There six basic optical aberrations affecting the ideal performance in an optical system, which are chromatic aberration, spherical aberration, coma, distortion, curvature of field and astigmatism. Students will be familiar with these aberrations after using this kit

## Fourier Optics and Spatial Filtering

Optical lens can perform the Fourier transform to light field on object plane. The most useful configuration is  $4f$  setup. Various spatial filtering techniques are used in the reconstruction of the filtered images based on Abbe's theory of image formation. Students will be enhanced their knowledge of Fourier optics and spatial filtering through the proposed experiments

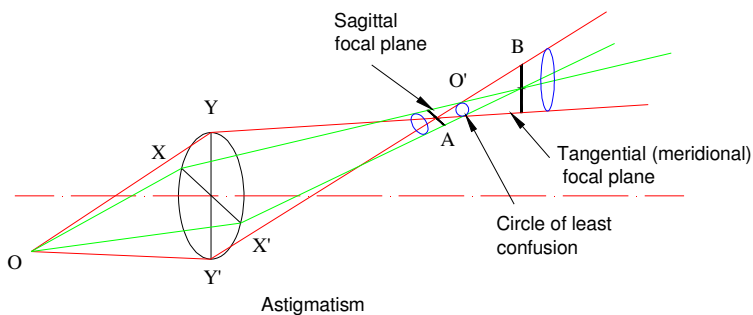
## Experiment Examples

### Lens Aberrations

- Spherical aberration
- Field Curvature
- Astigmatism
- Coma
- Image distortion
- Chromatic aberration

### Fourier Optics and spatial filtering

- Include low-pass filtering high-pass filtering and directional filtering



### Parts Included

Description	Part#/Specs	Qty
Optical rail and base	1.2m, includes laser power supply	1
Laser holder and carrier	LEOK-5-4	1
Carrier	LEOK-5-1	2
Carrier	LEOK-5-2	4
Carrier	LEOK-5-3	2
Lens	f = 4.5, 50, 100, 150mm	1 each
Plano-convex lens	f = 75mm	1
He-Ne Laser	1.5mW@632.8nm	1
Tungsten-bromine lamp	LLC-4	1 set
Transmission letter		1
Iris	LEPO-16	1
Adjustable slit	0-2 mm width adjustable/LEPO-42	1
Space filter		1
White screen	LEPO-14	1
Filter	Red, green and blue	1 set
Plate holder	LEPO-13	1
Lens holder	LEPO-9	6
Object screen	LEPO-16	1