

Diffraction Lloyd Mirror Interferometer

Introduction

A new type of Interferometer realized with a Lloyd mirror along with a diffracting element. The interferometer suitably explains various key features of diffraction and interference of light. These are main optical processes underlying the important area of communication, sensing, imaging, etc.

Features

Suitable for simultaneous study of diffraction and interference phenomena of light. Only interferometer worldwide to generate different shapes of fringes in single interferogram.

Specifications

- Double lens in-line configuration
- Light source: 10mW, visible Laser
- Lenses: Achromatic collimating
- Spatial filter: 5 μ m pinhole with 40 x microscope objective
- Diffracting aperture: sharp edged or tipped aperture
- XYZ translations and tilts for optical alignment
- Mirror: front surface coated plane mirror, R>90%

Applications

The interferometer is suitable for performing a number of optical experiments in single setup. It is an ideal candidate for Optics & Photonics or General Physics Laboratory Courses of various Universities and Colleges.

General list of Experiments possible with this system:

- Knife-edge diffraction pattern as two beam interference.
- Independent existence of boundary diffraction wave after the diffracting apertures.
- Diffracting apertures as real sources of boundary diffraction wave.
- Generation of different shapes of fringes in single interferogram.



- Studies on knife-edge, single-slit, double-slit and wire diffraction patterns.
- Demonstration of Poisson Arago spot.
- Lloyd's mirror interferometer.
- Uniform nature of boundary diffraction wave.
- Same system can be used for optical image processing/spatial filtering.

Users

Colleges and Universities imparting basic knowledge about the diffraction and interference of light and related phenomena.

Diffraction Lloyd Mirror Interferometer

