

Michelson's Interferometer



General Aim

To determine the refractive index of a thin transparent plate.

Method

Michelson's interferometer procedure.

Learning Objectives (ILOs)

- Construct the Michelson's interferometer.
- Recognize the function of each component in the interferometer.
- Understand the operation of the interferometer.
- Interpret the observed in the interference pattern.

Theoretical Background/Context

Monochromatic light beam from a laser source is splitted into two beams. the two beams are reflected back from two mirrors to a screen, where interference pattern is observed. By moving one of the two mirrors or both, the phase difference between the two beams changes and the fringes crossing the field of vision changes in number accordingly.

Principle of Work

The number of fringes crossing the field of vision is counted as one (or both) of the two mirrors is moved or by rotating the glass plate stage through angle θ . hence the wavelength of laser and the refractive index of the glass plate could be determined.