

OPTI 415L / 515L - Optical Fabrication and Testing Laboratory

Lab #8 Measurement of Parallelism, Angle and Transmission

Purpose:

The purpose of this lab is to measure angular errors in parallel plates and prisms using the PSM, autocollimator and a sine plate.

You will also observe and measure surface profile parameters of flat and curved surfaces using a Fizeau interferometer.

Procedure:

PSM

- 1) Use a PSM to measure the wedge in a plane parallel plate.
- 2) Use the PSM to measure the error in the 90° angle of a 90° prism. Also determine whether the angle is acute or obtuse.

Autocollimator, sine plate and gauge blocks

- 1) Use the autocollimator, sine plate and gauge blocks to measure the error in the 45° angle of a right angle prism.
- 2) Use the autocollimator, sine plate and gauge blocks to measure the error in the 22.5° angle of a penta prism.

Fizeau interferometer

- 1) Use the Fizeau interferometer to observe the surface profile of the provided 'flats'. Determine the radius of curvature if applicable.
- 2) Use the Fizeau interferometer to measure the radius of curvature of the concave and convex surfaces provided. Measure both sides of the samples. Determine how spherical or flat the surfaces are.