

## Interferometric Surface Measurements

**Objective:** Be able to choose interferometer, make measurement, and extract quantitative surface information.

**Prerequisite:** Be familiar with the principle of interferometry, Handling and cleaning of optics

**Instructor:** Dae Wook Kim

### Sessions:

First session: Fizeau Interferometer lab

Second session: White Light Interferometer lab

**Location:** Interferometer labs at the College of Optical Sciences, Univ. of Arizona

**Maximum seats:** ~8

**Evaluation:** TBD

### Instruments and materials used in the workshop:

Fizeau interferometer, white light interferometer, some optical components (mirror, lens, window), CaliBall, pattern CGH

### Skill sets covered in the workshop:

- Initialize and set up test configurations for Fizeau, Twyman-Green and white-light interferometers
- Demonstrate interferometry limitations including raytrace error, vibration error and spatial bandwidth
- Measure critical surface characteristics for concave, convex and flat reflective/transmissive optics
- Estimate random errors in measurements
- Calibrate reference surface error using random ball test
- Evaluate interferometer transfer function
- Operate interferometer in vertical scanning and phase shifting modes
- Differentiate measured optical path difference from surface shape
- Implement safety practices to avoid instrument and optic damages