

Optical Alignment

Objective: Teach students to identify the degrees of freedom needed to align a component, choose the correct alignment tool and use feedback to determine the state of the alignment.

Prerequisite: Be familiar with geometrical optics

Instructor: Matt Dubin

Day/Time: TBD

Location: College of Optical Sciences, Univ. of Arizona

Maximum seats: ~12

Evaluation: TBD

Instruments and materials used in the workshop:

Lens alignment station, alignment telescope, autocollimator, optical components (mirror, lens, prism, grating, off-axis parabola), opto-mechanical components, translation and rotation stages, shear plates, fiber coupled lasers

Skill sets covered in the workshop:

- Determine which degrees of freedom are required to perform an alignment
- Follow a systematic alignment plan
- Establish useful feedback for the status of the alignment
- Use precision mechanics to position components
- Align optics to an axis of rotation
- Align optics to a line of sight determined by optical tools (alignment telescope, autocollimator)
- Align optics to a line of sight determined by mechanical features
- Align optics to a folded line of sight
- Align a beam expander using two off-axis parabolas