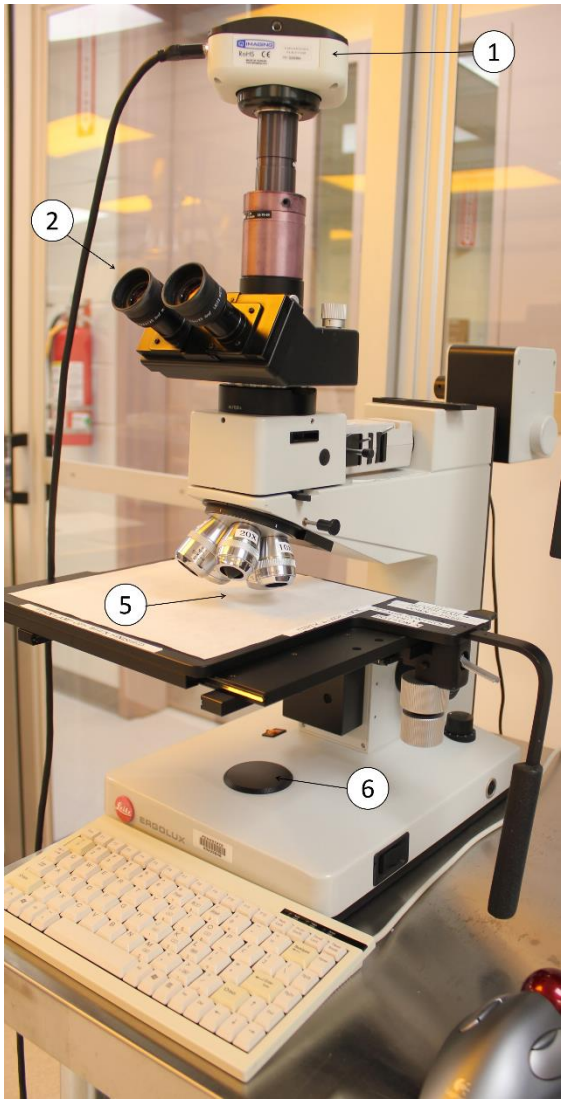
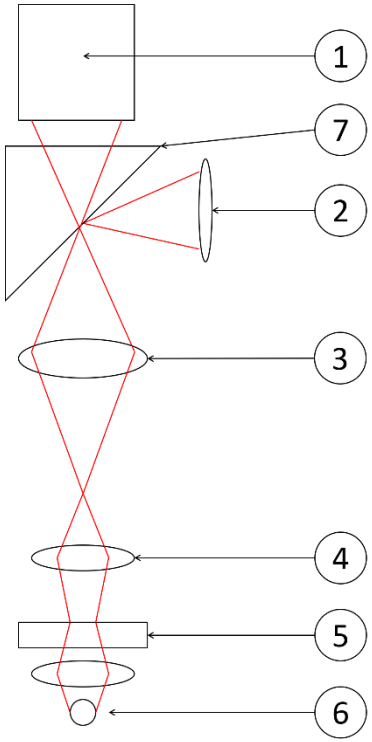
PennState College of Engineering

CENTER FOR NANOTECHNOLOGY EDUCATION AND UTILIZATION

Optical Microscope





1 Camera
2 Eye piece
3 Objective lens 1
4 Objective lens 2
5 Sample
6 Light source
7 Beam splitter

How It Works:
Light reflects off the surface of the sample, allowing an optical image to be obtained through a series of lenses. An interchangeable objective lens allows the magnification of the microscope to be altered.

Tool Operation:
Optical microscopes can be used in several different modes
Dark Field: light scattered off irregularities in the sample surface making features visible through the microscope.
Bright Field: A traditional light source is used to illuminate the sample and the reflection yields the image.

Material / Applications:
An optical microscope can be used to image many different samples with relatively large features sizes.

Leitz Ergulux Specifications

- Stand with coarse/fine adjustment
- 12v/100w lamp housing with socket & bulb
- Pair of 10x oculars
- Motorized 5-Place nosepiece
- 6” x 6” X-Y mechanical stage with glass plate
- CCD camera
- Brightfield/Darkfield vertical illuminator
- Ergonomic tilting trinocular head
- 1.0 x 1.6 mm at 50° and 1.0 x 3.0 mm at 70°
- 5x, 10x, 20x, 50x, 100x, BF/DF objectives
- Variable 12v/20w power supply
- Photoshop imaging software

Advantages:
- ✓ Able to view a variety of samples and materials
- ✓ Brightfield and Darkfield modes
- ✓ Ease of use
- ✓ Ability to capture image with camera
- ✓ Rotation with translation stages with built in stepping motors
- ✓ Non-destructive

Disadvantages:
- ✓ Limited magnification range (5-1000x)
- ✓ Imaging software requires manual adjustment
- ✓ Limited to surface analysis
- ✓ Planar views