Biophysics 210: Biological Light Microscopy
Kurt Thorn
Syllabus

Discussion section meets Tuesdays from 1-2:30pm in MH2100
Labs meet Thursday or Friday from 2-5pm (location varies)

Week 2: Microscope Objectives and Resolution

Goals: Understand objective magnification and resolution, how these are defined, and how they affect the resolution of the microscope. Know what the different classes of objective corrections are (Achromat, Apochromat, Plan vs. non-Plan), what these mean, and how they affect the images you collect. Know what the point-spread function of the microscope is, how you would measure it, and what it can tell you about the performance of your microscope.

Discussion Section: April 7th

Labs: April 9th and 10th, S252 Genentech Hall

Lectures (watch before discussion section):

- Objectives and Eyepieces
- Diffraction
- Point Spread Function
- Resolution

Additional Reading (optional):

- Optical Aberrations http://micro.magnet.fsu.edu/primer/anatomy/aberrationhome.html
- Properties of Microscope Objectives: http://microscopyu.com/articles/optics/objectiveproperties.html
- Introduction to Microscope Objectives: http://microscopyu.com/articles/optics/objectiveintro.html
- Resolution: http://microscopyu.com/articles/formulas/formulasresolution.html
- The Point Spread Function: http://zeiss-campus.magnet.fsu.edu/articles/basics/psf.html

Discussion Section Topic: Resolution.

In the discussion section, we will calculate the resolution of objective lenses used under different conditions to better understand how the optical system determines resolution.

Lab: Microscope Alignment for Brightfield and Kohler Illumination; resolution and NA.