

PHYS 125 StudyGuide

1. Everything on your previous study guide.
2. Colors: (not listed on any study guide but tested in exam 3)
 - Quantitative analyze colors– RGB, LHS, color tree, color diagram
 - Wavelength and frequency
 - Color mixing: spatial addition, RGB color addition
 - Visual effect: boards, contrast, illuminations
3. Physical optics:
 - Quantities: wavelength, frequency, amplitude, polarization, period, wave-velocity
 - Their relations: $\text{period} = 1 / \text{frequency}$
 - Both wavelength and frequency indicates colors.
 - Amplitude ---- light brightness
 - Polarization, unique character for transverse waves

Applications:

Scattering:

Mie, larger particles, not prefer any color, has a preferred direction, nearly unpolarized

Dyndall effect: based on Mie scattering, polarized from the side of the beam.

Rayleigh scattering: smaller particles, prefer shorter wavelength (blue), uniform in all directions. Partially polarized.

Diffraction and interference:

Generating patterns, more significant with smaller objects, has to be coherent light source.