PHYSICS 232 – CHAPTER 33: LIGHT

Speed of light in material of index of refraction $n$:

$$v = \frac{c}{n}$$

Law of refraction (Snell’s Law):

$$n_a \sin \theta_a = n_b \sin \theta_b$$

Total internal reflection for $\theta > \theta_{\text{crit}}$ (if $n_a < n_b$):

$$\sin \theta_{\text{crit}} = \frac{n_a}{n_b}$$

Intensity through polarizer (Malus’s Law):

$$I = I_{\text{max}} \cos^2 \phi,$$

Complete polarization perpendicular to the plane of incidence:

$$\tan \theta_p = \frac{n_b}{n_a}$$