

## Chapter 3: Polarization of Light

### Overview

In this experiment we will study Malus' Law: the dependence of the intensity of light when passed through a set of polarizers on the relative orientation of the polarizers.

### Suggested Reading Assignment

The section on "Polarization" in your introductory physics text.

E.g., Section 33-7 of Halliday, Resnick, and Walker, 6<sup>th</sup> edition.

### Pre-lab Questions

1. What is polarization?
2. Is sunlight polarized? What about sunlight that reaches the surface of the earth?
3. What is "Malus' Law" (Halliday, Resnick and Walker call this the "cosine-squared rule")? Under what circumstances is this law obeyed?
4. Consider unpolarized light of intensity  $I_0$  that passes through 3 polarizers, as shown below. Compute the intensities  $I_1$ ,  $I_2$ , and  $I_3$  in terms of  $I_0$ .
5. Explain how a polarizer and an analyzer can be arranged so that no light exits the analyzer.

