



Concept:

When unpolarized light of intensity I_0 passes through a linear polarizer whose transmission axis is oriented at an angle θ relative to the transmission axis of a second linear polarizer, the transmitted intensity, I , is given by

$$I = I_0 \cos^2 \theta. \quad (\text{Malus's Law})$$

As the second polarizer is rotated, the transmitted intensity varies according to Malus's Law given above. Note that as $\theta \rightarrow 90^\circ$, $I \rightarrow 0$.

Procedure:

1. Place both filters parallel to each other on the overhead projector.
2. Overlap the filters.
3. Notice that polarized light is transmitted through each filter as well as through the combination of filters.
4. Rotate one filter 90 degrees.
5. Notice that the light is not transmitted through the combination of the two filters.

Equipment:

1. Linearly Polarized Filter
2. Linearly Polarized Filter
3. Overhead Projector (not shown). Must be transmission type overhead, as a reflection type overhead produces polarized light.