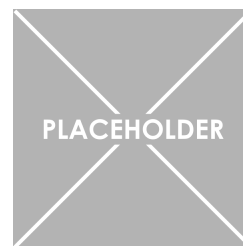
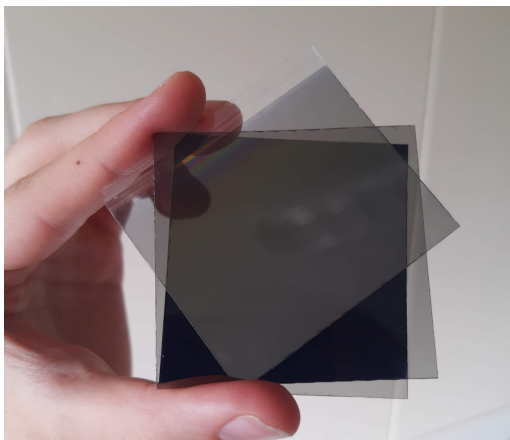


6H30.10 - Polarizers

Key words: Polarizers, Malus' Law, Polarization, Brewster's angle, LCD



Equipment List:

1. 3 Polarizers
2. [optional] Overhead projector

How to assemble and operate:

- To demonstrate the basic operation of polarizers, place one in front of a light source, then place another behind it and slowly rotate 90 degrees. Observe the intensity drop.
- Now place the third polarizer between the first and second at an angle of 45 degree and observe how it increases the intensity of light being let through
- A similar experiment can be done using the LCD screens of phones and laptops as the first polarizer, showing the polarized nature of this light
- To show how light reflected of a surface is usually polarized in one direction, look through the polarizer at a reflective surface and rotate it until the reflected light disappears

Description/Theory:

The two polarizer setup filters vertically and horizontally, so no light gets through. By adding a third one one in between, a superposition of vertical and horizontal polarization is induced in the light from the first polarizer, thus some light can pass through the third one. Also known as the Dirac three polarizer experiment

Comments/Notes:

The first few demonstrations can also be done in front of a classroom by placing the polarizers on an overhead projector