

Polarization

Physics 150/126L Spring 2025

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Introduction

In this lab we will make several measurements that illustrate polarization of light.

Equipment

You will be provided with three polarizers mounted in 35 mm slides. Two are oriented parallel to the edges of the slides, and the third is oriented at 45° to the edges. You will also have a computer-controlled rotation stage with mounts that hold two transparent windows.

Measurements

1. Go outside with a parallel-oriented polarizer and look through it at clear blue sky about 90° from the sun, as high as possible. Rotate the polarizer to maximize sky brightness. Observe Haidinger's Brush and explain its orientation with respect to the direction from the brush to the sun. Once you can see the brush, try to see it without using the polarizer.
2. Measure the change of transmitted irradiance when a 45° polarizer is placed between two crossed polarizers, one at 0° and the other at 90° .
3. Use equipment of your choosing from the lab to measure Brewster's angle for each of the two transparent windows you were given. Use the resulting values to determine the indices of refraction for the windows. Try to obtain the highest precision the equipment will allow.