

Brewster's law, Polarization and Dispersion

Review Brewster's law before doing this lab. The agenda is to use it in the first part to measure the refractive index of a prism. Do this along with a polarizer while observing reflected light off the prism surface.

In the second part use pins as lines of sight as in the earlier focal length lab and determine the refractive index of the same prism.

In the third part, please measure the dispersion of white light through the prism. It will require careful analysis and perhaps plotting of a messy function to determine the values of the refractive index of the prism separately for the two ends of the spectrum. Doing this correctly will earn extra points.

QUESTIONS:

1. What is true about the relative orientation of the refracted and reflected rays in Brewster's law?
2. Under those conditions, what is true of the reflected ray?
3. Calculate the percentage error for the refractive index for the first two parts using the known value of 1.49 as the reference.
4. What is dispersion?
5. Trace the rays of both red and violet light through the prism.
6. For XC show the work leading to results for n_{violet} and n_{red} .