

Dispersion Curve Experiment: Spectra and Dispersion Curves

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Abstract

After determining the diffraction grating constant, we used the diffraction grating to measure the spectra of both hydrogen and helium. We found the helium spectrum to be consistent with the literature, but the hydrogen spectrum was not. Despite this discrepancy from theory, we were able to achieve a good fit to the Cauchy equation for our dispersion curve. More specifically, we obtained a value of 1.736 ± 0.002 for the average refractive index of the glass prism, which was calculated from all wavelength measurements. Qualitatively, our dispersion curve matched best to the dispersion curve for dense flint.