

Sample Data

Line Emission Spectroscopy Lab

In this lab, we observed the line emission spectroscopy of various light bulbs using diffraction grating glasses. Diffraction grating glasses break light apart into the different component colors based on the wavelength and/or frequency of the light. We observed a variety of light bulbs, but you will need to utilize this sample data to complete this lab activity.

Background: Using light bulbs that provide or create light of very specific frequencies allows us to identify the differences in the sources of light. Remember that light is created when a ground state electron becomes excited after electric current (or another energy source) is applied. The electron rises from the ground state to the excited state. When it falls from the excited state to a lower state or even back to the ground state, a photon (or many photons) of light are emitted. That photon has energy ($E_{\text{photon}} = h \cdot f$) based on the frequency it is emitted at. The frequency also helps to determine the wavelength ($\lambda = \frac{c}{f}$) of the light. The various wavelengths determine the color that our eyes perceive in the light. The potential colors we may see are R-O-Y-G-B-I-V. Example the sample lime emission spectrum below and mark the colors you see.

Sample Data:

