

## 1 Background

We know light is a wave because it exhibits diffraction and interference phenomena when encountering obstacles or passing through narrow slits. By understanding this behavior and making careful measurements, one can determine the wavelength of different colors of light. This is illustrated simply by a monochromatic light source (such as a laser) which produces light only in a narrow range of wavelengths.

## 2 Tools

In addition to the standard equipment (rods, clamps, metersticks, etc.), you'll have a Helium-Neon (HeNe) laser, diffraction gratings, and materials to make single and double slits.

If you think of another tool you would like to use, or another measurement you would like to make, discuss it with your professor. A suitable tool may or may not be available, but we may be able to figure out an alternative.

## 3 Task

Your goal is to determine the wavelength of light produced by the laser. Do not neglect reporting measurement and experimental uncertainties. Remember that you can determine experimental uncertainties by propagation of error, or by using statistics on a large set of data.