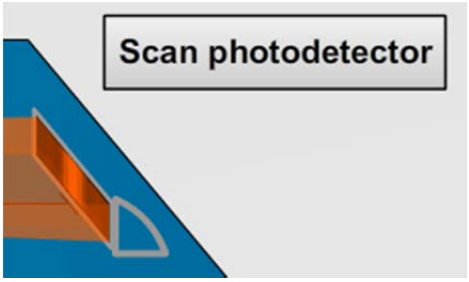
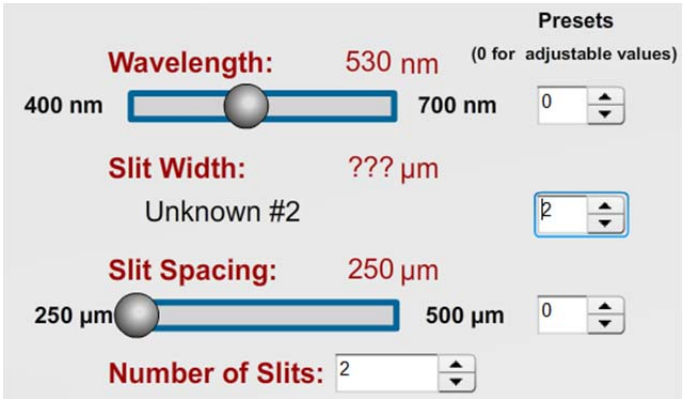
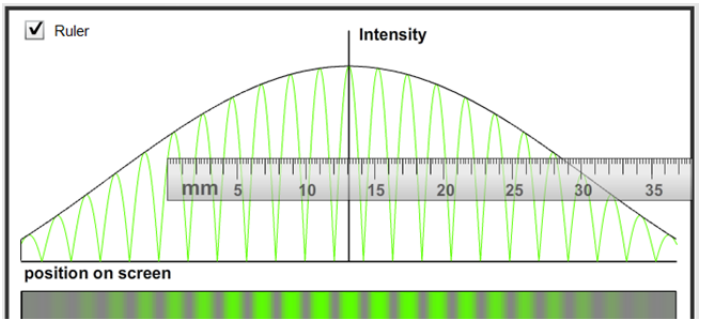
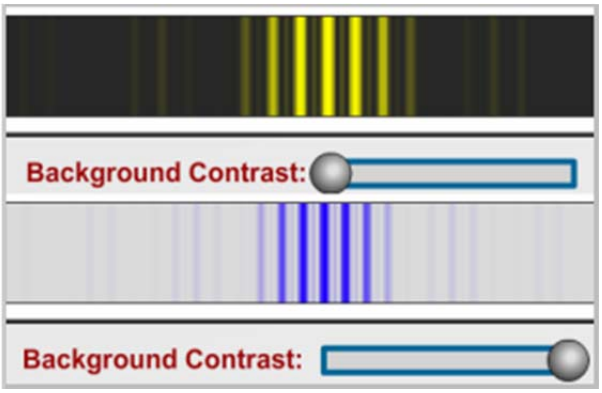
20 – Interference & Diffraction User's Guide:	1/30/2025
The light source. A purely fictitious device that makes the lab so much easier than otherwise possible, the light source is an adjustable laser that can produce light between 400 nm and 700 nm. It is found on the left side of the screen, and the left side of the lab table, and can be turned on/off by clicking it. The wavelength of the laser can be adjusted by clicking and dragging the slider ball labeled "Wavelength" found under the zoomed-in view of the slits.	
The photodetector. On the opposite side of the table lies the photodetector. When the laser is on, the light pattern can be seen on the detector, albeit quite small. To get a more graphical representation of the data, click "Scan photodetector," and the pattern will be scanned and displayed in the box in the bottom right of the screen.	
The slit lab. Located in the center of the table, conveniently between the laser and the detector, is the slit lab. A zoomed-in view of this lab is shown to the left beneath the light source. Except for when using one of the unknown widths, a ruler can be turned on to measure the slits by clicking on the checkbox.	 
The settings. The wavelength of the laser, the width of the slits, the spacing between slits, and the number of slits can all be varied using the sliders and stepper menu in the bottom left corner. To use the sliders just **click and drag on the knobs**, and to change the number of slits just click on the arrow next to the number. To make the experiment a bit more difficult, certain unknown quantities can be used that will have to be determined based on the results. All three of the lab's variables have unknown presets, and these can be selected by using the up/down arrows in the boxes to the right of the sliders. Preset "0" is the default and allows for the adjustable values, whereas The rest are fixed and unknown quantities.	

The rulers. The student may wish to measure various distances and lengths in the experiment, and rulers are provided for exactly that. Either on the graph or the zoomed-in view of the slits, clicking on the checkbox in the respective area will provide a ruler to scale for that view. The graph ruler is in centimeters and the zoomed-in view ruler is in micrometers. To turn the rulers off, click again on the checkbox.	
Background contrast. The student may wish to change the background that the light hits in order to better see the faint light bands depending on the wavelengths. Click and drag the slider left or right to change this color. A dark background works best for a lighter laser color and vice versa.	
Snapshot. As with most of our labs, you can take a screenshot of any portion of the screen by clicking on the Snapshot icon and then clicking and dragging a box around what you want to capture. A dialog will then appear asking you what you want to call the image and where you want to save it. In most labs, a timestamp will be added to the image to keep track of it better.