

Name: _____ Sec./Group _____ Date: _____

Color	Filter/Light Used	Wavelength, nm	$c/(\lambda * e)$	V1	V2	V3	Vavg.
UV	None / Hg Arc	365					
Blue	Blue / Hg Arc	405					
Green	Green / Hg Arc	546					
Red	None / Diode Laser	650					

Revised Procedures for Experiment:

1. Place mercury arc lamp as close as possible to the detector's aperture. This will max out the meter (indicator for nanoamperes will move far to the right).
2. Turn the voltage-adjust knob fully clockwise.
3. Turn zero-adjust knob so that the indicator is slightly to the left of the zero on the nanoamperes scale.
4. Turn the voltage-adjust knob CCW so that the indicator just reaches zero on the scale.
5. Read stopping voltage on voltmeter and record in table.
6. Block the light reaching the detector between each reading to prevent drift.
7. Take three stopping voltage readings for each wavelength and obtain Vaverage.
8. Use filters for 405 nm and 546 nm wavelengths.
9. Replace the mercury arc lamp with the red diode laser for the 650 nm wavelength. Position the laser about a meter from the detector's aperture and adjust distance as needed.
10. Plot Vavg (Stopping Voltage in volts) vs. $c/(\lambda * e) \times 10^{33}$.
11. Record best linear fit for Planck's constant (slope) and work function (y-intercept) from chart.

$$h = \underline{\hspace{2cm}} \quad \text{Error} = \underline{\hspace{2cm}}$$

$$\phi = \underline{\hspace{2cm}}$$