**Photo-Electric Effect Graph**

Here is a table of data similar to the data Millikan gathered to test Einstein’s theory.

Graph the data: (use error bars where you can)

|  |  |
| --- | --- |
| Frequency of light | Stopping Potential |
| f / 1012 Hz | Vs / V |
| ± 5 | ± .2 |
| 620 | 0.4 |
| 690 | 0.7 |
| 740 | 0.9 |
| 820 | 1.3 |
| 960 | 1.8 |
| 1175 | 2.7 |

Here’s what to do.

1. Find the slope of the best fit line. From the slope calculate the value of Planck’s constant in Js. (You will need to convert eV to J – and don’t forget the frequency is x1012)
2. Find the maximum and minimum slope possible
3. Express Planck’s constant as a best guess +/- a two digit uncertainty based on this data.
4. Use the extrapolation of the cutoff frequency to deduce the work function in eV. Express it as a best guess with an upper and lower limit.

Do this by hand on graph paper.