

Astronomy 4100, Homework # 01, 12 January 2015 (due 21 January 2015).

1. For a photoelectric effect experiment, light of various wavelengths is shown on a metal sample and the stopping potential is recorded. The data are in the following table:

| Wavelength (nm) | Stopping Potential (eV) |
|-----------------|-------------------------|
| 588 | 0.67 |
| 505 | 0.98 |
| 445 | 1.35 |
| 399 | 1.63 |

Make a graph of the stopping potential versus the frequency of the light. What do you observe? Based on the graph estimate the longest wavelength that produces photo-electrons for this metal. For light of this wavelength, what sort is it, i.e. is it infrared, visible or ultra-violet light?