Lab Assignment 5

Saturday, April 17, 2021

In **Photoelectric effect** the maximum kinetic energy of the ejected photo-electron is given by

$$E_k = E_p - \phi \tag{1}$$

where E_p is the energy of the photon, E_k is the kinetic energy of the emitted photo-electron and ϕ is the work function.

1. Following is the data obtained from an experiment performed on silver crystals ((111) phase). Fit a straight line to this data. Write functions to obtain the slope, m and intercept, c of the the straight line using suitable formula.

E_p (eV)	E_k (eV)
5.0	0.37
6.0	1.13
8.0	3.22
9.0	4.27
10.0	5.31

2. Find out the work function, ϕ, of silver crystal. Compare the obtained value of the work function with the known value (which is 4.74 eV) and calculate the relative error.

3. Find the fit values of E_k for each E_p and write it in a file. Plot the obtained straight line (with curves) along with the given data (with points).