1) -**Definitions**

Compare inelastic collision to an elastic collision and whether mechanical energy is conserved?

2) **Theory**

Why are inelastic collisions essential to explain the observed phenomena?

Label on the plot (Figure 1.2) on page 6 of PASCO write-up where the collisions are predominately inelastic and where they are elastic. You can simply label the figure in the PASCO write-up and insert the photo into your report.

Why does the amount of ‘dip’ or relative depth of valley increase as the excitation energy increases?

The websites below are good sources to use if necessary.

<https://foothill.edu/psme/marasco/4dlabs/4dlab8.html>

<https://physicscourses.colorado.edu/phys2150/phys2150_fa18/Physics%202150%20Lab%2002%20-%20The%20Franck-Hertz%20Experiment.pdf>

3) **Uncertainty analysis**

On page 13 of PASCO write-up you are asked to calculate Planck’s constant using the relationship $h=eλ(\frac{V\_{o}}{c})$

**Show explicitly** that the uncertainty of this relationship is given by $δh=h\*\frac{δV\_{0}}{V}$

if voltage uncertainty very large compared to those of the other measured values.

See post lab question 1 from (**e over m experiment)** and use the uncertainty example and eliminate the appropriate terms.

**Based upon your plot, estimate of where the voltage peaks are located, determine** $δV\_{0}$ **and write the experimentally measured h with correct number of significant figures. Calculate the % error of your value of h also.**

4) What would be one method of decreasing the uncertainty of the location of the voltage peaks used in the analysis above?

5) Why are the peaks & valleys smeared out rather than sharp?

6) Current fluctuations were observed during your measurements. What might be a reason?