

# PHYS2350 EV1 Fall 2017 Mini-Project

Prof. Douglas H. Laurence

**Due: October 17, 2017**

*This mini-project is meant to replace the in-class lab IV, which was to be done on October 3, 2017, but was unable to be performed due to a gas leak in the Parker building. The entirety of lab IV to be completed using simulated data provided in this assignment. The lab is to be written up as usual and turned in during the next lab meeting, which won't be until October 17, 2017 (October 10 falls in midterm week, so there won't be any lab).*

For lab IV, the data to be collected in lab is position vs. time data for a glider released from rest, as described in the lab manual. Use the simulated data, provided in the following table, to complete all the calculations required in the lab manual.

Spark No.	t (s)	s (cm)	Spark No.	t(s)	s (cm)
1	0.054	1	11	0.180	11
2	0.077	2	12	0.188	12
3	0.094	3	13	0.196	13
4	0.109	4	14	0.203	14
5	0.122	5	15	0.211	15
6	0.133	6	16	0.218	16
7	0.144	7	17	0.224	17
8	0.154	8	18	0.231	18
9	0.163	9	19	0.237	19
10	0.172	10	20	0.243	20

The experiment was (hypothetically) conducted with a hanging mass  $m$  and glider mass  $M$ , as shown in the figure included in the lab manual for lab IV, on an incline with a height  $h$  and a slope-length  $L$ , inclined to an angle  $\theta$ , with a coefficient of kinetic friction between the surface and  $M$  of  $\mu_k$ . For the calculations, you will need the following values:

$$M = 500\text{g} \quad m = 200\text{g}$$

$$h = 10\text{cm} \quad L = 20\text{cm}$$

**Important:** For the first entry in Part C. Measurements (on page 20), don't enter a "time interval between sparks,  $\Delta t$ ". This isn't a constant value for the data I have provided you.

Using the above data, complete the lab report as you would in any regular lab. Fill out the measurements in Part C using the above hypothetical data; compute the values asked for in Part D; and answer the questions in Part E. This page doesn't have to be turned in with your lab report.