

Phys3201 Template GT

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March 13, 2024

Abstract

In this experiment we studied pendulum motion in a non-uniformly accelerating reference frame. **Special notes:** Prof Goldman specifically requested to not have “100” sig figs, put font on figure axes in readable size, and don’t put grids on plots!

1 Introduction

Motivate why you chose the problem that you did. Why is it interesting?

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2 Background

Give a brief summary of the physical theory, include any equations necessary, and cite any references you want to include. Here is how you insert an equation. According to references the dependence of interest is given by

$$\mathcal{L} = \frac{1}{2}m\ell^2(\dot{\theta} + \dot{\phi}_0)^2 - mg_e(t)\ell \cos(\theta)$$

$$m\ell^2(\ddot{\theta} + \ddot{\phi}_0) = mg_e\ell \sin(\theta)$$

$$\ddot{\phi}(t) = -\frac{g_e(t)}{\ell} \sin(\phi(t) - \phi_0(t)) \quad (1)$$

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3 Methods

Give a schematic of the experimental setup(s) used in the experiment (see figure). Give the description of abbreviations either in the figure caption or in the text. Write a description of what is going on.

and eventually arrived to the balanced photodiode as seen in the figure.

4 Results

In this section you will need to show your experimental results. Use tables and graphs when it is possible. Table 1 is an example.

Table 1: Every table needs a caption.

x (m)	V (V)
0.0044151	0.0030871
0.0021633	0.0021343
0.0003600	0.0018642
0.0023831	0.0013287

Analysis of equatio shows ...

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For example, it is easy to conclude that the experiment and theory match each other rather well if you look at

5 Conclusions

Here you briefly summarize your findings. Did you learn any new physics? Was everything as expected?

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6 Future Work

Since you had limited time to work on this project, what questions are left outstanding? What would be your next steps?

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References

- [1] A. C. Melissinos and J. Napolitano, *Experiments in Modern Physics*, (Academic Press, New York, 2003).
- [2] N. Cyr, M. Têtu, and M. Breton, IEEE Trans. Instrum. Meas. **42**, 640 (1993).
- [3] *Expected value*, available at http://en.wikipedia.org/wiki/Expected_value.