This is the title

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Abstract

This is a template for PHYS 310 papers based on the APS REVTeX 4 format. It should be copied to the user's directory and modified as necessary. You can use any text editor (gedit, nano, emacs, vi, ...) to modify the text. The text file from which this was produced should be read side-by-side with the formatted output.

I. INTRODUCTION

This is the beginning of the actual paper. All text is entered without regard to specific formatting, and you don't need to worry about white space between words. The only thing you do have to worry about is a line with no text on it at all. This is the signal for a new paragraph.

This line follows a blank line and should be a new paragraph. All mathematical expressions should be in a different font than the normal text. For example, you might want to discuss the equation $y = mx + b$. In the `.tex` file you surround all in-line math like this with dollar signs to get the math font. If you want to display an equation on its own numbered line you enter the *equation environment*. For example, the equation describing a parabola is

$$y = a(x - x_0)^2 + h. \tag{1}$$

An important equation in physics is

$$\vec{F}_{\text{net}} = \frac{\mathrm{d}\vec{p}}{\mathrm{d}t}, \tag{2}$$

which relates force to the time derivative of momentum. If you look in the `templateWithBib.tex` file you will see `\label{}`commands inside each equation environment. These allow you to refer to equations by label rather than number. Newton's second law is Eq. (2).

II. EXPERIMENT

This is the beginning of another section. In most papers you will need to reference other work. You cite other works using labels, much the way you refer to equations. For example, in writing about Newton's gravitational constant G, you might have a sentence like the following: Recent experiments using sophisticated torsion pendulums and tons of money have measured values of G with a precision of 0.001% [1]. Notice how the reference is cited, and also note that percent sign was preceded by a \, which means "print the % sign — don't treat the rest of the sentence as a comment. We can add additional citations to a book [2] and another paper [3].

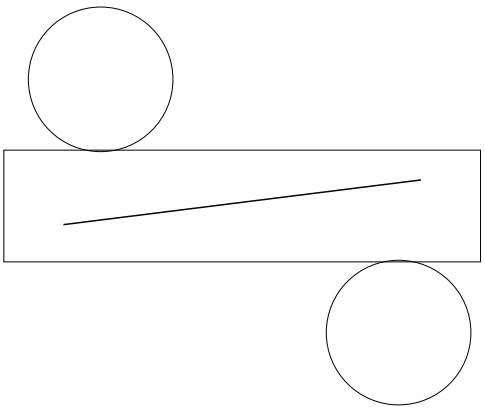

FIG. 1. Overhead view the torsion pendulum used to measure Newton's gravitational constant.

A. Figures

(Note that this is a sub-section.)

Figures should be made as separate in separate files in a vector graphics format like PDF or EPS. Figures are labeled and referenced in much the same way as equations. Figures should be referred to in the text, and the caption should be self contained. An overhead view of the torsion pendulum is illustrated in Fig. 1. In the `.tex` file, you should use the *figure environment*, and place it close the first mention of the figure in the text. The exact placement of the figure will be determined by RevTeX, not by you, although you can control it to some degree. In books and journal articles figures generally are placed at the top or bottom of the page. Figure 2 was forced to be at the bottom with the `[b]` option after the `\begin{figure}` command.

Figures that are not the "right" size can be scaled using the `[width=..]` option of the `\includegraphics` command, as is done for the illustrated graph of the function $f(t) = t(t-3)(t+2)$ in in Fig. 2. (I have scaled this graph too much to make a point; don't make

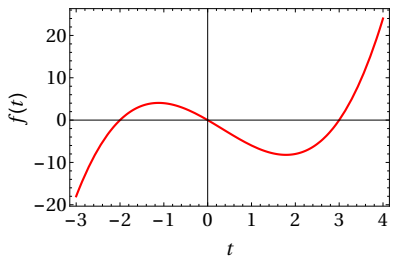

FIG. 2. Illustration of the function $f(t) = t(t-3)(t+2)$.

TABLE I. This is a sample data table.

Run #	a	b
1	5.0	10.1
2	6.2	9.8
3	5.5	10.4

graphs this small! You should try to "fix" this.) Figures can also be scaled to a fraction of a a column width.

B. Tables

This paper contains a simple example of a data table. The `{ccc}` after the `\begin{tabular}` says: create a table with three columns, and center the entries; there are lots of other options for tables. The column entries are delimited by the `&` symbols, the `\\`'s indicate line breaks as usual, and the `\hline`'s indicate horizontal lines. (It is also possible to add more vertical and horizontal space as necessary.)

C. Other stuff

There are many other features of TeX/LaTeX that aren't covered in this short template. For additional information, see:

- `http://tug.org/tutorials/tugindia/`
- `http://www.maths.tcd.ie/~dwilkins/LaTeXPrimer/`
- `http://www.eg.bucknell.edu/physics/ph310/`

This bulleted list is created with the *itemize environment*.

ACKNOWLEDGMENTS

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[1] J. D. Teufel, F. Lecocq, and R. W. Simmonds, Phys. Rev. Lett. **116**, 013602 (2016).

[2] C. P. Slichter, *Principles of Magnetic Resonance*, 3rd ed. (Springer-Verlag, New York, 1990).

[3] H. T. Quan and C. Jarzynski, Phys. Rev. E **85**, 031102 (2012).