LaTeX Assignment # 2

Physics 480W
(Dated: Due Friday, 2 Feb. 2017)

READING

For this assignment, read

1. the sections on tables described in the LaTeX resources (this includes the *table* and *tabular* environments), and

2. section II in the *AIP Style Manual*, on summary information for journal contributors, and notes on preparing a scientific paper for publication.

All these things can be found on our webct site.

TABLE STUFF

Tables are useful when one wants to display numbers which are to be compared. For example, in Table I,

TABLE I. The critical pressure $\mathbf{P}_c$ below which sound cannot propagate in a gas is compared with the pressure measured with a convectron gage, $\mathbf{P}_s$, at which sound is inaudible to the naked ear for a variety of gasses.

Element	$\mathbf{P}_c$	$\mathbf{P}_s$
N_2	5	3
Air	4	2.7
Ar	3	2
He	6	12

Here we compare pressures at which sound cannot propagate and pressures at which sound cannot be heard for a few elements. Before talking about the mechanics of making tables, **why is this a bad table? What doesn't it tell you?** To make a table, one uses the tabular environment,

```
\begin{table}[loc]
\begin{tabular}{column info}
 ...rows...
\caption{captiontext}
\end{tabular}\end{table}
```

where `[loc]` is a cryptic code that tells LaTeXwhere to put the table [1], and the column info is as follows:

l: if one wants the column left hand justified

r: if one wants the column right hand justified

c: if the column should be centered

p{ width in }: which produces a column a certain of a certain width, which is good for text. LaTeX will make the space big enough vertically to accept the text, automatically. It will make space adjustments automatically anyway up to the point of filling up the allowed horizontal space, but if there is more stuff than that for a single row, using this argument is the easiest thing to do.

I should add that the number of columns is determined by the number of arguments within the curly brackets, e.g.,

```
\begin{tabular}{|ccr|}
```

will create a 3 column table with vertical lines one the outside boundaries. Vertical lines can be created by placing a vertical line in the column info argument, before or after a alignment control character.

Rows are created by entering whatever goes into the individual cells, separated by an `&`; the row is ended with `\\`. One can produce horizontal lines using the `\hline` command. Producing math symbols is the same as always, requiring the dollar sign to begin and end math mode.

WHAT ABOUT FIGURES?

Figures may be inserted by using either the `graphics` or `graphix` packages. These pack-

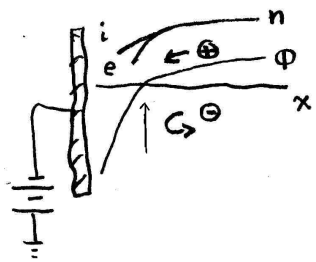

FIG. 1. A figure caption. The figure captions are automatically numbered.

ages both define the `\includegraphics{#1}` command, but they differ in how optional arguments for specifying the orientation, scaling, and translation of the figure. Fig. 1 shows a figure that is small enough to fit in a single column. It is embedded using the `figure` environment which provides both the caption and the imports the figure file. The file type must be .eps, encapsulated postscript. For the next assignment, you will download more software to convert .jpg files to .eps files, and then you are just about ready to roll.

Briefly, the commands used to generate this figure were as follows:

```
\begin{figure}
\includegraphics[width=2in]{severnfig1}
% Here is how to import EPS art
\caption{\label{fig:epsart} A figure
caption. The figure captions are
automatically numbered.}
\end{figure}
```

where the label is used for ready citation later in the document.

Fig. 2 is a figure that is too wide for a single column, so instead the `figure*` environment has been used.

YOUR ASSIGNMENT

You are charged to do the following by Thursday (submit via email, so the time stamp appears), **9 February, 2017**:

1. Create a LaTeX document that incorporates a figure from from the public website relevant to your current experiment. All you need is one figure, figure captions, and a patch of text with explains and refers to the figure, using good prose appropriate for scientific communication. Include references and cite one of the background papers you have read on the topic of your current experiment.

2. Reproduce table III in the section II, *Preparing a Scientific Paper for Publication* in the *AIP Style Manual*, page 8, and the

3. Top two tables in section III, General Style, page 8

[1] One uses a one letter code as follows: p for a page at the end of the document, h for right where the table is in the text, t for the top of the text page, and b for the bottom of the text page.

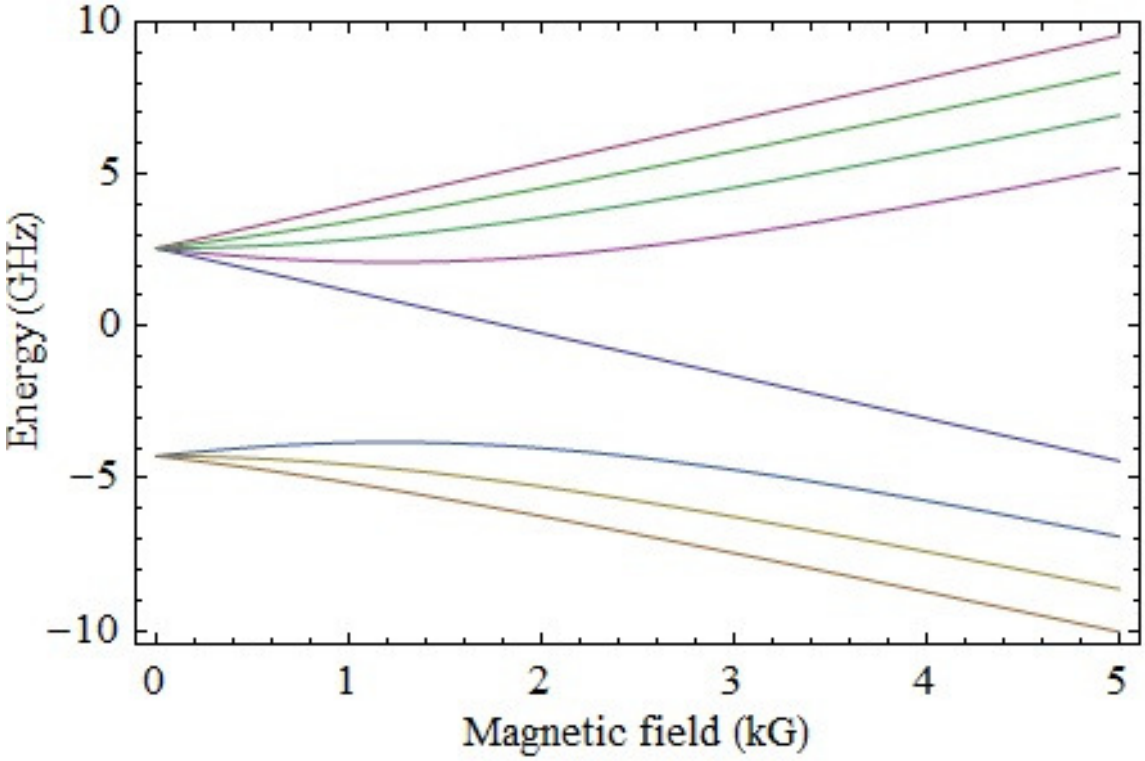

FIG. 2. Use the figure* environment to get a wide figure that spans the page in `twocolumn` formatting.