

This is a sample file in the text formatter L^AT_EX. I require you to use it for the following reasons:

- It produces the best output of text, figures, and equations of any program I've seen.
- It is machine-independent. It runs on Linux, Macintosh (see TeXShop), and Windows (see MiKTeX) machines. There are web-based versions, <https://www.overleaf.com>. You can e-mail ASCII text versions of most relevant files.
- It is the tool of choice for many research scientists and engineers. Many journals accept L^AT_EX submissions, and many books are written in L^AT_EX.

Some basic instructions are given next. Put your text in here. You can be a little sloppy about spacing. It adjusts the text to look good. You can make the text smaller. You can make the text tiny.

Skip a line for a new paragraph. You can use italics (*e.g. Thermodynamics is everywhere*) or **bold**. Greek letters are a snap: Ψ , ψ , Φ , ϕ . Equations within text are easy— A well known Maxwell thermodynamic relation is $\left. \frac{\partial T}{\partial P} \right|_s = \left. \frac{\partial v}{\partial s} \right|_P$. You can also set aside equations like so:

$$du = T ds - P dv, \quad \text{first law.} \quad (1)$$

$$ds \geq \frac{\delta q}{T}. \quad \text{second law.} \quad (2)$$

$$dd \leq \frac{\delta q}{T}. \quad \text{third law.} \quad (3)$$

Eq. (??) is the first law. Eq. (??) is the second law. Eq. (??) is the third law. References¹ are available. If you have an postscript file, say `sample.figure.eps`, in the same local directory, you can insert the file as a figure. Figure ??, below, plots an isotherm for air modeled as an ideal gas.

I'm just testing something here, but here is Eq. (??) is the first law..

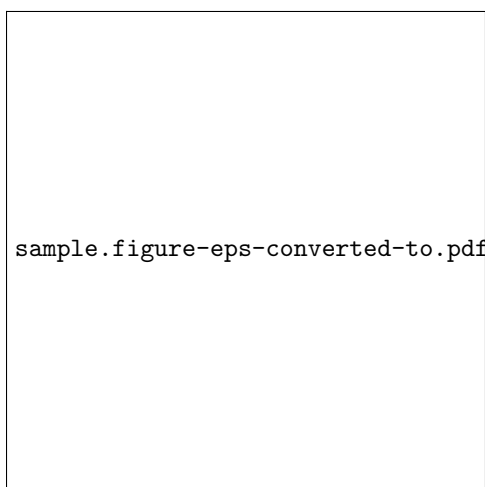


Figure 1: Sample figure plotting $T = 300$ K isotherm for air when modeled as an ideal gas.

Running L^AT_EX

¹Lamport, L., 1986, *L^AT_EX: User's Guide & Reference Manual*, Addison-Wesley: Reading, Massachusetts.

You can create a \LaTeX file with any text editor (`vi`, `emacs`, `gedit`, etc.). To get a document, you need to run the \LaTeX application on the text file. The text file must have the suffix “`.tex`” On a Linux cluster machine, this is done via the command

```
latex file.tex
```

This generates three files: `file.dvi`, `file.aux`, and `file.log`. The most important is `file.dvi`.

The finished product can be previewed in the following way. Execute the commands:

```
dvipdf file.dvi
```

Linux System

This command generates `file.pdf`. Alternatively, you can use `TeXShop` on a Macintosh or `MiKTeX` on a Windows-based machine. *Another very good and modern option is the web-based <https://www.overleaf.com>.* The `.tex` file must have a closing statement as below.