Latex (& Scientific Papers)

The following steps walk you through **Latex**, which provides THE tool for writing scientific papers, especially when formulae and equations are involved. I will walk you through steps 1.-3. (For some of you this might be a reminder.) You can use Latex in the Linux environment (steps 1A. and 2A.) or you can use the webpage based interface Overleaf (steps 1B. and 2B.).

Latex Within Linux:

1A. Sample File(s)

Copy into your working directory the following files:
`~kvollmay/share.dir/papertools.dir/templateWithBib.tex`
`~kvollmay/share.dir/papertools.dir/myRefs.bib`
`~kvollmay/share.dir/papertools.dir/samplefig.pdf`
`~kvollmay/share.dir/papertools.dir/cubic.pdf`
In the linux environment you would use for example the following command
`cp ~kvollmay/share.dir/papertools.dir/templateWithBib.tex .`
where the period at the end is part of the command, meaning that you copy the file into your current directory.
(You can also download these files from our phys310 course page.)

Have a quick look at `templateWithBib.tex`

2A. Compile, Look at Paper, Print Paper

The `templateWithBib.tex` contains the "commands" and they need to be converted to something you can look at. Type (on the command line):

```
pdflatex templateWithBib.tex
bibtex templateWithBib
pdflatex templateWithBib.tex
pdflatex templateWithBib.tex
```

This should have created `templateWithBib.pdf` which you can look at with any pdf viewer. In the linux environment for example with
`atril templateWithBib.pdf`
Or any other pdf-viewer would work, for example you can use instead:
`evince templateWithBib.pdf`
and then you can also print your `templateWithBib.pdf`.

This information on how to compile and view the template-paper, you find also at the beginning as comments of `templateWithBib.tex`

Latex Using Overleaf:

1Bi. Copy zip-file: Download from our course webpage the file `templateWithBibAll.zip` or copy into your working directory the following file:
`~kvollmay/share.dir/papertools.dir/templateWithBibAll.zip`
You can achieve the copying in the linux environment with
`cp ~kvollmay/share.dir/papertools.dir/templateWithBibAll.zip .`
where the period at the end is part of the command, meaning that you copy the file into your current directory.

1Bii. Register at Overleaf:
This step you have to do only once. (So if you already are registered, please skip this step.) Go to
`https://www.overleaf.com/`
and register. Remember your username and password.

1Biii. Log Into Overleaf: Go to
`https://www.overleaf.com/`
and on the top right click on LogIn. Use the same credentials you used when you registered.

1Biv. Upload a New Project: On the top left click `NewProject` and then `Upload Project`. Select the file `templateWithBibAll.zip`.

2Bi. Edit Project: Click on the Project and you will find both, on the left you can edit the `templateWithBib.tex` and on the right it gets automatically compiled. [1]

2Bii. Copy Project: To make a copy of the template project for your own project, click on the left arrow, then on the right side of TemplateWithBib click on on the first symbol, which is the copy symbol. It offers you to rename the copy of the project right then.

2Biii. Upload Single File Within Project: To upload a single file (e.g. a figure) while working on a project, click on one of your files (on the left on the three dots, then choose `NewFile`, then `Upload` and then `Select`.

2Biv. Download project To download the source files of a project, go to `Menue`, then click on `Source`. That will download a zip-file. It might end up in your `~/Downloads/`. You can copy the downloaded zip-file, let's call it `file.zip` and copy this file into the directory you want to use it. You can unpack this file with
`unzip file.zip`.

3. Title and Sections

In Overleaf in your own project (copied), or in linux environment copy `templateWithBib` to a tex-file (with a different name) which you will use to write your paper. In this file change the title (search for `\title`). Look at the resulting document. Next change the sections (`\section`) and make more than one section by using the command multiple times.

4. Formulae

Next look at the equations Eq.(1) and Eq.(2). Try modifying these equations to the equations for the model of your project. Check the resulting pdf-file. See below where you can get more information.

5. References

You can add references to `myRefs.bib` and then cite them in `templateWithBib.tex` with `\cite`.

[1] If you like to use vim as your editor, select the project you want to edit, then click on the top left on `Menue`, then scroll down to keybindings and select `vim`