A Short Introduction to Latex for PY782

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1 Introduction

This is a very short introduction to the use of Latex by example. More advanced information is available at the course web site (`http://fafnir.physics.ncsu.edu/AQM`) or with the accompanying handout. Some introductory text goes here. To refer to a citation use `\cite`[1].

A word of advice to beginners: latex often! It is easier to run latex after every paragraph[1] and correct your errors as you go rather than to type in many pages and be faced with dozens of latex errors[2].

To start a new paragraph, leave a blank line!. All spacing in your original text file is ignored by Latex. It *is* **easy** `to` *change* fonts and font SIZES. There are also very many beautiful built-in symbols, for example: π, α, $\aleph$, á, ö, å, ß.

2 Running latex on unity

To produce postscript files for printing follow this procedure:

edit create a plain ascii file using your favourite text editor.

commands use this example file to include latex commands. Refer to the longer handout or to the AQM web site or ask me for more detailed information.

[1]Footnotes are easy!.

ispell run a spell checker (such as `ispell`)!

latex issue the latex command: `latex myfilename`. This will produce three files: `myfinename.dvi, myfilnename.log, myfilename.aux`.

latex run it again! This will create cross referencing.

dvips issue the dvips command to convert your .dvi file to a .ps file: `dvips myfilename`.

gv preview your file with ghostview: `gv myfilename.ps`. NB: you may need to `setenv DISPLAY yourmachinename:0.0` to be able to view the postscript.

lpr If all looks good, go ahead and print myfilename.ps on your favourite postscript-enabled printer.

3 Equations

3.1 A subsection!

An equation:

$$C(\mathbf{R}, \hat{\mathbf{n}}) = \Psi^\dagger(\mathbf{R})\ \boldsymbol{\alpha} \cdot \hat{\mathbf{n}}\ \Psi(\mathbf{R} + a\hat{\mathbf{n}}) \tag{1}$$

To put equations in the text like this $\pi = \int x dx$ enclose the math commands in dollar signs like this `$ \pi = \int x dx $`.

For aligned multiple equations use “eqnarray”.

$$\begin{aligned} H^P(\mathbf{R})\,|\mathbf{r}_1, \mathbf{r}_2\rangle &= \gamma_P F^P(\mathbf{r}, \mathbf{w})\Psi^\dagger(\mathbf{R})\ \boldsymbol{\alpha}\cdot \overset{\leftrightarrow}{\nabla}\ \Psi(\mathbf{R})\,|\mathbf{r}_1, \mathbf{r}_2\rangle \\ H^S(\mathbf{R}, \hat{\mathbf{n}})\,|\mathbf{r}_1, \mathbf{r}_2\rangle &= \gamma_S F^S(\mathbf{r}, \mathbf{w})\Psi^\dagger(\mathbf{R})\ \boldsymbol{\alpha} \cdot \hat{\mathbf{n}}\ \Psi(\mathbf{R})\,|\mathbf{r}_1, \mathbf{r}_2\rangle\ . \qquad (2) \end{aligned}$$

Alignment is done on the & symbols.

Notice that equation numbering is automatic. You can use `\nonumber` to suppress eqn numbering in eqnarray.

3.2 Tables

Tables are notoriously difficult in Tex, Latex makes them relatively easy:

	a_{SHO} (GeV)	b_{SHO} (GeV^{-1})	$a_{\mathrm{C+L}}$ (GeV)	$b_{\mathrm{C+L}}$ (GeV^{-1})
$V^{\omega\pi}_{\mathrm{ex,hyp}}$	0.32	1.37	0.29	1.55
$V^{\omega\pi}_{\mathrm{ex,conf}}$	0.16	2.28	0.11	2.07
$V^{\omega\pi}_{\mathrm{ann}}(\ell = \mathrm{even})$	-0.64	1.25	-0.56	1.35
$V^{\rho\pi}_{\mathrm{ann}}(I = 1, \ell\ \mathrm{even})$	-2.56	1.25	-2.24	1.35
$V^{\pi\pi}_{\mathrm{ann}}(I = 1, \ell\ \mathrm{odd})$	-1.93	1.25	-2.55	1.11

The head `\begintabular|c|lr|c|` means construct four columns which are centred, left justified, right justified, and centred respectively, and which have vertical lines as indicated by the |'s. Use `\hline` to draw the horizontal lines.

4 Conclusions

I am grateful to many people for making this possible.

References

[1] reference 1 goes here. Note that different bibliography styles are possible.

[2] a second reference.