Bits and pieces for LATEX

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This package provides a list of randomly assorted but useful bits and pieces for writting my physics papers.

1 Characters, symbols and small stuff

A small collection of special characters and symbol definitions that work in all environments...

```
\operatorname{un}\{km\}
                         3.1\,\mathrm{km}
                                   units set upright, with small space
       \circnumb{3}
                                   a number with a circle around its (works from 0 to 9)
              \degree
                                   degree symbol
                           ^{\circ}C
                \degC
                                   degree Celsius
       \xfrac{A}{B}
                                   fraction set in slanted mode
       \sfrac{A}{B}
                                   fraction set in slanted mode, inline sized
          \order{10}
                         O(10)
                                   order of ...
\underwiggle{text}
                                   wiggly line under the text (slow!)
                           text
```

... and some that work only in math mode

```
\frac{\mathrm{d}N}{\mathrm{d}t}
          \alpha
                                  full differential set in upright mode, no italic
          $\eps$
                                  I like this epsilon more...
                          \varepsilon
         $\veps$
                          \epsilon
                                  ... than this one
       $\const$
                       const
                                  frequently used, set in upright mode
    $\laplace$
                                  in bold-face
                                  doesn't work with operator inbetween
$\bra$ $\ket$
                       \langle \Psi | \Psi \rangle
    mean{x}
                         \langle x \rangle
                                  used to describe the average
```

2 Comments

For side-margin comments, use the \com[color]{text} command. Default color is NavyBlue *, but you can use any color specified in dvipsnames. Also, here is some text * with some comment next to it. The same works in

office confinent next to it. The same works in flows good quite a few comments here for
$$f(x) = ax^{2^*}$$
 ... or better third power

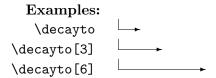
math mode. Known issue: comments in math mode may clash with other comments. If multiple users work on the same document, it may be quite useful to define your abbreviation for your comments, such as your initials. Use the \mycomcolor{SB}{MidnightBlue} to define SB as short-hand for your color. For future comments, you can then just use \com[SB]{...} to generate a comment in your color *.

Comments by SB

a comment in my

3 Reactions

The \decayto[length] command provides a "decay" arrow. The length of the arrow is set in units of em, with a default length of 1.5em.



To display decay chains, this is best used together with the alignat environment.

4 Figures

Space is sparse and we often want to setup figures in an efficient way. In particular if we have several figures in a row next to each other, it looks nicer if the layout is such that they have all the same height. Here are a few commands that try to make such a figure layout easier.

4.1 One figure

For one figure to be laid out over the full widht of the page, use the \onefig[pos]{myfig}{caption} command. The optional pos argument

tells LATEX where to put the figure, for which you can give one or more preferences. LATEX tries to meet these in the order you provide them.

- h put figure right here
- t put figure at the top of the page
- b put figure at the bottom of the page
- p put figure on this page
- h!,t!,... any of the above with !: force figure to be here/top/...

The default for the \onefig{} and all other commands in this section is [tbp], so that the figure appears preferentially at the top, then at the bottom, then on the page. The figure width is by default set to 0.9\columnwidth, i.e. the figure will span 90% of the width of the line. If you want to chanage this for all figures you can use

\setlength{\figwidth}{<your new figure width>}

Example:

Here is the output of this command, which shows the figure across the full column. h! assures that the figure appears right here.

\onefig[h!]{horizontalfig}{This figure shows a prominent peak in the data}

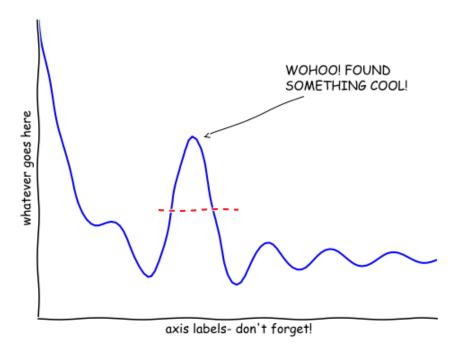


Figure 1: This figure shows a prominent peak in the data

4.2 Two or three figures

If two or more figures are put next to each other, it looks usually best if both figures have the same height. This is achieved by the \twofig and \twofigone commands. The difference between the two commands is the the first one allows a separate caption for each figure, while the other ones has once caption for both figures. The syntax is as above

```
\twofig[pos]{myfig1}{Caption of Fig. 1}{myfig2}{Caption of Fig. 2}
\twofigone[pos]{myfig1}{myfig2}{The common caption}
```

and similarly for three figures

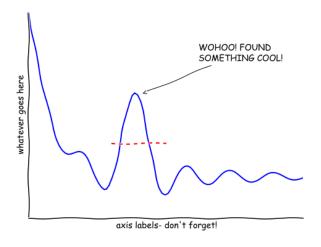
```
\threefig[pos]
   {myfig1}{Caption of Fig. 1}
   {myfig2}{Caption of Fig. 2}
   {myfig3}{Caption of Fig. 3}
\threefigone[pos]{myfig1}{myfig2}{myfig3}{The common caption}
```

The figures are automatically scaled to have the same height and fill the figwidth. In between the figures there is some space, which can be set with

```
\setlength{\figsep}{<your new figure seperation>}
```

Example:

```
\twofig[h!]
   {horizontalfig.png}{Left figure}
   {verticalfig.png}{Right figure}
```



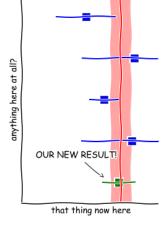


Figure 2: Left figure

Figure 3: Right figure

For the example with three figures in a row, we set the \figsep so that there is a little more space and the figures become a little larger.

```
\setlength{\figsep}{0pt}
\threefigone[ht!]
  {horizontalfig.png}
  {verticalfig.png}
  {horizontalfig.png}
  {horizontalfig.png}
  {Data (left), results (middle) and same data again (right). Note how both figures are automatically scaled to have the same height.}
\setlength{\figsep}{0.05\columnwidth}
```

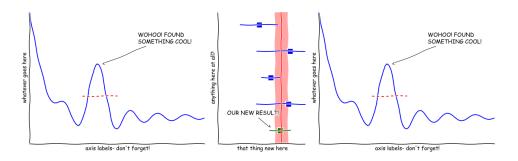


Figure 4: Data (left), results (middle) and same data again (right). Note how both figures are automatically scaled to have the same height.

4.3 Floating figures

Sometimes it is also nice to have figures surrounded by text. For that we can use the **\textfig** command.

\textfig[pos]{width}{myfig}{caption}

The width is given as a fraction of the linewidth. There are also positioning parameters that can be specified

- r forces the figure to the right in a paragraph.
- 1 forces the figure to the left in a paragraph.
- p right in a paragraph if the pagenumber is odd, and to the left if even.
- v use the package option if defined, else same as p (default).

Note that if the figure colides with the page boundary, it is sometimes not shown at all – use with care (or include a pagebreak just before).

Example:

\pagebreak
\textfig[r]{.4}{horizontalfig.png}{Figure surrounded by text}

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Etiam lobortis facilisis sem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdiet mi nec ante. Donec ullamcorper, felis non sodales commodo, lectus velit ultrices augue, a dignissim nibh lectus placerat pede. Vivamus nunc nunc, molestie ut, ultricies vel, semper in, velit. Ut porttitor. Praesent in sapien. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Duis fringilla tristique neque. Sed interdum libero ut metus. Pellen-



Figure 5: Figure surrounded by text

tesque placerat. Nam rutrum augue a leo. Morbi sed elit sit amet ante lobortis sollicitudin. Praesent blandit blandit mauris. Praesent lectus tellus, aliquet aliquam, luctus a, egestas a, turpis. Mauris lacinia lorem sit amet ipsum. Nunc quis urna dictum turpis accumsan semper.