More LaTeX
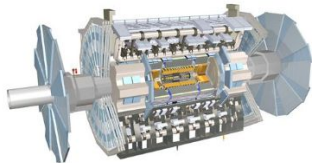# and Papers

User-defined commands

- Put new command definition in the preamble
  - Make sure you use a unique command name
- \newcommand{\<command name>}{<command>}
- \ensuremath{...} ensures math mode
- \xspace{} ensures space after command (use xspace package)
- \text{...} inserts text in math mode (use amsmath package)
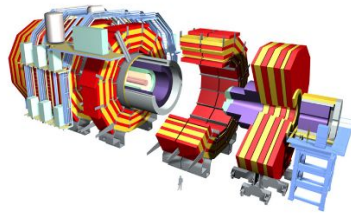
Float placement

- Floats (tables and figures) are positioned automatically, but can be controlled using placement options within [...]

- h: place float here (approximately)

- t: place float at top of the page

- b: place float at bottom of the page

- p: place float on a dedicated page for floats

- !: override internal placement parameters

- H: place float exactly here (somewhat equivalent to h!)

Subfigures

- Several available solutions to include subfigures

- We'll use the subcaption package that depends on the caption package

(a) ATLAS   (b) CMS

Figure 2: The ATLAS (a) and CMS (b) experiments

```latex
\begin{figure}
    \centering
    \begin{subfigure}[b]{0.45\textwidth}
        \centering
        \includegraphics[width=\textwidth]{ATLAS.jpg}
        \caption{ATLAS}
        \label{subfig:atlas}
    \end{subfigure}
    \hfill
    \begin{subfigure}[b]{0.45\textwidth}
        \centering
        \includegraphics[width=\textwidth]{CMS.jpeg}
        \caption{CMS}
        \label{subfig:cms}
    \end{subfigure}
    \caption{The ATLAS~(\subref{subfig:atlas}) and CMS~(\subref{subfig:cms}) experiments}
    \label{fig:experiments}
\end{figure}
```

Bibliography and citations

- \usepackage[backend=biber, sorting=none]{biblatex}

  - This will sort entries in the order they are called

- \addbibresource{mybib.bib}

  - Can include multiple .bib files

- \printbibliography before \end{document}

- When typesetting locally, you'll need to call bibtex separately

  - You will need to typeset again after calling bibtex

- \cite{<bibtex key>} to include citation in document

A bibtex entry

```
@article{Robens_2020,
    doi = {10.1140/epjc/s10052-020-7655-x},
    url = {https://doi.org/10.1140%2Fepjc%2Fs10052-020-7655-x},
    year = 2020,
    month = {feb},
    publisher = {Springer Science and Business Media {LLC}},
    volume = {80},
    number = {2},
    author = {Tania Robens and Tim Stefaniak and Jonas Wittbrodt},
    title = {Two-real-scalar-singlet extension of the {SM}: {LHC} phenomenology
and benchmark scenarios},
    journal = {The European Physical Journal C}
}
```

Where to find publications

- [arXiv](#)

- [iNSPIREHEP](#)

- [Google Scholar](#)

- CERN Document Server ([CDS](#))

- [ATLAS public results](#)

- [CMS public results](#)

ATLAS publications

- Paper: final published results showing ATLAS data. Submitted to peer-reviewed journals.

- CONF note: preliminary results that will eventually be published as a paper. Released before important conferences with less scrutiny than papers.

- PUB note: lightweight studies/results without collision data, generally used for supporting material for analyses

- ATLAS and CMS references are available here