

Intro to editing with LaTeX

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Before We Start

- It is better if you are familiar with LaTeX grammar.
- But I think anyone can be a good LaTeX editor with a little asking (to Volker or Jan) and googling.
- Be aware that
 - Pickiness of Editing is up to the Editor-in-chief of the conference.
 - Every rule is in the Template file (JACoW_LaTeX_A4.tex).
- Bible of Basic LaTeX Editing
<https://www.jacow.org/Editors/BasicLaTeX>
- I referred Jan's Tutorial
https://www.jacow.org/uploads/Editors/latex_basic_tutorial29Nov2017.pdf

Set-up

- Initial Set-up
 - MiKTeX package download
 - Test compiling JACoW_LaTeX_A4.tex using F5 (TeXstudio, Build and View)
- Desktop Set-up
 - Conference Indico page
 - TeXstudio (or another LaTeX editor)
 - JACoW Reference search tool
 - doi.org
 - Google
 - Notebook(or Word, Excel, real paper, etc.) for comment

Editing Process

1. Assigning paper

2. Editing

2-1. Check if **Red-dot** or not.

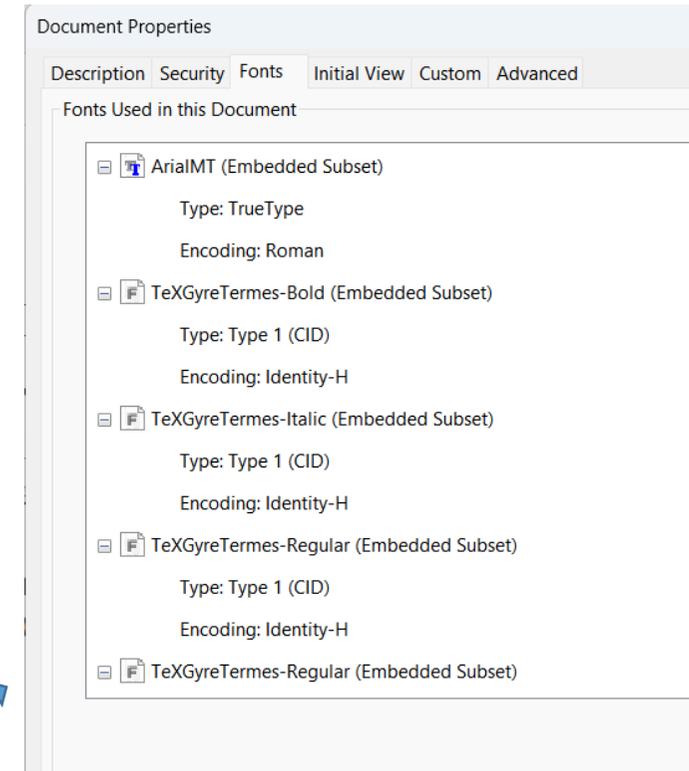
2-2. Edit the source file.

2-3. Compile (print) and check PDF

(boundary, font embedding (Ctrl+D) -> preflight (Ctrl+Shift+X))

3. Uploading **Yellow-dot** paper and comment (If almost no correction has been done, **Green-dot**)

4. Final QA , Author and Title check



1. Assigning Paper

- There are two types of LaTeX paper.
 - Only .tex file
 - .tex + .bib file
- Only .tex file use /bibitem which is more intuitive.
- Thanks to the Reference Search Tool, it is easy to fix reference format either the paper use /bibitem or .bib file.
- If you have an interest/expertise to a certain field, choose paper in that field.
- Download files and put them in the same folder.

Get next paper

There are no edita

Filter

Source Files tex ✕

Clear all filters

+ BibTeX file (only for LaTeX) has files

+ Keywords has no files

+ PDF

+ Session

+ Source Files

+ Supporting files for papers

Cancel
Assign to myself

2-1. Decide RED or not

- **Red-dot** paper means the Author should fix the problem.
 - Too many pages.
 - There is Figure, Table, or Reference not cited.
 - Reference citation in an abstract.
 - Editing that paper will takes too much time.
- If you can easily fix those error, I recommend you to correct it and do not put a Red-dot.

2-1. Decide RED or not

- Open PDF file and
 - Check the page number.
 - Use Advanced search (Ctrl+Shift+F).
 - Fig
 - Tab
 - [
 - Check

All Figure, Table, Reference is cited

+ Figure, Table, Ref. is cited in sequence

+ Figure, Table, Ref. citation format.

The screenshot shows a search window titled 'Search' with the following content:

- Buttons: Arrange Windows, New Search, and a dropdown arrow.
- Looking For: [in the current document
- Results: 1 document(s) with 35 instance(s)
- Search Results List:
 - spectroscopic studies[2]. The combination of a highly
 - g. [1], [3]), allows for the production of important ato
 - [3]), allows for the production of important atomic da
 - sections [4–6], needed to benchmark, test, and improv
 - g. [7, 8]) takes the form: $dN_i/dt = J$
 - accuracy [9–12]. To this end, we will describe how we
 - emission [13, 14]. Therefore, transition dependent con
 - package [1], have proven to be successful in handling
 - FAC) [15] or GRASP2K [16]. Following from Eq. 2 the ir
 - GRASP2K [16]. Following from Eq. 2 the intensity ratio
 - EBIT [17], the neutral density is difficult to determine :
 - [9, 11]. In addition, the $J_e = nev$ electron
 - EBIT [7], therefore, the left hand side of Eq. 1. is zero, :
 - q [18]. In order to confirm the q dependence we have
 - simulations [18] to determine the charge exchange cr
 - TES) [19]. Modeling of the measured spectra was perf
 - NOMAD [1] that incorporated the charged exchange t
 - NOMAD [1] were compared with measurements to un
 - 2.045keV [20], we assume that the Li-like ionization cr
 - from [20]. 1232Elines(eV) Transition

On the right side of the image, a portion of a PDF document is visible, showing text about experimental conditions and a section titled 'INTRODUCTION'.

2.2 Edit the source file

- Check proper compiler(PDFLaTeX, LuaLaTeX, ...) is applied.
I prefer LuaLaTeX.

```
% !TeX spellcheck = en_US
% !TeX program = lualatex
%
```

- Check jacow.cls is applied.

```
%
\documentclass[a4paper]{jacow}
%
```

- Scan from the Title to the References (using PDF or TeXstudio).
In a .tex file From `\begin{document}` to `\end{document}`

- Use search and replace tool of TeXstudio. But **replace all** is not recommended.



Easier Things with LaTeX

- Spellcheck using `% !TeX spellcheck = en_US`
- LaTeX editors do not care about
Font, Font size, Page margin, Spacing, Alignment. (If the latest jacow.cls is applied.)

Harder Things with LaTeX

```
$N_p \simeq 3\times 10^{11}$.
```

- LaTeX grammar
 - Table, Equation, Math mode. (See Jan's tutorial.)
https://www.jacow.org/uploads/Editors/latex_basic_tutorial29Nov2017.pdf
- `\usepackage`
- Compile is time consuming.
 - Correct -> View -> Correct -> View
 - Do the multiple correction and compile once to save time.

How to Handle Compiling Errors

- You will see this many times.

```

justified rather than centred.}
Line: 166 Column: 0 INSERT
Messages Log Preview Search Results
Process started: lualatex.exe -synctex=1 -interaction=nonstopmode "JACoW_LaTeX_A4".tex
Process exited with error(s)
    
```

- Read the log and fix it.

```

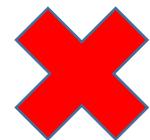
justified rather than centred.}
\label{figure}
Line: 159 Column: 0 INSERT
Messages Log Preview Search Results Log File Issues
File Type Line
JACoW_LaTeX_A4.tex error 159 File `JACpic_mc' not found. ...egraphics*[width=.7#columnwidth]{JACpic_mc}
JACoW_LaTeX_A4.tex error 166 File `JACpic2' not found. Click to jump to the line #textwidth]{JACpic2}
    
```

Frequently edited error with LaTeX

- Quotation marks
- NoCaseChange in Title, section headings
- Subsection headings to be title case
- Author list, Affiliations, Footnotes
- Number-unit line breaking
- Number-unit spacing
- Indentation
- Italic units
- Symbols
- Citations of Table/Figure/Equation
- Table caption to be title case
- Missing period in Figure caption
- Hyperlink
- References

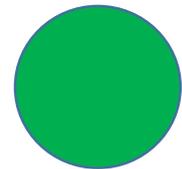
Frequently edited error with LaTeX

- Quotation marks



```

particular, as
!}~\cite{broggi},
(named 'tcp...')
that has passed
    
```



```

2}~\cite{broggi},
(named `tcp...')
that has passed
    
```

presented in [15]. In particular, as seen
 primary collimators (named 'tcp...')
 that has passed from 0.4 to 0.25 m
 presented in [15]. In particular, as seen
 primary collimators (named 'tcp...')
 that has passed from 0.4 to 0.25 m

- For a double quote, use `` or \textquotedblleft{

Frequently edited error with LaTeX

- Title, section headings
 - NoCaseChange

`FCC-ee \NoCaseChange{FCC-ee}`

FCC-EE FCC-ee

- Better with a line break

**TEST CASE: FEW-ELECTRON FE
SPECTRA**



**TEST CASE:
FEW-ELECTRON FE SPECTRA**

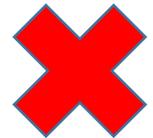
- Subsection headings to be title case
 - Search `\subsection` and correct manually.

Frequently edited error with LaTeX

- Author list, Affiliations, Footnotes
 - Remove zip code
 - Put a comma before the line break when the author list is more than two lines.
- Number-unit, citation separated in two lines
 - Use unbreakable space (`~` or `\,`)
- Number-unit spacing
 - Use `\qty{1}{\micro m}`

Frequently edited error with LaTeX

- Indentation

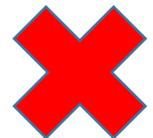


and improve plasma codes. However, modeling of the EBIT plasma requires an understanding of underlying atomic processes and a reliable knowledge of the charge state distribution. \\

The charge state balance between ions is determined by a set of rate equations that connects the number density of ions via charge changing interactions. These atomic processes decrease (recombination) or increase (ionization) the charge state of the ions through elementary

needed to benchmark, test, and improve plasma codes. However, modeling of the EBIT plasma requires an understanding of underlying atomic processes and a reliable knowledge of the charge state distribution.

The charge state balance between ions is determined by a set of rate equations that connects the number density of ions

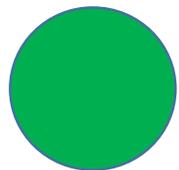


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The charge state balance between ions is determined by a set of rate equations that connects the number density of ions via charge changing interactions. These atomic processes decrease (recombination) or increase (ionization) the charge state of the ions through elementary

[4–6], needed to benchmark, test, and improve plasma codes. However, modeling of the EBIT plasma requires an understanding of underlying atomic processes and a reliable knowledge of the charge state distribution.

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The charge state balance between ions is determined by a set of rate equations that connects the number density of ions

Frequently edited error with LaTeX

- Indentation
 - When `\bibitem` used

```
%\begin{thebibliography}{99} % Use for 10-99 references
\begin{thebibliography}{9} % Use for 1-9 references
```

```
\bibitem{jacow-help}
  JACoW,
  \url{http://www.jacow.org}
```

```
\bibitem{IEEE}
  \textit{IEEE Editorial Style Manual},
  IEEE Periodicals, Piscataway,
  NJ, USA, Oct. 2014, pp. 34--52.
```

```
\bibitem{journal-abbreviations}
  \url{https://woodward.library.ubc.ca/researchhelp/journal-abl
ns/}
```

```
\end{thebibliography}
```

Frequently edited error with LaTeX

- Italic units
 - e.g. $(E_b = 12.00keV)$
 - Most frequent error : $30 \mu m$

=> Correct using `\qty{}`, `\SI{}`, `\si{}`, `\upmu`, or μ .
- Units in a math mode or in a `\equation`
 - Use `\SI{}`

Frequently edited error with LaTeX

- Boldface in Table : use `\textbf`, `\mathbf`, `\mathbfit`, `\symbf`, `\symbfit`

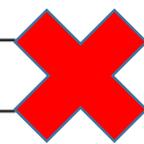
```

\begin{table}[!hbt]
  \centering
  \caption{Halo Collimators}
  \begin{tabular}{lcccc}
    \toprule
    \textbf{Name }& \textbf{$l$ (m)} & \textbf{$g/2$ (mm)} & \textbf{$\beta_x$ (m)} & \textbf{$\beta_y$ (m)} \\
    \midrule
    tcp.h.b1 & 0.25 & 6.7 & 517.46 & 724.70
    tcp.v.b1 & 0.25 & 2.4 & 518.59 & 725.79
    tcs.h1.b1 & 0.3 & 3.7 & 116.99 & 766.52
    tcs.v1.b1 & 0.3 & 2.5 & 422.97 & 578.88
    tcs.h2.b1 & 0.3 & 5.1 & 215.59 & 215.59
    tcs.v2.b1 & 0.3 & 2.9 & 32.91 & 803.95
    tcp.hp.b1 & 0.25 & 4.2 & 71.67 & 125.83
    tcs.hp1.b1 & 0.3 & 4.6 & 63.91 & 193.84
    tcs.hp2.b1 & 0.3 & 16.7 & 853.47 & 384.47
    \bottomrule
  \end{tabular}

```

Table 2: Halo Collimators

| Name | l (m) | $g/2$ (mm) | β_x (m) | β_y (m) |
|------------|---------|------------|---------------|---------------|
| tcp.h.b1 | 0.25 | 6.7 | 517.46 | 724.70 |
| tcp.v.b1 | 0.25 | 2.4 | 518.59 | 725.79 |
| tcs.h1.b1 | 0.3 | 3.7 | 116.99 | 766.52 |
| tcs.v1.b1 | 0.3 | 2.5 | 422.97 | 578.88 |
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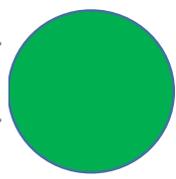
```

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    \midrule
    tcp.h.b1 & 0.25 & 6.7 & 517.46 & 724.70
    tcp.v.b1 & 0.25 & 2.4 & 518.59 & 725.79
    tcs.h1.b1 & 0.3 & 3.7 & 116.99 & 766.52
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    tcs.h2.b1 & 0.3 & 5.1 & 215.59 & 215.59
    tcs.v2.b1 & 0.3 & 2.9 & 32.91 & 803.95
    tcp.hp.b1 & 0.25 & 4.2 & 71.67 & 125.83
    tcs.hp1.b1 & 0.3 & 4.6 & 63.91 & 193.84
    tcs.hp2.b1 & 0.3 & 16.7 & 853.47 & 384.47
    \bottomrule
  \end{tabular}

```

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|------------|---------|------------|---------------|---------------|
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| tcp.v.b1 | 0.25 | 2.4 | 518.59 | 725.79 |
| tcs.h1.b1 | 0.3 | 3.7 | 116.99 | 766.52 |
| tcs.v1.b1 | 0.3 | 2.5 | 422.97 | 578.88 |
| tcs.h2.b1 | 0.3 | 5.1 | 215.59 | 215.59 |
| tcs.v2.b1 | 0.3 | 2.9 | 32.91 | 803.95 |
| tcp.hp.b1 | 0.25 | 4.2 | 71.67 | 125.83 |
| tcs.hp1.b1 | 0.3 | 4.6 | 63.91 | 193.84 |
| tcs.hp2.b1 | 0.3 | 16.7 | 853.47 | 384.47 |



Frequently edited error with LaTeX

- Citations of Table/Figure/Equation
 - Tab. 1, Eq. 1, Fig 3 and 4, and many other variation of error.
 - If those are consistent through the paper, let them be. (I don't prefer.)
 - In text, “** is described in Ref. [23].” is better than “~~ is described in [23].”
- Table caption to be title case
 - No need when it is too long or several sentence.
- Missing period in Figure caption
- Hyperlink
 - Remove all (delete `\usepackage{hyperref}`) except `\doi{}`.

Frequently edited error with LaTeX

- Reference
 - Use Reference search tool and check.
 - Use `\doi{10.*}` instead of `\url{doi:10.*}`

From Ling Wang's email :

- For an abbreviation of journal name (ISO-4 standard), use <https://marcinwrochna.github.io/abbrevIso/> with a few adjustments (e.g., Nucl. Instrum. Methods Phys. Res. A — no “Sect.” before A)

Not Frequently edited error with LaTeX

- Font size
- Font embedding
- Table format
- Spacing

exchange factor based on Eq. 8 by comparing theoretically and experimentally measured line intensity ratios. In our

Table 1: Li-like energies from [20].

| $E_{lines}(eV)$ | Transition | Ref. |
|-----------------|---|----------------|
| 1085.07440 | $1s^2 2p \ ^2P_{\frac{3}{2}} - 1s^2 3s \ ^2S_{\frac{1}{2}}$ | [21] [22] |
| 1101.04030 | $1s^2 2p \ ^2P_{\frac{1}{2}} - 1s^2 3s \ ^2S_{\frac{1}{2}}$ | [21] [22] |
| 1109.93510 | $1s^2 2p \ ^2P_{\frac{3}{2}} - 1s^2 3d \ ^2D_{\frac{5}{2}}$ | [21] [23] |
| 1162.69910 | $1s^2 2s \ ^2S_{\frac{1}{2}} - 1s^2 3p \ ^2P_{\frac{1}{2}}$ | [21] [23] [24] |
| 1167.59900 | $1s^2 2s \ ^2S_{\frac{1}{2}} - 1s^2 3p \ ^2P_{\frac{3}{2}}$ | [21] [23] [24] |

model, we varied the charge exchange factor $\frac{n_0 v_r}{n_e v}$ as a free parameter and calculated line intensity ratio of Li-like lines

LaTeX Tips

- Chemicals

```
\usepackage[version=3]{mhchem}
\ce{SnCl_2}
```

- Boldface for symbol

```
\mathbf or \symbf
```

Boldface + Italic for symbol

```
\mathbfi or \symbfit
```

Boldface for text

```
\textbf
```

Upright for symbol

```
\symup
```

- Frequently used symbols

°C or `\SI{800}{\textcelsius}`

μ

- Scientific Number in text

```
\num{2.7e10}
```

- Prevent hyphenation of specific word

```
\hyphenation{word}
```

- Upright `\ohm` of SI in mathmode

```
\DeclareMathSymbol{\varOmega}{\mathalpha}{operators}{"0A}
```

```
\providecommand*{\upOmega}{\varOmega}
```

or just use

```
 $\Omega$
```

LaTeX Tips

- Minus spacing

In text mode: `\kern-1em` equals "minus quad"

In math mode: `\mkern-18mu` equals "minus quad"

- Font size control

`\tiny`

`\scriptsize`

`\footnotesize`

`\small`

`\normalsize`

`\large`

`\Large`

`\LARGE`

`\huge`

`\Huge`

- Vertical Space control
`\vspace*{-1\baselineskip}`

- Ling breaking in URL

`\usepackage{breakurl}`

`\makeatletter`

`\g@addto@macro\UrlSpecials{\do\!\{\newline}}`

and put ! where to put newline

Summary

- Always be aware that
 - Pickiness of Editing is up to the Editor-in-chief of the conference.
 - Every rule is in the Template file.

Thank you for your attention and..



One suggestion

- Revival of **QA Approve** with **uploading files**
 - It was possible in SPMS.
 - It was very efficient to correct very minor errors during Final QA process.

Pohang Accelerator Laboratory hosts **MEDSI'27**!

