

How to use the PTEP L^AT_EX files

This is a guide for authors submitting technical papers in L^AT_EX to Progress of Theoretical and Experimental Physics

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1. Introduction

This L^AT_EX class file is for authors to use when preparing their manuscript for submission to PTEP Journal. It is assumed that authors submitting to the journal are familiar with either plain T_EX, L^AT_EX, $\mathcal{A}\mathcal{M}\mathcal{S}$ -T_EX or a standard L^AT_EX set-up, hence, only the essential points are described in this document. To get more details please go through the *L^AT_EX User's Guide* or *The not so short introduction to L^AT_EX 2_ε* (which are available online).

2. Installation

The PTEPHY_v1.cls has to be copied into a directory where T_EX looks for input files and logo.eps, authblk-TI.sty and preprint_v1.clo in your working folder. The other files

have to be kept for reference during the preparation of your manuscript. Please use pre-defined commands for the title, authors, address, abstract, subject index, body, etc. as shown in Box 1 (available in the tex).

3. How to start using PTEPHY.cls

Before you type anything that actually appears in the paper, you need to include a `\documentclass{ptephy_v1}` command at the very beginning and then, the two commands that have to be part of any L^AT_EX document, `\begin{document}` at the start, and the `\end{document}` at the end of your paper. The main structure of your document should be as follows:

Box 1: Structure of a document.

```
\documentclass[pteplogo]{ptephy_v1}
%% to generate ptep logo

\preprintnumber{XXXX-XXXX} % Insert preprint number here

\begin{document}

\title{...}

%% To generate auto affiliation numbers please use \author{} \affil{} tag

\author{Insert first author name here}
\affil{Insert first author address here\email{xxxx@xxxx.ac.jp}}

\author{Insert second author name here}
\affil{Insert second author address here}

\author{Insert third author name here}
\author[3]{Insert fourth author name here}
%% Use optional bracket [3] to change the respective affiliation number
\affil{Insert third author address here}

\author{Insert last author name here}
\thanks{These authors contributed equally to this work}}
%% Use \thanks to get the footnote in the opening page
\affil{Insert last author address here}

%% To include the collaborator name. Please use the command "\collaborator"
%% For example:
%% \author{\collaborator{ATLAS Collaboration}
%% Kyoko Nosaka, Norisuke Sakai, ... and Mitsuaki Nozaki}
```

```
\begin{abstract}
Insert abstract text here Insert abstract text here Insert abstract
text here Insert abstract text here Insert abstract text here Insert
abstract text here
\end{abstract}

\subjectindex{xxxx, xxx} %%% for Subject index
\maketitle
\begin{document}

\section{....}
...
\subsection{....}
....
\end{document}
```

4. Preamble part

Please follow the coding for the preamble part as shown in Box 1.

4.1. Paper Title

The paper title is declared as: `\title{...}` in the standard \LaTeX manner. Line breaks `\\` may be used to equalize the length of the title lines.

4.2. Author Names and Affiliation

The Author name and affiliation information is declared with the `\author` and `\affil` command. For more details about author information, see Box 1 on pages 2 & 3.

4.3. Abstract

The abstract is generally the first part of a paper after `\maketitle`. The abstract text is placed within the abstract environment.

```
\begin{abstract}
Abstract text here
\end{abstract}
```

5. Body part

5.1. Sections

The coding used for creating a section is `\section{text}`. This will generate the section number automatically. Use the starred form (`\section*{text}`) of the command to suppress the automatic numbering. If you want to make cross references to the section levels, use the `\label` and `\ref` command. You can have up to five levels of sections.

The sectioning commands are `\section`, `\subsection`, `\subsubsection`, `\paragraph`, and `\subparagraph`.

5.2. Figures and tables

Use the default L^AT_EX coding for figures and tables. Figure and table environments should be inserted after the end of the paragraph, nearest to the citation.

The coding required for creating a figure is:

```
\begin{figure}
\includegraphics{sample.eps}
\caption{Insert figure caption\label{fig1}}
\end{figure}
```

The coding required for creating a table is:

```
\begin{table}[!h]
\caption{An Example of a Table.}%%Table caption goes here
\label{table_example}
\centering
\begin{tabular}{|c||c|}%%The number of columns has to be defined here
\hline
One & Two\ \ %%% Table body
\hline
Three & Four\ \ %%% Table body
\hline
\end{tabular}
\end{table}%%End of the table
```

As always with L^AT_EX, the `\label` must be after the `\caption`, and inside the figure or table environment. The reference for figures and tables inside text can be made using the `\ref{key}` command.

5.3. Equations

Equations are used in the same way as described in the L^AT_EX manual. By default, equations are numbered consecutively, with equation numbers in parentheses flush right.

To get the equation numbering as sectionwise, then use the command `\numberwithin{equation}{section}` in the preamble.

For example, if you type

```
\begin{equation}\label{eq1}
\int_{r_2}^0 F(r, \varphi) \mathrm{d}r, \mathrm{d}\varphi = [\sigma r_2 / (2\mu_0)]
\int_{-\infty}^0 \exp(-\lambda |z_j - z_i|) \lambda^{-1} J_1(\lambda r_2) J_0(\lambda r_i) \lambda \mathrm{d}\lambda
\end{equation}
```

then you will get the following output:

$$\int_0^{r_2} F(r, \varphi) dr d\varphi = [\sigma r_2 / (2\mu_0)] \int_0^\infty \exp(-\lambda |z_j - z_i|) \lambda^{-1} J_1(\lambda r_2) J_0(\lambda r_i) \lambda d\lambda \quad (1)$$

$\mathcal{A}\mathcal{M}\mathcal{S}\text{-}\mathcal{L}\mathcal{A}\mathcal{T}\mathcal{E}\mathcal{X}$ has several environments that make it easier to typeset complicated multiline displayed equations. These are explained in the $\mathcal{A}\mathcal{M}\mathcal{S}\text{-}\mathcal{L}\mathcal{A}\mathcal{T}\mathcal{E}\mathcal{X}$ User Guide. A `subequation` environment is available for creating equations with sub-numbering of the equation counter. It takes one (optional) argument to specify the way that the sub-counter should appear.

5.4. *Quotes and displayed text*

Quotes are indented from the left and right margins. There are various types of quotes, short quote, long quote, and display poetry.

The coding for short quote is `\begin{quote}... \end{quote}`.

This is a short quotation. It consists of a single paragraph of text. See how it is formatted.

The coding for long quote is `\begin{quotation}... \end{quotation}`.

This is a longer quotation. It consists of two paragraphs of text, neither of which are particularly interesting.

This is the second paragraph of the quotation. It is just as dull as the first paragraph.

5.5. *Listings*

Another frequently displayed structure is a list. There are various types of list: numbered, itemized, and bulleted list.

The coding for bulleted list is as follows:

```
\begin{itemize}
\item Bulleted list 1
\item Bulleted list 2
\item Bulleted list 3
\end{itemize}
```

The coding for numbered list is as follows:

```
\begin{enumerate}
\item Numbered list 1
\item Numbered list 2
\item Numbered list 3
\end{enumerate}
```

The coding for description list is as follows:

```
\begin{description}
\item Description list 1
```

```
\item Description list 2
\item Description list 3
\end{description}
```

5.6. Enunciations like theorem, lemma etc.

The $\mathcal{A}\mathcal{M}\mathcal{S}$ - \LaTeX package for enunciations (`amsthm.sty`) has been already loaded in the class file. For example, the command `\newtheorem{theorem}{Theorem}` has already been defined in the class file.

To get the theorem environment, use the coding as:

```
\begin{theorem}
Theorem text. Theorem text. Theorem text.
Theorem text. Theorem text. Theorem text.
\end{theorem}
```

Similarly, we can define for lemma, corollary, proposition, definition, etc.

5.7. Cross-referencing

\LaTeX provides the following commands for cross referencing

```
\label{marker}, \ref{marker}, and \pageref{marker}
```

where `marker` is an identifier chosen by the user. \LaTeX replaces `\ref` by the number of the section, subsection, figure, table, or theorem after which the corresponding `\label` command was issued. `\pageref` prints the page number of the page where the `\label` command occurred.

5.8. Citations

Citations are made with the `\cite` command as usual. In this class file, we have used `natbib.sty` for cross references, and reference style.

For bibliography, the `natbib` package has been defined in the template as `\usepackage{natbib}` with `\bibpunct{[]}{,}{a}{;}{}` command

For more details about `natbib.sty` can be found at <http://ctan.org/tex-archive/macros/latex/contrib/natbib/>

Acknowledgements

Acknowledgements and other unnumbered sections are created using the `\section*` command:

```
\section*{Acknowledgment}
```

References

The reference entries can be \LaTeX typed bibliographies or generated through a $\text{BIB}\text{\TeX}$ database. $\text{BIB}\text{\TeX}$ is an adjunct to \LaTeX that aids in the preparation of bibliographies. $\text{BIB}\text{\TeX}$ allows authors to build up a database or collection of bibliography entries that may be used for many manuscripts. They also save us the trouble of having to specify formatting. More details can be found in the *BIB \TeX Guide*. For \LaTeX reference entries

use the `\begin{thebibliography}.. \end{thebibliography}` environment (see below) to make references in your paper. By default the class file will produce the numbered L^AT_EX bibliography.

Some macros are available for the bibliography. For example
`\PTP{50,245,2010}` Prog. Theor. Phys., **50**, 245 (2010).

`\PTP` belongs to Prog. Theor. Phys.,
`{50,245,2010}` 50 -- represents volume number,
245 -- represents page number, and 2010 -- represents year.

Similarly the other macros are shown below:

<code>\PTPS{50,245,2010}</code>	Prog. Theor. Phys. Suppl., 50 , 245 (2010).
<code>\JPSJ{50,245,2010}</code>	J. Phys. Soc. Jpn., 50 , 245 (2010).
<code>\PR{50,245,2010}</code>	Phys. Rev., 50 , 245 (2010).
<code>\PRA{50,245,2010}</code>	Phys. Rev. A, 50 , 245 (2010).
<code>\PRB{50,245,2010}</code>	Phys. Rev. B, 50 , 245 (2010).
<code>\PRC{50,245,2010}</code>	Phys. Rev. C, 50 , 245 (2010).
<code>\PRD{50,245,2010}</code>	Phys. Rev. D, 50 , 245 (2010).
<code>\PRE{50,245,2010}</code>	Phys. Rev. E, 50 , 245 (2010).
<code>\PRX{50,245,2010}</code>	Phys. Rev. X, 50 , 245 (2010).
<code>\PRL{50,245,2010}</code>	Phys. Rev. Lett., 50 , 245 (2010).
<code>\RMP{50,245,2010}</code>	Rev. Mod. Phys., 50 , 245 (2010).
<code>\PL{50,245,2010}</code>	Phys. Lett., 50 , 245 (2010).
<code>\PLA{50,245,2010}</code>	Phys. Lett. A, 50 , 245 (2010).
<code>\PLB{50,245,2010}</code>	Phys. Lett. B, 50 , 245 (2010).
<code>\NP{50,245,2010}</code>	Nucl. Phys., 50 , 245 (2010).
<code>\NPA{50,245,2010}</code>	Nucl. Phys. A, 50 , 245 (2010).
<code>\NPB{50,245,2010}</code>	Nucl. Phys. B, 50 , 245 (2010).
<code>\JMP{50,245,2010}</code>	J. Math. Phys., 50 , 245 (2010).
<code>\JMPNY{50,245,2010}</code>	J. Math. Phys. (N.Y.), 50 , 245 (2010).
<code>\JMPCA{50,245,2010}</code>	J. Math. Phys. (Cambridge, Mass.), 50 , 245 (2010).
<code>\IJMP{50,245,2010}</code>	Int. J. Mod. Phys., 50 , 245 (2010).
<code>\CMP{50,245,2010}</code>	Commun. Math. Phys., 50 , 245 (2010).
<code>\JP{50,245,2010}</code>	J. Phys., 50 , 245 (2010).
<code>\JPA{50,245,2010}</code>	J. Phys. A, 50 , 245 (2010).
<code>\JPG{50,245,2010}</code>	J. Phys. G, 50 , 245 (2010).
<code>\JPCM{50,245,2010}</code>	J. Phys.: Condens. Matter, 50 , 245 (2010).
<code>\ANN{50,245,2010}</code>	Ann. Phys., 50 , 245 (2010).
<code>\ANNB{50,245,2010}</code>	Ann. Phys. (Berlin), 50 , 245 (2010).
<code>\ANNNY{50,245,2010}</code>	Ann. Phys. (N.Y.), 50 , 245 (2010).
<code>\NC{50,245,2010}</code>	Nuovo Cimento, 50 , 245 (2010).
<code>\AJ{50,245,2010}</code>	Astrophys. J., 50 , 245 (2010).
<code>\PRP{50,245,2010}</code>	Phys. Rep., 50 , 245 (2010).
<code>\JHEP{50,245,2010}</code>	J. High Energy Phys., 50 , 245 (2010).

Note: After the .bbl file is generated, authors must attach the .bbl file, or they can copy the contents of .bbl file into the L^AT_EX file for manuscript submission.

```
\begin{thebibliography}{9}
```

```
\bibitem{1}
```

J. P. Blaizot, and E. Iancu, Phys. Rep. **\textbf{359}**, 355 (2002).

```
\bibitem{2}
```

M. Gyulassy, and L. McLerran, Nucl. Phys. A **\textbf{750}**, 30 (2005).

```
\bibitem{3}
```

U. W. Heinz, and P. F. Kolb, Nucl. Phys. **\textbf{A702}**, 269 (2002).

```
\bibitem{4}
```

T. Hirano, U. W. Heinz, D. Kharzeev, R. Lacey, and Y. Nara, Phys. Lett. B **\textbf{636}**, 299 (2006).

```
\bibitem{5}
```

R. Baier, A. H. Nueller, D. Schiff, and D. T. Son, Phys. Lett. B **\textbf{502}**, 51 (2001).

```
\end{thebibliography}
```

5.9. Formatting

One should always use L^AT_EX macros rather than the lower-level T_EX macros like `\it`, `\bf` and `\tt`. The L^AT_EX macros offer much improved features. The following table summarizes the font selection commands in L^AT_EX.

L^AT_EX text formatting commands

<code>\textit</code>	Italics	<code>\textsf</code>	Sans Serif
<code>\textbf</code>	Boldface	<code>\textsc</code>	Small Caps
<code>\texttt</code>	Typewriter	<code>\textmd</code>	Medium Series
<code>\textrm</code>	Roman	<code>\textnormal</code>	Normal Series
<code>\textsl</code>	Slanted	<code>\textup</code>	Upright Series

L^AT_EX math formatting commands

<code>\mathit</code>	Math Italics	<code>\mathfrak</code>	Fraktur
<code>\mathbf</code>	Math Boldface	<code>\mathbb</code>	Blackboard Bold
<code>\mathtt</code>	Math Typewriter	<code>\mathnormal</code>	Math Normal
<code>\mathsf</code>	Math Sans Serif	<code>\boldsymbol</code>	Bold math for Greek letters
<code>\mathcal</code>	Calligraphic		and other symbols

6. Macro packages

The commonly used packages which can be used are:

<code>amsmath</code>	<code>graphicx</code>	<code>rotating</code>
<code>amssymb</code>	<code>endnotes</code>	<code>subfigure</code>
<code>amsfonts</code>	<code>setspace</code>	<code>array</code>
<code>xspace</code>	<code>latexsym</code>	<code>url</code>
<code>amscd</code>	<code>multicol</code>	<code>algorithm</code>

Additionally, you can use other packages and these should be loaded using the `\usepackage` command in the preamble.

A. Appendix

The `\appendix` command signals that all following sections are appendices, and therefore the headings after `\appendix` will be set as appendix headings.

Note: All the figures, tables, equations, and enunciations will be automatically numbered as A.1, A.2, etc. in the appendix part.