

# How to use the PRM L<sup>A</sup>T<sub>E</sub>X class

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This sample is a guideline for preparing technical papers using L<sup>A</sup>T<sub>E</sub>X for PRM manuscript submission. It contains the documentation for PRM L<sup>A</sup>T<sub>E</sub>X class file, which implements the layout of the manuscript for PRM journal. This sample file uses a class file named `PRM.cls` where the authors should use during their manuscript preparation.

*Keywords:* keyword entry 1, keyword entry 2, keyword entry 3

2010 *Mathematics subject classification:* class entry 1, class entry 2

## 1. Introduction

This latex class file (`PRM.cls`) is available for authors to prepare the manuscript for their own publishers. It is assumed that the authors are familiar with either plain T<sub>E</sub>X, L<sup>A</sup>T<sub>E</sub>X,  $\mathcal{A}\mathcal{M}\mathcal{S}$ -T<sub>E</sub>X or a standard latex set-up, hence only the essential points are described in this document. For more details please see the *L<sup>A</sup>T<sub>E</sub>X User's Guide* or *The not so short introduction to L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>* (which is available online).

## 2. Installation

The `PRM.cls` must be copied into a directory where `tex` looks for an input files. The other files should be keep as a reference during the preparation of the manuscript. Please use pre-defined commands for title, authors, address, abstract, keywords, body etc. as shown in Box 1.

## 3. How to start using PRM.cls

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

Box 1: Structure of a document.

```

\documentclass{PRM}
\begin{document}

\title{How to use the PRM \LaTeX\ class}

\author{\name{First author name \surname{Surname}}}

\address{First author address \email{xxxx@xxxx.xxx.xx}}

\author{Second author name \surname{Surname}}

\address{Second author address \email{xxxx@xxxx.xxx.xx}}

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

\keywords{Insert keywords here}

\classification{Insert classification here}

\maketitle

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

```

#### 4. Preamble part

Please define the author macros, definitions and other packages in the preamble part.

##### 4.1. Paper Title

The paper title is declared like: `\title{...}` in the standard L<sup>A</sup>T<sub>E</sub>X manner. Line breaks `\\` may be used to equalize the length of the title lines.

##### 4.2. Author Names

The name and associated information is declared with the `\author` command. For more details about author information see Box 1.

### 4.3. Abstract & Keywords

The abstract is generally the first part of a paper. The abstract text is placed within the abstract environment.

Keywords should be inserted immediately after the abstract text with grouping as shown below.

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

```
\keywords{Keyword text here}
```

```
\classification{classification text here}
```

## 5. Body part

### 5.1. Sections

The coding for section is `\section{text}`. This will generate 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 sections up to five levels.

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

### 5.2. Figures and tables

Use the default L<sup>A</sup>T<sub>E</sub>X coding for figures and tables. Figure and table environments should be inserted after the citations. The figures & tables numberings will generate automatically. For example:

The coding for figure is:

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

The coding for table is:

```
\begin{table}[!t]
\processtable{Insert table caption her\label{tab1}}
{\begin{tabular*}{\textwidth}{@{\extracolsep{\fill}}
llll@{}}\hline
Column head 1 & Column head 2 & Column head 3 &
Column head 4\\\hline
Table body & Table body & Table body & Table body \\
Table body & Table body & Table body & Table body \\
Table body & Table body & Table body & Table body \\
Table body & Table body & Table body & Table body \\
Table body & Table body & Table body & Table body \\
```

```
\hline
\end{tabular*}}{}
\end{table}
```

As always with L<sup>A</sup>T<sub>E</sub>X, the `\label` must be after the `\caption`, and inside the figure or table environment. The citations for figures and tables inside text can be generate automatically by using the command `\ref{key}`.

### 5.3. Equations

Equations are used in the same way as described in the L<sup>A</sup>T<sub>E</sub>X manual. The equation numbers will be generated automatically. For the below coding, in parentheses flush right.

```
\begin{equation}\label{eq1}
\int^{r_2}_0 F(r, \varphi) \{ \rm d}r \{ \rm 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
\end{equation}
```

the desired output is:

$$\int_0^{r_2} F(r, \varphi) dr d\varphi = [\sigma r_2 / (2\mu_0)] \int_0^\infty \exp(-\lambda |z_j - z_i|) \lambda^{-1} J_1(\lambda r_2) J_0(\lambda r_i) \lambda d\lambda \quad (5.1)$$

This is one of the simplest equation of Latex. There are various complex equations which can be achieved by using the following Latex commands which belongs to `amsmath.sty`:

- a) `\begin{align}... \end{align}`,
- b) `\begin{eqnarray}... \end{eqnarray}`,
- c) `\begin{multline}... \end{multline}`,
- d) `\begin{matrix}... \end{matrix}`,
- e) `\begin{cases}... \end{cases}`,
- f) `\begin{array}{ll}... \end{array}`
- g) `\begin{subequations}... \end{subequations}`, etc.

### 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 following is an example of bulleted list.

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

The following is an example of an numbered list.

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

The following is an example of description list.

```
\begin{description}
\item Description list 1
\item Description list 2
\item Description list 3
\end{description}
```

## 5.6. Enunciations: Theorem etc.

These environments have to be defined with the help of L<sup>A</sup>T<sub>E</sub>X's `\newtheorem` command, and also with the `AMS-LATEX` package for theorems which is already with the class file. For example `\newtheorem{theorem}{Theorem}`. Pre-defined theorem styles can be used in your chapter to differentiate the theorem-like environments.

**Input:**

```
\begin{theorem}
This is body matter for this environment
\end{theorem}
```

**Output:**

**Theorem 1.** *This is body matter for this environment*

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

### 5.7. Cross-references

There are often cross-references to figures, tables and special segments of text. L<sup>A</sup>T<sub>E</sub>X provides the following commands for cross referencing

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

where “marker” is an identifier chosen by the user. L<sup>A</sup>T<sub>E</sub>X replaces `\ref` by the number of the section, subsection, figure, table, or theorem after which the corresponding `\label` command was issued.

### 5.8. Citations

For bibliography the `natbib` package has been defined in the template as `\usepackage{natbib}`.

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 can be achieved by using the `\section*` command:

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

### Back Matter

### 5.9. References

The reference entries can be L<sup>A</sup>T<sub>E</sub>X free text bibliographies or from a BIB<sub>T</sub>E<sub>X</sub> database. BIB<sub>T</sub>E<sub>X</sub> is an adjunct to L<sup>A</sup>T<sub>E</sub>X that aids in the preparation of bibliographies. BIB<sub>T</sub>E<sub>X</sub> 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<sub>T</sub>E<sub>X</sub> Guide*. For L<sup>A</sup>T<sub>E</sub>X reference entries use the `\begin{thebibliography}... \end{thebibliography}` environment to make references in your paper.

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

```
\bibitem{bib1}
```

N. Ackermann. On a periodic Schr\“{o}dinger equation with nonlocal superlinear part. *{\it Math. Z}*. **{\bf 248}** (2004), 423--443.

```
\bibitem{bib2}
```

A. Ambrosetti, M. Badiale and S. Cingolani. Semiclassical states of nonlinear Schr\“{o}dinger equations. *{\it Arch. Ration. Mech. Anal}*. **{\bf 140}** (1997), 285--300.

```
\bibitem{bib3}
```

T. Bartch, M. Clapp and T. Weth. Configuration spaces, transfer and 2-nodal solutions of semiclassical Schrödinger equation. *Math. Ann.* **338** (2007), 147--185.

`\end{thebibliography}`

## 5.10. Formatting

Always use L<sup>A</sup>T<sub>E</sub>X macros rather than the lower-level T<sub>E</sub>X macros, e.g., `\it`, `\bf` and `\tt`. The L<sup>A</sup>T<sub>E</sub>X macros offer much improved features. The following table summarizes the font selection commands in L<sup>A</sup>T<sub>E</sub>X.

### L<sup>A</sup>T<sub>E</sub>X 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<sup>A</sup>T<sub>E</sub>X 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 and other symbols
<code>\mathcal</code>	Calligraphic		

## 6. Macro packages

The commonly used packages which can be used frequently 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.

## Appendix

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

Note: All the figures, tables, equations, enunciations will be automatically numbered as A1, A2, etc. in the appendix part.