

# How to use the MRF 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 MRF manuscript submission. It contains the documentation for MRF L<sup>A</sup>T<sub>E</sub>X class file, which implements the layout of the manuscript for MRF journal. This sample file uses a class file named MRF.cls where the authors should use during their manuscript preparation.*

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

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## I. INTRODUCTION

This latex class file is available for the authors to prepare the manuscript for MRF Journal. 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, A<sub>M</sub>S-T<sub>E</sub>X or a standard latex set-up, hence, only the essential points are described in this document. To get more details please go through 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). The MRF.cls is similar as the article.cls of L<sup>A</sup>T<sub>E</sub>X, with only few additional changes in the preamble portion.

## II. INSTALLATION

The MRF.cls has to be copied into a directory where tex looks for input files. The other files has to keep as a reference during the preparation of your manuscripts. Please use pre-defined commands from for title, authors, address, abstract, keywords, body etc. as shown in Box 1.

## III. HOW TO START USING MRF.CLS

Before you type anything that actually appears in the paper you need to include a `\documentclass{MRF}` command at the very beginning and then, the two commands that have to be part of any latex 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{MRF} %%% For double column layout.

%% In case if you want the article in single column, then please use
%% the option "onecolumn" in the optional of document class as shown below
%% Also, if you want to submit your article in 11pt size, then please use
%% the option xipt in the document class as shown below.

%% \documentclass[onecolumn,xipt]{MRF}

\begin{document}
```

<sup>1</sup>First author address

<sup>2</sup>Second author address

```

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

\author{First author$^{1}$ and Second author $^{2}$}

\address{\add{1}{First author address}
\add{2}{Second author address}}

\corres{\name{First author}
\email{xxxx@xxxx.xxx.xx}}

\maketitle

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

```

## IV. PREAMBLE PART

All the options in `article.cls` are available with this class file, by default it will produce all elements single spaced throughout the document.

By default, MRF class file produce numbered bibliography.

### A) Paper Title

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

### B) Author Names

The name and associated information is declared with the `\author` command. `\author` behaves slightly differently depending on the document mode. For more details about author information see Box 1.

### C) Running heads

The running heads can be given in the optional of `\author` and `\address` tag

`\author[Recto running head]{xxxx}` and `\address[Verso running head]{xxxx}` field.

### D) 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}

```

## V. BODY PART

### A) 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`.

## B) 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 end of the paragraph, nearest to the citation.

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}}lllll@{}}
\hline
Column head 1 & Column head 2 & Column head 3 & & \\
Column head 4 & Column head 5 & & & \\
\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 \\
Table body & Table body & Table body & Table body & Table body \\
\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 reference for figures and tables inside text can be made using the `\ref{key}` command.

## C) Equations

Equations are used in the same way as described in the L<sup>A</sup>T<sub>E</sub>X manual. Equations are numbered consecutively, with equation numbers in parentheses flush right.

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) \mathrm{d}\lambda
\end{equation}
```

then you will get the following output:

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

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

## D) 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.

## E) Listings

Another frequently displayed structure is a list. There are various types of list numbered, itemized and bulleted list. The coding for bulleted list are as follows:

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

The coding for numbered list are as follows:

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

The coding for description list are as follows:

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

## F) Enunciations like theorem, lemma etc.

The  $\mathcal{A}\mathcal{M}\mathcal{S}\text{-}\mathcal{L}\mathcal{A}\mathcal{T}\mathcal{E}\mathcal{X}$  package for enunciations (`amsthm.sty`) has been already loaded 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}
```

and `\newtheorem{theorem}{Theorem}` in the preamble.

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

## G) 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.

## H) 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{[]}{,}{,}{n}{,}{;}` 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}
```

## BACK MATTER

### I) References

The reference entries can be L<sup>A</sup>T<sub>E</sub>X typed bibliographies or generated through 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 (see below) to make references in your paper. By default the class file will produce the numbered L<sup>A</sup>T<sub>E</sub>X bibliography.

```
\begin{thebibliography}{99}
\bibitem{Chen2001}
Levine, M.: Fundamentals of Sensation and Perception, 3rd
ed., Cambridge University Press, London, 2000.

\bibitem{Chen1995}
Wang, Z.; Bovik, A.C.: Modern Image Quality Assessment.
Synthesis Lectures on Image, Video & Multimedia
Processing, Morgan & Claypool Publishers,
San Rafael, CA, 2006.

\bibitem{Ahn1983}
Zhai, G.;~Kaup, A.;~Wang, J.;~Yang, X.: A dual-model
approach to blind quality assessment of noisy images, in
Picture Coding Symposium (PCS), 2013, December
2013, 29--32.

\end{thebibliography}
```

## VI. AUTHOR BIOGRAPHIES

Please follow the coding "`\aubio{}{}`" to get Author biographies. The first group contains the author photo and the second group contains biography text.

```
\aubio{author_photo.eps}{\textbf{First A. Author} received a degree in physics
from the University of A in 1998 and received his Ph.D. degree in communication
engineering in 2002. He now holds a research chair at the B institute.
His main research interests are design and optimization of high power microwave
power amplifiers.}
```



**First A. Author** received a degree in physics from the University of A in 1998 and received his Ph.D. degree in communication engineering in 2002. He now holds a research chair at the B institute. His main research interests are design and optimization of high power microwave power amplifiers.

## A) Formatting

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

### $\LaTeX$ 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

### $\LaTeX$ 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		

## VII. 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 after `\appendix` will be set as appendix headings.

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