

L^AT_EX Notes

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Abstract

T_EX document : article report book letter slides beamer ...

1 special characters

<code>\# \ \$ \% \^ _ \~ \{ \}</code>	<code># \$ % ^ _ ~ { }</code>
<code>\backslash \ ' \ ' \ ' \ '</code>	<code>\ ' ' " "</code>
<code>\cdot \cdots \ldots \vdots \ddots</code>	<code>. \vdots \ddots</code>

2 text font and size

<code>\text{}</code>	<code>\underline{}</code>	<code>\emph{}</code>	<code>\textrm{}</code>	<code>\textbf{}</code>
text	under	emph	Roman	Bold
<code>\textsf{}</code>	<code>\texttt{}</code>	<code>\textit{}</code>	<code>\textsc{}</code>	<code>\textsl{}</code>
Sans	Typewriter	Italic	CAPS	Slanted

<code>\tiny{}</code>	<code>\scriptsize{}</code>	<code>\footnotesize{}</code>	<code>\small{}</code>	<code>\normalsize{}</code>
tiny	scriptsize	footnotesize	small	normalsize
<code>\large{}</code>	<code>\Large{}</code>	<code>\LARGE{}</code>	<code>\huge{}</code>	<code>\Huge{}</code>
large	Large	LARGE	huge	Huge

3 Greek symbol

<code>\alpha = \alpha</code>	<code>\beta = \beta</code>	<code>\gamma = \gamma</code>	<code>\delta = \delta</code>	<code>\epsilon = \epsilon</code>
<code>\varepsilon = \epsilon</code>	<code>\zeta = \zeta</code>	<code>\eta = \eta</code>	<code>\theta = \theta</code>	<code>\vartheta = \vartheta</code>
<code>\iota = \iota</code>	<code>\kappa = \kappa</code>	<code>\lambda = \lambda</code>	<code>\mu = \mu</code>	<code>\nu = \nu</code>
<code>\xi = \xi</code>	<code>\o = \o</code>	<code>\pi = \pi</code>	<code>\varpi = \varpi</code>	<code>\rho = \rho</code>
<code>\varrho = \varrho</code>	<code>\sigma = \sigma</code>	<code>\varsigma = \varsigma</code>	<code>\tau = \tau</code>	<code>\upsilon = \upsilon</code>
<code>\phi = \phi</code>	<code>\varphi = \varphi</code>	<code>\chi = \chi</code>	<code>\psi = \psi</code>	<code>\omega = \omega</code>
<code>\Gamma = \Gamma</code>	<code>\Delta = \Delta</code>	<code>\Theta = \Theta</code>	<code>\Lambda = \Lambda</code>	<code>\Xi = \Xi</code>
<code>\Pi = \Pi</code>	<code>\Sigma = \Sigma</code>	<code>\Upsilon = \Upsilon</code>	<code>\Phi = \Phi</code>	<code>\Psi = \Psi</code>
<code>\Omega = \Omega</code>	<code>\\$ = \\$</code>			

*This note may assist you write academic paper or technical report.

4 math font

```
\usepackage{amsmath, amsfonts, amssymb}, \usepackage{mathrsfs}*
\mathrm{} = A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
\mathit{} = A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
\mathbf{} = A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
\mathbb{} = A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
\mathsf{} = A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
\mathtt{} = A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
\mathcal{} = A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
*\mathscr{} = A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
\mathfrak{} = A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
```

5 color

```
\usepackage{color} \textcolor[rgb]{0.0,1.0,0.5}{text}, from 0 to 1
{\color{red} R} {\color{green} G} {\color{blue} B} {\color{yellow} Y}
```

$$\frac{1}{2}, \sqrt[3]{2}, x_a^b, \sum_a$$

6 parenthesis

```
\left[ \Bigg( \bigg| \Big< \big( \big. \big) \Big> \bigg| \Bigg) \right] =
```

$$\left[\left(\left| \left\langle \left(\cdot \right) \right\rangle \left| \right) \right] \right]$$

7 space

```
A \ A ~ A \hspace{1ex} A \quad A \qquad A = A A A A A A
\hat{a} = â \check{a} = ă \tilde{a} = ã \grave{a} = à \dot{a} = á
\ddot{a} = ä \bar{a} = ā \vec{a} = → \acute{a} = á \breve{a} = ă
```

8 math function

<code>\arccos</code>	<code>\cos</code>	<code>\csc</code>	<code>\exp</code>	<code>\arcsin</code>
arccos	cos	csc	exp	arcsin
<code>\lg</code>	<code>\ln</code>	<code>\arctan</code>	<code>\cot</code>	<code>\det</code>
lg	ln	arctan	cot	det
<code>\lim</code>	<code>\log</code>	<code>\arg</code>	<code>\dim</code>	<code>\inf</code>
lim	log	arg	dim	inf
<code>\max</code>	<code>\sup</code>	<code>\tan</code>	<code>\min</code>	<code>\sin</code>
max	sup	tan	min	sin

9 special symbol

<code>\leq</code>	<code>\geq</code>	<code>\equiv</code>	<code>\ll</code>	<code>\gg</code>	<code>\doteq</code>
\leq	\geq	\equiv	\ll	\gg	$\dot{=}$
<code>\prec</code>	<code>\succ</code>	<code>\sim</code>	<code>\preceq</code>	<code>\succeq</code>	<code>\simeq</code>
\prec	\succ	\sim	\preceq	\succeq	\simeq
<code>\subset</code>	<code>\supset</code>	<code>\approx</code>	<code>\subseteq</code>	<code>\supseteq</code>	<code>\cong</code>
\subset	\supset	\approx	\subseteq	\supseteq	\cong
<code>\in</code>	<code>\ni</code>	<code>\propto</code>	<code>\mid</code>	<code>\parallel</code>	<code>\notin</code>
\in	\ni	\propto	$ $	\parallel	\notin
<code>\neq</code>	<code>\pm</code>	<code>\mp</code>	<code>\cdot</code>	<code>\div</code>	<code>\times</code>
\neq	\pm	\mp	\cdot	\div	\times
<code>\setminus</code>	<code>\star</code>	<code>\cup</code>	<code>\cap</code>	<code>\ast</code>	<code>\circ</code>
\setminus	\star	\cup	\cap	\ast	\circ
<code>\lor</code>	<code>\land</code>	<code>\bullet</code>	<code>\oplus</code>	<code>\diamond</code>	<code>\odot</code>
\vee	\wedge	\bullet	\oplus	\diamond	\odot
<code>\otimes</code>	<code>\dagger</code>	<code>\sum</code>	<code>\bigcup</code>	<code>\prod</code>	<code>\bigcap</code>
\otimes	\dagger	\sum	\bigcup	\prod	\bigcap
<code>\int</code>	<code>\oint</code>	<code>\bigodot</code>	<code>\bigoplus</code>	<code>\bigotimes</code>	<code>\bigvee</code>
\int	\oint	\odot	\oplus	\otimes	\bigvee
<code>\bigwedge</code>	<code>\leqslant</code>	<code>\geqslant</code>	<code>\leqq</code>	<code>\geqq</code>	<code>\lll</code>
\bigwedge	\leqslant	\geqslant	\leqq	\geqq	\lll
<code>\ggg</code>	<code>\triangleq</code>	<code>\thicksim</code>	<code>\because</code>	<code>\therefore</code>	<code>\backepsilon</code>
\ggg	\triangleq	\sim	\because	\therefore	ϵ

<code>\nless</code>	<code>\ngtr</code>	<code>\subsetneqq</code>	<code>\subsetneqq</code>
\nless	\ngtr	\subsetneqq	\subsetneqq
<code>\nleq</code>	<code>\ngeq</code>	<code>\nleqslant</code>	<code>\ngeqslant</code>
\nleq	\ngeq	\nleqslant	\ngeqslant
<code>\nleqq</code>	<code>\ngeqq</code>	<code>\nprec</code>	<code>\nsucc</code>
\nleqq	\ngeqq	\nprec	\nsucc
<code>\npreceq</code>	<code>\nsucceq</code>	<code>\precneqq</code>	<code>\succneqq</code>
\npreceq	\nsucceq	\precneqq	\succneqq
<code>\neq</code>	<code>\nLeftarrow</code>	<code>\nRightarrow</code>	<code>\nLeftrightarrow</code>
\neq	\nLeftarrow	\nRightarrow	\nLeftrightarrow
<code>\square</code>	<code>\blacksquare</code>	<code>\vartriangle</code>	<code>\blacktriangle</code>
\square	\blacksquare	\triangle	\blacktriangle
<code>\triangledown</code>	<code>\blacktriangledown</code>	<code>\lozenge</code>	<code>\blacklozenge</code>
\triangledown	\blacktriangledown	\lozenge	\blacklozenge
<code>\nexists</code>	<code>\backprime</code>	<code>\bigstar</code>	<code>\varnothing</code>
\nexists	\backprime	\bigstar	\varnothing

<code>\leftarrow</code>	<code>\rightarrow</code>	<code>\leftrightarrow</code>
\leftarrow	\rightarrow	\leftrightarrow
<code>\Leftarrow</code>	<code>\Rightarrow</code>	<code>\Leftrightarrow</code>
\Leftarrow	\Rightarrow	\Leftrightarrow
<code>\rightleftharpoons</code>	<code>\uparrow</code>	<code>\downarrow</code>
\rightleftharpoons	\uparrow	\downarrow
<code>\updownarrow</code>	<code>\Uparrow</code>	<code>\Downarrow</code>
\updownarrow	\Uparrow	\Downarrow
<code>\Updownarrow</code>	<code>\leftrightharpoons</code>	<code>\rightleftharpoons</code>
\Updownarrow	\leftrightharpoons	\rightleftharpoons
<code>\dashleftarrow</code>	<code>\dashrightarrow</code>	<code>\leftleftarrows</code>
\dashleftarrow	\dashrightarrow	\leftleftarrows
<code>\rightrightarrows</code>	<code>\leftrightarrows</code>	<code>\rightleftarrows</code>
\rightrightarrows	\leftrightarrows	\rightleftarrows

<code>\dots</code>	<code>\cdots</code>	<code>\vdots</code>	<code>\ddots</code>	<code>\forall</code>	<code>\exists</code>
\dots	\cdots	\vdots	\ddots	\forall	\exists
<code>\mho</code>	<code>\partial</code>	<code>\prime</code>	<code>\prime</code>	<code>\emptyset</code>	<code>\infty</code>
\mho	∂	\prime	\prime	\emptyset	∞
<code>\nabla</code>	<code>\triangle</code>	<code>\diamondsuit</code>	<code>\heartsuit</code>	<code>\clubsuit</code>	<code>\spadesuit</code>
∇	\triangle	\diamondsuit	\heartsuit	\clubsuit	\spadesuit

10 equation

```

1 \begin{equation}
2   y=\left\{
3     \begin{array}{ll}
4       a & \text{first} \\
5       b & \text{second} \\
6       c & \text{third}
7     \end{array}
8   \right.
9 \end{equation}
```

$$y = \begin{cases} a & \text{first} \\ b & \text{second} \\ c & \text{third} \end{cases} \quad (1)$$

11 align

```

1 \begin{align}
2 a^2 &= b^2 + c^2 \\
3 x &= \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}
4 \end{align}
```

$$a^2 = b^2 + c^2 \quad (2)$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \quad (3)$$

12 figure

```
1 \usepackage{graphicx}
2
3 \begin{figure}[htbp]
4 \centering
5 \includegraphics[width=\textwidth]{imagefile}
6 \caption{text} \label{fig:key}
7 \end{figure}
```

13 table

```
1 \begin{table}[htbp]
2 \centering
3 \begin{tabular}{|l|c|r|}
4 \hline
5 1 & 2 & 3 \\
6 \hline
7 left & middle & right \\
8 \hline
9 \end{tabular}
10 \caption{text} \label{tab:key}
11 \end{table}
```

1	2	3
left	middle	right

Table 1: text

14 section and paragraph

```
1 \section{title}
2 \subsection{subtitle}
3 \subsubsection{subsubtitle}
4 \paragraph{paragraphtitle}
5 paragraph text
6 \subparagraph{subparagraphtitle}
7 subparagraph text
```

title

subtitle

subsubtitle

paragraphtitle paragraph text

subparagraphtitle subparagraph text

15 bibliography

```
1 \cite{id in bibtex file}
2
3 \bibliographystyle{plain}
4 %style: plain ieetr unsrt alpha abbrev apalike acm
5 \bibliography{filename of bibtex}
```

16 LaTeX

```
1 % A simple LaTeX template
2 \documentclass[10pt,a4paper]{article} % report,book,letter, etc.
3 \usepackage[utf8]{inputenc} % UTF-8 encoding
4 \usepackage{hyperref} % make bookmarks
5 \usepackage{amsmath,amsfonts,amssymb} % math package
6 \usepackage{graphicx} % import image
7 \usepackage{color} % colorful text
8 \usepackage{times} % Times New Roman
9 % mathpazo, fourier, charter, helvet, likewise
10 \title{Your Title}
11 \author{Your Name}
12 \thanks{This is the place you want to say thanks.}
13 }
14 \date{date of writing}
15
16 \begin{document}
17 \maketitle
18 \section{First section}
19 Your text goes here.
20 \subsection{Subsection}
21 Your text goes here.
22 \section{Second section}
23 Your text goes here.
24 \end{document}
```

17 beamer

```
1 % A simple Beamer template
2 \documentclass[10pt,mathserif]{beamer}
3 \mode<presentation>{
4 \settheme{CambridgeUS}
5 % Szeged Berkeley beaver Amsterdam Copenhagen Berlin
6 \usecolortheme{dolphin}
7 % beaver crane dove lily orchid rose seagull seahorse
8 % sidebartab spruce whale wolverine
9 \setbeamercovered{dynamic} % transparent frame
10 \setbeamertemplate{navigation symbols}{} % hide navigation
11 bars
12 \setbeamertemplate{caption}[numbered]
13 }
14 \usepackage{amsmath,amsfonts,amssymb} % math package
15 \usepackage[english]{babel} % main language English
16 \usepackage{color,graphicx} % colorful text and image
17 \usepackage{url} % hyperlink
18 \usepackage{times} % Times New Roman
19 \usepackage{hyperref} % bookmarks
20
21 \title[abbreviation]{Title}
```

```

20 \author{ Author name \thanks{ thanks or self-introduction}}
21 \institute[abbreviation]{affiliation or department}
22 \date{Apr. 7, 2016}
23
24 \begin{document}
25 \AtBeginSection[] {
26     \begin{frame}<beamer>{Outline}
27     \tableofcontents[currentsection , currentsubsection]
28     \end{frame}
29 }
30 \begin{frame}
31     \titlepage
32 \end{frame}
33
34 \section{Introduction}
35 \begin{frame}{Frametitle}
36     \pause
37     Any text may represent here.
38 \end{frame}
39
40 \section{Bibliography}
41 \begin{frame}[allowframebreaks]{Bibliography}
42     \label{Reference}
43     \bibliographystyle{ieeetr}
44     \bibliography{bibtex file name}
45 \end{frame}
46
47 \section*{Thanks}
48 \begin{frame}{End}
49     \Huge Thanks for your listening.
50 \end{frame}
51 \end{document}

```

18 ctexart

```

1 % A simple Ctexart template
2 \documentclass[UTF8,a4paper,10pt]{ctexart}
3 \usepackage{amsmath, amsfonts, amssymb} % math package
4 \usepackage{graphicx} % import image
5 \usepackage{color} % colorful text
6 \usepackage{times} % Times New Roman
7 % mathpazo, fourier, charter, helvet, likewise
8 \usepackage{hyperref}
9
10 \title{Chinese Title}
11 \author{Author name \thanks{thanks, self-introduction or contact
12     }}
13 \date{\today}
14 \begin{document}

```

```

15 \maketitle
16 \section{Introduction}
17 This file may generate a pdf document with Chinese characters.
    However, the bookmarks will be messy text if it contains
    Chinese text inside. Use 'gbk2uni' tool to solve this problem.
18 \section{Reference}
19     list your references here.
20 \newpage
21 From the second page, title and page number are shown at heading,
    left side and right side, respectively.
22 \end{document}

```

19 bibtex

```

1 Compile tex file accompanied by bibtex file
2 LaTeX *.tex
3 LaTeX *.tex
4 BibTeX *.tex
5 LaTeX *.tex
6 then the sequence number of reference are correct.

```

20 gbk2uni

```

1 Solve messy text(e.g. Chinese) in bookmarks (in command prompt)
2 pdfLaTeX *.tex
3 gbk2uni *.out
4 pdfLaTeX *.tex
5 then the bookmarks show in Chinese correctly.

```