

如何使用 L^AT_EX 排版论文



汪彧之

justin.w.xd@gmail.com

电子工程系博士生

清华大学 TUNA 协会

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1 简介

TeX 与 LaTeX
安装



1 简介

TeX 与 L^AT_EX
安装



- T_EX: $\tau\epsilon\chi$ (/ˈtɒx/, /ˈtɒk/)
 - ▶ 生成精美图书的排版系统
 - ▶ 最初由高德纳 (Donald E. Knuth) 于 1978 年开发
 - ▶ 发音接近“泰赫”，而非“泰克斯”，Knuth 对此有强迫症^{qiǎng}
 - ▶ 最新版本为 T_EX 3.14159265
 - ▶ 漂亮、美观、稳定、通用
 - ▶ 尤其擅长数学公式排版
- L^AT_EX (/ˈlɑːtɒx/, /ˈleɪtɒk/)
 - ▶ Leslie Lamport 开发
 - ▶ 在 T_EX 的基础上的宏包，降低使用门槛
 - ▶ 极其丰富的宏包，提供扩展功能
 - ▶ 广泛用于学术界，期刊会议论文模板
 - ▶ 大学学位论文模板，如 ThuThesis



和 Word 对比

Microsoft® Word	L ^A T _E X
字处理工具	专业排版软件
容易上手,简单直观	容易上手
所见即所得	所见即所想,所想即所得
高级功能不易掌握	进阶难,但一般用不到
处理长文档需要丰富经验	和短文档处理基本无异
花费大量时间调格式	无需担心格式,专心作者内容
公式排版差强人意	尤其擅长公式排版
二进制格式,兼容性差	文本文件,易读、稳定
付费商业许可	自由免费使用



无编号公式

$$\mathcal{F}(\xi) = \int_{-\infty}^{\infty} f(x) e^{-j2\pi\xi x} dx$$

多行多列公式

$$y = d \qquad z = 1 \qquad (1)$$

$$y = cx + d \qquad z = x + 1 \qquad (2)$$

$$y_{12} = bx^2 + cx + d \qquad z = x^2 + x + 1$$

$$y(x) = ax^3 + bx^2 + cx + d \qquad z = x^3 + x^2 + x + 1$$

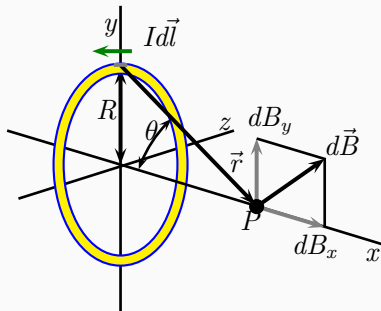
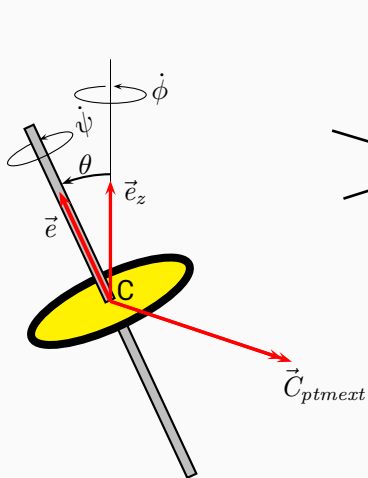


编号多行公式

$$\begin{aligned} A &= \lim_{n \rightarrow \infty} \Delta x \left(a^2 + \left(a^2 + 2a\Delta x + (\Delta x)^2 \right) \right. \\ &\quad + \left(a^2 + 2 \cdot 2a\Delta x + 2^2 (\Delta x)^2 \right) \\ &\quad + \left(a^2 + 2 \cdot 3a\Delta x + 3^2 (\Delta x)^2 \right) \\ &\quad + \dots \\ &\quad \left. + \left(a^2 + 2 \cdot (n-1)a\Delta x + (n-1)^2 (\Delta x)^2 \right) \right) \\ &= \frac{1}{3} (b^3 - a^3) \end{aligned}$$



T_EX 排版举例：图形



1	2	3	A	697 Hz
4	5	6	B	770 Hz
7	8	9	C	852 Hz
*	0	#	D	941 Hz
				1209 Hz 1366 Hz 1477 Hz 1633 Hz



potential to have content sources on servers (and server networks) in the vicinity of a mobile user add services to the mobile user, to support content-aware applications. However, challenges are present in order to “efficiently” on-demand from clouds of servers and resources efficiently, seamlessly and in a robust manner.

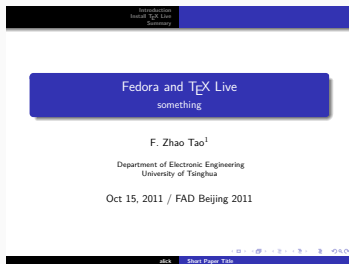
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T_EX 排版举例:幻灯片



1 简介

TeX 与 LaTeX
安装



如何安装 \LaTeX ?

- \TeX 发行版 (Distro)
 - ▶ \TeX 实用工具大集合:引擎、宏包、文档等
 - ▶ 常见 \TeX 发行版: \TeX Live , $\text{CT}\text{\TeX}$, $\text{MiK}\text{\TeX}$, $\text{Mac}\text{\TeX}$
- \TeX Live
 - ▶ 跨平台: Windows, Linux, Mac OS X ($\text{Mac}\text{\TeX}$)
 - ▶ 每年一个新版本发布, 当前 \TeX Live 2015
- $\text{CT}\text{\TeX}$
 - ▶ 中科院吴凌云研究员基于 $\text{MiK}\text{\TeX}$ 开发
 - ▶ 极大的方便了中文 \TeX 用户
 - ▶ 2012 年之后疏于维护, 长久不更新
 - ▶ 2016 年由 Harry Chen 和 Liam Huang 接手继续开发
 - ▶ 多次跳票, 尚未发布正式版



- 从 CTAN 镜像下载安装包 (.exe 或 .zip 或 .tar.gz 格式) (和相应的校验文件, 以 .sha256 结尾)

- ▶ 清华镜像

`https://mirrors.tuna.tsinghua.edu.cn/CTAN/systems/texlive/tlnet/`

- ▶ 更多可见 `http://mirror.ctan.org/README.mirrors`

- 可选步骤: 校验安装包

```
LANG=C sha256sum --check install-tl-unx.tar.gz.sha256
install-tl-unx.tar.gz: OK
```



- Windows

- ▶ 双击下载的安装程序
- ▶ 切换默认仓库为国内镜像:加速网络下载

- Mac OS X

- ▶ <https://mirrors.tuna.tsinghua.edu.cn/CTAN/systems/mac/mactex/MacTeX.pkg>

- Linux

- ▶ 图形安装界面需要 Perl Tk 模块:

```
yum install perl-Tk 或 apt-get install perl-tk  
sudo mkdir /usr/local/texlive  
sudo chown yourname:yourname /usr/local/texlive  
./install-tl -gui -repository \  
    http://mirrors.tuna.tsinghua.edu.cn/CTAN/systems/texlive/  
    tlnet/
```

- 截图...





TeX Live 2015

TeX Live 2015 安装

1/5

Welcome to the installation of TeX Live 2015
<http://tug.org/texlive>

This wizard will guide you through the installation.

Best to disable your virus scanner during installation.

For an advanced, customizable installation, please consult
the web pages or installation guide.
Or use `install-tl-advanced.bat`.

Change default repository

退出

下一步 >





TeX Live 2015

TeX Live 2015 安装

1-1/5

Select repository:

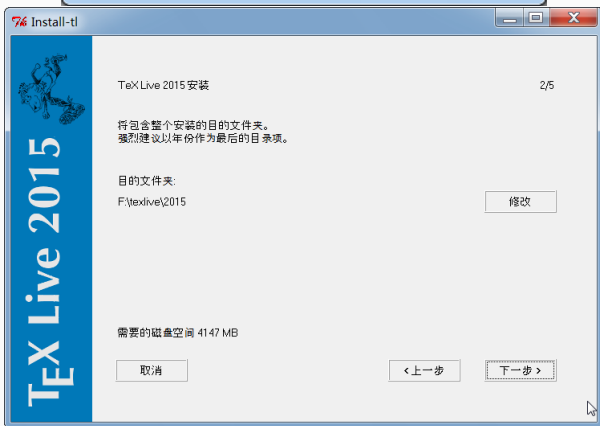
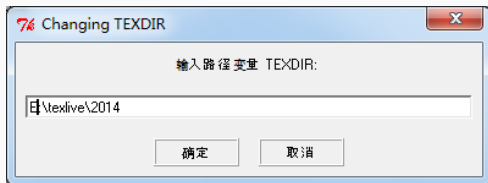
Mirror:

退出

< 上一步

下一步 >







TeX Live 2015

TeX Live 2015 安装

3/5

这个界面允许你配置某些选项

缺省的纸张给: A4 letter

Add menu shortcuts

安装 TeXworks 前端

为所有用户安装

取消

< 上一步

下一步 >





TeX Live 2015 安装

4/5

我们可以开始安装 TeX Live 2015 了。
将使用下列选项。
如果你还想修改什么请后退，否则点击“安装”按钮。

目的文件夹: F:\texlive\2015
缺省的纸张给: A4
Add menu shortcuts: 是
安装 TeXworks 前端: 是
为所有用户安装: 是





TeX Live 2015

TeX Live 2015 安装

5/5

```
Installing [0014/3126, time/total: 00:08/25:01]: Type1fonts  
[516k]  
Installing [0015/3126, time/total: 00:09/26:49]: a0poster [119k]  
Installing [0016/3126, time/total: 00:09/26:32]: a2ping [48k]  
Installing [0017/3126, time/total: 00:10/29:22]: a2ping.win32  
[1k]  
Installing [0018/3126, time/total: 00:10/29:22]: a4wide [133k]  
Installing [0019/3126, time/total: 00:10/29:01]: a5comb [91k]  
Installing [0020/3126, time/total: 00:11/31:40]: aastex [1292k]  
Installing [0021/3126, time/total: 00:11/28:26]: abbr [4k]  
Installing [0022/3126, time/total: 00:12/31:01]: abc [286k]  
Installing [0023/3126, time/total: 00:12/30:20]: abntex2 [4493k]  
Installing [0024/3126, time/total: 00:14/26:17]: abracas [197k]  
Installing [0025/3126, time/total: 00:14/25:59]: abstract [154k]  
Installing [0026/3126, time/total: 00:14/25:46]: abstyles [151k]
```

取消





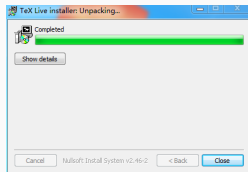
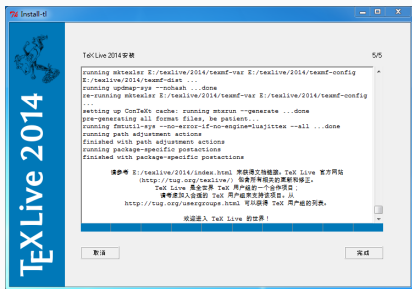
TeXLive 2014

TeX Live 2014 安装

5/5

```
writing fmtutil.cnf to E:/texlive/2014/texmf-var/web2c/fmtutil.cnf
writing updmap.cfg to E:/texlive/2014/texmf-dist/web2c/updmap.cfg
writing language.dat to
E:/texlive/2014/texmf-var/tex/generic/config/language.dat
writing language.def to
E:/texlive/2014/texmf-var/tex/generic/config/language.def
writing language.dat.lua to
E:/texlive/2014/texmf-var/tex/generic/config/language.dat.lua
running mktexlsr E:/texlive/2014/texmf-var E:/texlive/2014/texmf-config
E:/texlive/2014/texmf-dist ...
running updmap-sys --nohash ...done
re-running mktexlsr E:/texlive/2014/texmf-var E:/texlive/2014/texmf-config
...
setting up ConTeXt cache: running mtxrun --generate ...done
pre-generating all format files, be patient...
running fmtutil-sys --no-error-if-no-engine=luajitteX --all ...done
running path adjustment actions
finished with path adjustment actions
running package-specific postactions
```





Windows 上安装过程比较慢,尤其是最后的生成索引阶段,请耐心等待



网络安装后配置 (仅 Linux)

- 添加环境变量到 `~/.bash_profile` 文件:

```
export PATH=/usr/local/texlive/2015/bin/x86_64-linux:$PATH
export MANPATH=/usr/local/texlive/2015/texmf/doc/man:$MANPATH
export INFOPATH=/usr/local/texlive/2015/texmf/doc/info:$INFOPATH
```

- 打开 T_EX Live 指南中文版 “`texlive-zh-cn.pdf`”, 关注第 3.4 节

```
texdoc texlive-zh
```



网络安装后配置 (仅 Linux)

- X_YTeX 系统字体配置

```
cp /usr/local/texlive/2015/texmf-var/fonts/conf/texlive-  
fontconfig.conf \  
/etc/fonts/conf.d/09-texlive.conf  
fc-cache -fsv
```

- 让系统的包管理器知道 TeX Live 已经装过了, 所以安装一个 dummy package

- ▶ Arch Linux 用户装 AUR 里的 `texlive-dummy`

- ▶ Debian/Ubuntu 用户参照手册做一个包即可

- ▶ <https://www.tug.org/texlive/debian.html#vanilla>

- ▶ Fedora 用户可以在

- ▶ <https://copr.fedoraproject.org/coprs/fatka/texlive-dummy/>
下载

- 教程可参考: <http://zhuanlan.zhihu.com/LaTeX/20069414>



Windows 安装 C_TE_X 清华特别版

- C_TE_X 2.9.3 尚未发布,开发者为了这次讲座专门发了一个特别版
- 下载地址: <https://mirrors.tuna.tsinghua.edu.cn/ctex/>
- 傻瓜安装,一路 Next 即可
- 有一些小问题,安装到最后会报错,忽略即可
- 安装前会自动卸载旧版本 C_TE_X 2.9.2, 大约 3-5 分钟
- 总安装时间约 10-15 分钟
- 还有不少小问题需要解决



- TeX 编辑器
 - ▶ 专用编辑器: TeXworks、TeXstudio、TeXmaker、WinEdt 等
 - ▶ 通用编辑器 (加 LaTeX 插件): Vim、Emacs、Sublime、Atom 等

TeXStudio 配置

- Options -> Configure TeXstudio
 - ▶ Build: Default Compiler 选择 XeLaTeX
 - ▶ 搜索框输入 Line Number -> Adv. Editor -> 打开行号

WinEdt 配置

- Options -> Execution Modes
 - ▶ 如果没有 Adobe Reader 的话, 需要定义 pdf 阅读器
- 如果遇到中文不正常, 到 Options -> Preferences 换个字体
 - ▶ 推荐文泉驿等宽微米黑



很多时候需要自己安装宏包

- 发行版没有预装
- 宏包需要更新

T_EX Live

- 开始菜单里找 Tex Live Manage
- 使用 `tlmgr install <pkgname>` 命令

C_TE_X 或 MiK_TE_X

- 开始菜单里找 C_TE_X / MiK_TE_X -> Package Manager
- 在 WinEdt 里 MiK_TE_X Options -> Packages
- 清华宏包仓库被定位到美国去了,注意找一下



使用在线协作平台

- 通过在线平台编辑、编译
 - ▶ Overleaf, SharedLaTeX
- 免去安装/升级等一系列烦恼
- 可以多人协作
- 支持中文,但有时需要自己上传字体
 - ▶ Overleaf 可直接使用 ctex 宏包
- 容量有一定限制



网络安装后测试

- 编辑 `hello.tex` (Windows 下不要用中文文件名; 注意 \LaTeX 文档对大小写敏感。)

```
\documentclass{article}
\usepackage{ctex} % 加入中文支持
\begin{document}
\TeX{}你好！
\end{document}
```

- ▶ Windows 下缺省使用中易字体
- ▶ Linux、Mac OS X 下需要注意字体 (参见 `ctex` 文档)
- 使用 XeLaTeX 引擎编译, 得到 PDF 文档

\TeX 你好!








- 本幻灯片

- ▶ <https://github.com/tuna/thulib-latex-talk>
- ▶ gt
- ▶ Overleaf 版本有只包含第一章

- 本幻灯片基于：

- ▶ <http://github.com/alick/fad-texlive-talk>
- ▶ ThuThesis 使用向导 v3.0

- 许可证：CC BY-SA 4.0 Unported   



- \LaTeX Tips: <https://alick.fedorapeople.org/fudcon-apac-2014/latex-tips.pdf>
(例如: \LaTeX 中引号的正确输入姿势)
- Linux 用户: <https://github.com/alick/fad-texlive-talk>
- 网站推荐: <http://www.latexstudio.net/>
- 知乎专栏: <http://zhuanlan.zhihu.com/LaTeX>
- ThuThesis 使用向导 v3.0 (薛瑞尼)
- \LaTeX 杂谈 (刘海洋)
- 《 \LaTeX 入门》(刘海洋)



Thank you!

