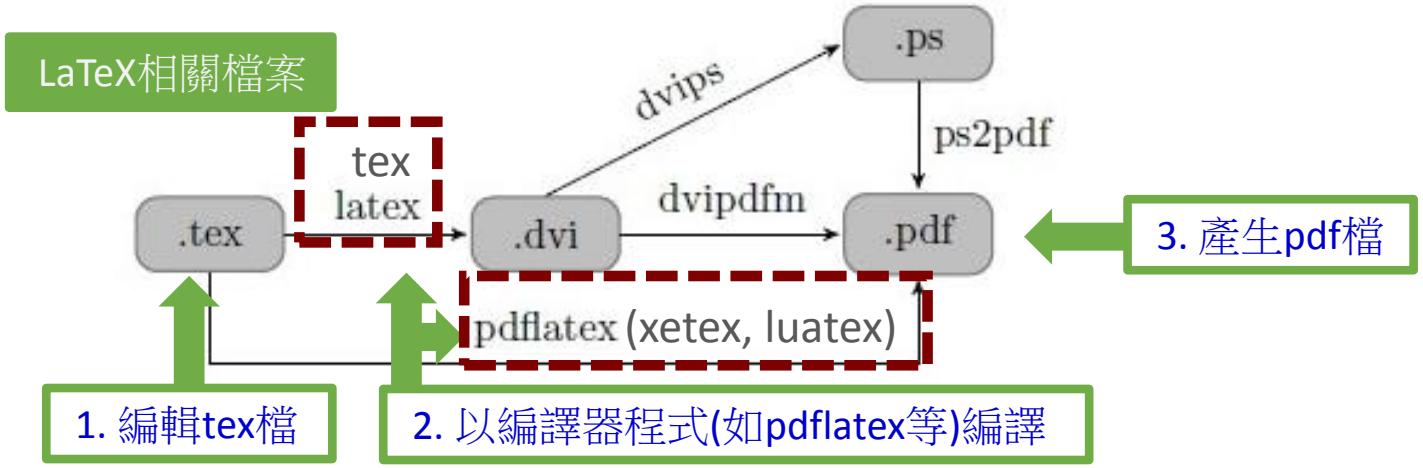
運用LaTeX寫論文

圖書館學科服務組
物理系圖書室

大綱

- 引言
- 軟體工具
- LaTeX語法
- 新增package

LaTeX 檔案



文字內容

```
Cartesian closed categories and the price of eggs
Jane Doe
September 1994

Hello world!
```

.tex檔

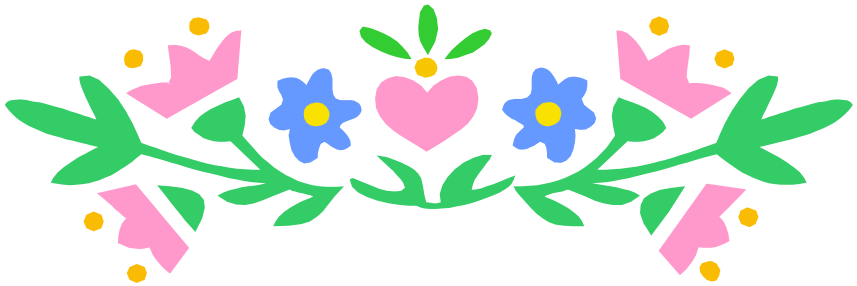
```
\documentclass{article}
\title{Cartesian closed categories and the price of eggs}
\author{Jane Doe}
\date{September 1994}
\begin{document}
   \maketitle
   Hello world!
\end{document}
```

LaTeX 特點

LaTeX Features

- Typesetting journal articles, technical reports, books, and slide presentations.
- Control over large documents containing sectioning, cross-references, tables and figures.
- Typesetting of complex mathematical formulas.
- Advanced typesetting of mathematics with AMS-LaTeX.
- Automatic generation of bibliographies and indexes.
- Multi-lingual typesetting.

引自LaTeX網頁



LaTeX 軟體工具

https://www.latex-project.org/

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You don't have to pay for using LaTeX, i.e., there are no licence fees, etc. You are, of course, invited to support the maintenance and development efforts through a donation to the TeX Users Group (choose LaTeX Project contribution) if you are satisfied with LaTeX.

The volunteer efforts that provide you with LaTeX need financial support, so thanks for any contribution you are willing to make.

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TeX Distributions

TeX Distributions

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If you're new to TeX and LaTeX or just want an easy installation, get a full TeX distribution. The TeX Users Group (TUG) has a list of notable distributions that are entirely, or least primarily, free software.

Linux

Check your Linux distributions software source for a TeX distribution including LaTeX. You can also install the current TeX Live distribution directly---in fact this may be advisable as many Linux distributions only contain older versions of TeX Live, see Linux TeX Live package status for details.

Mac OS

The MacTeX distribution contains everything you need, including a complete TeX system with LaTeX itself and editors to write documents.

Windows

Check out the MiKTeX or proTeXt or TeX Live distributions; they contain a complete TeX system with LaTeX itself and editors to write documents.

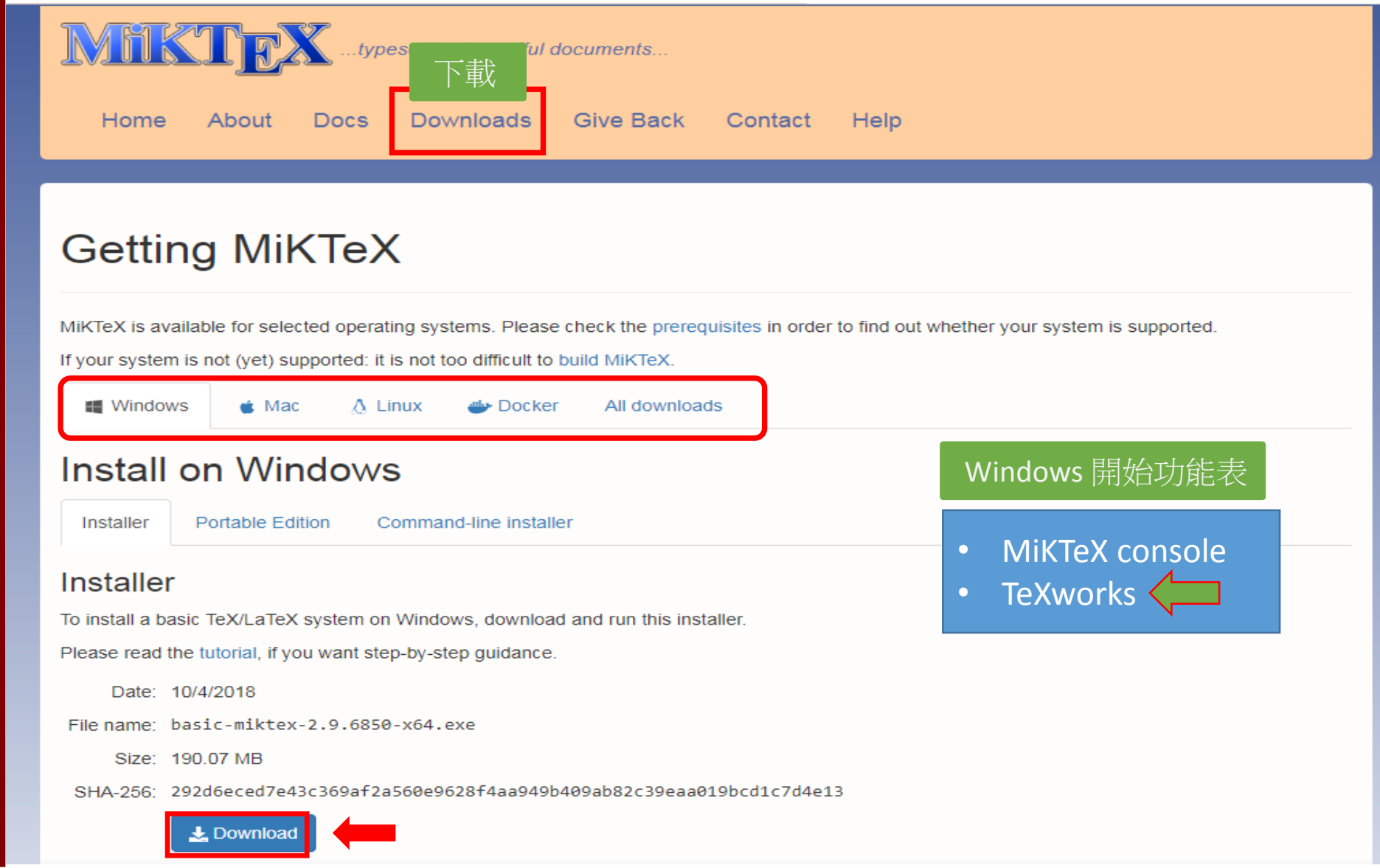
Online

LaTeX online services like Papeeria, Overleaf, ShareLaTeX, Datazar, and LaTeX base offer the ability to edit, view and download LaTeX files and resulting PDFs.

TEXMAKER

https://miktex.org/download

MiKTeX



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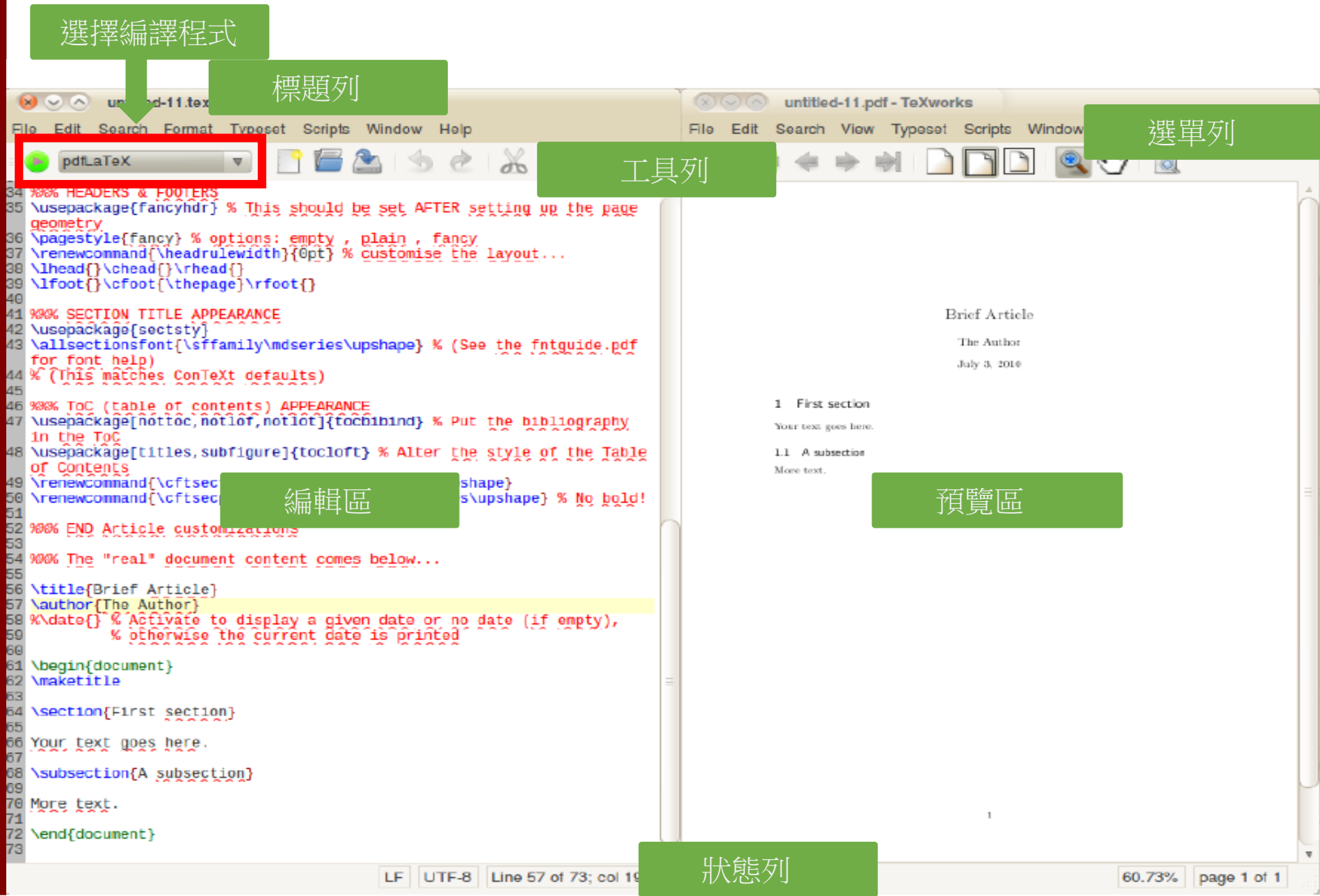
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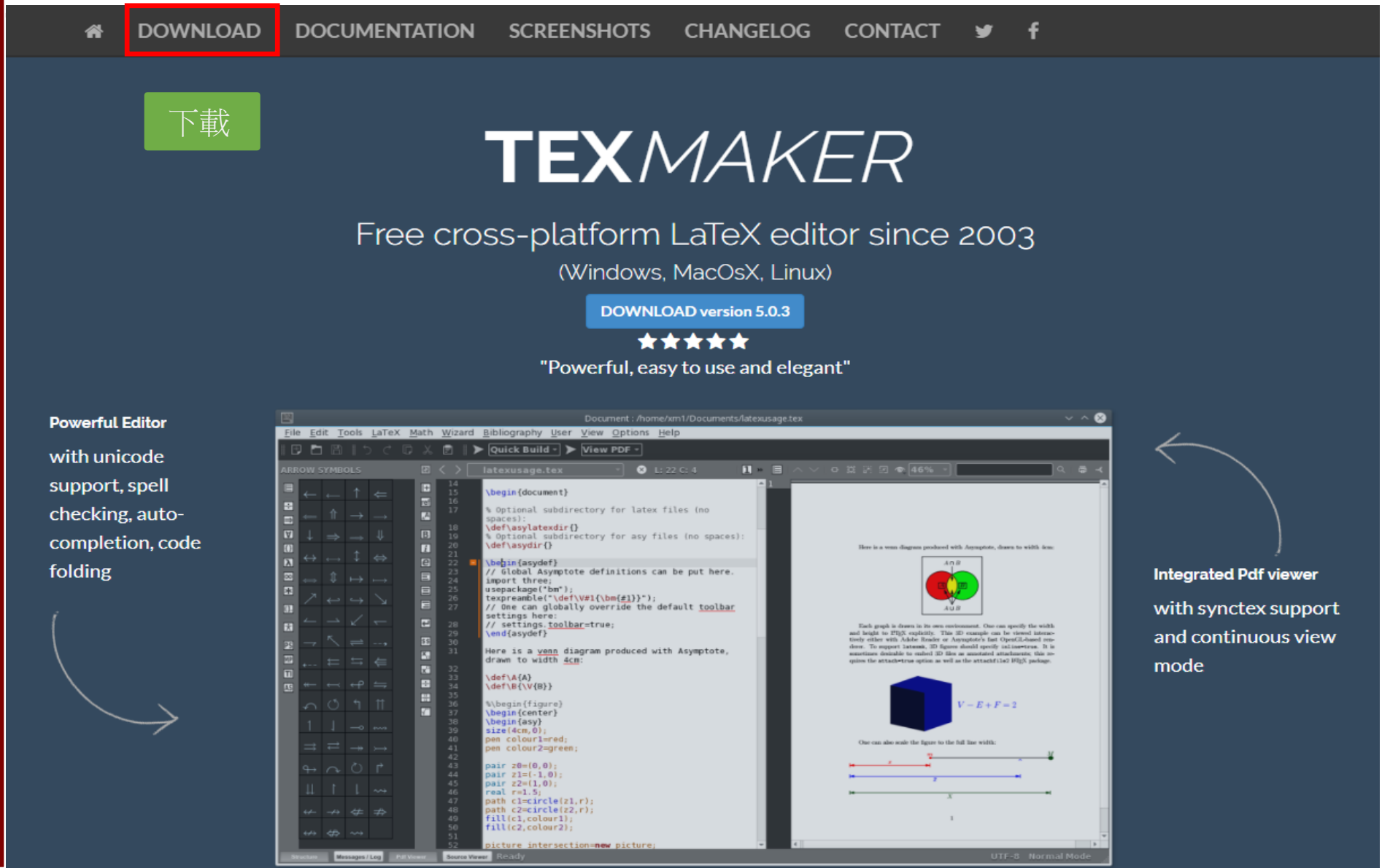
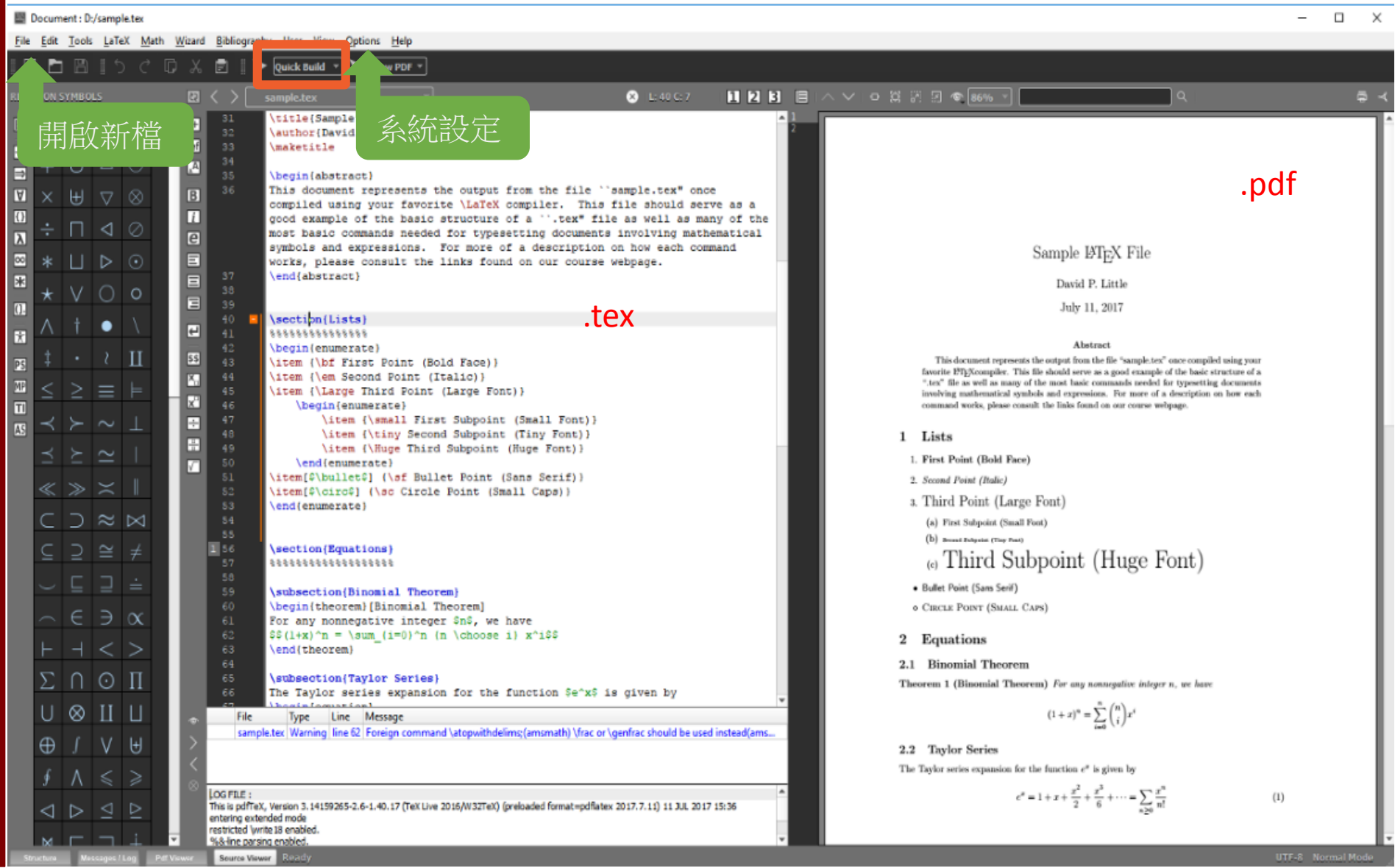
page 1 of 1

TeXMaker

http://www.xm1math.net/texmaker/



TeXMaker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Quick Build
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David P. Little
July 11, 2017
Abstract
1 Lists
2 Equations
2.1 Binomial Theorem
2.2 Taylor Series
File Type Line Message
sample.tex Warning line 62 Foreign command \atopwithdelims;(amsmath) \frac or \genfrac should be used instead(ams...
LOG FILE :
This is pdfTeX, Version 3.14159265-2.6-1.40.17 (TeX Live 2016/W32TeX) (preloaded format=pdflatex 2017.7.11) 11 JUL 2017 15:36
entering extended mode
restricted \write18 enabled.
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Structure
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Ready
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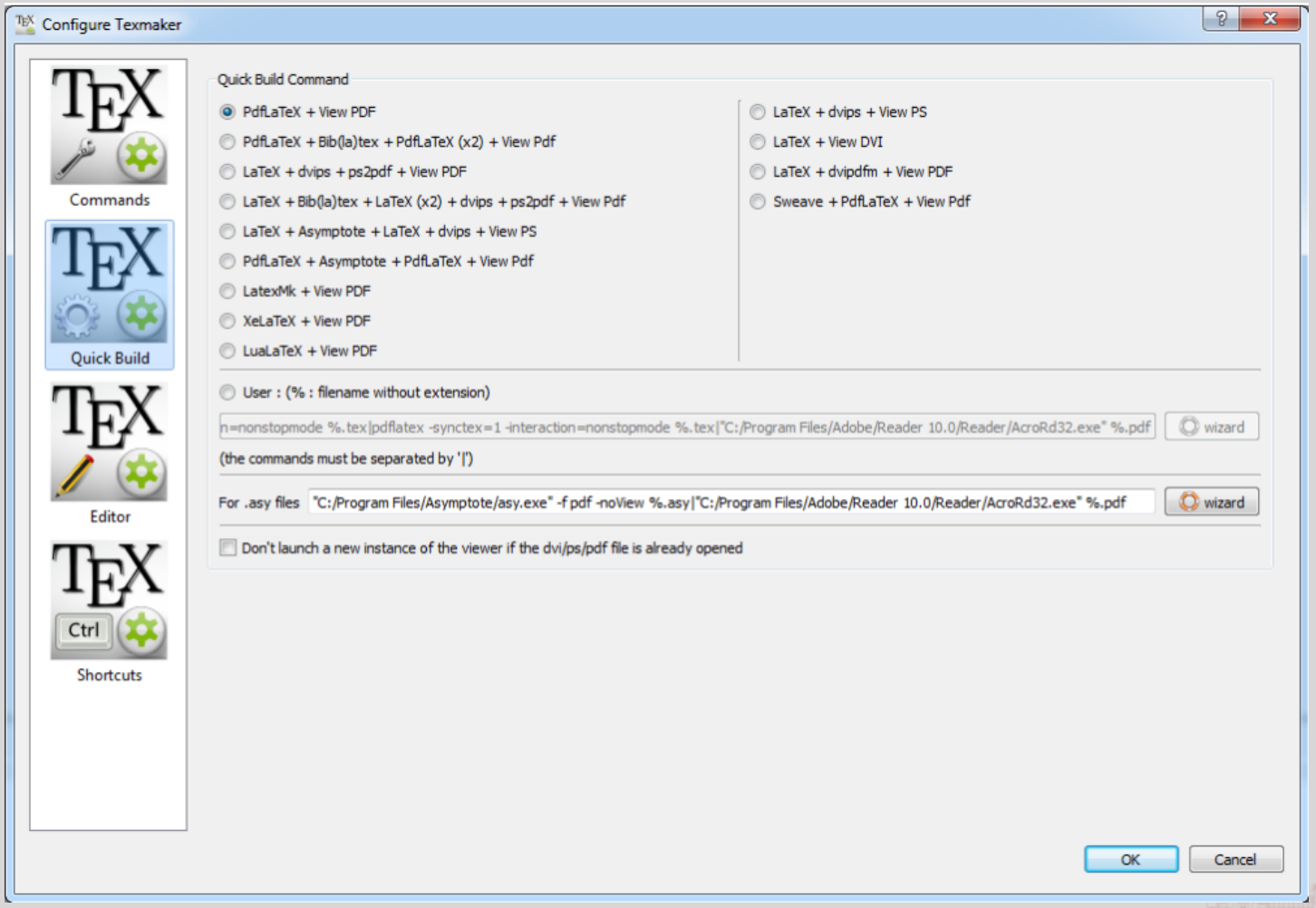

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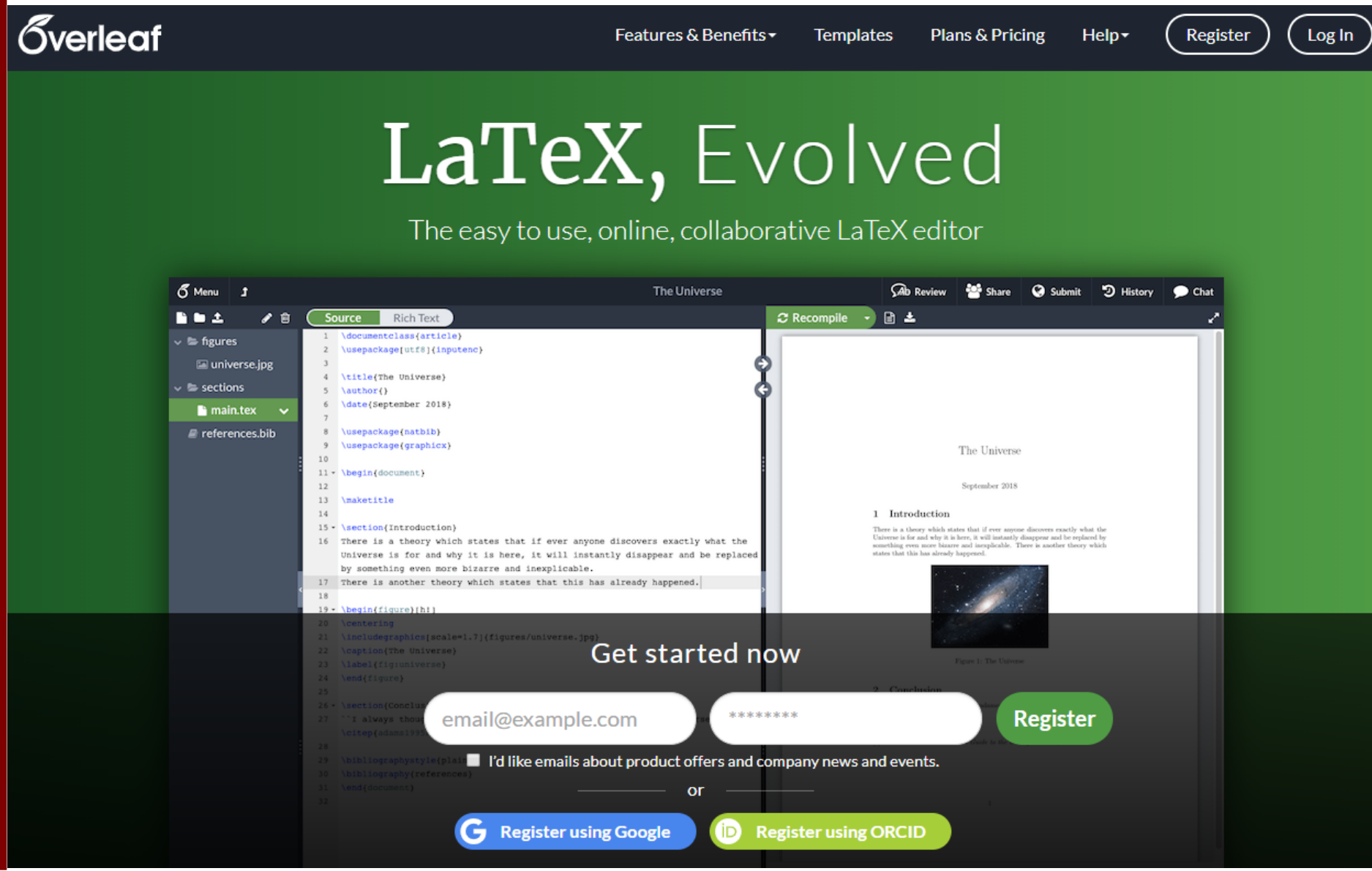
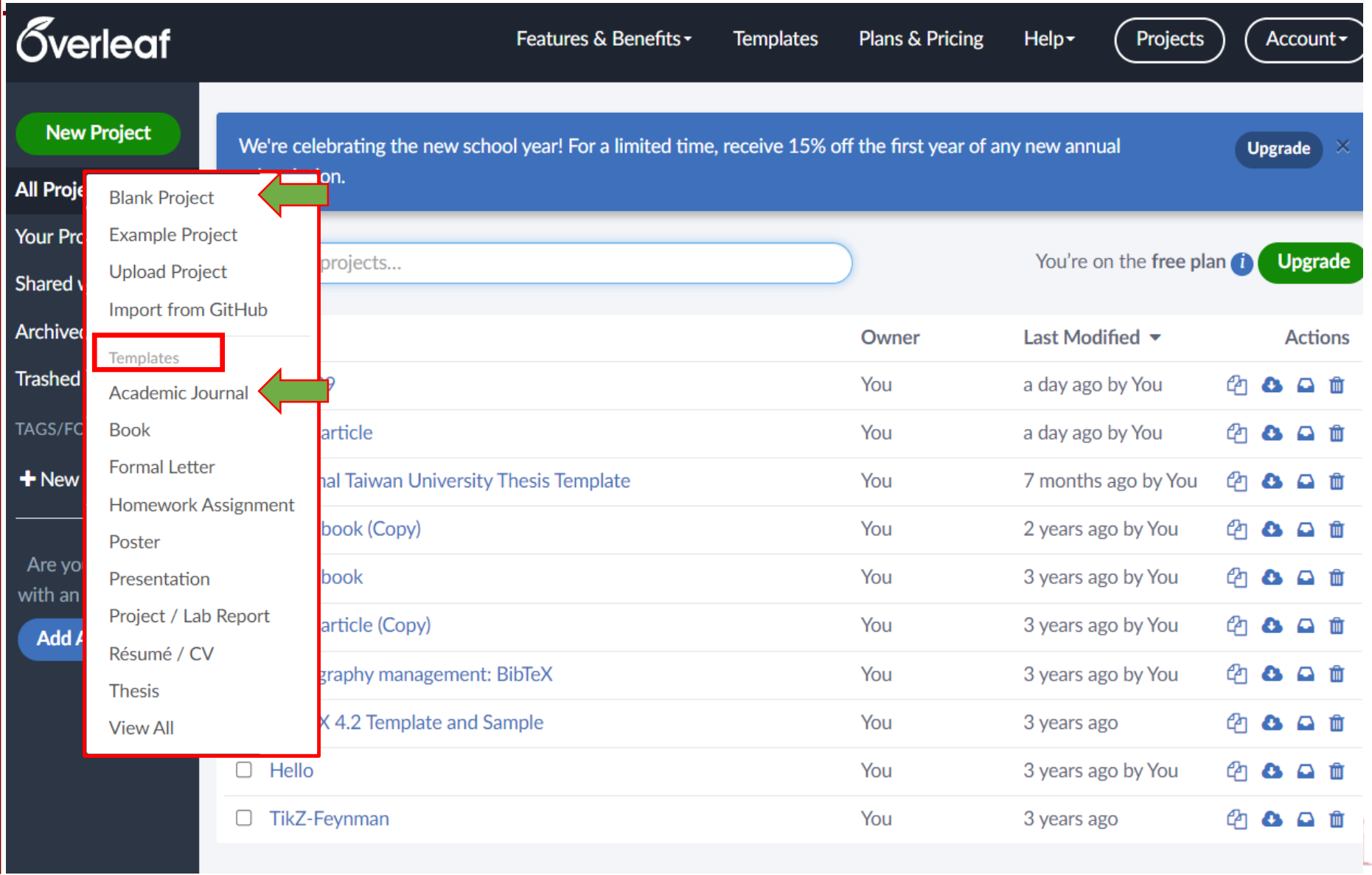


Overleaf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Actions
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7 months ago by You
book (Copy)
You
2 years ago by You
book
You
3 years ago by You
article (Copy)
You
3 years ago by You
graphy management: BibTeX
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3 years ago
Hello
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3 years ago by You
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(MUSO Collaboration)

Charlie Author[‡]
Second institution and/or address
This line break forced and
Third institution, the second for Charlie Author

Delta Author
Authors' institution and/or address
*This line break forced with *
(CLEO Collaboration)
(Dated: June 18, 2019)

An article usually includes an abstract, a concise summary of the work covered at length in the main body of the article.

Usage: Secondary publications and information retrieval purposes.

Structure: You may use the `description` environment to structure your abstract; use the optional argument of the `\item` command to give the category of each item.

**I. FIRST-LEVEL HEADING: THE LINE BREAK WAS FORCED via **

This sample document demonstrates proper use of REVTEX 4.2 (and LATEX 2ε) in manuscripts prepared for submission to APS journals. Further information can be found in the REVTEX 4.2 documentation included in the distribution or available at `http://journals.aps.org/revtex/`.

When commands are referred to in this example file, they are always shown with their required arguments, using normal TEX format. In this format, `#1`, `#2`, etc. stand for required author-supplied arguments to commands. For example, in `\section{#1}` the `#1` stands for the title text of the author's section heading, and in `\title{#1}` the `#1` stands for the title text of the paper.

Line breaks in section headings at all levels can be introduced using \\. A blank input line tells TEX that the paragraph has ended. Note that top-level section headings are automatically uppercased. If a specific letter or word should appear in lowercase instead, you must escape

A. Second-level heading: Formatting

This file may be formatted in either the `preprint` or `reprint` style. `reprint` format mimics final journal output. Either format may be used for submission purposes. `letter` sized paper should be used when submitting to APS journals.

1. Wide text (A level-3 head)

The `widetext` environment will make the text the width of the full page, as on page 4. (Note the use the `\pageref{#1}` command to refer to the page number.)

a. Note (Fourth-level head is run in) The width-changing commands only take effect in two-column formatting. There is no effect if text is in a single column.

B. Citations and References

A citation in text uses the command `\cite{#1}` or

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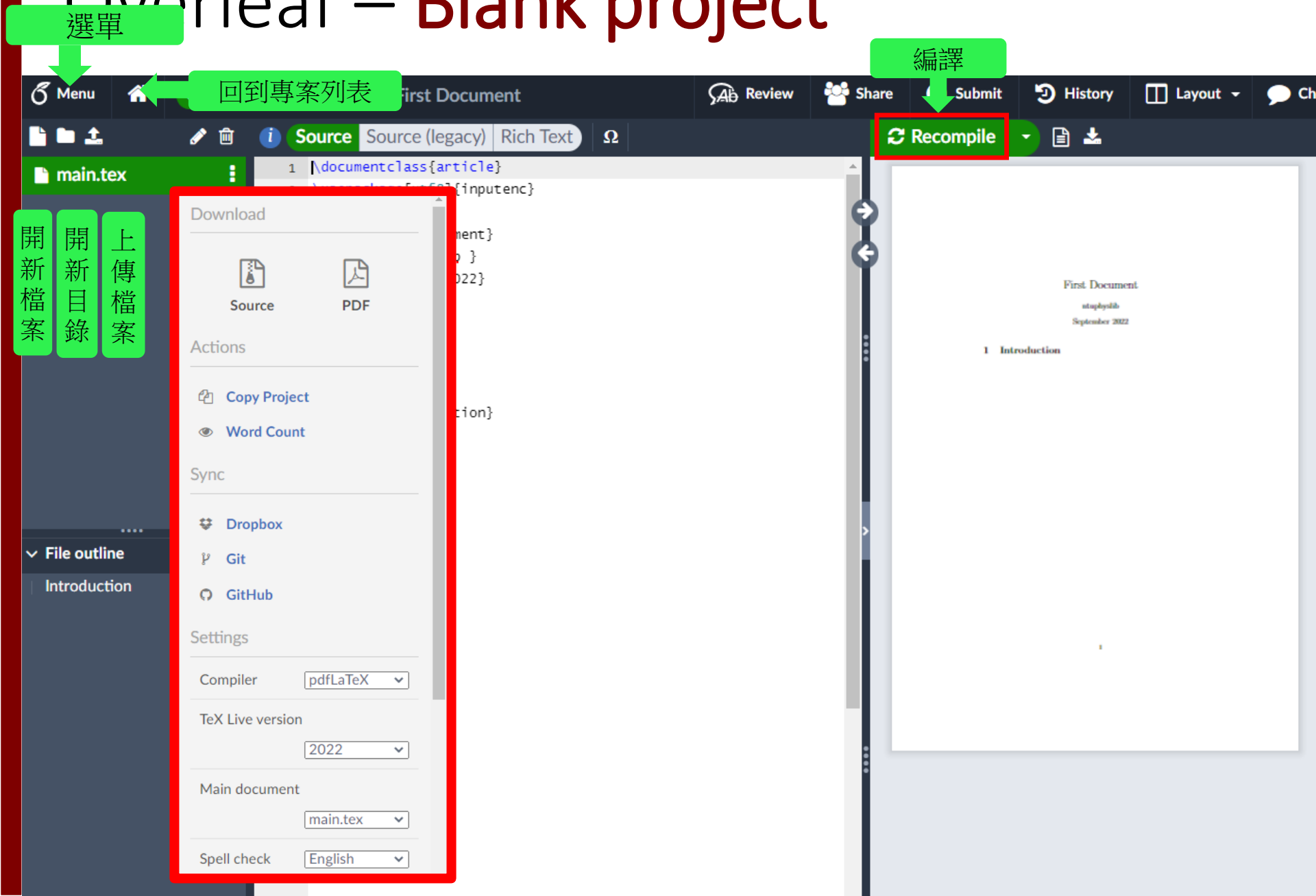

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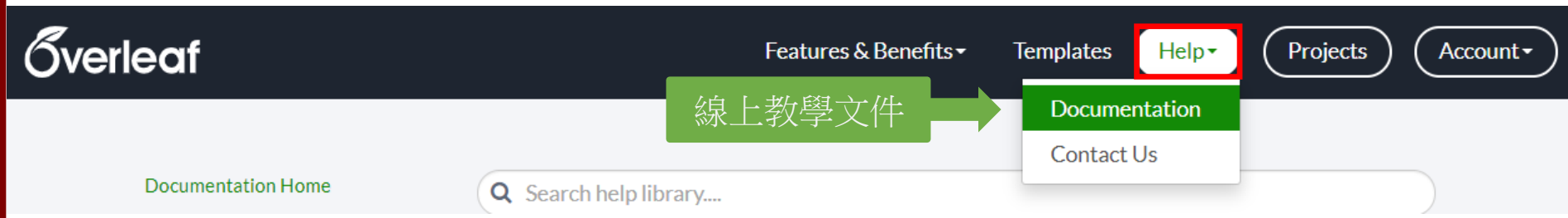

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LaTeX Basics

Creating your first LaTeX document

Choosing a LaTeX Compiler

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Positioning Images and Tables

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Drawing Diagrams Directly in

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Page size and margins

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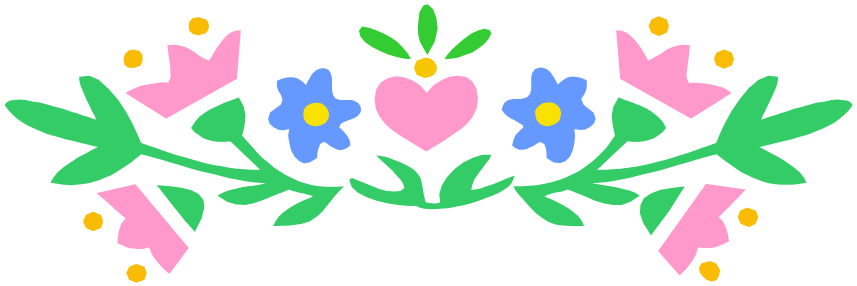
Code Highlighting with minted

Using colours in LaTeX



LaTeX 語法

學位、期刊論文格式

學位論文

- 封面（標題、作者）
- 致謝
- 摘要
- 目錄（含圖、表）
- 本文（章節）
- 附錄
- 參考文獻

期刊論文

- 標題、作者
- 摘要
- 本文（章節）
- 附錄
- 參考文獻

相關規定請參考

(1) 圖書館論文繳交及離校手續
https://www.lib.ntu.edu.tw/node/103

(2) 電子學位論文服務
https://etds.lib.ntu.edu.tw/ETDS/?SchoolID=U0001

.tex 檔案 - 基本架構

設定文件資訊

```
\documentclass{article}
% 宣告文件類型
\usepackage[utf8]{inputenc}

\title{First Document}
\author{ntuphyslib }
\date{September 2022}
```

book, report…

宣告區

編輯文件

```
\begin{document}

\maketitle

\section{Introduction}

\end{document}
```

本文區

範例

```
\documentclass[reprint,amsmath,amssymb,
aps]{revtex4-2}
```

Physical Review 期刊
宣告範例

Manuscript Title:
with Forced Linebreak*

Ann Author[1] and Second Author[1]
Authors' institution and/or address
*This line break forced with *
(MUSO Collaboration)

Charlie Author[§]
Second institution and/or address
This line break forced and
Third institution, the second for Charlie Author

Delta Author
Authors' institution and/or address
*This line break forced with *
(CLEO Collaboration)
(Dated: September 23, 2022)

An article usually includes an abstract, a concise summary of the work covered at length in the main body of the article.

Usage: Secondary publications and information retrieval purposes.

Structure: You may use the `description` environment to structure your abstract; use the optional argument of the `\item` command to give the category of each item.

I. FIRST-LEVEL HEADING:
THE LINE BREAK WAS FORCED via \\

This sample document demonstrates proper use of REVTEX 4.2 (and LATEX 2ε) in manuscripts prepared for submission to APS journals. Further information can be found in the REVTEX 4.2 documentation included in the distribution or available at `http://journals.aps.org/revtex/`.

When commands are referred to in this example file, they are always shown with their required arguments, using normal TEX format. In this format, #1, #2, etc. stand for required author-supplied arguments to commands. For example, in `\section{#1}` the #1 stands for the title text of the author's section heading, and in `\title{#1}` the #1 stands for the title text of the paper.

Line breaks in section headings at all levels can be introduced using \\. A blank input line tells TEX that the paragraph has ended. Note that top-level section headings are automatically uppercased. If a specific letter or word should appear in lowercase instead, you must escape it using `\lowercase{#1}` as in the word "via" above.

A. Second-level heading: Formatting

This file may be formatted in either the `preprint` or `reprint` style. `reprint` format mimics final journal output. Either format may be used for submission purposes. `letter` sized paper should be used when submitting to APS journals.

1. *Wide text (A level-3 head)*

The `widetext` environment will make the text the width of the full page, as on page 4. (Note the use the `\pageref{#1}` command to refer to the page number.)

a. *Note (Fourth-level head is run in)* The width-changing commands only take effect in two-column formatting. There is no effect if text is in a single column.

B. Citations and References

A citation in text uses the command `\cite{#1}` or `\onlinecite{#1}` and refers to an entry in the bibliography. An entry in the bibliography is a reference to another document.

1. *Citations*

Because REVTEX uses the `natbib` package of Patrick Daly, the entire repertoire of commands in that package

* A footnote to the article title

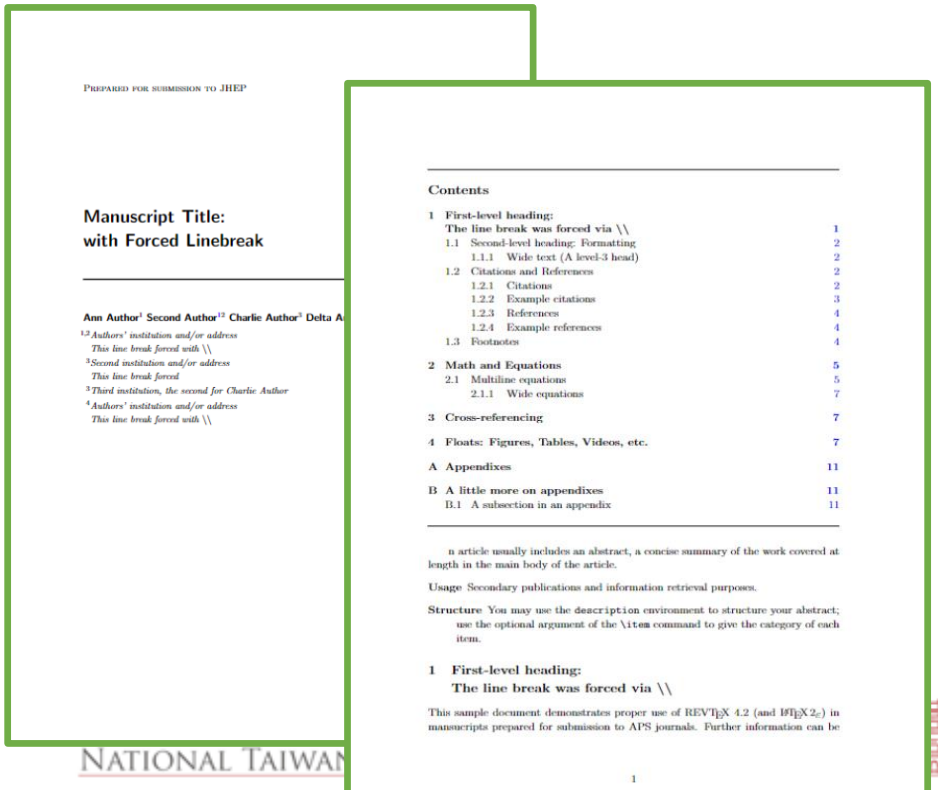
† Also at Physics Department, XYZ University.

‡ Second.Author@institution.edu

§ http://www.Second.institution.edu/~Charlie.Author

```
\documentclass[a4paper,12pt]{article}
\pdfoutput=1
\usepackage{jheppub}
```

JHEP 期刊
宣告範例



PREPARED FOR SUBMISSION TO JHEP

Manuscript Title:
with Forced Linebreak

Ann Author[1] Second Author[1,2] Charlie Author[3] Delta A

[1,2] *Authors' institution and/or address*
*This line break forced with *
[3] *Second institution and/or address*
This line break forced
[3] *Third institution, the second for Charlie Author*
[4] *Authors' institution and/or address*
*This line break forced with *

Contents

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A Appendixes 11
B A little more on appendixes 11
B.1 A subsection in an appendix 11

n article usually includes an abstract, a concise summary of the work covered at length in the main body of the article.

Usage Secondary publications and information retrieval purposes.

Structure You may use the `description` environment to structure your abstract; use the optional argument of the `\item` command to give the category of each item.

1 First-level heading:
The line break was forced via \\

This sample document demonstrates proper use of REVTEX 4.2 (and LATEX 2ε) in manuscripts prepared for submission to APS journals. Further information can be

1

Titles

```
\title{ 標題名稱}
\author{ 作者名稱}
\affil{ 研究單位名稱}
\date{ \today}
\maketitle
```

```
\begin{abstract}
……
\end{abstract}
```

範例

```
\documentclass[a4paper,12pt]{article}
\usepackage[utf8]{inputenc}

\title{First Doctument}
\author{Hubert Farnsworth}
\affil{Department of Biology, University X}
\date{\today}
\begin{document}

\maketitle

\begin{abstract}
This is a simple paragraph at the begining of the
document. A brief introduction to the main subject.
\end{abstract}

\end{document}
```

設定標題、作者等

設定摘要

範例

```
\documentclass[a4paper,12pt]{article}
\usepackage[utf8]{inputenc}
\usepackage{authblk}
\title{ First Document}
%\author{ Hu
\author [1]{Alice Smith \thanks{smith@gmail.com}}
\author [2]{Hubert Farnsworth}
\affil [1,2]{Department of Mathematics, University X}
\affil [2]{Department of Biology, University X}
\date{ \t
\begin{document}
\maketitle

\begin{abstract}
This is a simple paragraph at the begining of the
document. A brief introduction to the main subject.
\end{abstract}

\end{document}
```

設定作者編號

對應作者編號

First Document

Alice Smith[1] and Hubert Farnsworth[2]

[1,2]Department of Mathematics, University X
[2]Department of Biology, University X

September 20, 2022

Abstract

This is a simple paragraph at the beginning of the document. A brief introduction to the main subject.

*ahmad01.shah@gmail.com

範例

編譯程式改用XeLaTeX

設定使用Times New Roman及標楷體字體

```
\documentclass[a4paper,12pt,twoside]{book}
\usepackage{xeCJK}
\begin{document}
\begin{titlepage}
  \begin{center}
  \vspace{0.5cm}
  \LARGE
  Department Name\\
  University Name\\
  Master Thesis/Doctoral Dissertation\\
  \vspace{1.5cm}
  \textbf{ Thesis Title}
  \vspace{1.5cm}
  \textbf{ Author Name}
  \vfill
  \textbf{ Adivisor: Prof. Name}
  \vspace{0.8cm}
  Date
  \end{center}
\end{titlepage}
\end{document}
```

中文字

置中

調整間距

跳行

粗體

```
\usepackage{xeCJK}
\usepackage{fontspec}
\setmainfont{Times New Roman}
\setCJKmainfont{kaiu.ttf}
```

Sections

\chapter{ 名稱}

\section{名稱}

範例

```
\documentclass[a4paper,12pt]{article}
\title{.....}
\author{.....}
\date{.....}
\begin{document}
\maketitle
\begin{abstract}
 .....
\end{abstract}
```

設定章節

```
\section{Introduction}

This is the first section.

Lorem ipsum dolor sit amet, consectetuer adipis
elit.  Etiam lobortisfacilisis sem.  Nullam nec mi
neque pharetra sollicitudin.  Praesent imperdietmi ne
Donec ullamcorper, felis non sodales...
```

```
\section{Second Section}

Lorem ipsum dolor sit amet, consectetuer adipiscing e
Etiam lobortis facilisissem.  Nullam nec mi et neque
sollicitudin.  Praesent imperdiet mi necante...
```

```
\end{document}
```

First Document

Hubert Farnsworth

September 20, 2022

Abstract

This is a simple paragraph at the begining of the document. A brief introduction to the main subject.

1 Introduction

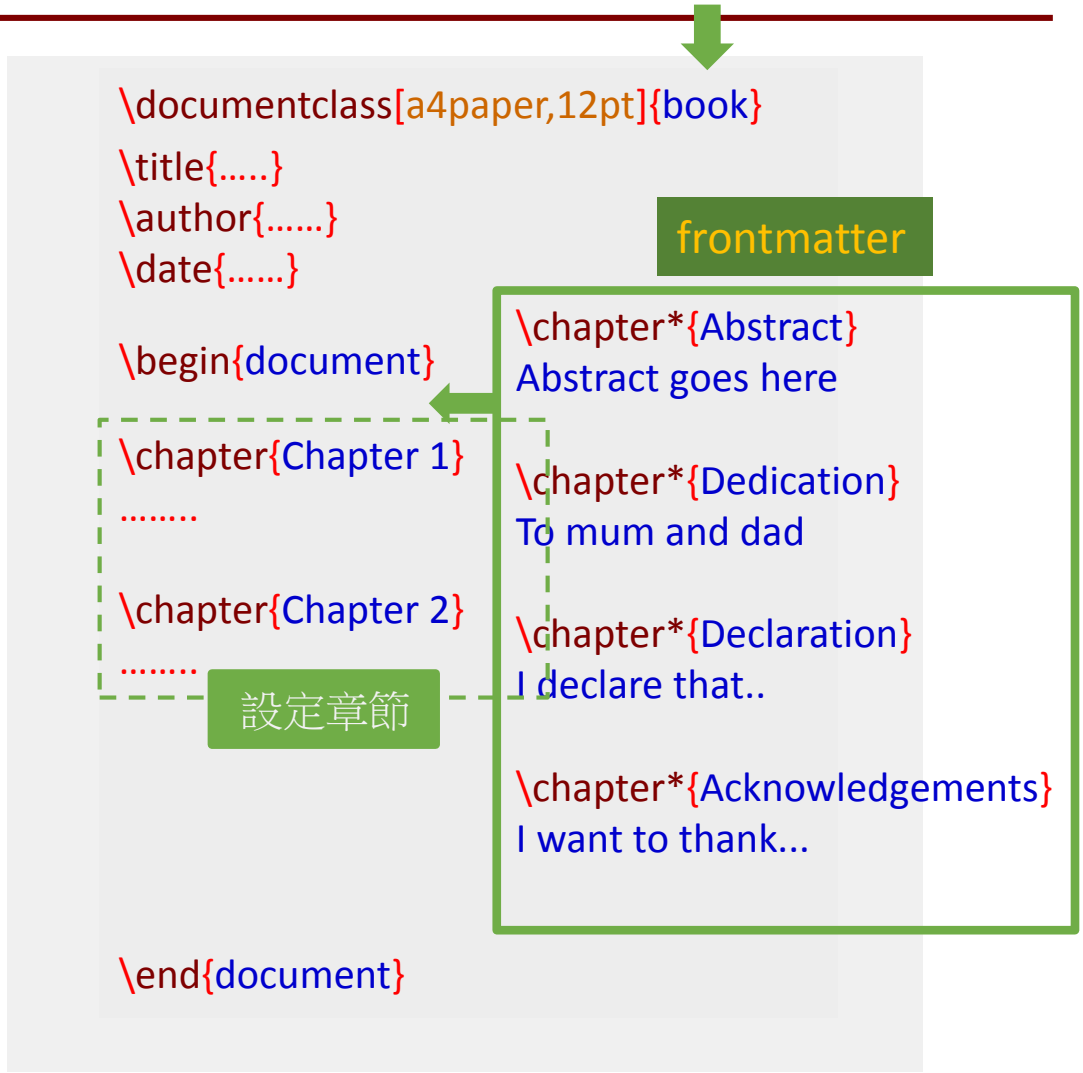
This is the first section.

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Etiam lobortisfacilisis sem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdietmi nec ante. Donec ullamcorper, felis non sodales...

2 Second Section

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Etiam lobortis facilisissem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdiet mi necante...

範例



-1	\part{part}
0	\chapter{chapter}
1	\section{section}
2	\subsection{subsection}
3	\subsubsection{subsubsection}
4	\paragraph{paragraph}
5	\subparagraph{subparagraph}

Appendix

```
\appendix
\section{名稱} or \chapter{名稱}
```

範例

```
\documentclass[a4paper,12pt]{article}
\title{.....}
\author{.....}
\date{.....}
\usepackage{appendix}

\begin{document}

\section{Introduction}
.....

\section{Second Section }
.....

\appendixpage

\appendix
\section{Section A}
.....

\end{document}
```

製作章節附錄

```
\begin{subappendices}
\subsection{ How I became inspired}
\end{ subappendices}
```

製作附錄

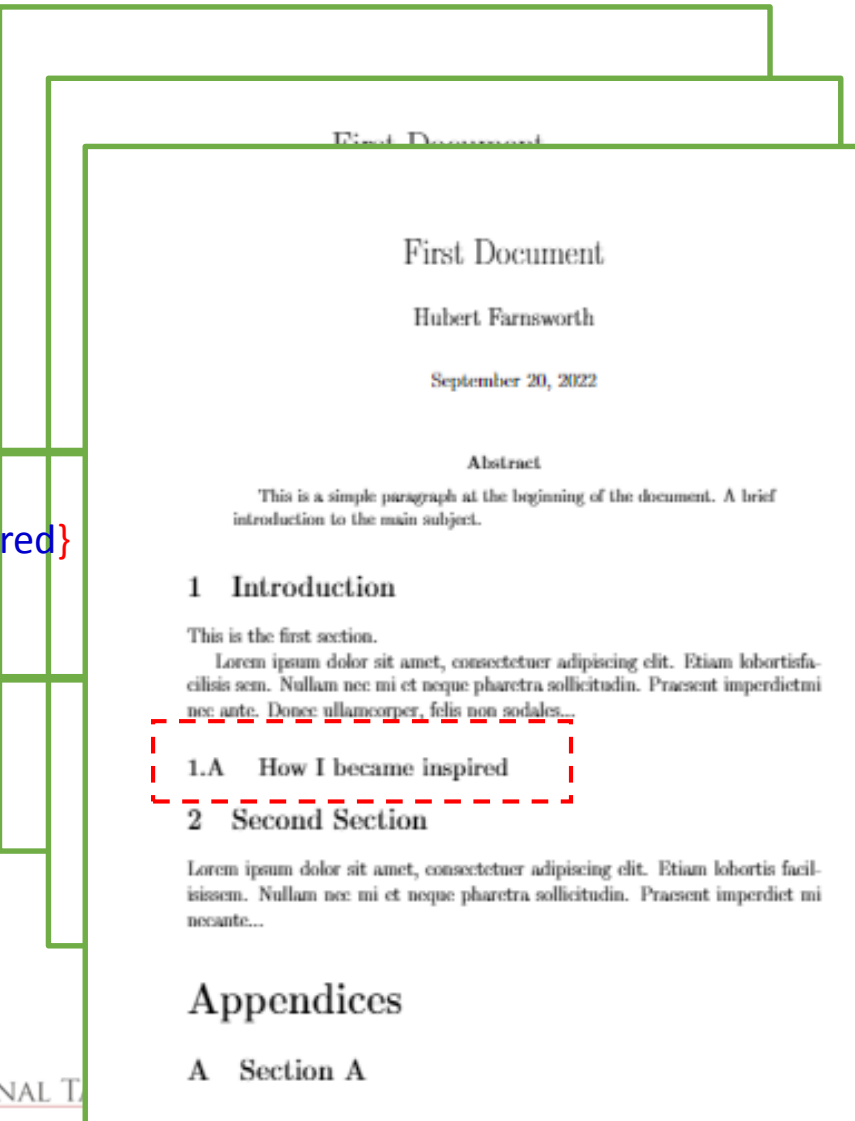


Table of Contents

\tableofcontents

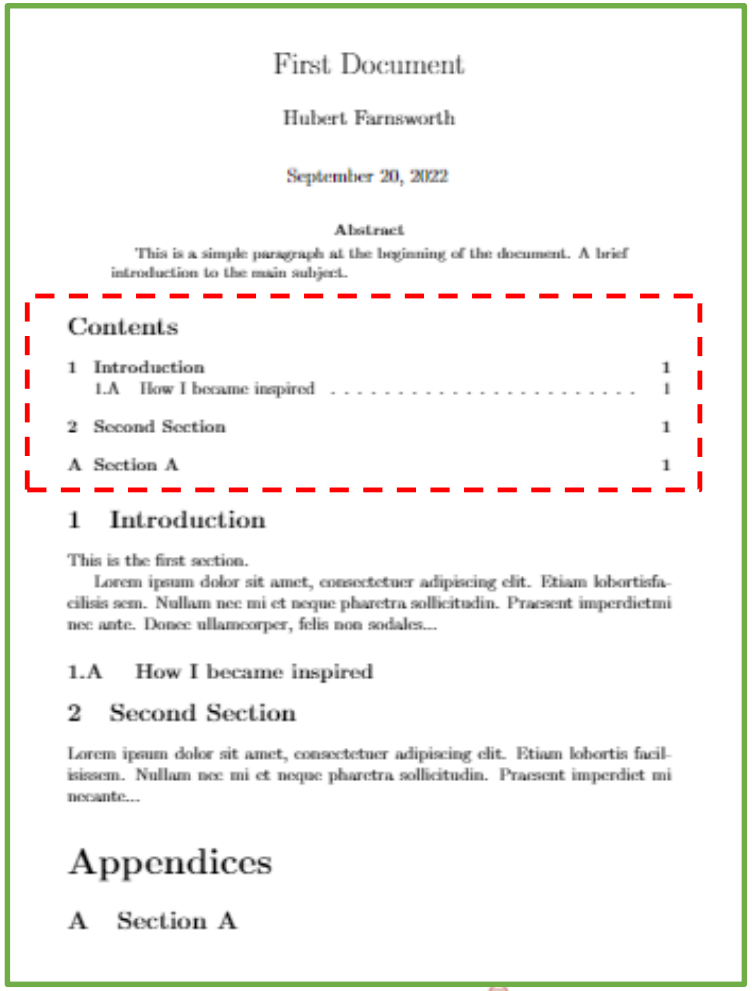
範例

```
\documentclass[a4paper,12pt]{article}
.....

\begin{document}
\maketitle
\tableofcontents

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

設定目錄

設定超連結

```
\usepackage{hyperref}
```



First Document

Hubert Farnsworth

September 20, 2022

Abstract

This is a simple paragraph at the beginning of the document. A brief introduction to the main subject.

Contents

1 Introduction 1
1.A How I became inspired 1
2 Second Section 1
A Section A 1

1 Introduction

This is the first section.

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Etiam lobortisfacilisis sem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdietmi nec ante. Donec ullamcorper, felis non sodales...

1.A How I became inspired

2 Second Section

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Etiam lobortis facilisissem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdiet mi necante...

Appendices

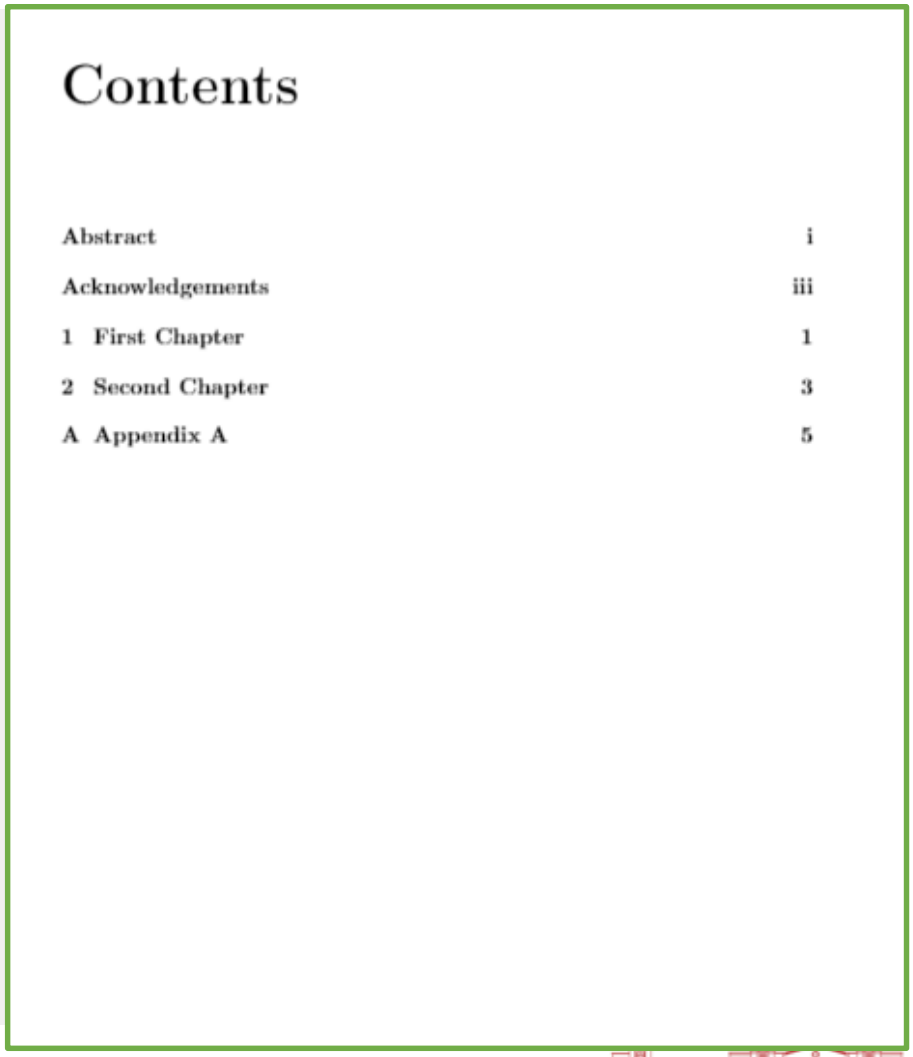
A Section A

範例

```
\documentclass[a4paper,12pt]{book}

\begin{document}

\frontmatter
\chapter*{Abstract}
\addcontentsline{toc}{chapter}{Abstract}
Abstract goes here

\chapter*{Acknowledgements}
\addcontentsline{toc}{chapter}{Acknowl
edgements}
I want to thank...

\tableofcontents

\mainmatter
\chapter{First Chapter}

\end{document}
```

宣告前頁章節

宣告正文章節



Contents

Abstract i

Acknowledgements iii

1 First Chapter 1

2 Second Chapter 3

A Appendix A 5

Bibliography

```
\begin{thebibliography}{99}
\bibitem {名稱}
  文獻書目資料
   ……
\end {thebibliography}
```

文獻筆數，上限為99

```
\cite{名稱}
```

範例 - 步驟1

```
\documentclass[a4paper,12pt]{article}


\begin{document}

設定文獻目錄
\begin{thebibliography}{99}
\bibitem {latexcompanion}
Michel Goossens, ……..

\bibitem {einstein}
Albert Einstein. ……..

\bibitem {knuthwebsite}
Knuth. ……..

\end {thebibliography}


\end{document}
```

1 First section

This document is an example of `thebibliography` environment using in bibliography management. Three items are cited: *The LaTeX Companion* book [1], the Einstein journal paper [2], and the Donald Knuth's website [3]. The LaTeX related items are [1, 3].

References

[1] Michel Goossens, Frank Mittelbach, and Alexander Samarin. *The LaTeX Companion*. Addison-Wesley, Reading, Massachusetts, 1993.

[2] Albert Einstein. *Zur Elektrodynamik bewegter Körper*. (German) [*On the electrodynamics of moving bodies*]. Annalen der Physik, 322(10):891–921, 1905.

[3] Knuth: Computers and Typesetting, `http://www-cs-faculty.stanford.edu/~uno/abcde.html`

範例 - 步驟2

```
\documentclass[a4paper,12pt]{article}

\begin{document}

This document is an example of
thebibliography environment using in
bibliography management. Three items are
cited: The LaTeX Companion book
\cite{ latexcompanion}, the Einstein paper
\cite{einstein}, and the
Donald Knuth's website \cite{knuthwebsite}.
The LaTeX related items are
\cite{latexcompanion,knuthwebsite}.

\end{document}
```

設定引用文獻

文獻目錄指令

1 First section

This document is an example of `thebibliography` environment using in bibliography management. Three items are cited: *The LaTeX Companion* book [1], the Einstein journal paper [2], and the Donald Knuth's website [3]. The LaTeX related items are [1, 3].

References

[1] Michel Goossens, Frank Mittelbach, and Alexander Samarin. *The LaTeX Companion*. Addison-Wesley, Reading, Massachusetts, 1993.

[2] Albert Einstein. *Zur Elektrodynamik bewegter Körper*. (German) [*On the electrodynamics of moving bodies*]. Annalen der Physik, 322(10):891–921, 1905.

[3] Knuth: Computers and Typesetting, `http://www-cs-faculty.stanford.edu/~uno/abcde.html`

範例：.bib 檔案

filename.bib

bib檔案範例

```
@article{einstein,
    author        = {Albert Einstein},
    title         = {Zur Elektrodynamik bewegter K{\"o}rper. (German) [On the electrodynami
    journaltitle  = {Annalen der Physik},
    year          = {1905},
    volume        = {322},
    number        = {10},
    pages         = {891-921},
    doi           = {http://dx.doi.org/10.1002/andp.19053221004}
}

@online{knuthwebsite,
    author        = {Donald Knuth},
    title         = {Knuth: Computers and Typesetting},
    year          = {1984},
    url           = {http://www-cs-faculty.stanford.edu/~uno/abcde.html}
}

@book{latexcompanion,
    author        = {Michel Goossens and Frank Mittelbach and Alexander Samarin},
    title         = {The \LaTeX\ Companion},
    year          = {1993},
    publisher     = {Addison-Wesley},
    location      = {Reading, Massachusetts}
}
```

設定文獻名稱

bib檔案欄位

Most common fields used in BibTeX

address	annote	author
booktitle	chapter	crossref
edition	editor	institution
journal	key	month
note	number	organization
pages	publisher	school
series	title	type
volume	year	URL
ISBN	ISSN	LCCN
abstract	keywords	price
copyright	language	contents

範例：.bib 檔案

```
\documentclass[a4paper,12pt]{article}

\begin{document}
.....
\bibliographystyle{plain}
\bibliography{sampl  bib}

\end{document}
```

設定引用bib檔案製作文獻目錄

bibliographystyle

plain, abbrv, acm, alpha, apalike, ieeetr, siam, unsrt

文獻目錄格式選項

TeXMaker編譯注意事項

pdflatex filename.tex
bibtex filename.tex
pdflatex filename.tex

TEXMAKER

"Tools" menu :

- Quick build : F1
- Latex : F2
- View dvi : F3
- Dvi->PS : F4
- View PS : F5
- Pdflatex : F6
- View Pdf : F7
- PS->Pdf : F8
- Dvi->Pdf : F9
- View log : F10
- Bibtex : F11
- Make index : F12

Figures

```
\usepackage{graphicx}
\graphicspath{ {./images/} }
```

設定檔案路徑

```
\begin{figure}[ht]
   \centering
   \includegraphics [width=8cm] {檔案名稱 }
   \caption{說明文字}
   \label{名稱}
\end{figure}
```

height, scale

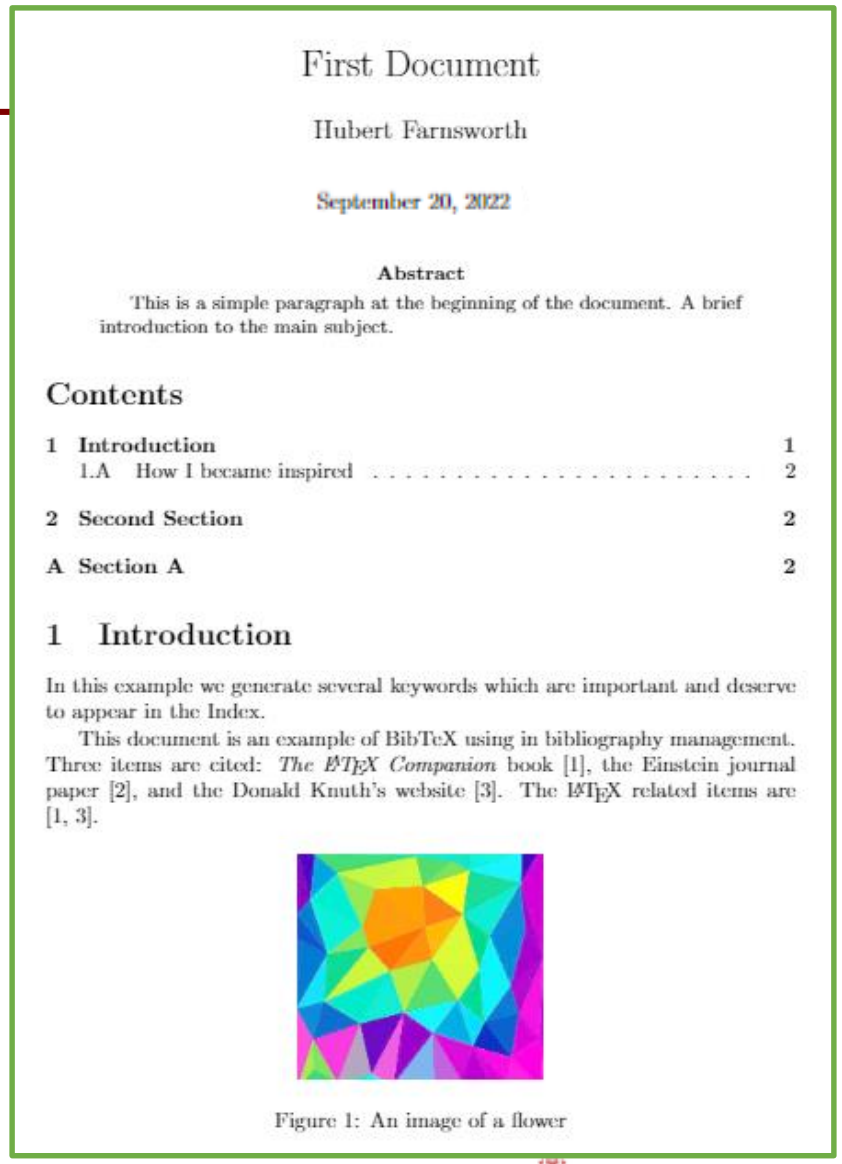
height：設定高度
scale：設定比例

範例

```
\documentclass[a4paper,12pt]{article}
.....

\usepackage{graphicx}


\begin{document}
.....
```

設定插入圖片

```
\begin{figure}[ht]
   \centering
   \includegraphics[width=4cm]{Image }
   \caption{An image of a flower}
   \label{fig:flower}
\end{figure}


\end{document}
```



First Document

Hubert Farnsworth

September 20, 2022

Abstract

This is a simple paragraph at the beginning of the document. A brief introduction to the main subject.

Contents

1 Introduction 1
1.A How I became inspired 2

2 Second Section 2

A Section A 2

1 Introduction

In this example we generate several keywords which are important and deserve to appear in the Index.

This document is an example of BibTeX using in bibliography management. Three items are cited: *The LaTeX Companion* book [1], the Einstein journal paper [2], and the Donald Knuth's website [3]. The LaTeX related items are [1, 3].

Figure 1: An image of a flower

範例

\usepackage{sidecap}

圖片文字置右

```
\begin{SCfigure}[0.5][h]
\caption{Using again the picture of the universe.
This caption will be on the right}
\includegraphics[width=0.6\textwidth]{universe}
\end{SCfigure}
```

Figure 2: Using again the picture of the universe. This caption will be on the right

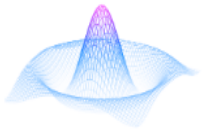
\usepackage{wrapfig}

設定文繞圖效果

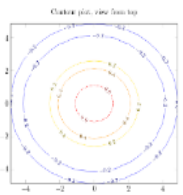
```
\begin{wrapfigure}{r}{0.25\textwidth}
    \centering
    \includegraphics[width=0.25\textwidth]{mesh}
\end{wrapfigure}
```

```
\begin{wrapfigure}{l}{0.25\textwidth}
    \centering
    \includegraphics[width=0.25\textwidth]{contour}
\end{wrapfigure}
```

There are several ways to plot a function of two variables, depending on the information you are interested in. For instance, if you want to see the mesh of a function so it easier to see the derivative you can use a plot like the one on the left.



On the other side, if you are only interested on certain values you can use the contour plot, you can use the contour plot, you can use the contour plot, you can use the contour plot, you can use the contour plot, you can use the contour plot, you can use the contour plot, like the one on the left.



On the other side, if you are only interested on certain values you can use the contour plot, you can use the contour plot, you can use the contour plot, you can use the contour plot, you can use the contour plot, you can use the contour plot, like the one on the left.

範例

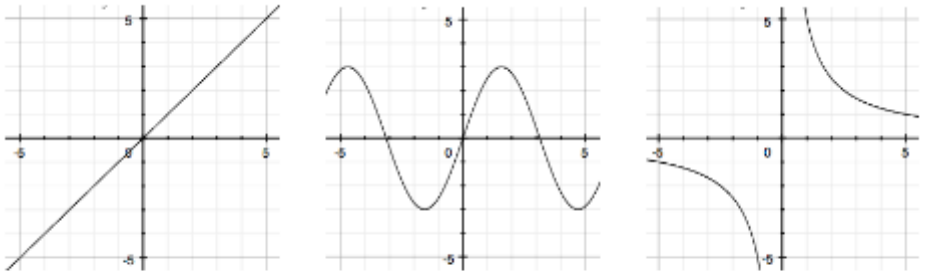


Figure 3.1: Three simple graphs

```
\usepackage{subcaption}
\begin{figure}
    \centering
    \begin{subfigure}[b]{0.3\textwidth}
        \centering
        \includegraphics[width=\textwidth]{graph1}
        \caption{$y=x$}
        \label{fig:y equals x}
    \end{subfigure}
    \hfill
    \begin{subfigure}[b]{0.3\textwidth}
        \centering
        \includegraphics[width=\textwidth]{graph2}
        \caption{$y=3sinx$}
        \label{fig:three sin x}
    \end{subfigure}
    \hfill
    \begin{subfigure}[b]{0.3\textwidth}
        \centering
        \includegraphics[width=\textwidth]{graph3}
        \caption{$y=5/x$}
        \label{fig:five over x}
    \end{subfigure}
    \caption{Three simple graphs}
    \label{fig:three graphs}
\end{figure}
```

設定插入子圖片(a)

設定插入子圖片(b)

設定插入子圖片(c)

List of Figures

```
\listoffigures
```

範例

```
\documentclass{article}
\usepackage[utf8]{inputenc}

\begin{document}
\tableofcontents
\listoffigures
...
\end{document}
```

設定圖片目錄

First Document

Hubert Farnsworth

September 20, 2022

Abstract

This is a simple paragraph at the beginning of the document. A brief introduction to the main subject.

Contents

1 Introduction 1
1.A How I became inspired 1
2 Second Section 1
A Section A 2

List of Figures

1 An image of a flower 2

important and deserve

iography management.
], the Einstein journal
TEX related items are

. Etiam lobortis facil-
Praesent imperdiet mi

1

About image types in LaTeX

圖片格式注意事項

latex

When compiling with *latex*, we can only use EPS images, which is a vector format.

pdflatex

If we are compiling using "pdflatex" to produce a PDF, then we can use a number of image formats -

```
JPG: Best choice if we want to insert photos
PNG: Best choice if we want to insert diagrams (if a vector version could not be generat
PDF: Even though we are used to seeing PDF documents, a PDF can also store images
EPS: EPS images can be included using the epstopdf package (we just need to install the
     don't need to use \usepackage{} to include it in our document.)
```

Tables

表格環境

```
\begin{table}[]
    \begin{tabular}{ |c|c| }
        \hline
        內容 & 內容 \\
        \hline
        內容 & 內容 \\
        \hline
    \end{tabular}
    \caption{說明文字}
    \label{標籤}
\end{table}
```

表格內容

列邊線

|：欄邊線
c：置中

&：分隔不同欄位
\\：換行

範例

```
\begin{center}
\begin{tabular}{ c c c }
 cell1 & cell2 & cell3 \\
 cell4 & cell5 & cell6 \\
 cell7 & cell8 & cell9
\end{tabular}
\end{center}
```

設定無邊線表格

cell1	cell2	cell3
cell4	cell5	cell6
cell7	cell8	cell9

```
\begin{center}
\begin{tabular}{ |c|c|c| }
 \hline
 cell1 & cell2 & cell3 \\
 cell4 & cell5 & cell6 \\
 cell7 & cell8 & cell9 \\
 \hline
\end{tabular}
\end{center}
```

部分含邊線表格

cell1	cell2	cell3
cell4	cell5	cell6
cell7	cell8	cell9

```
\begin{tabular}{ |l | c |r | }
  \hline
   item11 & item12 & item13 \\
  \hline
   item21 & item22 & item23 \\
 \hline
\end{tabular}
```

全部有邊線表格

item 11	item 12	item 13
item 21	item 22	item 23

範例

Day	Max Temp	Min Temp
Mon	20	13
Tue	22	14
Wed	23	12
Thurs	25	13
Fri	18	7
Sat	15	13
Sun	20	13

(a) First Week

Day	Max Temp	Min Temp
Mon	17	11
Tue	16	10
Wed	14	8
Thurs	12	5
Fri	15	7
Sat	16	12
Sun	15	9

(b) Second Week

Table 4.2: Max and min temps recorded in the first two weeks of July

```
\begin{table}[h]
  \begin{subtable}[h]{0.45\textwidth}
      \centering
      \begin{tabular}{l | l | l}
      Day & Max Temp & Min Temp \\
      \hline \hline
      Mon & 20 & 13\\
      Tue & 22 & 14\\
      Wed & 23 & 12\\
      Thurs & 25 & 13\\
      Fri & 18 & 7\\
      Sat & 15 & 13\\
      Sun & 20 & 13
     \end{tabular}
     \caption{First Week}
     \label{tab:week1}
  \end{subtable}
  \hfill
```

設定插入子表格

```
  \begin{subtable}[h]{0.45\textwidth}
      \centering
      \begin{tabular}{l | l | l}
      Day & Max Temp & Min Temp \\
      \hline \hline
      Mon & 17 & 11\\
      Tue & 16 & 10\\
      Wed & 14 & 8\\
      Thurs & 12 & 5\\
      Fri & 15 & 7\\
      Sat & 16 & 12\\
      Sun & 15 & 9
      \end{tabular}
      \caption{Second Week}
      \label{tab:week2}
  \end{subtable}
  \caption{Max and min temps recorded i
  \label{tab:temps}
\end{table}
```

設定插入子表格

List of Tables

```
\listoftables
```

範例

```
\documentclass{article}
\usepackage[utf8]{inputenc}

\begin{document}

\listoftables

...
\end{document}
```

設定表格目錄

List of Tables

1 Table to test captions and labels 4
2 Table to test wrapping text around a table 4

Mathematical Expressions

- Math modes
- Symbols
- Equations
- Matrix

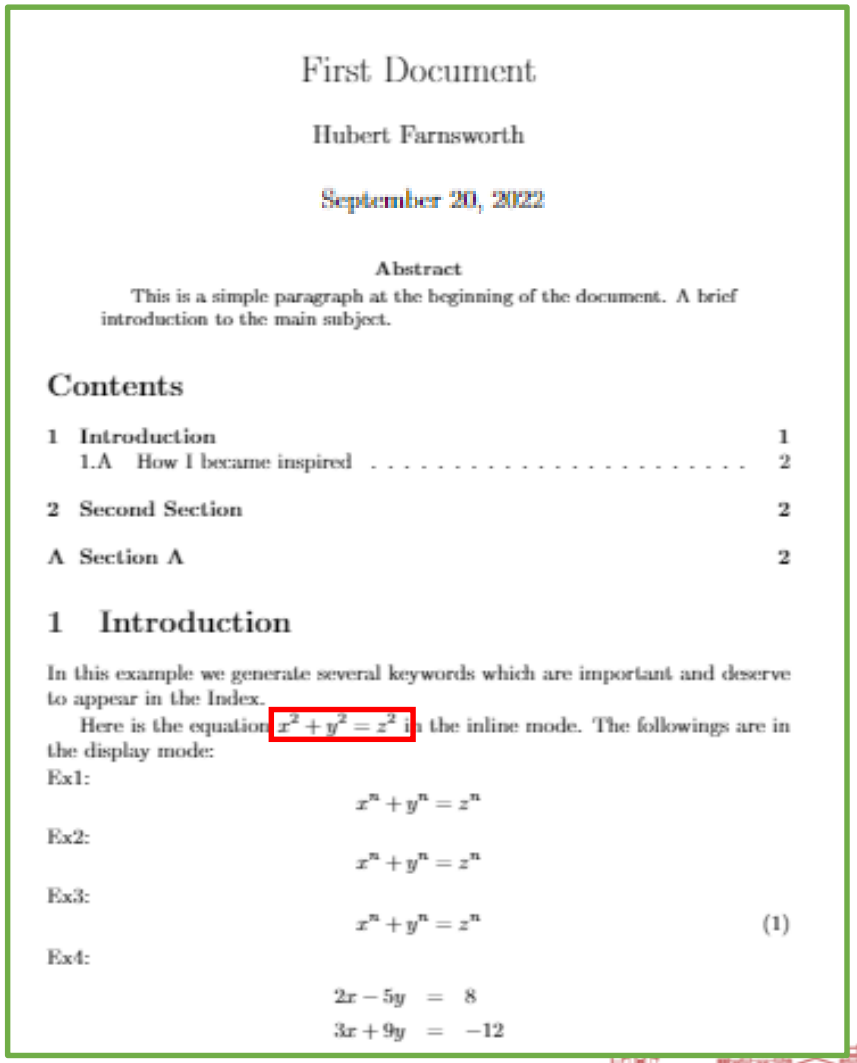
Math modes

inline mode

- \(x^2 + y^2 = z^2 \)
- $ x^2 + y^2 = z^2 $

display mode

- \[x^n + y^n = z^n \]
- $$ x^n + y^n = z^n $$
-
```
\begin{equation}
   x^n + y^n & = & z^n
\end{equation}
```
可編號引用
-
```
\begin{eqnarray*}
 2x - 5 y & = & 8 \\
 3x + 9y & = & -12
\end{eqnarray*}
```
可編號引用



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Hubert Farnsworth

September 20, 2022

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This is a simple paragraph at the beginning of the document. A brief introduction to the main subject.

Contents

1 Introduction 1
1.A How I became inspired 2
2 Second Section 2
A Section A 2

1 Introduction

In this example we generate several keywords which are important and deserve to appear in the Index.

Here is the equation $x^2 + y^2 = z^2$ in the inline mode. The followings are in the display mode:

Ex1:

$$x^n + y^n = z^n$$

Ex2:

$$x^n + y^n = z^n$$

Ex3:

$$x^n + y^n = z^n \quad (1)$$

Ex4:

$$\begin{aligned} 2x - 5y &= 8 \\ 3x + 9y &= -12 \end{aligned}$$

Symbols

數學符號語法

αA	\alpha A	νN	\nu N
βB	\beta B	$\xi \Xi$	\xi\Xi
$\gamma \Gamma$	\gamma \Gamma	oO	o O
$\delta \Delta$	\delta \Delta	$\pi \Pi$	\pi \Pi
$\epsilon \varepsilon E$	\epsilon \varepsilon E	$\rho \varrho P$	\rho\varrho P
ζZ	\zeta Z	$\sigma \Sigma$	\sigma \Sigma
ηH	\eta H	τT	\tau T
$\theta \vartheta \Theta$	\theta \vartheta \Theta	$\upsilon \Upsilon$	\upsilon \Upsilon
ιI	\iota I	$\phi \varphi \Phi$	\phi \varphi \Phi
κK	\kappa K	χX	\chi X
$\lambda \Lambda$	\lambda \Lambda	$\psi \Psi$	\psi \Psi
μM	\mu M	$\omega \Omega$	\omega \Omega

∞	\infty	$\forall$	\forall
$\Re$	\Re	$\Im$	\Im
∇	\nabla	$\exists$	\exists
∂	\partial	$\nexists$	\nexists
$\emptyset$	\emptyset	$\varnothing$	\varnothing
$\wp$	\wp	$\complement$	\complement
$\neg$	\neg	$\cdots$	\cdots
$\square$	\square	$\surd$	\surd
$\blacksquare$	\blacksquare	$\triangle$	\triangle

餘弦函數語法

\log	log
\sec	sec
\tan	tan
\arg	arg
\coth	coth
\dim	dim
\liminf	lim inf
\max	max
\sin	sin
\tanh	tanh

\cos	cos
\csc	csc
\exp	exp
\ker	ker
\limsup	lim sup
\min	min
\sinh	sinh
\arcsin	arcsin
\cosh	cosh
\deg	deg

$\times$	\times	$\times$	\times
$\div$	\div	$\cap$	\cap
$\cup$	\cup	$\neq$	\neq
$\leq$	\leq	$\geq$	\geq
$\in$	\in	$\perp$	\perp
$\notin$	\notin	$\subset$	\subset
$\simeq$	\simeq	$\approx$	\approx
$\wedge$	\wedge	$\vee$	\vee
$\oplus$	\oplus	$\otimes$	\otimes
$\square$	\Box	$\boxtimes$	\boxtimes
$\equiv$	\equiv	$\cong$	\cong

$\gcd$	gcd		
$\lg$	lg		
$\ln$	ln		
$\Pr$	Pr		
$\sup$	sup		
$\arctan$	arctan		
$\cot$	cot		
$\det$	det		
$\hom$	hom		
$\lim$	lim		

$\leftarrow$	\leftarrow	$\Leftarrow$	\Leftarrow
$\rightarrow$	\rightarrow	$\Rightarrow$	\Rightarrow
$\leftrightarrow$	\leftrightarrow	$\rightleftharpoons$	\rightleftharpoons
$\uparrow$	\uparrow	$\downarrow$	\downarrow
$\Uparrow$	\Uparrow	$\Downarrow$	\Downarrow
$\Leftrightarrow$	\Leftrightarrow	$\updownarrow$	\updownarrow
$\mapsto$	\mapsto	$\longmapsto$	\longmapsto
$\nearrow$	\nearrow	$\searrow$	\searrow
$\swarrow$	\swarrow	$\nwarrow$	\nwarrow
$\leftharpoonup$	\leftharpoonup	$\rightharpoonup$	\rightharpoonup
$\leftharpoondown$	\leftharpoondown	$\rightharpoondown$	\rightharpoondown

Equations

數學表示式語法

```
\frac{1} {2}
```

$$\frac{1}{2}$$

```
\sum_{n=1} ^{\infty} 2^{-n} = 1
```

$$\sum_{n=1}^{\infty} 2^{-n} = 1$$

```
\int_{a} ^{b} x^2 dx
```

$$\int_{a}^{b} x^2 dx$$

```
\oint_{V}  f (s) ds
```

$$\oint_{V} f(s)\,ds$$

```
\iint_{V}  \mu (u,v) du dv
```

$$\iint_{V} \mu(u,v)\,du\,dv$$

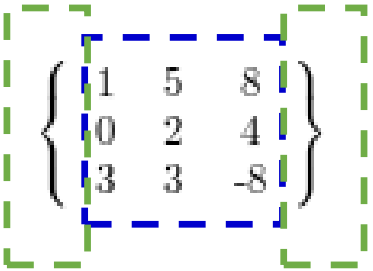
```
\idotsint_{V}  \mu (u_1, \dots, u_k)
du_1 \dots du_k
```

$$\idotsint_{V} \mu(u_1, \dots, u_k)\,du_1 \dots du_k$$

Matrix

設定矩陣

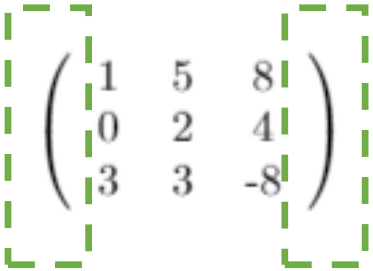
```
\begin{equation}
  \left \{
    \begin{tabular}
      1 & 5 & 8 \\
      0 & 2 & 4 \\
      3 & 3 & -8
    \end{tabular}
  \right \}
\end{equation}
```



大括弧

矩陣元素

```
\begin{equation}
  \left (
    \begin{tabular}
      1 & 5 & 8 \\
      0 & 2 & 4 \\
      3 & 3 & -8
    \end{tabular}
  \right )
\end{equation}
```



小括弧

Cross references

Figures, Tables, Equations

```
\label {名稱}
```

```
\ref{名稱}
```

範例

```
\begin{figure}[h]
    \centering
    \includegraphics[width=0.25\textwidth]{mesh}
    \caption{a nice plot}
    \label{fig:mesh1}
\end{figure}

As you can see in the figure \ref{fig:mesh1}, the
function grows near 0. Also, in the page \pageref{fig:mesh1}
is the same example.
```

設定引用圖表

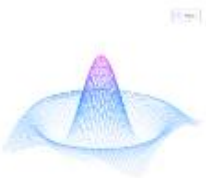


Figure 3: a nice plot

As you can see in the figure 3, the function grows near 0. Also, in the page 7 is the same example.

$$e^{\pi i} + 1 = 0 \tag{1}$$

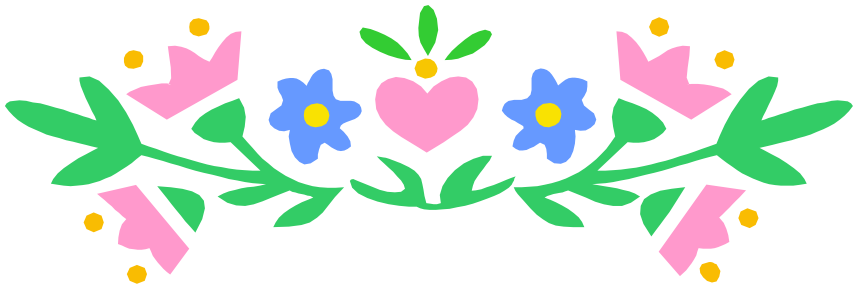
The beautiful equation 1 is known as the Euler equation

```
\begin{equation}\label{eu_eqn}
e^{\pi i} + 1 = 0
\end{equation}

The beautiful equation \ref{eu_eqn} is known as the Euler equation
```

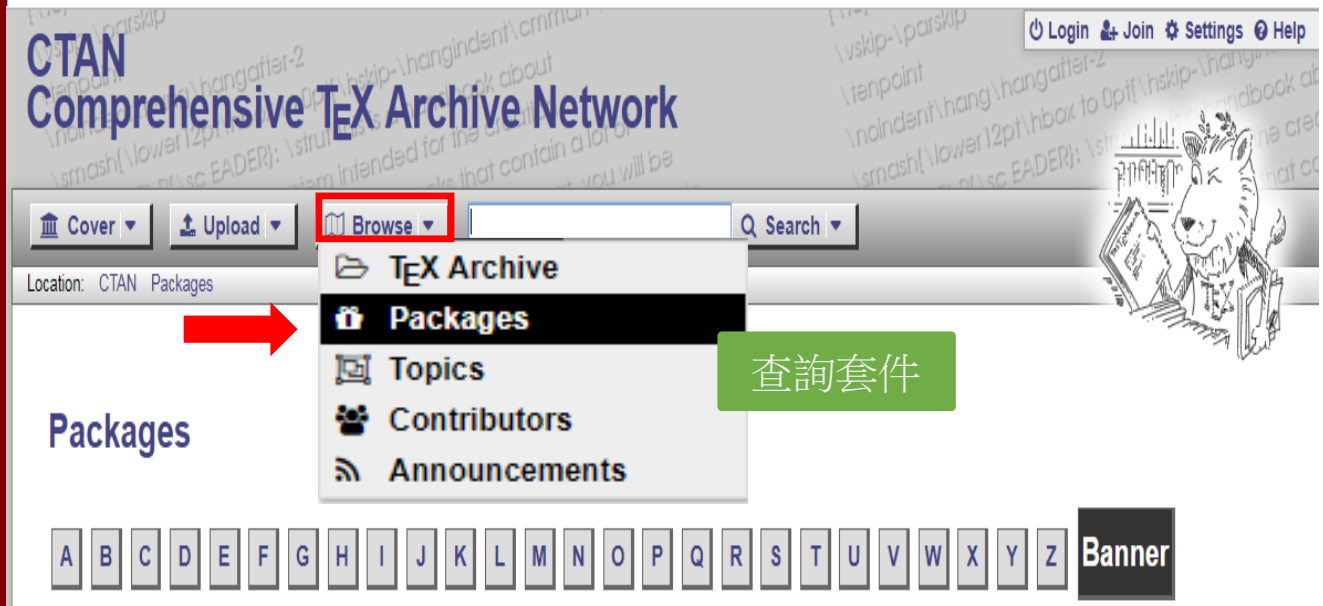
設定引用數學式

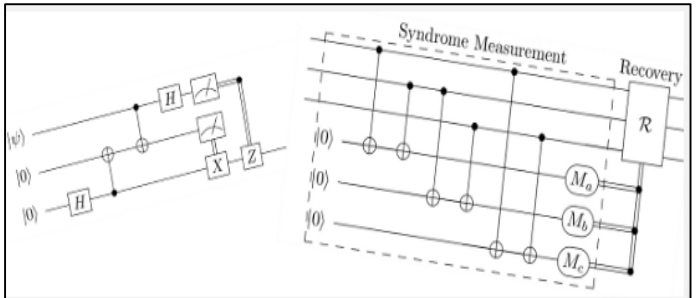
增加Package



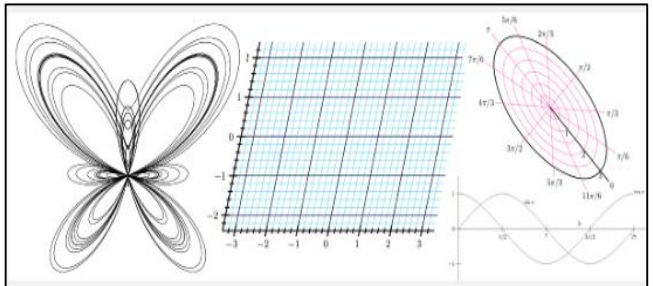
https://ctan.org/starter

CTAN





qcircuit
Macros to generate quantum ciruits



xpicture
Extensions of LaTeX picture drawing

費曼圖

tikz-feynman – Feynman diagrams with TikZ

This is a LaTeX package allowing Feynman diagrams to be easily generated within LaTeX with minimal user instructions and without the need of external programs. It builds upon the TikZ package and leverages the graph placement algorithms from TikZ in order to automate the placement of many vertices. `tikz-feynman` allows fine-tuned placement of vertices so that even complex diagrams can still be generated with ease.

Sources	/graphics/pgf/contrib/tikz-feynman
Documentation	README.md Package documentation
Home page	http://www.jpellis.me/projects/tikz-feynman
Version	1.1.0 2016-02-05
Licenses	The LaTeX Project Public License 1.3
Copyright	2015–2016 Joshua Ellis
Maintainer	Joshua Ellis
Contained in	TeX Live as tikz-feynman MiKTeX as tikz-feynman
Topics	Use luatex Physics PGF TikZ
See also	TikZ-FeynHand

Downlo 下載套件 package in one zip archive (343.3k).

Community Comments

No comments on this package are available yet. You can be the first to rate this package!

Package Links

Home page

Announcements

2016-02-06 CTAN update: tikz-feynman

2016-01-21 New on CTAN: tikz-feynman

more

Suggestions

Maybe you are interested in the following packages as well.

- feynman: Feynman diagrams in LaTeX 2.09
- tikz-feynhand: Feynman diagrams with TikZ
- pgf-spectra: Draw continuous or discrete spectra using PGF/TikZ
- callouts: Put simple annotations and notes inside a picture

more

Rating Summary

☆☆☆☆☆
Ø 0 [No votes]
This package has not been rated yet. You can be the first one to rate it.

My Rating

Only registered and authenticated members may vote. Please Login to vote.

化學元素符號

Chemfig
Ochem
Streetex
xymtex

chemfig – Draw molecules with easy syntax

The package provides the command `\chemfig{<code>}`, which draws molecules using the tikz package. The `<code>` argument provides instructions for the drawing operation.

While the diagrams produced are essentially 2-dimensional, the package supports many of the conventional notations for illustrating the 3-dimensional layout of a molecule.

The package uses TikZ for its actual drawing operations.

Sources	/macros/generic/chemfig
Documentation	README Package documentation (English) Package documentation (French)
Bug tracker	https://framagit.org/unbonpetit/chemfig/is
Repository	https://framagit.org/unbonpetit/chemfig/t
Version	1.33
Licenses	The LaTeX Project Public License 1.3c
Copyright	2010–2018 Christian Tellechea
Maintainer	Christian Tellechea
Contained in	TeX Live as chemfig MiKTeX as chemfig
Topics	Diagrams Chemistry PGF TikZ

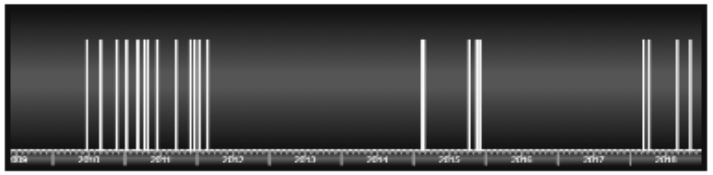
下載套件

Do his package in one zip arch

Community Comments

★★★★★ Héctor Armando Esquinca Avilés 2017-07-27
★★★★★ Clemens Niederberger 2017-03-03
★★★★★ Denis Bitouzé 2016-12-19
★★★★★ matmay 2016-12-18

Announcements



-02 CTAN update: chemfig
-07 CTAN update: chemfig
-09 CTAN Update: chemfig

more

stions

re interested in the following packages as well.

aphs: Draws bond graphs in LaTeX, using PGF/TikZ
h: Augmenting directed graphs
work: Draw networks with TikZ
der: Draw ladder diagrams using TikZ

more

Summary

4
0
0
0
0

Bond types

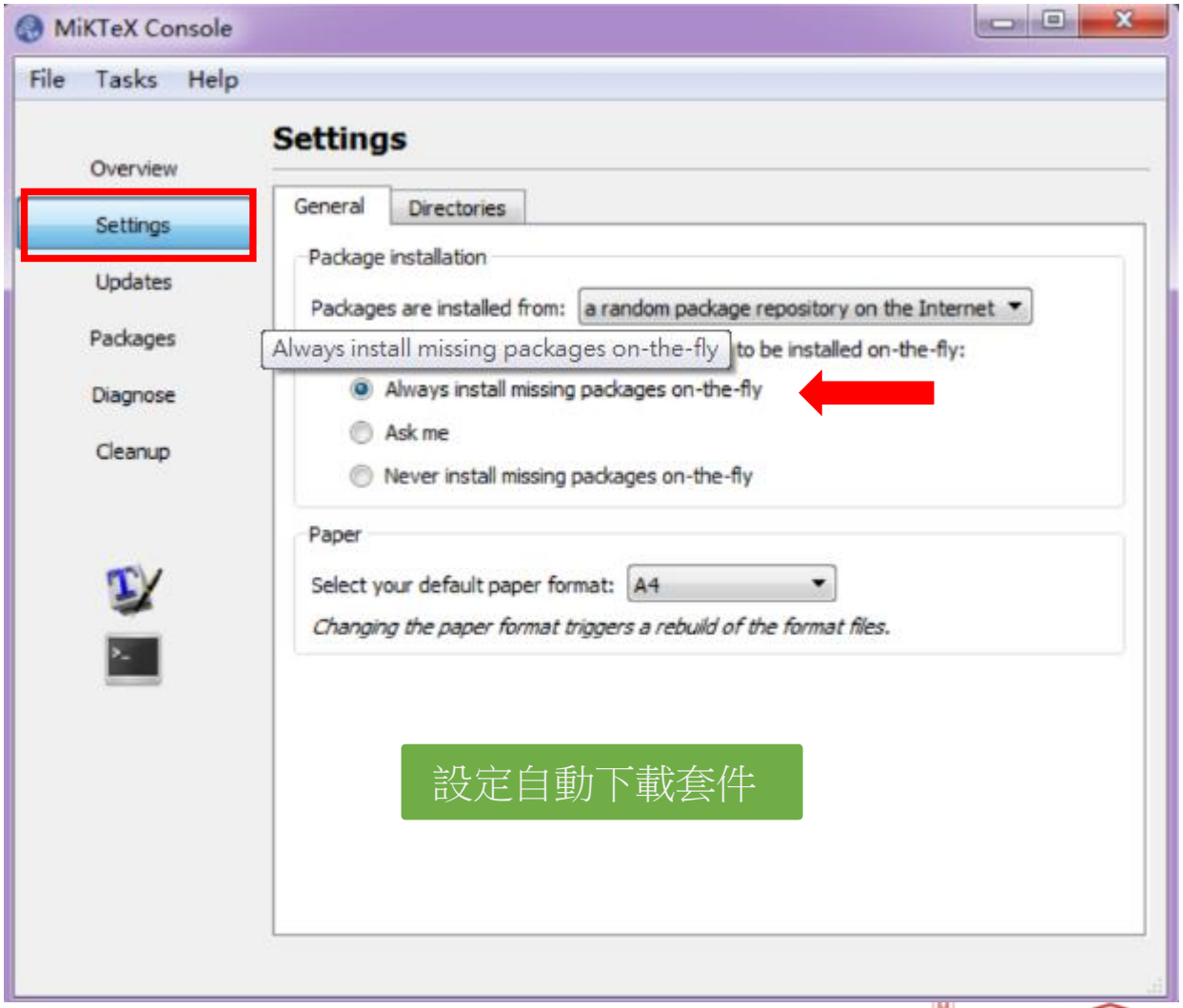
Bond type	code	output
single	`\chemfig{O - H}`	O — H
double	`\chemfig{O = H}`	O = H
triple	`\chemfig{O ~ H}`	O ≡ H
plain right cram	`\chemfig{O > H}`	O ▶ H
plain left cram	`\chemfig{O < H}`	O ◀ H
dashed right cram	`\chemfig{O >: H}`	O ⁞▷ H
dashed left cram	`\chemfig{O <: H}`	O ◁⁞ H
hollow right cram	`\chemfig{O >| H}`	O ▷ H
hollow left cram	`\chemfig{O <| H}`	O ◁ H

MiKTeX – Packages management

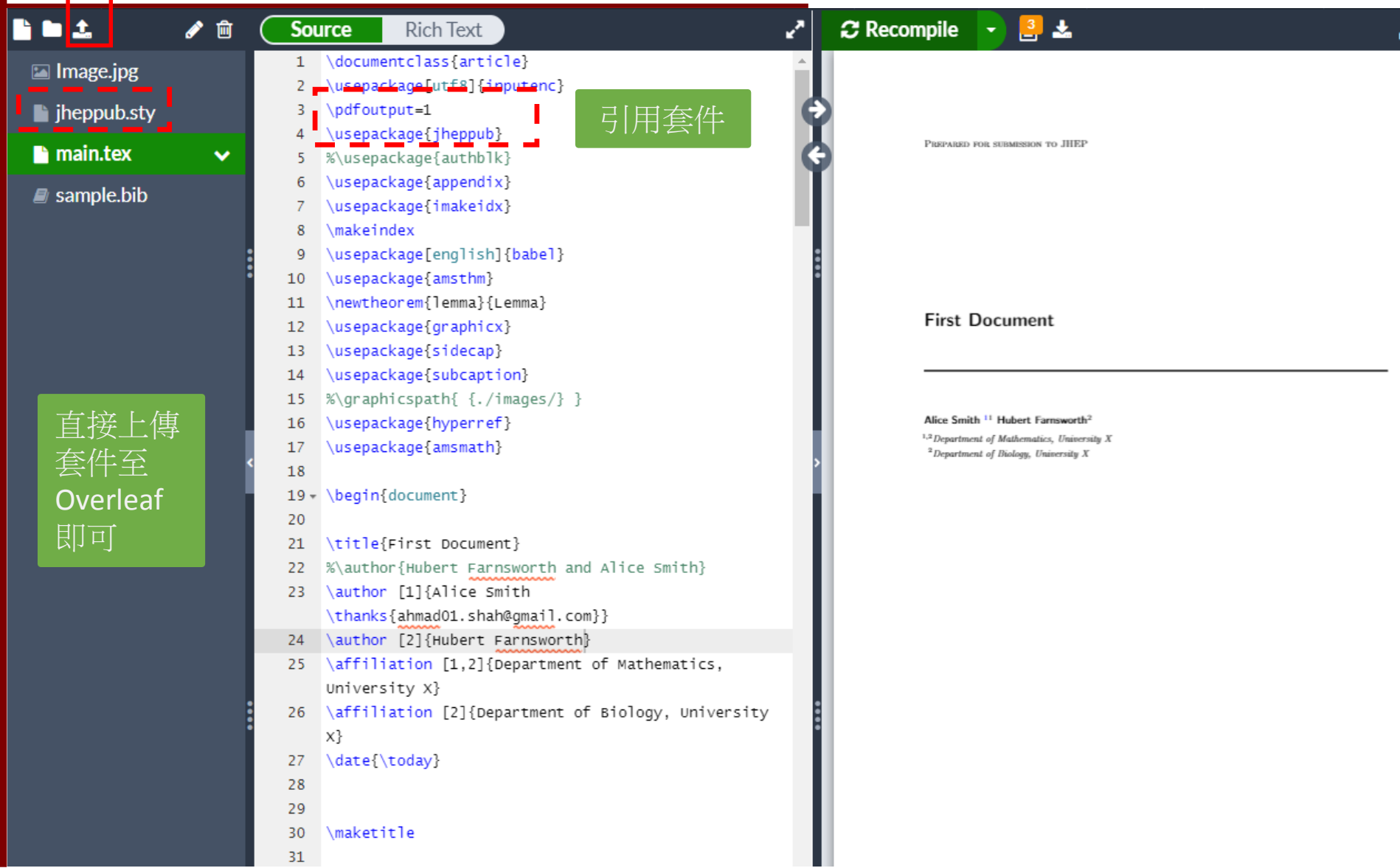
MiKTeX has the ability to automatically install missing packages.
You can turn this feature on or off. And you can let MiKTeX ask you each time a package has to be installed:

1.Click Settings to navigate to the settings page.
2.Click the General tab.
3.Click one of the radio buttons:

- •Ask me
- •Always install missing packages on-the-fly
- •Never install missing packages on-the-fly



Overleaf - Packages upload



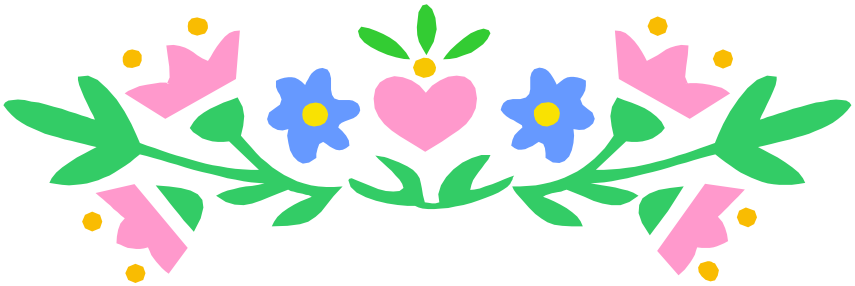
參考資源

https://www.overleaf.com/learn

https://texfaq.org/

Frequently Asked Question List for TeX

https://tug.org/



謝謝聆聽