

# 使用 LaTeX 撰寫報告

2010/12/5

Chih-Han Lin 林致翰

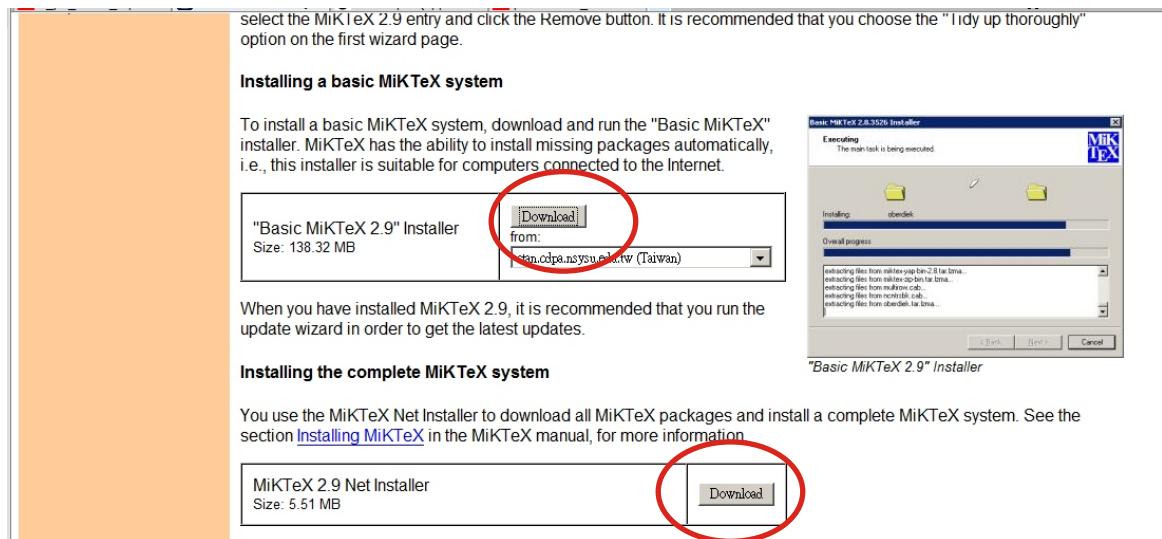
clin@ltl.iams.sinica.edu.tw

or r99245002@ntu.edu.tw

# 安裝 TeX

## Windows:

<http://miktex.org/2.9/setup> 下載 Miktex 2.9 安裝檔



## Mac OS:

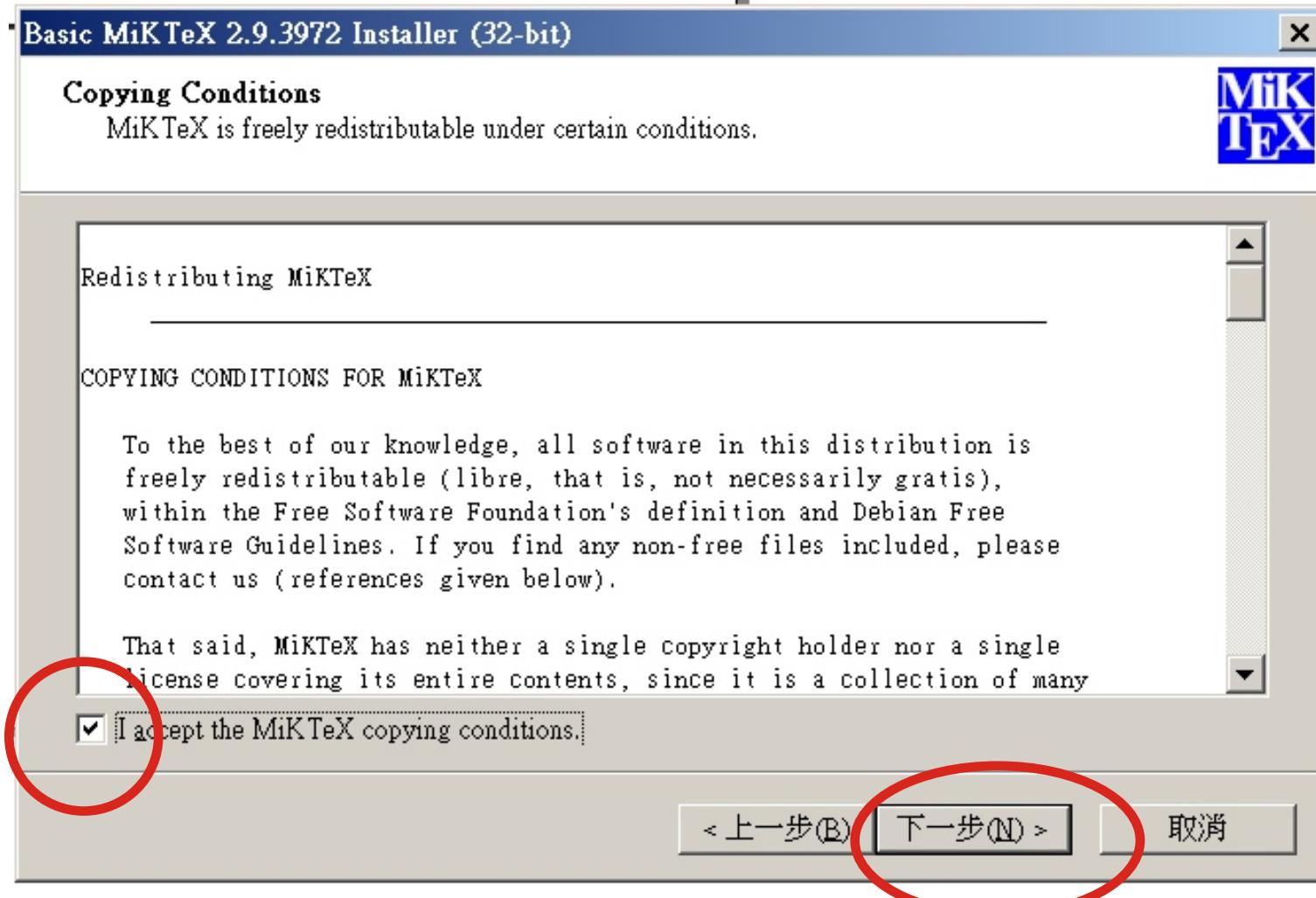
請自行google

## Linux:

請用該 distribution 的套件安裝程式抓相關套件

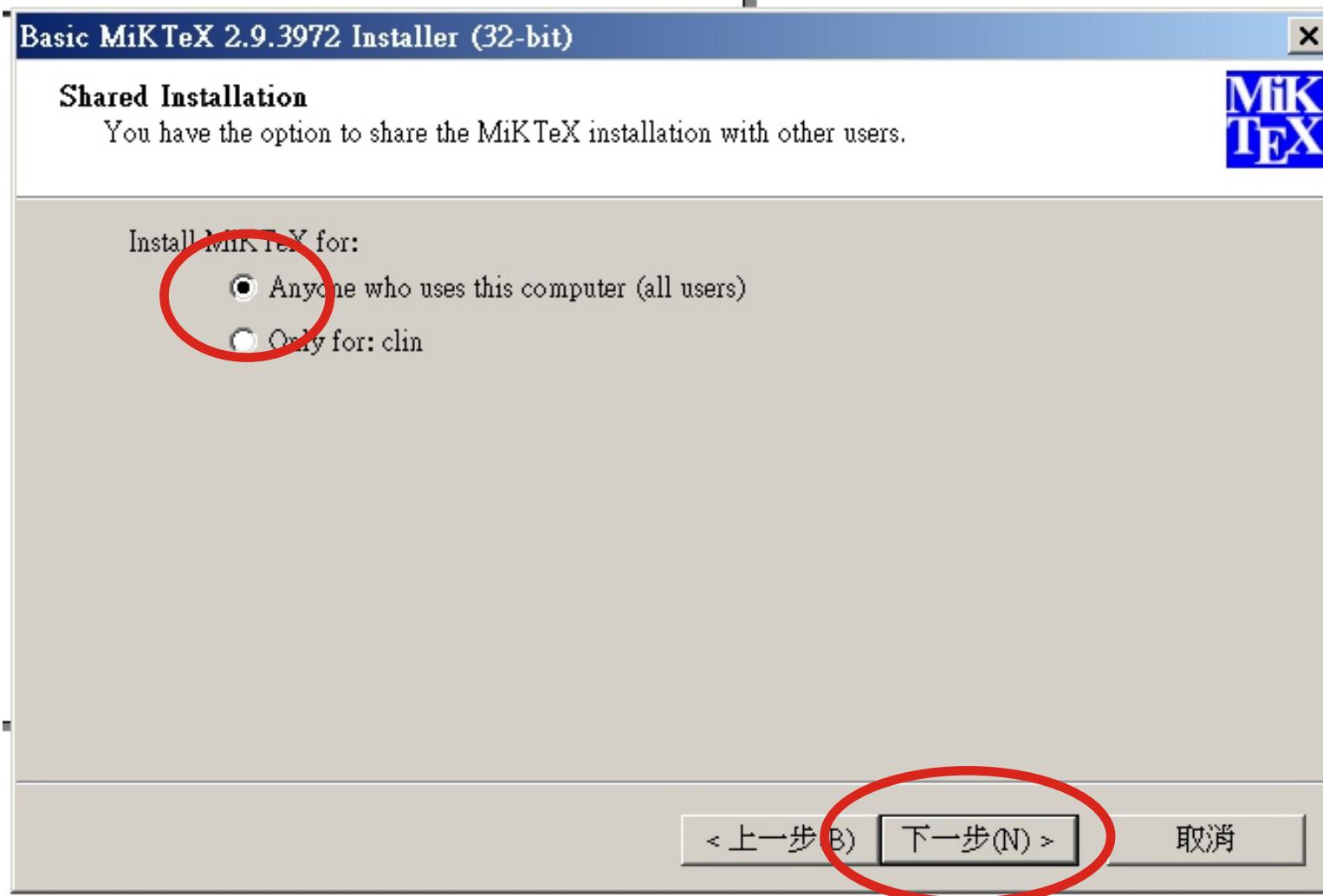
# Step by Step

---



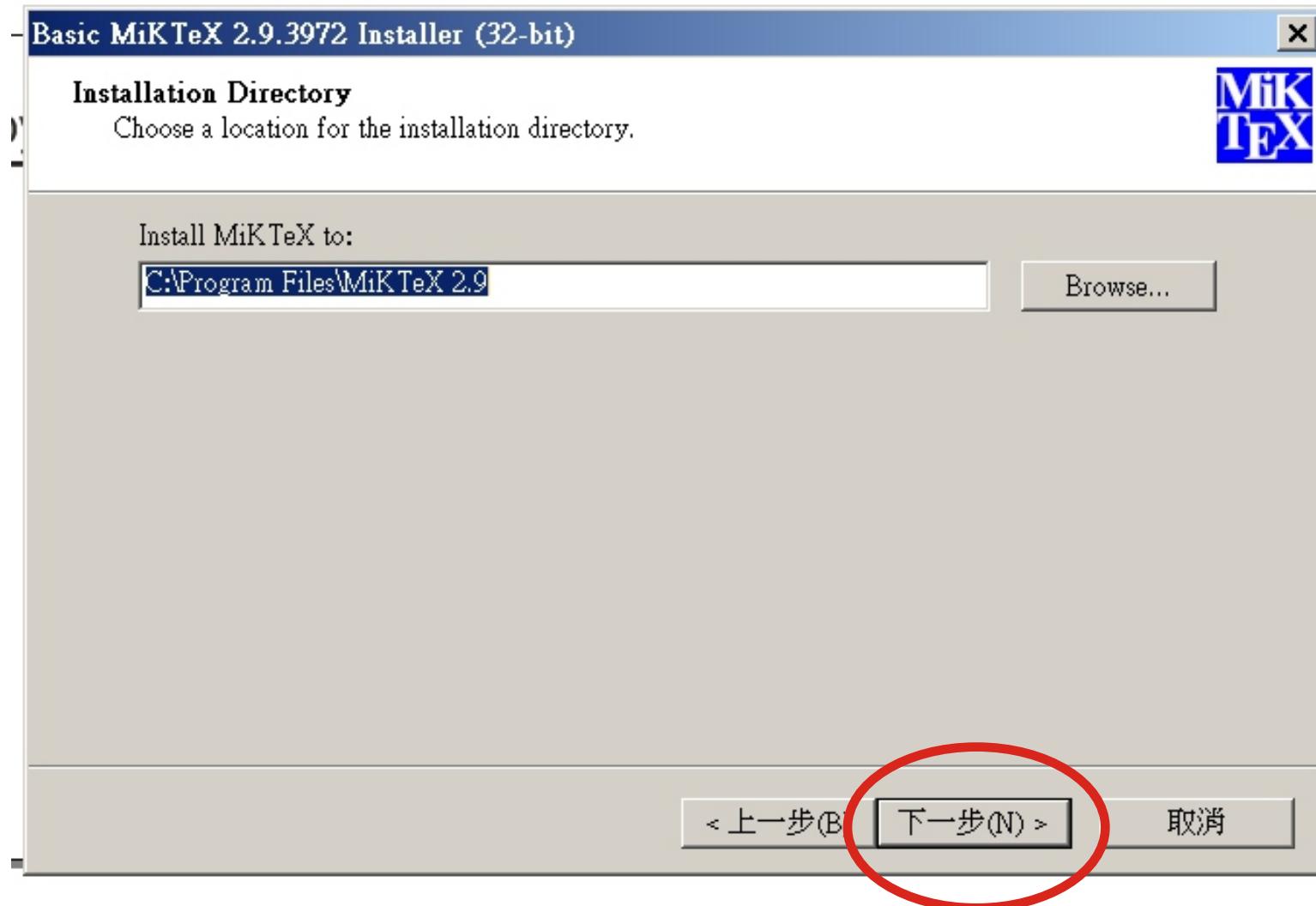
# Step by Step

---



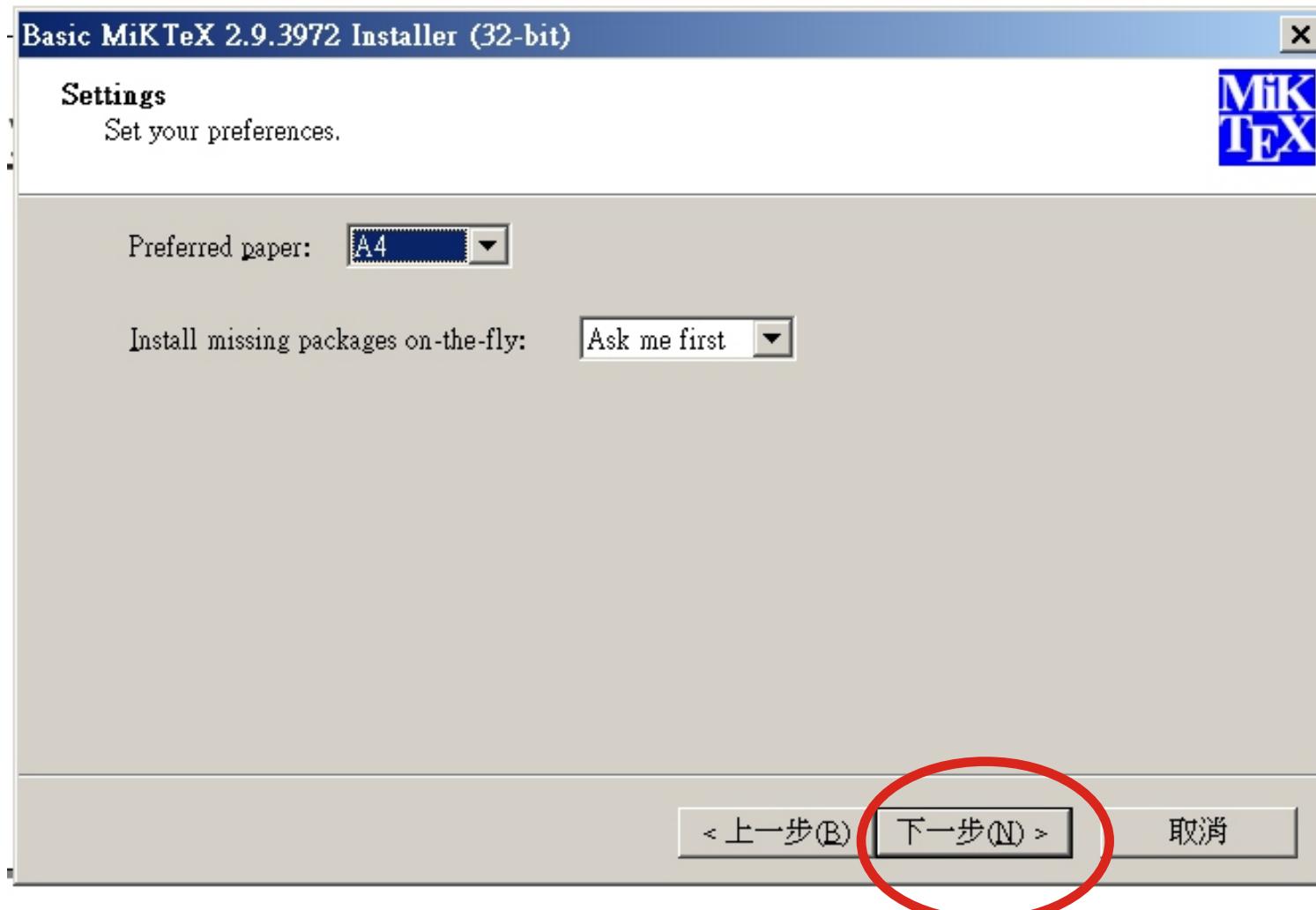
# Step by Step

---



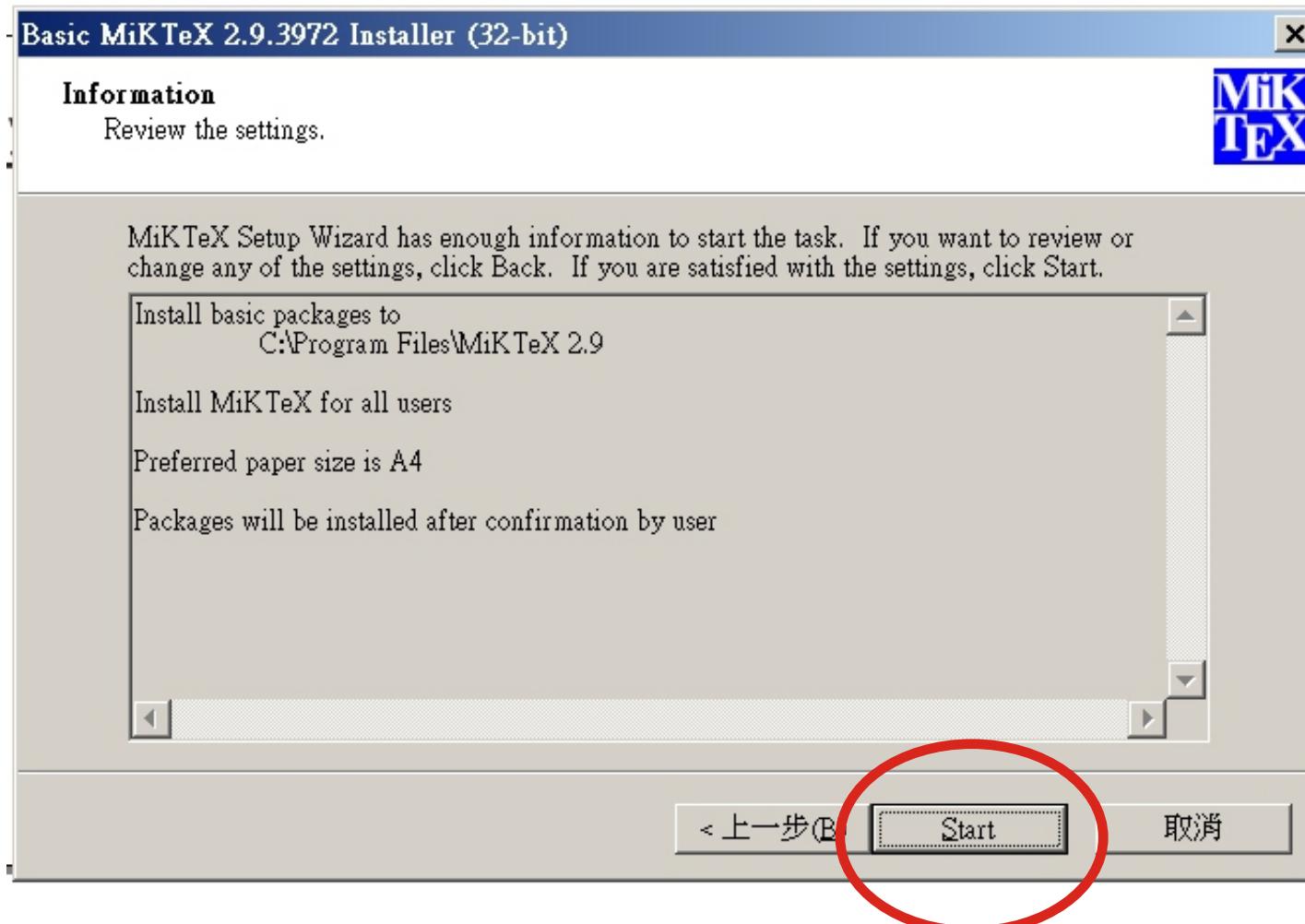
# Step by Step

---



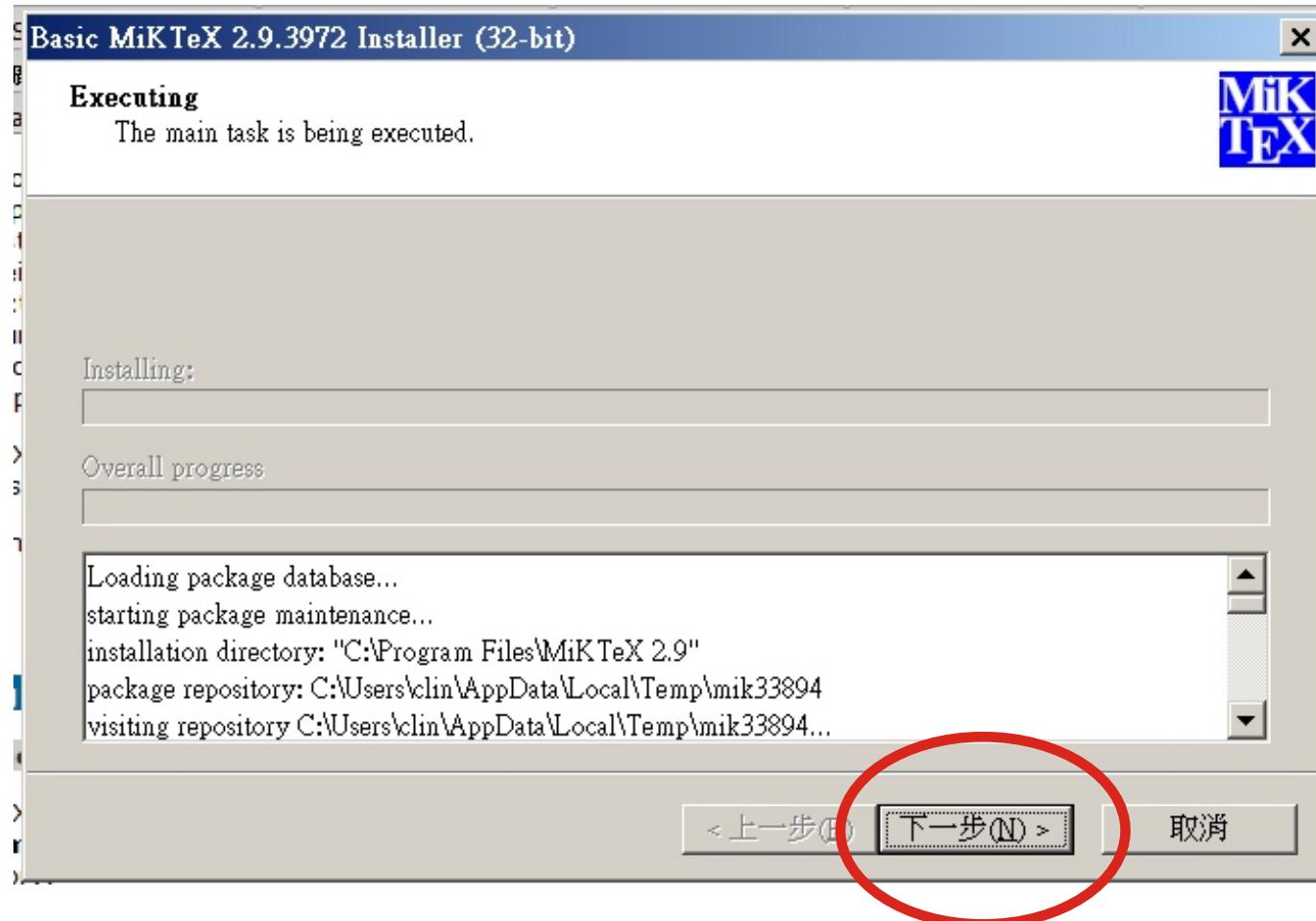
# Step by Step

---

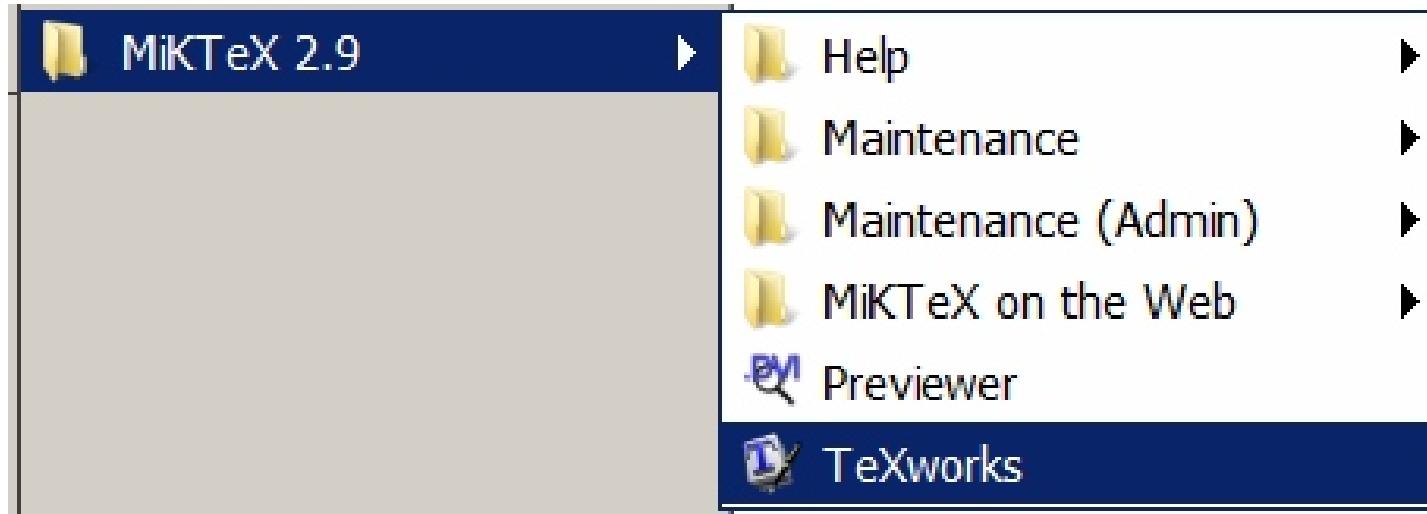


# Step by Step

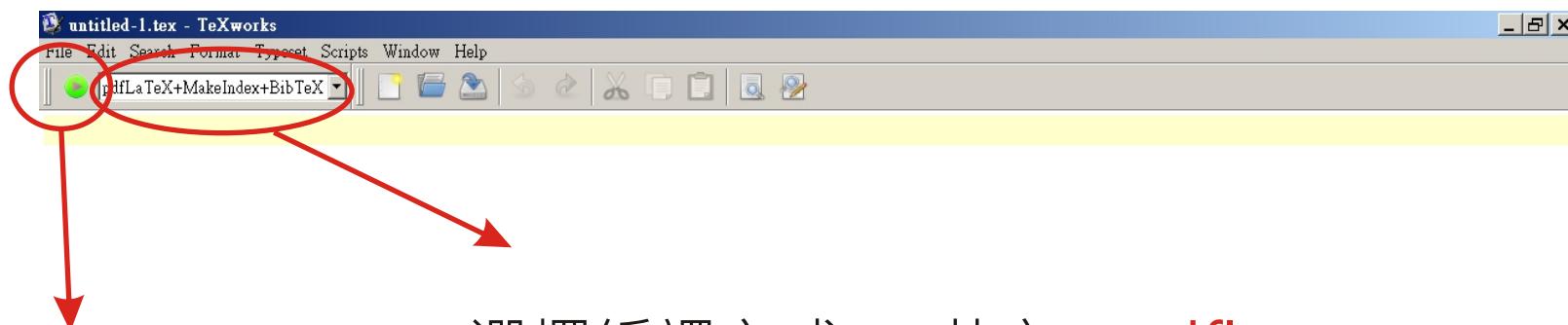
---



# 使用內建編輯器



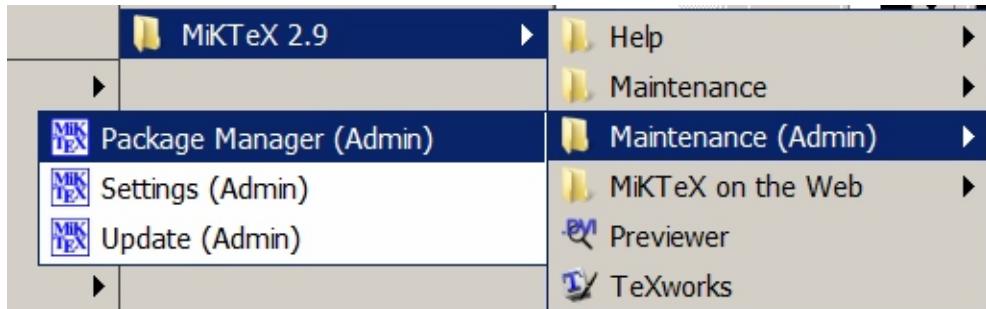
TeXworks



開始編譯

選擇編譯方式。英文：**pdflatex**  
中文：**xelatex**

# 安裝 package



Package manager

點擊安裝套件

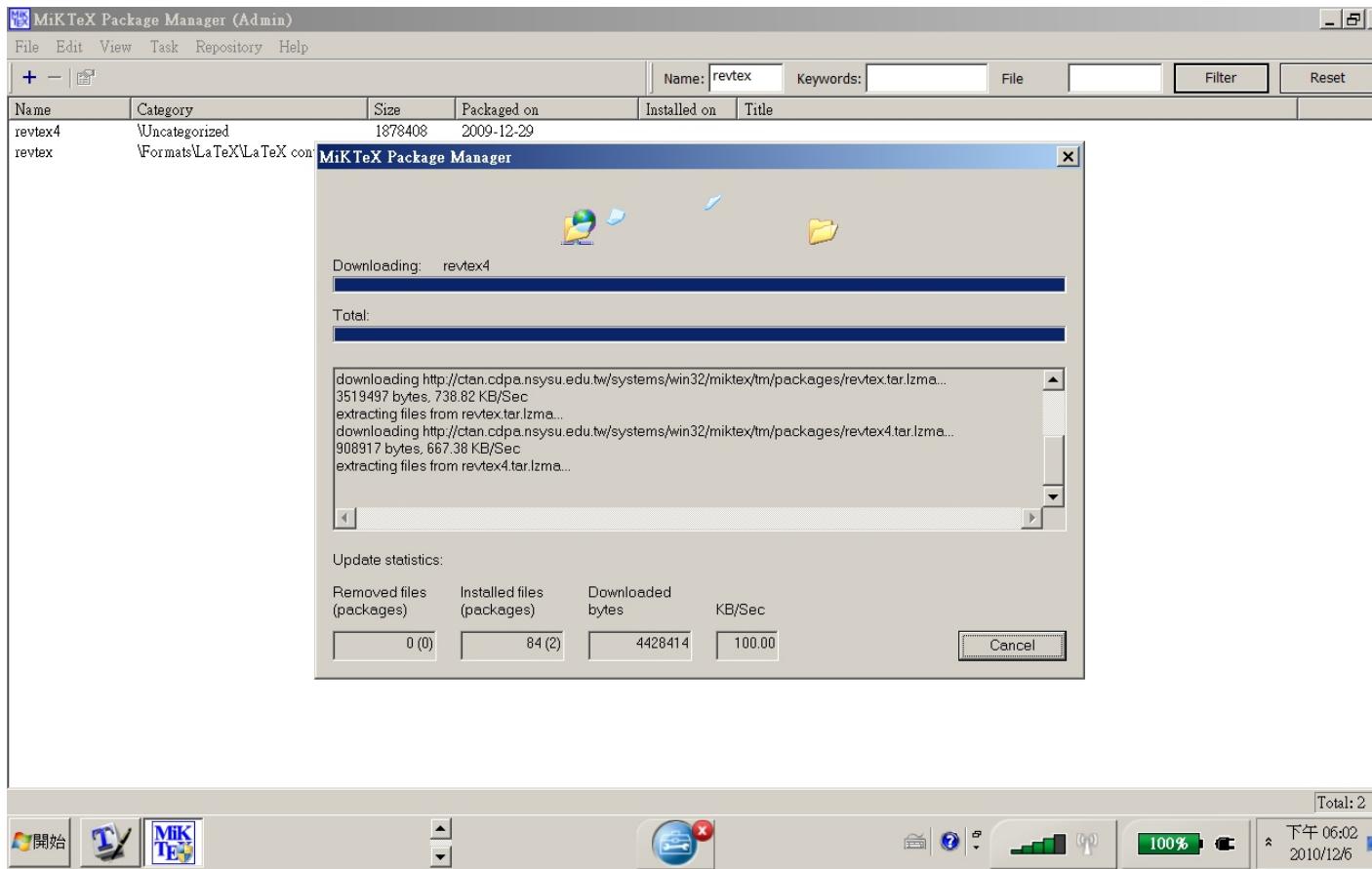
鍵入 revtex

點擊 filter

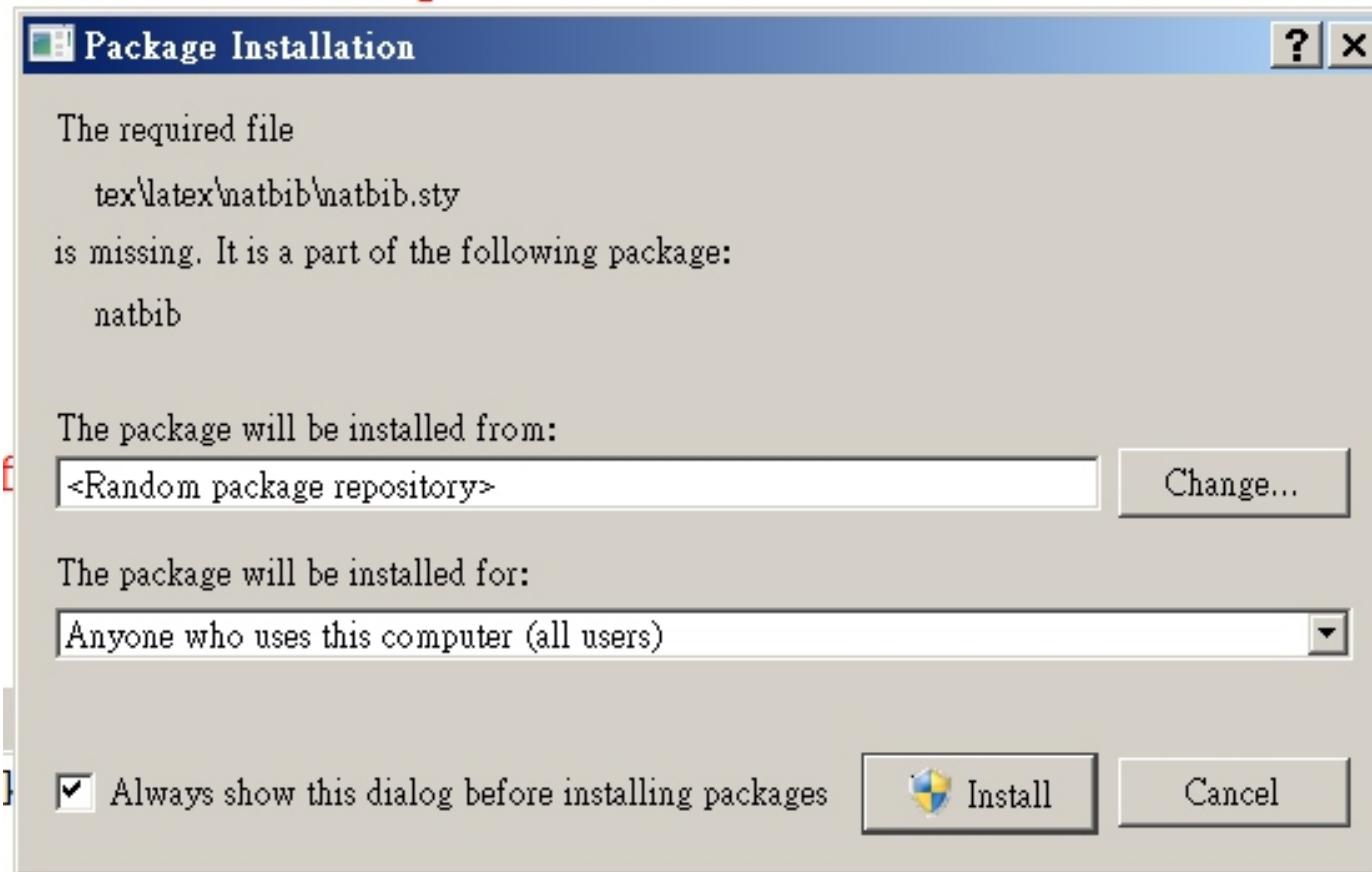
The screenshot shows the MiKTeX Package Manager (Admin) window. A red circle highlights the '+' button in the toolbar. Another red circle highlights the 'Filter' button in the toolbar. A red arrow points from the 'Name: revtex' search field to the list of results. A large red oval encircles the list of packages. The list shows two entries: 'revtex4' and 'revtex'. The 'revtex4' entry is highlighted with a white circle, while 'revtex' is circled in black. Below the list, the text 'Styles for various Physics Journals' is visible.

Name	Category	Size	Packaged on	Installed on	Title
revtex4	\Uncategorized	1878408	2009-12-29		
revtex	\Formats\LaTeX\LaTeX contrib	5981428	2010-08-21		Styles for various Physics Journals

# 安裝 package



# 安裝 package



編譯文件時若缺少該文件的 package 會自動跳出 install 選單

# 範例 (APS 期刊格式)

---

請從 FTP site: 課程資料 / week13 / latex / example  
下載報告範本 ( 使用 revtex4-1 APS journal 格式 )

使用 Texworks 或其他搭配 Latex 快捷鍵的文字編輯器開啟  
sample.tex 檔案

使用 Jabref 或其他搭配文字編輯器開啟  
testbib.bib 檔案來編輯文獻資料庫

文件編譯 ( compile ) 方式：  
pdfLaTeX + MakeIndex + BibTeX

# Jabref 文獻管理

---

<http://jabref.sourceforge.net/>

使用 BibTeX 相容的資料格式，可輕易將編輯好文件引入 tex 文件。  
ISI 或各期刊網站皆可直接找到 BibTeX 格式的文章資料，不需自行  
建立資料庫。

.bib 檔範例：

bibkey, 引用時的代號

```
@ Article{PhysRevLett.105.246602,  
  title = {Anisotropic Spin Hall Effect from First Principles},  
  author = {Freimuth, Frank and Bl\"ugel, Stefan and Mokrousov, Yuriy },  
  journal = {Phys. Rev. Lett.},  
  volume = {105},  
  number = {24},  
  pages = {246602},  
  numpages = {4},  
  year = {2010},  
  month = {Dec},  
  doi = {10.1103/PhysRevLett.105.246602},  
  publisher = {American Physical Society}  
}
```

各欄位資料

# Jabref 文獻管理

The screenshot shows the JabRef application interface. At the top is a menu bar with File, Edit, View, BibTeX, Tools, Web search, Plugins, Options, and Help. Below the menu is a toolbar with various icons for file operations like Open, Save, Print, and search. A tab bar shows 'testbib.bib' and 'untitled'. The main area displays a table of references:

#	Entrytype	Author	Title	Year	Journal	Owner	Timestamp	Bibtexkey
1	Book	Yariv	Quantum Electronics	1989				book1
2	Article	W.Wolff et al.	Tunneling into Clean Heavy Fermion Compounds: Origin of the Fano L...	2010	Phys. Rev. Lett.			pr1
3	Article	Recher et al.	Eigenvalue Densities of Real and Complex Wishart Correlation Matrices	2010	Phys. Rev. Lett.			pr2
4	Article	Freimuth et al.	Anisotropic Spin Hall Effect from First Principles	2010	Phys. Rev. Lett.			PhysRevLett.10...
5	Article	Bao et al.	Magnetoconductance Oscillations and Evidence for Fractional Quantu...	2010	Phys. Rev. Lett.			pr3

Below the table is a BibTeX editor panel titled 'Article' with tabs for Required fields, Optional fields, General, Abstract, Review, and BibTeX source. The BibTeX source tab is selected and shows the following code:

```
@ARTICLE{PhysRevLett.105.246602,  
author = {Freimuth, Frank and Bl\"ugel, Stefan and Mokrousov, Yuryi},  
title = {Anisotropic Spin Hall Effect from First Principles},  
journal = {Phys. Rev. Lett.},  
year = {2010},  
volume = {105},  
pages = {246602},  
number = {24},  
month = {Dec},  
doi = {10.1103/PhysRevLett.105.246602},  
numpages = {4},  
publisher = {American Physical Society}  
}
```

A red circle highlights the BibTeX source tab, and another red circle highlights the entire editor panel. A red text annotation '可觀看 bib 原始碼' (View bib source) is placed next to the editor panel.

# Jabref 文獻管理

The screenshot shows the Jabref application window. At the top is a menu bar with File, Edit, View, BibTeX, Tools, Web search, Plugins, Options, and Help. Below the menu is a toolbar with various icons for file operations like Open, Save, Print, and search. The main area displays a table of references:

#	Entrytype	Author	Title	Year	Journal	Owner	Timestamp	Bibtexkey
1	Book	Yariv	Quantum Electronics	1989				book1
2	Article	W\"olfle et al.	Tunneling into Clean Heavy Fermion Compounds: Origin of the Fano L...	2010	Phys. Rev. Lett.			prl1
3	Article	Recher et al.	Eigenvalue Densities of Real and Complex Wishart Correlation Matrices	2010	Phys. Rev. Lett.			prl2
4	Article	Freimuth et al.	Anisotropic Spin Hall Effect from First Principles	2010	Phys. Rev. Lett.			PhysRevLett.10...
5	Article	Bao et al.	Magnetoconductance Oscillations and Evidence for Fractional Quantu...	2010	Phys. Rev. Lett.			prl3

A red circle highlights the "Required fields" tab in the detailed entry panel. The panel shows the following fields for the selected reference (entry 4):

- Author: Freimuth, Frank and Bl\"ugel, Stefan and Mokrousov, Yuryi
- Title: Anisotropic Spin Hall Effect from First Principles
- Journal: Phys. Rev. Lett.
- Year: 2010
- Volume: 105
- Pages: 246602
- Bibtexkey: PhysRevLett.105.246602

Red text in the center of the panel reads: "以表格呈現各項資料，方便修改".

Status: Saved database 'D:\week13\revtex\testbib.bib'.

# Jabref 文獻管理

Home Browse Search Subscriptions Help

Citation Search: Phys. Rev. Lett. Vol. Page/Article Go

Access provided through the subscription of National Central University

APS » Journals » Phys. Rev. Lett. » Volume 105 » Issue 24 < Previous Article | Next Article >

**Phys. Rev. Lett. 105, 244101 (2010) [4 pages]**

## Eigenvalue Densities of Real and Complex Wishart Correlation Matrices

Abstract References No Citing Articles

Download: PDF (171 kB) Export: BibTeX or EndNote (RIS)

Christian Recher, Mario Kieburg, and Thomas Guhr  
Fakultät für Physik, Universität Duisburg-Essen, Lotharstraße 1, 47048 Duisburg, Germany

Received 21 April 2010; published 6 December 2010

Wishart correlation matrices are the standard model for the statistical analysis of time series. The ensemble averaged eigenvalue density is of considerable practical and theoretical interest. For complex time series and correlation matrices, the eigenvalue density is known exactly. In the real case, a fundamental mathematical obstacle made it forbiddingly complicated to obtain exact results. We use the supersymmetry method to fully circumvent this problem. We present an exact formula for the eigenvalue density in the real case in terms of twofold integrals and finite sums.

© 2010 The American Physical Society

URL: <http://link.aps.org/doi/10.1103/PhysRevLett.105.244101>  
DOI: 10.1103/PhysRevLett.105.244101

從網路上取得 bib 資料，不需自行繕打

# 引用圖片

---

圖片最好放在與引用的 tex 文件同目錄底下，使用相對路徑引入

```
\usepackage{graphicx}
```

preamble 必須加入 graphicx 巨集

---

```
\begin{figure}
```

```
\centering 置中
```

```
\includegraphics[width=0.4\textwidth]{test-pic.pdf}
```

圖片檔案連結

```
\caption{This is test-pic picture}
```

圖片標題

```
\label{test-pic}
```

```
\end{figure}
```

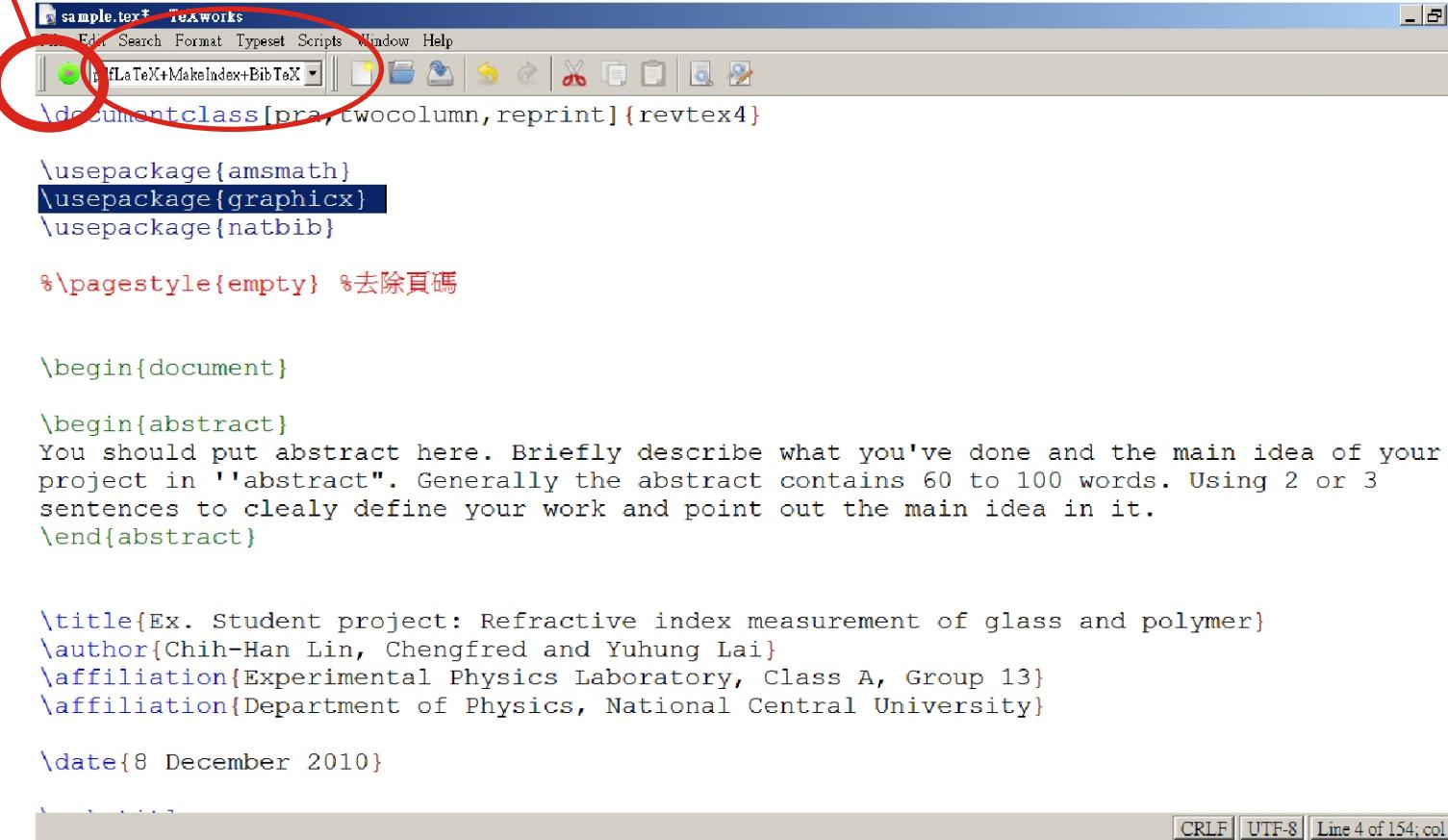
設定寬度，由於文章為 two-column，  
這邊建議使用 0.4 倍文寬

# 範例

---

編譯文件

選 pdfLaTeX + MakeIndex + BibTeX



The screenshot shows the TeXworks interface with a LaTeX document named "sample.tex". The toolbar at the top has a button highlighted with a red circle, labeled "pdfLaTeX+MakeIndex+BibTeX". The code in the editor window is as follows:

```
\documentclass[pr, twocolumn, reprint]{revtex4}

\usepackage{amsmath}
\usepackage{graphicx}
\usepackage{natbib}

%\pagestyle{empty} %去除頁碼

\begin{document}

\begin{abstract}
You should put abstract here. Briefly describe what you've done and the main idea of your project in ''abstract''. Generally the abstract contains 60 to 100 words. Using 2 or 3 sentences to clearly define your work and point out the main idea in it.
\end{abstract}

\title{Ex. Student project: Refractive index measurement of glass and polymer}
\author{Chih-Han Lin, Chengfred and Yuhung Lai}
\affiliation{Experimental Physics Laboratory, Class A, Group 13}
\affiliation{Department of Physics, National Central University}

\date{8 December 2010}

%
```

At the bottom right of the editor window, there is a status bar with the text "CRLF | UTF-8 | Line 4 of 154; col 21".

# 範例

sample.pdf - TeXworks

File Edit Search View Typeset Scripts Window Help

Ex. Student project: Refractive index measurement of glass and polymer

Chih-Han Lin, Chengfred and Yuhung Lai  
Experimental Physics Laboratory, Class A, Group 13 and  
Department of Physics, National Central University  
(Dated: 8 December 2010)

You should put abstract here. Briefly describe what you've done and the main idea of your project in "abstract". Generally the abstract contains 60 to 100 words. Using 2 or 3 sentences to clearly define your work and point out the main idea in it.

I. INTRODUCTION

You should introduce the whole background and make short discuss in this section just like pre-report in previous laboratory experiment. There may be a lot of method to practice your idea, you have to tell me why choosing one of them but not others. Collect and read journals or reliable reference articles to help you listing the advantage and disadvantage of these method.

Here is an example of citation[1–3] and book citation [4].

II. THEORY OR METHOD

You can express the main idea of your project in this section. Use \$...\$ to present inline math equation. For example,  $a_1^2 + a_2^2 = c_1^2$  will show  $a_1^2 + a_2^2 = c_1^2$  in

FIG. 1: This is test-pic picture

and save them as .png .eps or .pdf file. For example, following codes shows FIG. 1.

100% | page 1 of 2

LaTeX 輸出結果為 pdf 檔

# hint

---

一個文件的所有檔案（`.tex`, `.bib`, `picture`）獨立放在一個資料夾中。  
文件編譯過程會產生許多中介檔案（`.aux`, `.log` 等等）

文件不要放在有中文檔名的目錄下。

檔案編輯出錯時，在下方對話框輸入 `r` 按 `enter` 可略過錯誤繼續編譯

太複雜的表格可以先用繪圖軟體繪製當成圖片加入文檔。

但請勿轉換點陣圖！務必使用 `.eps` 或 `.pdf` 檔