

# L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> GUIDE FOR AUTHORS USING THE cspmB DESIGN

Subtitle, If You Have One

Ali Woollatt

This guide was compiled using cspmB.cls 2009/09/17, v2.00

The latest version can be downloaded from:  
[https://authornet.cambridge.org/information/productionguide/  
LaTeX\\_files/cspmB.zip](https://authornet.cambridge.org/information/productionguide/LaTeX_files/cspmB.zip)



---

# Contents

<i>List of illustrations</i>	vi
<i>List of tables</i>	vii
<i>List of contributors</i>	viii

<b>Part I</b>	<b>Getting started</b>	<b>1</b>
<b>1</b>	<b>Introduction</b>	<b>3</b>
1.1	The L <sup>A</sup> T <sub>E</sub> X 2 <sub>ε</sub> book document class	3
1.2	The cspmB document class	3
1.3	Implementing the cspmB class file	4
1.4	Implementing the multi-contributor option	4
1.5	Fonts	4
1.6	Make-up	5
<b>2</b>	<b>The cspmB class file in detail</b>	<b>6</b>
2.1	Frenchspacing	6
2.2	Adding a subtitle to the front page	6
2.3	Adding a blank page to your document	6
2.4	Adding a quotation and text to the part title page	7
2.5	Adding a quotation to the head of a chapter	7
2.6	Chapter numbering	7
2.7	Section numbering	7
2.8	Specifying running heads and toc entries	8
2.8.1	Single-contributor books	8
2.8.2	Multi-contributor books	8
2.9	Adding author(s) name(s) in single-contributor books	9
2.10	List of contributors	9
2.10.1	Note to editors regarding the list of contributors	10
2.11	Adding an Abstract	10
2.12	Adding a ‘copyright’ line to a chapter opening page	11
2.13	Changing the level of entries in the table of contents	11
2.14	Lists	11
2.15	Sidenotes	12
2.16	Endnotes	12
2.16.1	Single-contributor books	12
2.16.2	Multi-contributor books	13
		iii

2.17	Exercise environments	13
2.17.1	Exercises at the end of sections	13
2.17.2	Exercises at the end of chapters	13
	Exercises	14
2.18	Figures	14
2.18.1	Figures <28pc, with captions	14
2.18.2	Figures <28pc, without captions	15
2.18.3	Wide figures 28–35pc, with captions	15
2.18.4	Wide figures 28–35pc, without captions	16
2.18.5	Figures in the margin, with captions	16
2.18.6	Figures in the margin, without captions	17
2.19	Tables	18
2.19.1	Tables <28pc, with captions	18
2.19.2	Tables <28pc, without captions	19
2.19.3	Wide tables 28–35pc, with captions	20
2.19.4	Wide tables 28–35pc, without captions	20
2.19.5	My vertical rules have disappeared	20
2.19.6	Reinstating the vertical rules	20
2.19.7	There is very little space around the rules in my table	20
2.19.8	Adding space between columns	20
2.19.9	Adding space between rows	22
2.20	Landscape figures and tables, using <code>rotating.sty</code>	23
2.20.1	Coding for landscape figures	23
2.20.2	Coding for landscape tables	23
<b>3</b>	<b>Mathematical solutions</b>	27
3.1	Why are we using <code>amsthm.sty</code> ?	27
3.2	<code>amsthm</code> styles	28
3.2.1	<code>amsthm plain</code> style	28
3.2.2	<code>amsthm definition</code> style	29
3.2.3	<code>amsthm remark</code> style	29
3.3	Proofs	30
3.3.1	Changing the word ‘Proof’ to something else	30
3.3.2	Typesetting a proof without a $\square$	30
3.3.3	Placing the $\square$ after a displayed equation	31
3.3.4	Placing the $\square$ after a displayed <code>eqnarray</code>	31
	<b>Part II Closing features</b>	33
<b>4</b>	<b>Reference and bibliography lists</b>	35
4.1	Automatic lists using <code>BIBTeX</code>	35
4.2	Citations using <code>natbib</code> commands	35
4.3	How to change reference entries from author–date to numbers	36
4.4	Keying in your reference list for an author–date system	36
4.5	Keying in your reference list for a numbered system	37
<b>5</b>	<b>Indexes</b>	39
5.1	Creating a single index using <code>makeidx.sty</code>	39

<i>Contents</i>	v
5.2 Creating multiple indexes using multind.sty	39
5.3 Creating multiple indexes using index.sty	40
5.3.1 Caution – from the authors of index.sty	41
<b>Appendix A Typesetting appendices</b>	43
A.1 Single-contributor books	43
A.1.1 How to typeset one appendix	43
A.1.2 How to typeset several appendices	43
A.2 Multi-contributor books	43
A.2.1 How to typeset one appendix	43
A.2.2 How to typeset several appendices	43
A.3 Numbering systems	44
<b>Appendix B amsthm commands</b>	45
<b>Appendix C The root file for this guide</b>	46
<i>Notes</i>	49
<i>References</i>	50
<i>Author index</i>	51
<i>Subject index</i>	52

---

## Illustrations

2.1	Shortened figure caption for the list of illustrations	15
2.2	Wide figure	16
2.3	Toc entry for tiny figure	17
2.4	Landscape figure	24
A.1	Similarity solutions	44

---

## Tables

2.1	Shortened table caption for the list of tables	19
2.2	Wide table	21
2.3	Landscape table	26

---

## Contributors

Magnús Már Magnússon    *International Glaciological Society, Scott Polar  
Research Institute, Lensfield Road, Cambridge CB2 1ER*  
David Tranah    *Cambridge University Press, The Edinburgh Building, Shaftes-  
bury Road, Cambridge CB2 8RU*



# Part I

---

## Getting started

Do not worry about your difficulties in Mathematics. I can assure you mine are still greater. (Albert Einstein.)

Given a data set, you can fit thousands of models at the push of a button, but how do you choose the best? With so many candidate models, overfitting is a real danger. Is the monkey who typed Hamlet actually a good writer?



---

## Introduction

This guide is for authors who are preparing a book for Cambridge University Press using the  $\LaTeX$  document preparation system, and the `cspmB` class file.

The  $\LaTeX$  document preparation system is a special version of the  $\TeX$  typesetting program.  $\LaTeX$  adds to  $\TeX$  a collection of commands which simplify typesetting by allowing the author to concentrate on the logical structure of the document rather than its visual layout.

$\LaTeX$  provides a consistent and comprehensive document preparation interface. There are simple-to-use commands for generating a table of contents (`toc`), lists of figures and/or tables, and indexes.  $\LaTeX$  can automatically number list entries, equations, figures, tables, and footnotes, as well as parts, chapters, sections and subsections. Using this numbering system, bibliographic citations, page references and cross references to any other numbered entity (e.g. chapter, section, equation, figure, list entry) are quite straightforward.

$\LaTeX$  is a powerful tool for managing long and complex documents. In particular, partial processing enables long documents to be produced chapter by chapter without losing sequential information. The use of document classes allows a simple change of style to transform the appearance of your document.

### 1.1 The $\LaTeX 2_{\epsilon}$ book document class

The `cspmB` class file preserves the standard  $\LaTeX$  interface such that any document which can be produced using the standard  $\LaTeX 2_{\epsilon}$  book class can also be produced with the `cspmB` class. However, the measure (i.e. width of text) is different from that for book, therefore linebreaks will change and long equations may need re-setting.

### 1.2 The `cspmB` document class

The `cspmB` design has been implemented as a  $\LaTeX 2_{\epsilon}$  class file, and is based on the book class as discussed in the  $\LaTeX$  manual. Commands which differ from the standard  $\LaTeX$  interface, or which are provided

in addition to the standard interface, are explained in this guide. This guide is *not* a substitute for the L<sup>A</sup>T<sub>E</sub>X manual itself.

### 1.3 Implementing the cspmB class file

Copy cspmB.cls into the correct subdirectory on your system. The cspmB document class is implemented as a complete document class, *not* a document class option. To run this guide through L<sup>A</sup>T<sub>E</sub>X, you need to include the following class and style files:

```
\documentclass{cspmB}
\usepackage{natbib}
\usepackage{rotating}
\usepackage{floatpag}
\rotfloatpagestyle{empty}
\usepackage{amsthm}
\usepackage{graphicx}
\usepackage{multind}\ProvidesPackage{multind}
```

It may be that your book does not use references, rotation, theorems, graphics, or multiple indexes, in which case you simply need the first line. If you include multind.sty, you must also insert the command \ProvidesPackage{multind}. More recent style files include this information; it simply sends a message to the class file to re-style the index into the cspmB style.

In general, the following standard document class options should *not* be used:

- 10pt, 11pt, 12pt;
- oneside (twoside is the default);
- fleqn, leqno, titlepage, twocolumn.

### 1.4 Implementing the multi-contributor option

This option should be used where chapters have been written by different contributors. Please read Section 1.3 first; then implement the [multi] option as follows:

```
\documentclass[multi]{cspmB}
```

Further details can be found in Section 2.8.2.

### 1.5 Fonts

The cspmB design specifies Times New Roman as the typeface. This font (which is only available commercially) uses exactly the same characters as Times, but has marginally different kerning. If you have the

Times fonts available (`times.sty` is normally part of the L<sup>A</sup>T<sub>E</sub>X distribution) you will get a good idea of the final appearance of your book. Include the Times fonts by adding the following `\usepackage` command:

```
\documentclass{cspmb}  
\usepackage{times}
```

Alternatively you may use MathTime fonts, if you have them.

Due to the change in font at the typesetting stage, do not be tempted to correct line and page breaks, as these may change. Please note that you must supply a PDF of your files so that the typesetters can check characters such as bold math italic.

Authors who are doing their own make-up, and supplying final PDFs for printing, may use the Times/MathTime fonts.

You are welcome to submit your files using Computer Modern if you prefer; the typesetter will change the font to Times New Roman.

## 1.6 Make-up

This is a generic guide for many Cambridge designs. We have therefore not attempted to correct long lines, and there are occasions where pages may be a little long. The latter is due to the use of `\begin{samepage}... \end{samepage}` where we are keeping text together for clarity. Authors should not include any page make-up commands, unless they are providing final PDFs for printing.

---

## The cspmB class file in detail

Magnús Már Magnússon<sup>a</sup> and David Tranah<sup>b</sup>

In model selection the data are used to select one of the models under consideration. When a parameter is estimated inside this selected model, we term it *estimation-post-selection*. (Gerda Claeskens and Nils Lid Hjort.)

The following notes may help you achieve the best effects with the cspmB class file.

### 2.1 Frenchspacing

The `\frenchspacing` option has been selected by default. This ensures that no extra space is inserted after full points, and is normal practice. If there is a strong reason for reversing this, you can key `\nonfrenchspacing` in the preamble.

### 2.2 Adding a subtitle to the front page

The standard `\title` command has been extended to take an optional argument which is then used as a subtitle on the main title page. For example, this document uses following title command:

```
\title[Subtitle, If You Have One]
{\LaTeX\ GUIDE FOR AUTHORS USING THE \cambridge\ DESIGN}
```

### 2.3 Adding a blank page to your document

Blank pages should not be numbered. If you require one, use the command `\cleardoublepage`, which has been redefined to start the next page on a recto, and if necessary, insert a totally blank verso page first.

<sup>a</sup> Formerly of the Icelandic Meteorological Office, Reykjavík.

<sup>b</sup> Supported by NSF Grant 43645.

## 2.4 Adding a quotation and text to the part title page

Part I of this guide was typeset using the following commands. Note that `\partquote` and `\parttitletext` must appear before `\part`:

```
\partquote{Do not worry about your difficulties in Mathematics.
  I can assure you mine are still greater. (Albert Einstein.)}
\parttitletext{Given a data set, you can fit...}
\part{Getting started}
```

## 2.5 Adding a quotation to the head of a chapter

The chapter quotation (and source) on the opening page of this chapter have been added as follows:

```
\begin{chapterquote}
  In model selection the data are used to select
  one of the models under consideration. When a parameter
  is estimated inside this selected model, we term it
  \textit{estimation-post-selection.} (Gerda Claeskens
  and Nils Lid Hjort.)
\end{chapterquote}
%
The following notes...
```

## 2.6 Chapter numbering

If your book starts with an unnumbered chapter (e.g. `\chapter*{Introduction}`), then make all the numbered elements (e.g. section heads) unnumbered, by using `\section*{...}`. Otherwise, sections will be numbered 0.1, 0.2, etc.

## 2.7 Section numbering

L<sup>A</sup>T<sub>E</sub>X provides five levels of section heads, and they are all defined in the `cspmB` class file: `\section`, `\subsection`, `\subsubsection`, `\paragraph`, and `\subparagraph`. Numbers are given for the first three headings.

The `cspmB` design also provides two further headings `\xhead{An example of an xhead}` and `\yhead{An example of a yhead}`; both are unnumbered:

### An example of an xhead

#### *An example of a yhead*

You can reduce the level of numbered section heads (it is not advisable to increase them). For instance, if you only want headings numbered down to subsections, add the following line to the preamble: `\setcounter{secnumdepth}{2}`. To number down to sections, make this `\setcounter{secnumdepth}{1}`, etc.

## 2.8 Specifying running heads and toc entries

### 2.8.1 *Single-contributor books*

In *cspmb*, chapter titles and section heads are used as running heads at the top of every page:

- chapter titles appear on even-numbered pages (versos), and
- section heads appear on odd-numbered pages (rectos).

A problem with the standard version of  $\text{\LaTeX}$  has always been that the shortened versions of chapter and section titles, specified for running heads, have also been the entries for the toc. There are packages such as the *memoir* class which enable you to specify different toc entries, running head entries, and chapter titles. However, there is a simple way to add the verbose version of the chapter or section heads into the toc:

```
\chapter[Toc entry]{Verbose chapter title}
\chaptermark{Running head entry}

\section[Toc entry]{Verbose section title
\sectionmark{Running head entry}}
\sectionmark{Running head entry}
```

Note that for sections, you need the optional argument to `\section`, even if ‘Toc entry’ is in fact the same text as ‘Verbose section title’. Also, the `\sectionmark` has to be entered twice as shown, because the first `\sectionmark` deals with the header of the page that the `\section` command falls on, and the second deals with subsequent pages.

### 2.8.2 *Multi-contributor books*

Using the *cspmb* multi-contributor option, author(s) name(s) and chapter titles are used as running heads at the top of every page:

- author(s) name(s) appear on even-numbered pages (versos), and
- chapter titles appear on odd-numbered pages (rectos).

The author(s) names(s) may run to several lines, and contain new line commands (e.g. `\`), but the running head must be a single line. To enable you to specify an alternative short form of the author(s) name(s), the standard `\author` command has been extended to take an optional argument to be used as the running head:

```
\author[Author(s) name(s)]{The full author(s) name(s)}
```

The following shows some coding for a chapter written by two authors, each of whom have footnotes. In this example, the authors’ names will immediately follow the chapter title, and will read Magnús Már Magnússon<sup>a</sup> and David Tranah<sup>b</sup>. Their respective footnotes will be



<sup>a</sup> Formerly of the Icelandic Meteorological Office, Reykjavík.' and <sup>b</sup> Supported by NSF Grant 43645.' It is crucial that `\author` precedes `\chapter`. If the authors have footnotes, you must start the chapter with `\alphafootnotes`, fill in the details for author(s), chapter title and author footnotes, then key `\arabicfootnotes` to revert to arabic footnotes:

```
\alphafootnotes
\author[M\,M Magn\'usson and D\,A Tranah]
  {Magn\'us M\'ar Magn\'usson\footnotemark\
  and David Tranah\footnotemark}

\chapter[Running head entry]
  {The \cambridge\ class file in detail}

\footnotetext[1]{Formerly of the Icelandic
  Meteorological Office, Reykjav\'i k.}
\footnotetext[2]{Supported by NSF Grant 43645.}
\arabicfootnotes
```

Note that for multi-contributor books, the long version of the chapter title will always appear in the table of contents.

## 2.9 Adding author(s) name(s) in single-contributor books

Sometimes, chapters in single-contributor books are written by different people. If you wish the authors to appear beneath the chapter opening, as demonstrated in this chapter, key your chapter head as follows; note that `\chapterauthor` must precede `\chapter`:

```
\alphafootnotes
\chapterauthor{Magn\'us M\'ar Magn\'usson\footnotemark\
  and David Tranah\footnotemark}

\chapter{The \cambridge\ class file in detail}

\footnotetext[1]{Formerly of the Icelandic
  Meteorological Office, Reykjav\'i k.}
\footnotetext[2]{Supported by NSF Grant 43645.}
\arabicfootnotes
```

If you have footnotes associated with the authors, you will also need to insert `\alphafootnotes` and `\arabicfootnotes`.

## 2.10 List of contributors

The code for generating an automatic list of contributors should be entered after the author and chapter titles, as follows:

```
\contributor{Magn\'us M\'ar Magn\'usson
\affiliation{International Glaciological Society,
Scott Polar Research Institute,
Lensfield Road, Cambridge CB2 1ER}}
```

```
\contributor{David Tranah
\affiliation{Cambridge University Press,
The Edinburgh Building, Shaftesbury Road,
Cambridge CB2 8RU}}
```

You then simply need to add the `\listofcontributors` command after the table of contents (or after the artwork lists, if included) in the preamble, as follows:

```
\tableofcontents
\listoffigures
\listoftables
\listofcontributors
```

### ***2.10.1 Note to editors regarding the list of contributors***

The contributors will appear in the same order as they are called in, since the list is generated in the same way as the table of contents. This means that at the final stage, the file will require editing to make the entries alphabetic.

Once you have a complete list of contributors, comment out the line which is generating them, and replace it as shown below:

```
\tableofcontents
\listoffigures
\listoftables
%\listofcontributors
\editedlistofcontributors
```

Next, rename the file with the extension `.loc` to `editedloc.tex` (in the case of this guide, you would rename `cspmbguide.loc` to `editedloc.tex`). Edit this file as required, then run the file through  $\text{\LaTeX}$  once more, and the edited version will appear.

## **2.11 Adding an Abstract**

The following code will give you an unnumbered section head ‘Abstract’. Keep the Abstract to one paragraph:

```
\begin{abstract}
Thermal convection driven by centrifugal...
\end{abstract}
```

## 2.12 Adding a ‘copyright’ line to a chapter opening page

If you are publishing a single chapter, with permission from Cambridge University Press, you may be required to add a copyright line (and/or other information) to the footer of the chapter opening page. This may be achieved using:

```
\copyrightline{Reprinted from \textit{Mathematical
  Methods for Physics and Engineering} by Riley,
  Hobson and Bence \copyright\ 2009 Cambridge
  University Press.}
```

Should the following chapter not require the copyright line, it may be removed before the next `\chapter` command by using:

```
\copyrightline{}
```

## 2.13 Changing the level of entries in the table of contents

The `cspmB` design will, by default, list parts, chapters and sections in the table of contents. However, to improve the usefulness of this guide, we have used the command:

```
\setcounter{tocdepth}{2}
```

to increase this by one level, so the table of contents in this document also shows subsections.

## 2.14 Lists

The `cspmB` class provides the following standard list environments:

1. numbered lists, created using the `enumerate` environment;
2. bulleted lists, created using the `itemize` environment;
3. labelled lists, created using the `description` environment.

The `enumerate` environment numbers each list item with an arabic numeral followed by a full point; alternative styles can be achieved by inserting a redefinition of the number labelling command after the `\begin{enumerate}`. For example, a list numbered with lower-case letters inside parentheses can be produced. Because ‘(a)’ is wider than a standard arabic digit, the label width has to be increased. This is achieved by specifying the widest label in the list inside square braces:

```
\begin{enumerate}[(a)]
  \renewcommand{\theenumi}{(\alph{enumi})}
  \item estimate the fluctuations in the near-wall region\ldots
  \item subdue these near-wall fluctuations\ldots
\end{enumerate}
```

This produces the following list:

- (a) estimate the fluctuations in the near-wall region...
- (b) subdue these near-wall fluctuations...

## 2.15 Sidenotes

There is no crisis  
to which academics  
will not respond  
with a conference -  
Marvin Bressler.

These may be introduced using the `\marginpar` command. The example alongside this text used the source code `\marginpar{There is no crisis... Marvin Bressler.}`

## 2.16 Endnotes

In addition to footnotes,<sup>1</sup> the *cspmB* class provides a similar facility for endnotes. Their appearance depends on which option you are using:

1. for single-contributor books, the endnotes will be produced in the form of an unnumbered chapter at the end of the book;
2. for multi-contributor books, they are an unnumbered section at the end of each chapter.

Endnotes are inserted into the text in a similar way to footnotes, but using the `\endnote` command; for example,

```
When the Richardson number\endnote{Lewis Fry Richardson
(1881--1953).\label{richardson}} increases\ldots
```

will produce ‘When the Richardson number<sup>1</sup> increases...’ in the text. Authors must choose between using footnotes and endnotes; do not use both.

### 2.16.1 Single-contributor books

Endnotes should be printed at the end of the book, after the appendices but before the bibliography and/or references.

```
:
\theendnotes
\begin{thebibliography}{99}
:
```

The `\theendnotes` command generates an unnumbered chapter which appears in the table of contents (see page 49 for style).

<sup>1</sup> The footnote counter will be reset on chapters.

### 2.16.2 Multi-contributor books

Endnotes should be printed at the end of the chapter using the same `\theendnotes` command.

## 2.17 Exercise environments

### 2.17.1 Exercises at the end of sections

Authors using `amsthm.sty` can define an `{exer}` environment within the `\theoremstyle{definition}` – see Appendix B for details. Alternatively, authors may use the `exerciselist` environment which will typeset exercises at the end of each section. There is an option to add some useful text, such as ‘Exercise’; this is shown in the following example:

```
\begin{exerciselist}[Exercise]
  \item Show that the link between shock formation and
        film rupture is invoked here because of the\ldots
  \item Show that the physical interpretation of\ldots
        \label{physi}
\end{exerciselist}
```

which will produce:

**Exercise 2.17.1** Show that the link between shock formation and film rupture is invoked here because of the...

**Exercise 2.17.2** Show that the physical interpretation of...

As with all numbered environments, individual exercises (e.g. Exercise 2.17.2) can be cross-referenced.

### 2.17.2 Exercises at the end of chapters

If you would prefer to have the exercises at the end of each chapter, use the `exercises` environment. This generates an entry in the table of contents and starts a new unnumbered section. For example,

```
\begin{exercises}
  \item Let the film thickness be  $h_0$ ,
    \begin{equation}
      h=h_0 H(\xi).
    \end{equation}
    \label{exerciseeq}
    Integrating once\ldots
  \item Assuming the flow far away from\ldots
\end{exercises}
```

will produce:

## Exercises

2.1 Let the film thickness be  $h_0$ ,

$$h = h_0 H \xi. \quad (2.1)$$

Integrating once...

2.2 Assuming the flow far away from...

## 2.18 Figures

The *cspmB* class will cope with most positioning of your figures. Due to the asymmetric nature of this design, figures have to be coded slightly differently from the standard  $\text{\LaTeX}$ .

The *cspmB* class file contains an algorithm for working out whether figures fall on odd or even pages. This involves using the `\label` command, and because of this, the files have to be run through  $\text{\LaTeX}$  twice to achieve the required result of the caption falling in the outside margin.

To present this information to the class file, you must use `\begin{fig}...\end{fig}`, and key in the label information twice, for example:

```
\begin{fig}{cantor}
  \caption...
  \label{cantor}
  \includegraphics...
  :
\end{fig}
```

The first time you run the files through  $\text{\LaTeX}$ , you will get a ‘Missing number’ message, such as:

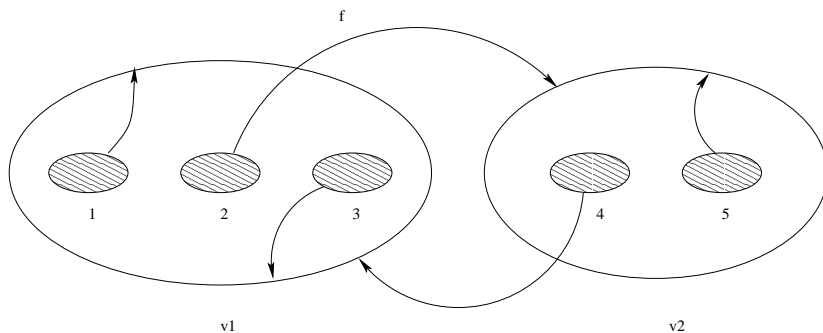
```
! Missing number, treated as zero.
<to be read again>
          \protect
1.380    \begin{fig}{cantor}

?
```

This is because  $\text{\LaTeX}$  requires the page number before placing the caption. Run the files through  $\text{\LaTeX}$  a second time, and the message will disappear.

### 2.18.1 Figures <28pc, with captions

Figures which are less than the text width (28pc) are centred, as illustrated in Figure 2.1. The `cantor1.eps` file has been called in by using



**Figure 2.1**  
A Cantor repeller.

---

```

\begin{fig}{cantor}
% *** \caption before graphics ***
% note that the square brace option below is only required
% if you intend to produce a list of illustrations
\caption[Shortened figure caption for the list of illustrations]
  {A~Cantor repeller.}
\label{cantor}
\includegraphics[scale=0.55]{cantor1.eps}
\end{fig}

```

---

`\usepackage{graphicx}` in the preamble. Note that if you are producing a list of illustrations (using `\listoffigures`), you need to repeat the caption in square braces, but without the full point.

### 2.18.2 Figures <28pc, without captions

For this case, revert to the standard L<sup>A</sup>T<sub>E</sub>X method of including a figure:

```

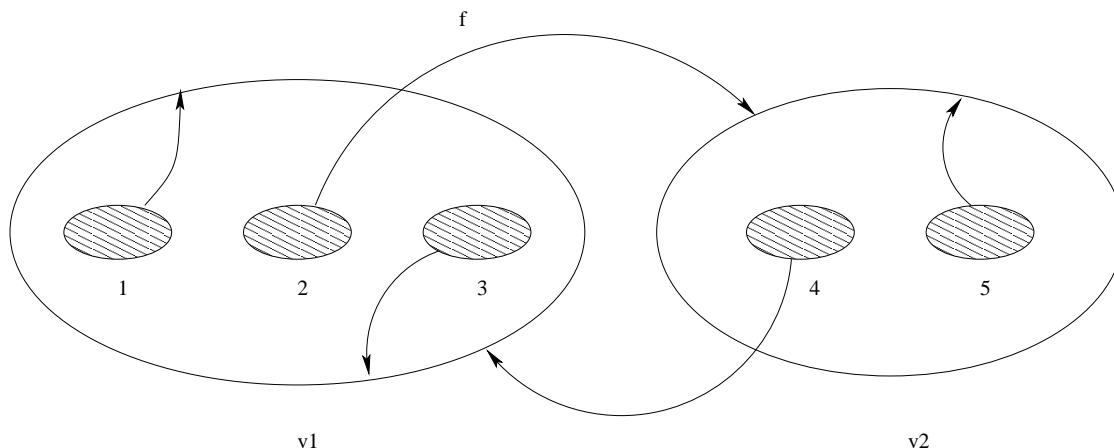
\begin{figure}
\includegraphics[scale=0.55]{cantor1.eps}
\end{figure}

```

### 2.18.3 Wide figures 28–35pc, with captions

Figures may extend the full width of the page, as illustrated in Figure 2.2. You may find you need to move the caption either up or down to avoid it clashing with the figure; `\movecaption` does this for you.

As before, L<sup>A</sup>T<sub>E</sub>X needs to calculate whether the figure falls on an odd or an even page. To do this, the argument for `label` (`anothercantor`) is



**Figure 2.2**  
A wide figure.

---

```

\begin{fig}{anothercantor}
% *** graphics before \caption ***
% you can move the caption vertically using \movecaption
% (this will certainly be required if the figure falls
% at the bottom of a page)
\movecaption{13pt}%
\flip
\includegraphics[width=\fullwidth]{cantor1.eps}
\caption[Wide figure]{A~wide figure.}
\label{anothercantor}
\end{fig}

```

---

inserted twice, as shown. Also, `\flip` is required which will ensure that the wide figure automatically overhangs the outside margin.

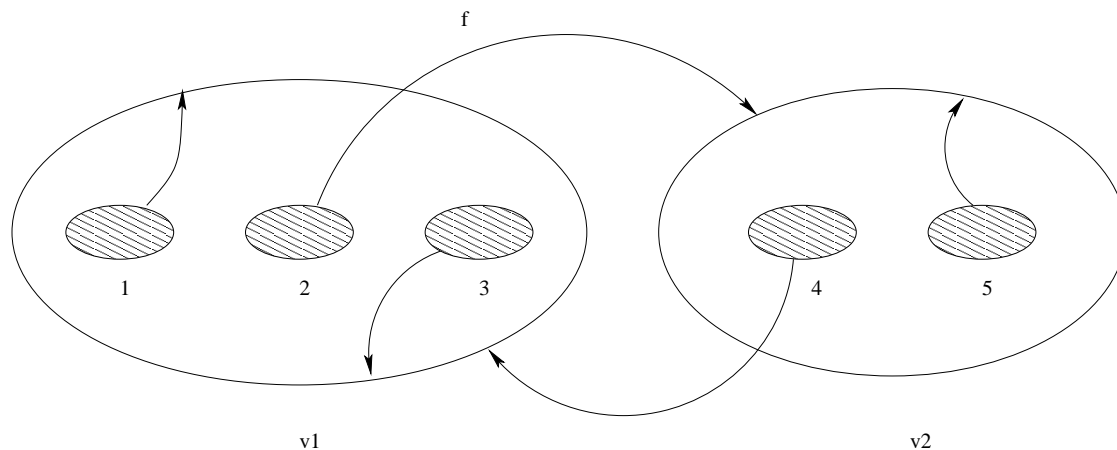
#### 2.18.4 Wide figures 28–35pc, without captions

See the example on page 17. Note that `\flip` will ensure that the wide figure automatically overhangs the outside margin.

#### 2.18.5 Figures in the margin, with captions

These are generated using a variation of the marginal notes macro, so may be called in mid-paragraph. Note that the outer margin is only 6pc wide, so figures must not exceed this width. To insert a marginal






---

```
% A wide figure with no caption still requires a label
\begin{fig}{nofigurecaption}
  \flip
  \includegraphics[width=\fullwidth]{cantor1.eps}
  \label{nofigurecaption}
\end{fig}
```

---

figure into the list of illustrations, add the two lines starting with `\addcontentsline`, simply changing the contents of `\ref` and adding the Toc entry. The code for the tiny figure produced here is as follows:

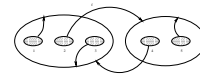
**Figure 2.3** A tiny figure.



```
\marginfigure{A~tiny figure.}{%
  \label{tinyfig}%
  \includegraphics[width=4pc]{cantor1.eps}%
}%
\addcontentsline{lof}{figure}{\numberline {\ref{tinyfig}}%
  {Toc entry for tiny figure}}
```

### 2.18.6 Figures in the margin, without captions

These are also included using a variation of the marginal notes macro, and may be called in mid-paragraph:



```
\smarginfigure{\includegraphics[width=6pc]{cantor1.eps}}
```

## 2.19 Tables

The *cspmB* class will cope with most positioning of your tables. Table captions must be included first, then the label, then the body of the table. Due to the asymmetric nature of this design, tables have to be coded slightly differently from normal.

The *cspmB* class file contains an algorithm for working out whether tables fall on odd or even pages. This involves using the `\label` command, and because of this, the files have to be run through  $\text{\LaTeX}$  twice to achieve the required result of the caption falling in the outside margin.

To present this information to the class file, you must use `\begin{tbl}...\end{tbl}`, and key in the label information twice, for example:

```
\begin{tbl}{exp}
  \caption...
  \label{exp}
  \begin{tabular}{...
  :
\end{tbl}
```

The first time you run the files through  $\text{\LaTeX}$ , you will get a ‘Missing number’ message, such as:

```
! Missing number, treated as zero.
<to be read again>
               \protect
1.507  \begin{tbl}{exp}

?
```

This is because  $\text{\LaTeX}$  requires the page number before placing the caption. Run the files through  $\text{\LaTeX}$  a second time, and the message will disappear.

### 2.19.1 Tables <28pc, with captions

Tables which are less than the text width (28pc) are centred, as illustrated in Table 2.1. Note that if you are producing a list of tables (using `\listoftables`), you need to repeat the caption in square braces, but without the full point.

Figure	$hA^a$	$hB$	$hC$
1	$\exp\left(\pi i \frac{5}{8}\right)$	$\exp\left(\pi i \frac{1}{8}\right)$	0
2	-1	$\exp\left(\pi i \frac{3}{4}\right)$	1
3	$-4 + 3i$	$-4 + 3i$	$\frac{7}{4}$
4	-2	-2	$\frac{5}{4}i$

<sup>a</sup> *Note:* At the time of writing, the digits of  $\pi$  have been calculated to one gazillion decimal places.

**Table 2.1** If your table contains a footnote, the body of the text must be placed inside a minipage environment whose argument contains the table width.

---

```

\begin{tabl}{exp}
% note that the square brace option below is only required
% if you intend to produce a list of tables
\caption[Shortened table caption for the list of tables]
{If your table contains a footnote, the body of the text
must be placed inside a minipage environment whose argument
contains the table width.}
\label{exp}
\addtolength\tabcolsep{2pt}% to stretch columns, if required
\begin{minipage}{180pt}
\begin{tabular}{@{}c@{\hspace{25pt}}ccc@{}}
\hline \hline
Figure &  $hA$  & \footnote{\textit{Note:} At the time of writing,
the digits of  $\pi$  have been calculated to one gazillion
decimal places.} &  $hB$  &  $hC$  \\
\hline
1 &  $\exp\left(\pi i \frac{5}{8}\right)$ 
&  $\exp\left(\pi i \frac{1}{8}\right)$  &  $0$  \\
2 &  $-1$  &  $\exp\left(\pi i \frac{3}{4}\right)$  &  $1$  \\
3 &  $-4+3i$  &  $-4+3i$  &  $\frac{7}{4}$  \\
4 &  $-2$  &  $-2$  &  $\frac{5}{4}i$  \\
\hline \hline
\end{tabular}
\end{minipage}
\end{tabl}

```

---

### 2.19.2 Tables <28pc, without captions

In this case, revert to the standard L<sup>A</sup>T<sub>E</sub>X method of including a table:

```

\begin{table}
\begin{tabular}{@{}l@{}}
:
\end{tabular}
\end{table}

```

### ***2.19.3 Wide tables 28–35pc, with captions***

Tables may extend the full width of the page, as illustrated in Table 2.2. You may find you need to move the caption either up or down to avoid it clashing with the table; `\movecaption` does this for you.

As before,  $\text{\LaTeX}$  needs to calculate whether the table falls on an odd or an even page. To do this, the argument for label (`anotherexp`) is inserted twice, as shown. Also, `\flip` is required which will ensure that the wide table automatically overhangs the outside margin.

### ***2.19.4 Wide tables 28–35pc, without captions***

See the example on page 22. Note that `\flip` will ensure that the wide table automatically overhangs the outside margin.

### ***2.19.5 My vertical rules have disappeared***

Vertical rules in tables are not *cspmb* style, and have been automatically removed; this gives your document a truly professional look. Instead of vertical rules, we recommend the use of extra horizontal space, see Section 2.19.8. The rules have been removed by redefining the `tabular` environment. The amended definition also inserts extra vertical space above and below the horizontal rules (produced by `\hline`).

If you really must have them reinstated, read Section 2.19.6.

### ***2.19.6 Reinstating the vertical rules***

Authors can revert to the standard  $\text{\LaTeX}$  style, if necessary. Tables will take on a rather squashed appearance, as in the  $\text{\LaTeX}$  book, whereby there is no added space around horizontal rules. Add the command `\reinstaterules` in the preamble, and re-run your files through  $\text{\LaTeX}$ .

### ***2.19.7 There is very little space around the rules in my table***

Tables revert to the standard, rather squashed look of standard  $\text{\LaTeX}$  tables for two reasons:

1. you are using `array.sty`; or
2. you have chosen to reinstate vertical rules (see Section 2.19.6)

In both cases, the `tabular` environment is redefined.

### ***2.19.8 Adding space between columns***

You can add space (2pt in this example) between every column using `\addtolength\tabcolsep{2pt}`. However, if you only wanted to expand

Figure	$hA^a$	$hB$	$hC$
1	$\exp\left(\pi i \frac{5}{8}\right)$	$\exp\left(\pi i \frac{1}{8}\right)$	0
2	-1	$\exp\left(\pi i \frac{3}{4}\right)$	1
3	$-4 + 3i$	$-4 + 3i$	$\frac{7}{4}$
4	-2	-2	$\frac{5}{4}i$

<sup>a</sup> Note: At the time of writing, the digits of  $\pi$  have been calculated to one gazillion decimal places.

**Table 2.2** A wide table.

---

```

\begin{tabl}{anotherexp}
% note that the square brace option below is only required
% if you intend to produce a list of tables
\movecaption{120pt}
\caption[Wide table]{A~wide table.}
\label{anotherexp}
\addtolength\tabcolsep{44pt}% to stretch columns, if required
\flip
\begin{minipage}{35pc}
\begin{tabular}{@{}cccc@{}}
\hline \hline
Figure &  $hA$  & \footnote{\textit{Note:} At the time of writing,
the digits of  $\pi$  have been calculated to one gazillion
decimal places.} &  $hB$  &  $hC$  \\
\hline
1 &  $\exp\left(\pi i \frac{5}{8}\right)$  & &  $\exp\left(\pi i \frac{1}{8}\right)$  & 0 \\
2 & -1 & &  $\exp\left(\pi i \frac{3}{4}\right)$  & 1 \\
3 &  $-4 + 3i$  & &  $-4 + 3i$  &  $\frac{7}{4}$  \\
4 & -2 & & -2 &  $\frac{5}{4}i$  \\
\hline \hline
\end{tabular}
\end{minipage}
\end{tabl}

```

---

the space between columns 1 and 2 to 25pt, you would do this using `\begin{tabular}{@{}c@{\hspace{25pt}}ccc@{}}` (see Table 2.1).

Figure	$hA^a$	$hB$	$hC$
1	$\exp\left(\pi i \frac{5}{8}\right)$	$\exp\left(\pi i \frac{1}{8}\right)$	0
2	-1	$\exp\left(\pi i \frac{3}{4}\right)$	1
3	$-4 + 3i$	$-4 + 3i$	$\frac{7}{4}$
4	-2	-2	$\frac{5}{4}i$

<sup>a</sup> Note: At the time of writing, the digits of  $\pi$  have been calculated to one gazillion decimal places.

---

```

% A wide table with no caption still requires a label
\begin{tabl}{notablecaption}
\label{notablecaption}
\addtolength\tabcolsep{44pt}% to stretch columns, if required
\flip
\begin{minipage}{35pc}
\begin{tabular}{@{}cccc@{}}
\hline \hline
Figure &  $hA$  & \footnote{\textit{Note:} At the time of writing,
the digits of  $\pi$  have been calculated to one gazillion
decimal places.} &  $hB$  &  $hC$  \\
\hline
1 &  $\exp\left(\pi i \frac{5}{8}\right)$ 
&  $\exp\left(\pi i \frac{1}{8}\right)$  &  $0$  \\
2 &  $-1$  &  $\exp\left(\pi i \frac{3}{4}\right)$  &  $1$  \\
3 &  $-4+3i$  &  $-4+3i$  &  $\frac{7}{4}$  \\
4 &  $-2$  &  $-2$  &  $\frac{5}{4}i$  \\
\hline \hline
\end{tabular}
\end{minipage}
\end{tabl}

```

---

### 2.19.9 Adding space between rows

If you need some form of separation between rows (for example, between rows 2 and 3 in the body of Table 2.1), adding [11pt] immediately after the double backslash at the end of row 2 will add an 11pt vertical space (the equivalent of a blank line at this typesize). This is neater than adding another horizontal line.

## 2.20 Landscape figures and tables, using *rotating.sty*

Landscape figures and tables (floats) may be typeset using the `rotating.sty` package. Note that the direction of rotation depends on the page number – which requires at least two passes through  $\text{\LaTeX}$ . If we are going to know whether pages are odd or even, we need to use the `\pageref` mechanism, and labels. But labels won't work unless the user has put in a caption. *Beware!*

In addition to `rotating.sty`, you should also include `floatpag.sty` and the command `\rotfloatpagestyle{empty}`. This combination ensures that headers and footers are removed from the float page:

```
\usepackage{rotating}
\usepackage{floatpag}
\rotfloatpagestyle{empty}
```

In some DVI previewers, floats may not appear rotated. If this happens, you need to convert the DVI file to PostScript or PDF.

Occasionally, when you convert a PostScript file to a PDF file, you may find that the page comes out upside-down. There will be a setting to change this. For instance, if you are using PDFCreator 0.9.7, choose the following options in this sequence:

Options – Program – PDF – Auto-Rotate Pages: Change to 'None'.

Other programs will have similar procedures.

### 2.20.1 Coding for landscape figures

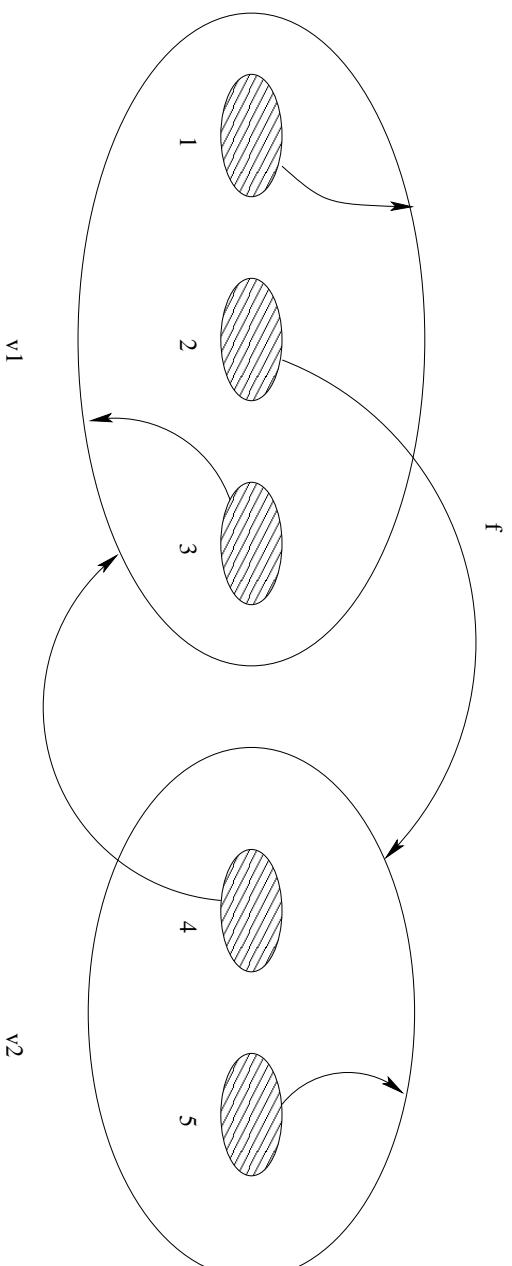
A landscape figure is illustrated in Figure 2.4. Note that you must add the label information twice (in this case, `sidecantor`). Here is the source code:

```
\begin{sidewaysfigure}{sidecantor}
% note that the square brace option below is only required
% if you intend to produce a list of illustrations
\caption[Landscape figure]{A~Cantor repeller.}
\label{sidecantor}
\includegraphics[scale=0.85]{cantor1.eps}
\end{sidewaysfigure}
```

### 2.20.2 Coding for landscape tables

A landscape table is illustrated in Table 2.3. Note that you must add the label information twice (in this case, `warefeatures`). Also, you only need to use the minipage environment `\begin{minipage}...\end{minipage}` if your table contains a footnote. Here is the source code:

**Figure 2.4**  
A Cantor repeller.





```

\begin{sidewaystable}{warefeatures}
  \caption[Landscape table]{Grooved ware and beaker features,
    their finds and radiocarbon dates. For a breakdown of the
    pottery assemblages see Tables~I and~III; for the flints see
    Tables~II and~IV; for the animal bones see Table~V.}
  \label{warefeatures}
  \begin{minipage}{440pt}% use only if you have a table footnote
    %\smallertablesize % uncomment if your table does not fit the depth
    \begin{tabular}{@{}lccccccc@{}}
      \hline\hline
      Context\footnote{If you are using footnotes, you must be in a minipage
        environment.}
      & Length & Breadth/ & Depth & Profile & Pottery & Flint \\
      & Animal & & C14 Dates\\
      & & Diameter & & & & Bones\\
      & m & m & m & m & m & m \\
      \hline\hline[-5.5pt]
      \multicolumn{9}{@{}l}{\textbf{Grooved Ware}}\\
      784 & -- & 0.9$ & \phantom{0}$ & 0.18 & Sloping U & P1 & & $\times$46 \\
      & & & $\phantom{0}$$ & \times$8 & 2150 & $\pm$100\, & \textsc{bc}\\
      785 & -- & 1.00 & & 0.12 & Sloping U & P2--4 & & $\times$23 \\
      & & & $\times$21 & -- \\
      962 & -- & 1.37 & & 0.20 & Sloping U & P5--6 & & $\times$48 \\
      & & & $\times$57 & 1990 & $\pm$80\, & \textsc{bc} & (Layer 4) \\
      & & & & & 1870 & $\pm$90\, & \textsc{bc} & (Layer 1) \\
      983 & 0.83 & & 0.73 & & 0.25 & Stepped U & -- & $\times$18 \\
      & & $\phantom{0}$$ & \times$8 & -- \\
      \multicolumn{9}{@{}l}{\textbf{Beaker}}\\
      552 & -- & 0.68 & & 0.12 & Saucer & & P7--14 & -- \\
      & -- & -- \\
      790 & -- & 0.60 & & 0.25 & U & & P15 & $\times$12 \\
      & -- & -- \\
      794 & 2.89 & & & 0.75 & 0.25 & Irreg. & P16 \\
      & & $\phantom{0}$$ & \times$3 & -- & -- \\
      \hline\hline
    \end{tabular}
  \end{minipage}
\end{sidewaystable}

```

**Table 2.3**  
Grooved ware and beaker features, their finds and radiocarbon dates.  
For a breakdown of the pottery assemblages see Tables I and III; for the flints see Tables II and IV; for the animal bones see Table V.

Context <sup>a</sup>	Length	Breadth/ Diameter	Depth	Profile	Pottery	Flint	Animal Bones	C14 Dates
	m	m	m					
<b>Grooved Ware</b>								
784	–	0.9	0.18	Sloping U	P1	×46	×8	2150 ±100 BC
785	–	1.00	0.12	Sloping U	P2-4	×23	×21	–
962	–	1.37	0.20	Sloping U	P5-6	×48	×57	1990 ±80 BC (Layer 4) 1870 ±90 BC (Layer 1)
983	0.83	0.73	0.25	Stepped U	–	×18	×8	–
<b>Beaker</b>								
552	–	0.68	0.12	Saucer	P7-14	–	–	–
790	–	0.60	0.25	U	P15	×12	–	–
794	2.89	0.75	0.25	Irreg.	P16	×3	–	–

<sup>a</sup> If you are using footnotes, you must be in a minipage environment.

## 3

---

# Mathematical solutions

### 3.1 Why are we using amsthm.sty?

Many authors are already using this style file, so we have decided that rather than re-invent the wheel, we will make it part of our distribution. This means that at the top of the root file must include the following lines:

```
\documentclass{cspmB}
\usepackage{amsmath}
\usepackage{amsthm}
```

As mentioned in Chapter 1, if your book does not use theorems, proofs, etc., then there is no need to include the amsthm package, but you do need to include these files to run this guide through L<sup>A</sup>T<sub>E</sub>X. Note that if you are also using amsmath.sty, it *must* precede amsthm.sty.

The instructions for amsthm.sty are documented separately in amsthdoc.pdf. We are including amsthm.sty and amsthdoc.pdf in this distribution for your convenience, but you may find more recent versions on the web. The following sections discuss the basic features, plus a few extras.

To save time, you may cut and paste the code in Appendix B into your root file. This is a comprehensive (but not necessarily a complete) list of theorem-like environments you may wish to use.

The amsthm commands used in this guide are detailed in Appendix C. They are simply a subset of commands from Appendix B; some illustrate unnumbered versions.

Please note that theorems, definitions, remarks, etc. should be numbered in a single sequence, either by chapter (Chapter 4 would have Definition 4.1, Lemma 4.2, Lemma 4.3, Proposition 4.4, Corollary 4.5) or by section (Definition 4.1.1, Lemma 4.1.2, Lemma 4.1.3, Proposition 4.1.4, Corollary 4.1.5).

To number these elements by chapter in this guide, we have used `\newtheorem{theorem}{Theorem}[chapter]`. If you prefer to have the elements numbered by section, replace `[chapter]` with `[section]`.

### 3.2 amsthm styles

If no `\theoremstyle` command is given, the style used will be `plain`. To specify different styles, divide your `\newtheorem` commands into groups and preface each group with the appropriate `\theoremstyle`.

#### 3.2.1 amsthm plain style

The `plain` style is normally used for theorems, lemmas, corollaries, propositions, conjectures, criterion and algorithms. Authors are free to define their preferred numbering systems for these. The following example resets the theorem numbers for each chapter; lemmas follow in the same sequence. We have also requested that corollaries remain unnumbered by using the starred version:

```
\theoremstyle{plain}% default
\newtheorem{theorem}{Theorem}[chapter]
\newtheorem{lemma}[theorem]{Lemma}
\newtheorem*{corollary}{Corollary}

\begin{theorem}
  Let the scalar function\ldots
\end{theorem}
\begin{lemma}[Tranah]
  The first-order free surface amplitudes\ldots
\end{lemma}
\begin{lemma}[\citealp{MenshEst}]
  The exotic behaviours of Lagrangian\ldots
\end{lemma}
\begin{corollary}
  Let  $G$  be the free group on\ldots
\end{corollary}
```

will produce the following output:

**Theorem 3.1** *Let the scalar function...*

**Lemma 3.2** (Tranah) *The first-order free surface amplitudes...*

**Lemma 3.3** (Menshikov, 1985) *The exotic behaviours of Lagrangian...*

**Corollary** *Let  $G$  be the free group on...*

Note that Corollaries would normally be in the same numbering sequence as Theorems and Lemmas. If you'd prefer your theorems to be typeset in roman (though this is not recommended) use the `amsthm` definition style instead (see Section 3.2.2).

### 3.2.2 *amsthm* definition style

The `definition` style is normally used for definitions, conditions, problems, examples. It may also be used to set up Exercises (see Appendix B for an example), although the `{exerciselist}` environment described in Section 2.17.1 does the equivalent. Again, authors are free to define their preferred numbering systems for these. However, it is most usual to continue with the same numbering sequence as for Theorems, Lemmas, etc.:

```
\theoremstyle{definition}
\newtheorem{definition}[theorem]{Definition}
\newtheorem{example}[theorem]{Example}

\begin{definition}
  The series above is the Green function\ldots
\end{definition}
\begin{definition}
  The correlation between the real and estimated flow\ldots
\end{definition}
\begin{example}
  Consider spatial and temporal problems\ldots
\end{example}
```

will produce the following output:

**Definition 3.4** The series above is the Green function...

**Definition 3.5** The correlation between the real and estimated flow...

**Example 3.6** Consider spatial and temporal problems...

### 3.2.3 *amsthm* remark style

The `remark` style is normally used for remarks, notes, notation, claims, summary, acknowledgements, cases, conclusions. Again, authors are free to define their preferred numbering systems for these.

```
\theoremstyle{remark}
\newtheorem*{remark}{Remark}
\newtheorem*{case}{Case}

\begin{remark}
  The absolute amplitude of a stratified wake\ldots
\end{remark}
\begin{case}
  The profiles of quadratic fluctuations\ldots
\end{case}
```

will produce the following output:

*Remark* The absolute amplitude of a stratified wake...

*Case* The profiles of quadratic fluctuations...

### 3.3 Proofs

The `proof` environment is also part of the `amsthm` package, and provides a consistent format for proofs. For example,

```
\begin{proof}
  Use  $K_\lambda$  and  $S_\lambda$  to translate combinators
  into  $\lambda$ -terms. For the converse, translate
   $\lambda x \dots$  by  $[x]$  and use induction
  and the lemma.
\end{proof}
```

produces the following:

*Proof* Use  $K_\lambda$  and  $S_\lambda$  to translate combinators into  $\lambda$ -terms. For the converse, translate  $\lambda x \dots$  by  $[x]$  ... and use induction and the lemma.  $\square$

#### 3.3.1 Changing the word ‘Proof’ to something else

An optional argument allows you to substitute a different name for the standard ‘Proof’. To change the proof heading to read ‘Proof of the Pythagorean Theorem’, key the following:

```
\begin{proof}[Proof of the Pythagorean Theorem]
  Start with a generic right-angled triangle\dots
\end{proof}
```

which produces:

*Proof of the Pythagorean Theorem* Start with a generic right-angled triangle...  $\square$

#### 3.3.2 Typesetting a proof without a $\square$

This is not part of the `amsthm` package. Use the `proof*` version. For example,

```
\begin{proof*}
  The apparent virtual mass coefficient\dots
\end{proof*}
```

produces the following:

*Proof* The apparent virtual mass coefficient...

### 3.3.3 Placing the $\square$ after a displayed equation

To avoid the  $\square$  dropping onto the following line at the end of a proof,

```
\begin{proof}
  \ldots and, as we are all aware,
  \[
    E=mc^2. \qedhere
  \]
\end{proof}
```

produces the following:

*Proof* ... and, as we are all aware,

$$E = mc^2. \quad \square$$

When used with the `amsmath` package, version 2 or later, `\qedhere` will position  $\square$  flush right; with earlier versions,  $\square$  will be spaced a quad away from the end of the text or display.

If `\qedhere` produces an error message in an equation, try using `\mbox{\qedhere}` instead.

### 3.3.4 Placing the $\square$ after a displayed `eqnarray`

This is also not part of the `amsthm` package. To enable this, you need to use the starred version of `proof`, and add both `\arrayqed` and `\arrayqedhere`, as shown in the following example:

```
\begin{proof*}
  The following equations prove the theorem:
  \arrayqed
  \begin{eqnarray}
    \epsilon &=& -\frac{1}{2}U_0\frac{d q'^2}{dx} \\
    &=& 10\nu\frac{q'^2}{\lambda^2}
  \end{eqnarray}
  \arrayqedhere
\end{proof*}
```

produces the following:

*Proof* The following equations prove the theorem:

$$\begin{aligned} \epsilon &= -\frac{1}{2}U_0\frac{dq'^2}{dx} \\ &= 10\nu\frac{q'^2}{\lambda^2} \end{aligned} \quad \square$$





## Part II

---

### Closing features



---

## Reference and bibliography lists

### 4.1 Automatic lists using Bib<sub>T</sub>E<sub>X</sub>

We have chosen to use the `natbib` package because of its versatility.

First, call in `natbib.sty`. If you are using the multi-contributor option, you will get an unnumbered section heading, otherwise it will be an unnumbered chapter heading.

The bibliography file for this guide (`cspmBguide.tex`) is called `percolation.bib`; the bibliography style is `cambridgeauthordate.bst`, so place the final two commands at the point where you would like the references to appear:

```
\usepackage{natbib}
:
% \renewcommand{\refname}{Bibliography}
\bibliography{percolation}
\bibliographystyle{cambridgeauthordate}
```

Note that if you uncomment the third line shown above, you can change the heading from ‘References’ to ‘Bibliography’. Next, L<sup>A</sup>T<sub>E</sub>X your book twice. Then run Bib<sub>T</sub>E<sub>X</sub> by executing the command

```
bibtex cspmBguide
```

Finally, run your book through L<sup>A</sup>T<sub>E</sub>X twice again. This series of runs will generate a file called `cspmBguide.bbl`, which will then be included by `\bibliography{percolation}`.

Suppose you have cited 8 entries from the ‘percolation’ database, e.g. `\citealp{MenshEst}`; `\citealp{Kasymp}`; `\citealp{VGFH}`; `\citealp{HamMaz94}`; `\citealp{HamLower}`; `\citealp{AiBar87}`; `\citealp{MMS}`; and `\citealp{HamAtomBond}`; the output will be just those 8 entries (see page 50).

### 4.2 Citations using `natbib` commands

Here are some of the basic citation commands available with the `natbib` package; there are many more if you cannot find what you need in this list. Bear in mind that Menshikov (1985) or (Menshikov, 1985) read

best, depending on context.

<code>\cite{MenshEst}</code>	→ (Menshikov, 1985)
<code>\cite[see][p.\$\\$, \$34]{MenshEst}</code>	→ (see Menshikov, 1985, p. 34)
<code>\cite[e.g.][ ]{MenshEst}</code>	→ (e.g. Menshikov, 1985)
<code>\cite[Section~2.3]{MenshEst}</code>	→ (Menshikov, 1985, Section 2.3)
<code>\cite{MenshEst, VGfH}</code>	→ (Menshikov, 1985; Vyssotsky et al., 1961)
<code>\cite{MenshEst, VGfH}</code>	→ Menshikov (1985); Vyssotsky et al. (1961)
<code>\citealt{MenshEst}</code>	→ Menshikov 1985
<code>\cite{MenshEst}</code>	→ Menshikov (1985)
<code>\citealp{MenshEst}</code>	→ Menshikov, 1985
<code>\citeauthor{MenshEst}</code>	→ Menshikov
<code>\citeyearpar{MenshEst}</code>	→ (1985)
<code>\citeyear{MenshEst}</code>	→ 1985

### 4.3 How to change reference entries from author–date to numbers

L<sup>A</sup>T<sub>E</sub>X authors are used to `\cite{...}` producing a reference such as [11] in their manuscripts. If you prefer this style, it is an option within the natbib package:

```
\usepackage[numbers]{natbib}
```

### 4.4 Keying in your reference list for an author–date system

The entries need to be keyed as below. Note that if you uncomment the first line, you can change the heading from ‘References’ to ‘Bibliography’:

```
% \renewcommand{\refname}{Bibliography}
\begin{thebibliography}{8}
  \expandafter\ifx\csname natexlab\endcsname\relax
    \def\natexlab#1{#1}\fi
  \expandafter\ifx\csname selectlanguage\endcsname\relax
    \def\selectlanguage#1{\relax}\fi

  \bibitem[Aizenman and Barsky, 1987]{AiBar87}
    Aizenman, M., and Barsky, D.~J. 1987.
    Sharpness of the phase transition in percolation models.
    {\em Comm. Math. Phys.}, {\bf 108}, 489--526.

  \bibitem[Hammersley, 1957]{HamLower}
    Hammersley, J.~M. 1957.
    Percolation processes: Lower bounds for the critical probability.
    {\em Ann. Math. Statist.}, {\bf 28}, 790--795.

  \bibitem[Hammersley, 1961]{HamAtomBond}
```

```

Hammersley, J.~M. 1961.
Comparison of atom and bond percolation processes.
{\em J. Mathematical Phys.}, {\bf 2}, 728--733.

\bibitem[Hammersley and Mazzarino, 1994]{HamMaz94}
Hammersley, J.~M., and Mazzarino, G. 1994.
Properties of large Eden clusters in the plane.
{\em Combin. Probab. Comput.}, {\bf 3}, 471--505.

\bibitem[Kesten, 1990]{Kasymp}
Kesten, H. 1990.
Asymptotics in high dimensions for percolation.
Pages 219--240 of: Grimmett, G.~R., and Welsh, D.~J.~A. (eds),
{\em Disorder in Physical Systems: A Volume in Honour of John Hammersley}.
Oxford University Press.

\bibitem[Menshikov, 1985]{MenshEst}
Menshikov, M.~V. 1985.
Estimates for percolation thresholds for lattices in  $\mathbb{R}^n$ .
{\em Dokl. Akad. Nauk SSSR}, {\bf 284}, 36--39.

\bibitem[Menshikov et~al., 1986]{MMS}
Menshikov, M.~V., Molchanov, S.~A., and Sidorenko, A.~F. 1986.
Percolation theory and some applications.
Pages 53--110 of: {\em Probability theory. Mathematical
statistics. Theoretical cybernetics, Vol. 24 (Russian)}.
Akad. Nauk SSSR Vsesoyuz. Inst. Nauchn. i Tekhn. Inform.
Translated in {\em J. Soviet Math.} {\bf 42} (1988), no. 4,
1766--1810.

\bibitem[Vyssotsky et~al., 1961]{VGFH}
Vyssotsky, V.~A., Gordon, S.~B., Frisch, H.~L., and Hammersley, J.~M. 1961.
Critical percolation probabilities (bond problem).
{\em Phys. Rev.}, {\bf 123}, 1566--1567.

\end{thebibliography}

```

## 4.5 Keying in your reference list for a numbered system

For this style, you may omit the optional square brace shown in Section 4.4. Once again, if you uncomment the first line, you can change the heading from ‘References’ to ‘Bibliography’:

```

% \renewcommand{\refname}{Bibliography}
\begin{thebibliography}{8}

\bibitem{AiBar87}
Aizenman, M., and Barsky, D.~J. 1987.
Sharpness of the phase transition in percolation models.
{\em Comm. Math. Phys.}, {\bf 108}, 489--526.

\bibitem{HamLower}
Hammersley, J.~M. 1957.
Percolation processes: Lower bounds for the critical probability.
{\em Ann. Math. Statist.}, {\bf 28}, 790--795.

```

```

\bibitem{HamAtomBond}
  Hammersley, J.~M. 1961.
  Comparison of atom and bond percolation processes.
  {\em J. Mathematical Phys.}, {\bf 2}, 728--733.
  :
  :
\bibitem[Vyssotsky et~al., 1961]{VGFH}
  Vyssotsky, V.~A., Gordon, S.~B., Frisch, H.~L., and Hammersley, J.~M. 1961.
  Critical percolation probabilities (bond problem).
  {\em Phys. Rev.}, {\bf 123}, 1566--1567.

\end{thebibliography}

```

---

## Indexes

### 5.1 Creating a single index using `makeidx.sty`

To generate a single index, normally a subject index, the commands would take the form:

```
\index{diffraction}
\index{force!hydrodynamic}
\index{force!interactive}
```

The following commands are then required in the preamble:

```
\usepackage{makeidx}
\makeindex
```

and at the point you wish your index to appear,

```
\printindex
```

Run your book through  $\text{\LaTeX}$  enough times so that the labels, etc., are stable. Then execute the command:

```
makeindex cspmBguide
```

To include the index, you need to run  $\text{\LaTeX}$  one more time.

### 5.2 Creating multiple indexes using `multind.sty`

This guide has been prepared using `multind.sty`. This style file redefines the `\makeindex`, `\index` and `\printindex` commands to deal with multiple indexes.

Suppose you want to create an author index and a subject index. The entries should be in the text as usual, but take the following form:

```
\index{authors}{Young, P.D.F.}
\index{authors}{Tranah, D.A.}
\index{authors}{Peterson, K.}
\index{subject}{diffraction}
\index{subject}{force!hydrodynamic}
\index{subject}{force!interactive}
```

In the preamble, you need to add the following lines:

```
\usepackage{multind}\ProvidesPackage{multind}
\makeindex{authors}
\makeindex{subject}
```

It is crucial to add the command `\ProvidesPackage{multind}`; this will send a message to the class file to re-style the index into the `csbmB` style. You will get a warning in your log file:

```
LaTeX Warning: You have requested package ‘’,
                but the package provides ‘multind’.
```

which can be ignored. At the point where you wish your indexes to appear, you then need the commands:

```
\printindex{authors}{Author index}
\printindex{subject}{Subject index}
```

Run your book through  $\text{\LaTeX}$  enough times so that the labels, etc., are stable. Then execute the commands:

```
makeindex authors
makeindex subject
```

To include the indexes, you need to run  $\text{\LaTeX}$  one more time.

### 5.3 Creating multiple indexes using `index.sty`

This style file allows you to define new indexes. Suppose you want to create an author index as well as a normal subject index. The entries should be in the text as usual, but take the following form:

```
\index[aut]{Young, P.D.F.}
\index[aut]{Tranah, D.A.}
\index[aut]{Peterson, K.}
\index{diffraction}
\index{force!hydrodynamic}
\index{force!interactive}
```

To create the extra author index, you need to have the following lines in the preamble:

```
\usepackage{index}
\makeindex
\newindex{aut}{adx}{and}{Author index}
```

At the point where you wish your indexes to appear, use:

```
\printindex[aut]
\printindex
```



Run your book through L<sup>A</sup>T<sub>E</sub>X enough times so that the labels, etc., are stable. Then execute the commands:

```
makeindex -o cspmBguide.and cspmBguide.adx
makeindex cspmBguide
```

To include the indexes, you need to run L<sup>A</sup>T<sub>E</sub>X one more time.

### 5.3.1 *Caution – from the authors of index.sty*

In order to implement *index.sty*, it's been necessary to modify a number of L<sup>A</sup>T<sub>E</sub>X commands seemingly unrelated to indexing, namely, `\@starttoc`, `\raggedbottom`, `\flushbottom`, `\addcontents`, `\markboth`, and `\markright`. Naturally, this could cause incompatibilities between *index.sty* and any style files that either redefine these same commands or make specific assumptions about how they operate.

The redefinition of `\@starttoc` is particularly bad, since it introduces an incompatibility with the AMS document classes. This will be addressed soon.

In the current implementation, *index.sty* uses one output stream for each index. Since there are a limited number of output indexes, this means that there is a limit on the number of indexes you can have in a document. There is more information on this in *index.dtx* which is part of the *index.sty* distribution.

*For these reasons, whilst all care has been taken to deal with these changes in cspmB.cls, if you do find incompatibilities with other files, please contact us at [texline@cambridge.org](mailto:texline@cambridge.org) with your source files, class and style files, and log file.*



# Appendix A

---

## Typesetting appendices

### A.1 Single-contributor books

#### *A.1.1 How to typeset one appendix*

If you have just one appendix, say `appendix.tex`, you will want to generate a chapter head ‘Appendix’ rather than ‘Appendix A’. Use `\oneappendix` in the main file, as follows:

```
\oneappendix
\include{appendix}
```

#### *A.1.2 How to typeset several appendices*

The coding used to generate the appendices in this guide is as follows:

```
\appendix
\include{appendixA}
\include{appendixB}
\include{appendixC}
```

### A.2 Multi-contributor books

#### *A.2.1 How to typeset one appendix*

If you have just one appendix, it will be the next section head and you should include the following code at the end of your chapter:

```
\oneappendix
\section{Appendix heading}
\subsection{Subheading}
\endappendix
```

You will need to add `\endappendix` if you have further section heads in this chapter.

#### *A.2.2 How to typeset several appendices*

The following code will generate Appendix A and Appendix B at the end of your chapter:

```

\appendix
\section{Appendix heading}
\subsection{Subheading}
:
\section{Next appendix heading}
\subsection{Next subheading}
\endappendix

```

Again, you will need to add `\endappendix` if you have further section heads in this chapter.

### A.3 Numbering systems

Equations in appendices will be numbered as follows:

$$E = mc^2, \tag{A.1}$$

and figure captions as follows:

**Figure A.1**  
Similarity  
solutions.

## Appendix B

---

### amsthm commands

The following code may be cut and pasted into your root file. Assuming you have included `amsthm.sty`, it will number your theorems, definitions, etc. in the same numbering sequence and by chapter, e.g. Definition 4.1, Lemma 4.2, Lemma 4.3, Proposition 4.4, Corollary 4.5.

If you prefer to have the elements numbered by section, e.g. Definition 4.1.1, Lemma 4.1.2, Lemma 4.1.3, Proposition 4.1.4, Corollary 4.1.5, replace `[chapter]` on line 2 with `[section]`.

```
\theoremstyle{plain}% default
\newtheorem{theorem}[Theorem][chapter]
\newtheorem{lemma}[theorem]{Lemma}
\newtheorem{corollary}[theorem]{Corollary}
\newtheorem{proposition}[theorem]{Proposition}
\newtheorem{conjecture}[theorem]{Conjecture}
\newtheorem{criterion}[theorem]{Criterion}
\newtheorem{algorithm}[theorem]{Algorithm}

\theoremstyle{definition}
\newtheorem{definition}[theorem]{Definition}
\newtheorem{condition}[theorem]{Condition}
\newtheorem{problem}[theorem]{Problem}
\newtheorem{example}[theorem]{Example}
\newtheorem{exer}[Exercise][section]
% note that {exer} may be used for Exercises scattered throughout a chapter;
% - they will be numbered by [section]
% - we have not used {exercise} as this is already defined

\theoremstyle{remark}
\newtheorem{remark}[theorem]{Remark}
\newtheorem{note}[theorem]{Note}
\newtheorem{notation}[theorem]{Notation}
\newtheorem{claim}[theorem]{Claim}
\newtheorem{summary}[theorem]{Summary}
\newtheorem{acknowledgement}[theorem]{Acknowledgement}
\newtheorem{case}[theorem]{Case}
\newtheorem{conclusion}[theorem]{Conclusion}
```

# Appendix C

---

## The root file for this guide

```
% cspmBguide.tex
% Cambridge Series in Statistical and Probabilistic Mathematics, design B (asymmetric)
% for the suite of standard Cambridge designs
% 2009/09/17, v2.00

\NeedsTeXFormat{LaTeX2e}[1996/06/01]

% \documentclass[multi]{cspmB}% option
\documentclass{cspmB}
\usepackage{natbib}

\usepackage{rotating}
\usepackage{floatpag}
\rotfloatpagestyle{empty}

% \usepackage{amsmath}% if you are using this package,
% it must be loaded before amsthm.sty
\usepackage{amsthm}
\usepackage{graphicx}

% indexes
% uncomment the relevant set of commands

% for a single index
% \usepackage{makeidx}
% \makeindex

% for multiple indexes using multind.sty
\usepackage{multind}\ProvidesPackage{multind}
\makeindex{authors}
\makeindex{subject}

% for multiple indexes using index.sty
% \usepackage{index}
% \newindex{aut}{adx}{and}{Author index}
% \makeindex

\newcommand\cambridge{cspmB}

% see chapter 3 for details
\theoremstyle{plain}% default
\newtheorem{theorem}{Theorem}[chapter]
\newtheorem{lemma}[theorem]{Lemma}
\newtheorem*{corollary}{Corollary}
```

```

\theoremstyle{definition}
\newtheorem{definition}[theorem]{Definition}
\newtheorem{example}[theorem]{Example}

\theoremstyle{remark}
\newtheorem*{remark}{Remark}
\newtheorem*{case}{Case}

\hyphenation{line-break line-breaks docu-ment trian-gle cam-bridge amsthdoc
  cambridgemods baseline-skip author authors cambridgestyle en-vir-on-ment polar}

\setcounter{tocdepth}{2}% the toc normally lists sections;
% for the purposes of this document, this has been extended to subsections

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

% \includeonly{chap2}

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

\begin{document}

\title[Subtitle, If You Have One]
  {\LaTeX\ GUIDE FOR AUTHORS USING THE \cambridge\ DESIGN}

\author{Ali Woollatt\\[3\baselineskip]
  This guide was compiled using \hbox{\cambridge.cls \version}\\[3\baselineskip]
  The latest version can be downloaded from:
  https://authornet.cambridge.org/information/productionguide/
  LaTeX\_files/\cambridge.zip}

\frontmatter
\maketitle
\tableofcontents
\listoffigures
\listoftables
\listofcontributors

\mainmatter
\partquote{Do not worry about your difficulties in Mathematics.
  I can assure you mine are still greater. (Albert Einstein.)}
\parttitledtext{Given a data set, you can fit thousands of models
  at the push of a button, but how do you choose the best? With so
  many candidate models, overfitting is a real danger. Is the
  monkey who typed Hamlet actually a good writer?}
\part{Getting started}
\label{gettingstarted}

\include{chap1}% introduction
\include{chap2}% features of the \cambridge\ class file
\include{chap3}% mathematical solutions

\part{Closing features}
\include{chap4}% references and bibliographies
\include{chap5}% single and multiple indexes

\backmatter
% if you only have one appendix, use \oneappendix instead of \appendix

```

```
\appendix
\include{appendixA}
\include{appendixB}
\include{appendixC}
\endappendix

% insert a blank line to the toc list
\addtocontents{toc}{\vspace{\baselineskip}}
\theendnotes

% \renewcommand{\refname}{Bibliography}% if you prefer this heading
\bibliography{percolation}\label{refs}
\bibliographystyle{cambridgeauthordate}

\cleardoublepage

% indexes

% for a single index
% \printindex

% for multiple indexes using multind.sty
\printindex{authors}{Author index}
\printindex{subject}{Subject index}

% for multiple indexes using index.sty
% \printindex[aut]
% \printindex

\end{document}
```



---

## Notes

### Chapter 2

- 1 Lewis Fry Richardson (1881–1953).

---

## References

- Aizenman, M., and Barsky, D. J. 1987. Sharpness of the phase transition in percolation models. *Comm. Math. Phys.*, **108**, 489–526.
- Hammersley, J. M. 1957. Percolation processes: Lower bounds for the critical probability. *Ann. Math. Statist.*, **28**, 790–795.
- Hammersley, J. M. 1961. Comparison of atom and bond percolation processes. *J. Mathematical Phys.*, **2**, 728–733.
- Hammersley, J. M., and Mazzarino, G. 1994. Properties of large Eden clusters in the plane. *Combin. Probab. Comput.*, **3**, 471–505.
- Kesten, H. 1990. Asymptotics in high dimensions for percolation. Pages 219–240 of: Grimmett, G. R., and Welsh, D. J. A. (eds), *Disorder in Physical Systems: A Volume in Honour of John Hammersley*. Oxford University Press.
- Menshikov, M. V. 1985. Estimates for percolation thresholds for lattices in  $\mathbf{R}^n$ . *Dokl. Akad. Nauk SSSR*, **284**, 36–39.
- Menshikov, M. V., Molchanov, S. A., and Sidorenko, A. F. 1986. Percolation theory and some applications. Pages 53–110 of: *Probability theory. Mathematical statistics. Theoretical cybernetics, Vol. 24 (Russian)*. Akad. Nauk SSSR Vsesoyuz. Inst. Nauchn. i Tekhn. Inform. Translated in *J. Soviet Math.* **42** (1988), no. 4, 1766–1810.
- Vyssotsky, V. A., Gordon, S. B., Frisch, H. L., and Hammersley, J. M. 1961. Critical percolation probabilities (bond problem). *Phys. Rev.*, **123**, 1566–1567.

---

## Author index

Peterson, K., 40  
Tranah, D.A., 40  
Young, P.D.F., 40

---

## Subject index

diffraction, 40  
force  
  hydrodynamic, 40  
  interactive, 40