Micromechanics of extremely thin composite layers for aerospace applications

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To my surprise...

Abstract

This is an abstract, imported from the file *abstract.tex*.

Contents

Acknowledgments

The creation of this template has taken several years, and the shape it is in now would not have been possible with out the patient testers out there. To mention just a few who found and reported bugs, and occasionally even provided bug fixes: Gustav Johansson, Sara Sandberg, Yvonne Aitomäki, Fredrik Hägglund, Jesper Martinsson, Patrik Pääjärvi, and Martin Sehlstedt. To all of those I forgot to mention, please accept my apologies.

Luleå, June 2009
Johan E. Carlson

Part I

Chapter 1

"This report, by its very length, defends itself against the risk of being read."

Winston Churchill

1.1 *Thin-ply* laminates

1.1.1 The *spread-tow* technology

1.1.2 Characterization of *thin-ply* laminates

1.2 Chapters

1.2.1 Defining chapters

In order to add flexibility to the template, a new command, called `\makechapter` is provided. This command takes three mandatory and one optional argument, as

```
\makechapter[optional quote]{page header}{toc entry}{Chapter title}
```

The reason this is solved like this is to allow for shorter page headers if the chapter name is very long. Also, if the actual chapter heading needs to be manually split in several lines (if the automatic splitting does not look so good), the table of contents (toc) entry might have to be defined differently. Note that normally, the last three arguments can be the same.

The use of an optional quote as an introduction to the chapter is demonstrated in this chapter. It can just as well be left out, which is demonstrated in this document (see the code).

1.2.2 Importing chapter contents

The sub-documents containing the chapters should start directly, i.e. they must not contain any \begin{document} or \end{document} tags.

See this file, *chapter1.tex* for details.

1.3 How to append papers

Papers are included using the `\input` command, just as with chapters. You have to typeset paper title, authors, and abstract manually. See the example papers accompanying this document for an example.

To make the separator sheet preceding each paper, use one of the following commands:

- `\makepaper` – Published paper.
- `\makepaperaccepted` – Accepted, not yet published paper.
- `\makepapersubmitted` – Submitted, not yet accepted paper.
- `\makepapertobesubmitted` – Not yet submitted paper.

See code for this example document for examples on how to use.

1.4 Cross-references

All labels throughout the thesis have to be unique. If the same equation or figure shows up twice e.g. a figure used both in the introduction and one of the included papers), it has to be given different labels. Referring to labels is done as usual.

A simple trick to make sure this is the case and that will also help you keep track of all labels you used is to use the following naming convention:

- `ch1:fig:labelname`, `ch1:tab:labelname`, `ch1:eq:labelname`, etc. all denote figures, tables and equations in Chapter 1.
- `paperA:fig:labelname`, `paperA:tab:labelname`, `paperA:eq:labelname`, etc. all denote figures, tables and equations in Paper A.

For existing text, e.g. papers, this is easily achieved by a simple search-and-replace operation on the string `\label{`. Any text editor will do that for you!

1.5 Appendices

It is possible to have any number of appendices for each chapter. Simply type `\appendix` before the first appendix, which is then a normal `section`, but numbered differently.

To add appendices to papers, use the `\paperappendix` command

1.6 Including bibliography lists

In a thesis one might want several separate bibliographies. For example, one for the first part, and then separate bibliographies for each of the included papers.

This is solved using the `bibunits` package together with a slight work-around in this template. For the first part of the thesis, there is only one bibliography list, typeset like a chapter (see this example document). In the papers, the bibliography lists are typeset as un-numbered sections. See this file `cseethesis_example.tex` and `paper1.tex` for examples how to place the bibliographies.

Note that the command

- `\makebib` is used in Part I, to typeset the reference list in the thesis introduction.
- `\putbib` is used in the papers in Part II.

1.7 How to compile your project

Finally, you probably like to know how to build your project to a final PDF or PostScript file. Start by verifying that you can compile this document. This is how it goes:

1. Run LaTeX (or pdfLaTex) once.
2. Then run BibTeX on all the bu¡i¿ files.
3. Run LaTeX twice more, to build the final DVI document (or pdfLaTeX if you want a PDF file).

The above steps are easily collected in a script or batch file. See the files `make.bat` and `compilebibunits.bat` for examples.

1.8 Revision history

The template has evolved during several years and the exact revisions are not clear to anyone. Starting from version 1.6, however, the changes are more well-documented. This example document will always support only the latest release of the template. Below is a list of the revisions made to the document class (and when applicable, the example document):

- Version 3.1, September 1, 2010
  - Fixed bug related to appendix numbering.
  - Fixed page numbering of “Part” pages.
  - Added a comment at top of cseethesis_example.tex, for improved compatibility with some editors.

- Version 3.0, June 7, 2009
  - Fixed bug related to page headers in chapters containing no subsections.
  - Removed the EU class option and replaced with a logo argument to the preamble. See the code of this document for an example.
  - The template is **no longer compatible with previous versions**.
  - Removed the definition of boldface Greek letters from the document class, since this is not the proper place for that.
- Version 2.5, March 5 2009
  - Renamed the template *cseethesis*. It is a continuation of the project initially called *eisthesis*, but since its use has spread I decided to change the name.
  - Various minor bug fixes.
  - Update of example document, making examples of additions and revisions in recent versions of the template.
- Version 2.36: Added "Part" to the table of contents.
- Version 2.35:
  - Fixed a bug regarding the page headers in the "appended papers part".
  - Fixed a bug causing the section numbering to be wrong in a chapter succeeding a chapter containing appendices.
  - Added a chapter 3 in this example document, illustrating how to handle page headers for chapters without any sections. See the code at the top of `chapter3.tex`.
- Version 2.3:
  - Added the commands `\appendix` and `\paperappendix`, see section 1.5.
  - The bibliography list is now typeset similar to a chapter in Part I, and as an un-numbered section in Part II. This required the use of separate commands for including the lists (see Sec. 1.6)
  - Typesetting fixes for the table of contents page. As a consequence, the package `titletoc` is now required.
  - Minor other code cleanup and bug fixes.
- Version 2.25:
  - Fixed a minor bug that used to generate a warning message regarding font shapes in the page headers.
- Version 2.2:

  - pdf and eps class options removed. The document class compiles with either pdfLaTeX or LaTeX.
  - The reference lists in papers are now typeset in the same way as in Part I of the thesis.
  - Some minor adjustments of page header heights.

- Version 2.1:
  - Cross-references to chapters now work like they should. See the main document of this example.
  - Major bug fixes to BibTeX reference lists, table of contents generation etc.
  - The only change the user has to do is to use the new `\makebib` instead of bibunits' `\putbib`.

- Version 2.0:
  - Support for EU logotype on main page. The files `eu1_f_eng.pdf` and `eu1_f_eng.eps` must be placed in the same directory as the document class.
  - Support for pdf class options.
  - Update of the `\makechapter` command. It now requires three arguments. See main document for example.
  - Support for BibTeX, using the `bibunits.sty` package.

- Version 1.6: Various bug fixes to figure spacing etc.

Chapter 2

The fiber-matrix interface crack problem

2.1 First section of the second chapter

This is the text of the second chapter. []

2A This is an appendix section

Text of the appendix

2A.1 Subsection 1

Yet some text, and an equation

$$\mathrm{abs}\left(e^{j\pi}\right) = ? \tag{2A.1}$$

2A.2 Subsection 2

And then some...

2B This is another appendix section

This section concludes the appendix.

References

Part II

Paper A

The Title of the Papers in the Thesis are Automatically Split In Several Lines if Necessary

Authors:
John Doe and Jane Doe

Reformatted version of paper originally published in:
Example Thesis, Internal Report, Luleå University of Technology, 2002.

The Tile of the Paper

John Doe and Jane Doe

Abstract

Abstract text of the paper...

1 Introduction

The text of this article is imported from the file *paper1.tex*. The title and abstract part above are typeset manually (see file for code template).

Be sure NOT to have any \begin{document} or \end{document} tags in the imported files.

Some references here too, just to show the use of bibunits .

A First appendix of paper A

Some appendix text.

A.1 A subsection of the appendix

$$X(\omega) = \int_{-\infty}^{\infty} x(t) e^{-j\omega t}\, dt. \tag{A.1}$$

A.2 Another subsection of the appendix

Test subsubsection

B Another appendix

Some text in the second appendix

Paper B

The Theory of Research

Authors:
John Doe and Jane Doe

Reformatted version of paper accepted for publication in:
Example Thesis, Internal Report, Luleå University of Technology, 2009.

The Theory of Research

John Doe and Jane Doe

Abstract

Abstract text of the paper...

1 Introduction

The text of this article is imported from the file *paper2.tex*. The title and abstract part above are typeset manually (see file for code template).

Be sure NOT to have any \begin{document} or \end{document} tags in the imported files.

Some references here too, just to show the use of bibunits .

A First appendix of paper B

Some appendix text.

A.1 A subsection of the appendix

$$X(\omega) = \int_{-\infty}^{\infty} x(t) e^{-j\omega t}\, dt. \tag{A.1}$$

A.2 Another subsection of the appendix

B Another appendix

Some text in the second appendix

Paper C

Yet Another Sub-Optimal Estimator of Sinusoids in Noise

Authors:
Dr. C

Reformatted version of paper submitted to:
Example Thesis, Internal Report, Luleå University of Technology, 2009.

Yet Another Sub-Optimal Estimator of Sinusoids in Noise

Dr. C

Abstract

Abstract text of the paper...

1 Introduction

The text of this article is imported from the file *paper3.tex*. The title and abstract part above are typeset manually (see file for code template).

Be sure NOT to have any \begin{document} or \end{document} tags in the imported files.

Some references here too, just to show the use of bibunits .

Paper D

An example of a yet-to-be-submitted paper

Authors:
Dr. C

To be submitted.

An example of a yet-to-be-submitted paper

Dr. C

Abstract

Abstract text of the paper...

1 Introduction

The text of this article is imported from the file *paper3.tex*. The title and abstract part above are typeset manually (see file for code template).

Be sure NOT to have any \begin{document} or \end{document} tags in the imported files.

Some references here too, just to show the use of bibunits .