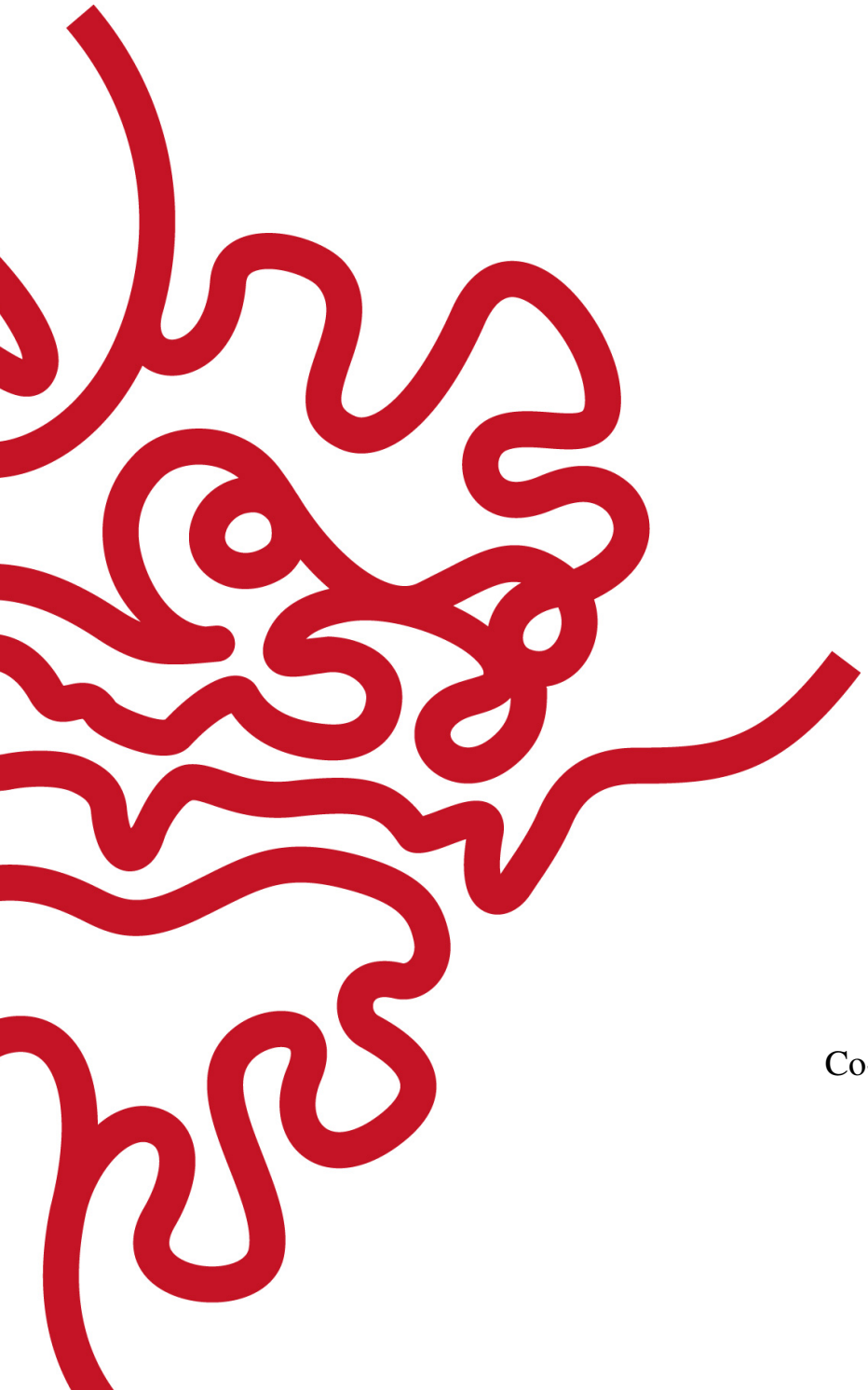
OKINAWA INSTITUTE OF SCIENCE AND TECHNOLOGY
GRADUATE UNIVERSITY

Thesis submitted for the degree

Doctor of Philosophy

LaTeX Thesis Template



by

Jeremie Gillet

Supervisor: **S. Upervisor**
Co-Supervisor: **C. O'Supervisor**

March 2018

Declaration of Original and Sole Authorship

I, Jeremie Gillet, declare that this thesis entitled *LaTeX Thesis Template* and the data presented in it are original and my own work.

I confirm that:

- No part of this work has previously been submitted for a degree at this or any other university.
- References to the work of others have been clearly acknowledged. Quotations from the work of others have been clearly indicated, and attributed to them.
- In cases where others have contributed to part of this work, such contribution has been clearly acknowledged and distinguished from my own work.
- None of this work has been previously published elsewhere, with the exception of the following: (provide list of publications or presentations, or delete this part). (If the work of any co-authors appears in this thesis, authorization such as a release or signed waiver from all affected co-authors must be obtained prior to publishing the thesis. If so, attach copies of this authorization to your initial and final submitted versions, as a separate document for retention by the Graduate School, and indicate on this page that such authorization has been obtained).

Date: March 2018

Signature: **You may include here an image with a scan of your signature.**

Abstract

LaTeX Thesis Template

The abstract should fit within a page.

Acknowledgment

Please refer to `https://groups.oist.jp/grad/academic-program-policies` for specifications.

Abbreviations

Please refer to `https://groups.oist.jp/grad/academic-program-policies` for specifications.

Here is an example.

PPT	positive partial transpose
SRPT	Schrödinger-Robertson partial transpose

Glossary

Please refer to `https://groups.oist.jp/grad/academic-program-policies` for specifications.

Here is an example:

Dipole Blockade	Phenomenon in which the simultaneous excitation of two atoms is inhibited by their dipolar interaction.
Cavity Induced Transparency	Phenomenon in which a cavity containing two atoms excited with light at a frequency halfway between the atomic frequencies contains the number of photons an empty cavity would contain.

Nomenclature

Please refer to `https://groups.oist.jp/grad/academic-program-policies` for specifications.

Here is an example:

c	Speed of light ($2.997\ 924\ 58 \times 10^{8}$ ms^{-1})
$\hbar$	Planck constant ($1.054\ 572\ 66 \times 10^{-34}$ Js)
k_B	Boltzmann constant ($1.380\ 658 \times 10^{-23}$ JK^{-1})
Z_0	Impedance of free space ($376.730\ 313\ 461\ \Omega$)
μ_0	Permeability of free-space ($4\pi \times 10^{-7}$ Hm^{-1})

If desired, an optional and short dedication may be included here.

Contents

Declaration of Original and Sole Authorship ii

Abstract iii

Acknowledgment iv

Abbreviations v

Glossary vi

Nomenclature vii

Contents ix

List of Figures xi

List of Tables xii

Introduction 1

1 Guidelines on the preparation of theses 2

2 How to use the templates 3

2.1 Folders 3

2.2 `Thesis.tex` 4

2.2.1 PACKAGES AND OTHER DOCUMENT CONFIGURATIONS 5

2.2.2 ADD YOUR CUSTOM VALUES, COMMANDS AND PACKAGES . 5

2.2.3 TITLE PAGE 5
2.2.4 PREAMBLE PAGES 5
2.2.5 LIST OF CONTENTS/FIGURES/TABLES 5
2.2.6 THESIS MAIN TEXT 5
2.2.7 BIBLIOGRAPHY 5
2.2.8 APPENDICES 6
2.2.9 PUBLISHED ARTICLES 6
2.2.10 Differences between a temporary version and final version 6

3 Figures, tables and images **7**
3.1 Figures 7
3.2 Tables 7

Conclusion **9**

Bibliography **10**

A Appendices **11**

Published articles **12**

List of Figures

3.1 Short caption for List of Figures 7

List of Tables

3.1 Short heading for the List of Tables. 8

Introduction

This is the introduction. You might want to leave it unnumbered, as it is now. If you want to number it, treat it like any other chapter.

Chapter 1

Guidelines on the preparation of theses

Please refer to `https://groups.oist.jp/grad/academic-program-policies` for specifications.

Many of the formatting requirements such as page size, fonts, etc are built-in into this template. Do not modify them.

For the bibliography, we recommend using BibTeX or BibLaTeX and through the file `Preamble/Thesis_bibliography.bib`. Citing one reference can be done like so: [3] and multiple references in one go like so [1, 2, 4].

Chapter 2

How to use the templates

This is a practical guide into how to use this template, by explaining the role of the different folders, and an option of `\documentclass{oist_thesis}`, which accepts either `temporary` or `final`.

2.1 Folders

The main folder contains three folders detailed here:

- **Images.** This folder should contain all the images that you will use in your thesis. It can contain subfolders, for example one for each chapter. To include an image from the main text, use something like `\includegraphics{subfolder/image.jpg}` without worrying about the `Images` path.

- **MainText.** This folder contains a series of LaTeX files that form the main text: introduction, chapters, conclusion, appendices and published articles. The introduction and conclusion as they are now are not numbered, which creates a few difficulties with the headers of the thesis. Those are solved by including the commands `\unnumberedchapter{}` and `\numberedchapter` before including the files in `xxx_Thesis.tex`. If you want the introduction and conclusion to be numbered, re-write and treat them as regular chapters.

- **Preamble.** This folder contains a series of LaTeX files with the pages that will appear

before the main text. Please write (or copy and paste) your own text in those files and delete the dummy text when appropriate. The files are:

- `abbreviations.tex` — List of abbreviations. If the list goes over one page, create another table.
- `abstract.tex` — Abstract. Follow directions in the file.
- `acknowledgments.tex` — Acknowledgments. Follow directions in the file.
- `declaration.tex` — Declaration of Original and Sole Authorship. Only modify the last item. This page needs to be signed once printed.
- `dedication.tex` — Dedication (optional). Should only be a very few lines.
- `glossary.tex` — Glossary (optional). If the list goes over one page, create another table.
- `nomenclature.tex` — Nomenclature (optional). If the list goes over one page, create another table.
- `physics_bibstyle.bst` — Bibliography style file modified by Jeremie Gillet in 2011 to suit his thesis. Might be suitable for physics. If you want to use another custom bibliography style, include the file in this folder.
- `Thesis_bibliography.bib` — BibTeX file containing your bibliography.

2.2 `Thesis.tex`

This is the main file, the only one that needs to be compiled to build the thesis. Compile once with LaTeX, once with BibTeX and finally twice with LaTeX to get all the references right. At the top of this file, you can see `\documentclass[temporary]{oist_thesis}`. When you submit a temporary version to the graduate school, do not modify it. When you submit a final version, use `\documentclass[final]{oist_thesis}` instead.

Let's go through each section and comment them briefly. The last section will emphasize the differences between options `\documentclass[temporary]{oist_thesis}` and `\documentclass[final]{oist_thesis}`.

2.2.1 PACKAGES AND OTHER DOCUMENT CONFIGURATIONS

This section contains the minimum number of packages and definitions to compile the thesis. No line should be removed or modified.

2.2.2 ADD YOUR CUSTOM VALUES, COMMANDS AND PACKAGES

This section should not be modified directly. Instead, your packages and definitions should be included in `Preamble/mydefinitions.tex`.

2.2.3 TITLE PAGE

Creates the title page. Do not modify.

2.2.4 PREAMBLE PAGES

Structures the style (header) for the preamble pages and builds them. Do not modify, except for deleting the optional preambles you might not want to include.

2.2.5 LIST OF CONTENTS/FIGURES/TABLES

Creates the different lists. Do not modify.

2.2.6 THESIS MAIN TEXT

Structures the style for the main text chapters and builds them.

The command `\numberedchapter` is only relevant for a transition between unnumbered sections and numbered sections, it does not need to be included between each chapter.

2.2.7 BIBLIOGRAPHY

Builds the bibliography. The style of the bibliography can be defined in `Preamble/mydefinitions.tex`.

2.2.8 APPENDICES

Structures the style for the appendices and builds them. The appendices are numbered with letters but are structured like regular chapters.

2.2.9 PUBLISHED ARTICLES

This last section add the PDF files of your previously published articles (or about to be published) to the thesis. You should only include PDF files provided by the publishing journal. This is strictly for the examiners' convenience in the temporary bound thesis, as for copyright reasons these files may not be published in the final version of the thesis.

2.2.10 Differences between a temporary version and final version

There are two main differences between `\documentclass[temporary]{oist_thesis}` and `\documentclass[final]{oist_thesis}`.

The first difference is that the final version (`\documentclass[final]{oist_thesis}`) does not contain the published articles for copyright reasons.

The second difference is in the document style: page size, header and line spacing are different This might create small issues, such as page breaking with large tables, images or captions, when compiling the same content.

Chapter 3

Figures, tables and images

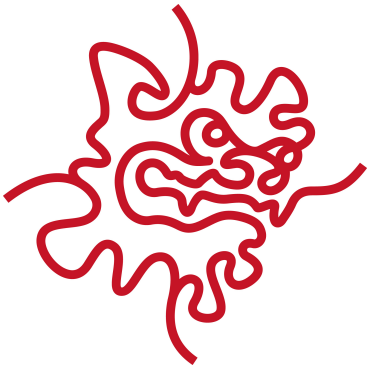
3.1 Figures

Refer to figure like this: Figure 3.1 or this (Fig. 3.1). If you want to include a list of figure, you can use a short version of the caption as shown in Figure 3.1.

3.2 Tables

Refer to tables this this: Table 3.1.

Figure 3.1: Short caption (if wanted). Full caption with all the details here.



This secret image won't be numbered and won't appear in the List of Figures because of the *

Table 3.1: Short heading for the List of Tables.

Parameter	Value
Δ	0, 150
α	85
ϵ	6
κ	6.8
γ	0.2

Full caption with all the details here.

Parameter	Value
Δ	0, 1500
α	850
ϵ	60
κ	68
γ	2

This secret table won't be numbered and won't appear in the List of Figures because of the *

Conclusion

This is the conclusion. You might want to leave it unnumbered, as it is now. If you want to number it, treat it like any other chapter.

Bibliography

[1] S. Filipp, P. Maurer, P. J. Leek, M. Baur, R. Bianchetti, J. M. Fink, M. Göppl, L. Steffen, J. M. Gambetta, A. Blais, and A. Wallraff. Two-qubit state tomography using a joint dispersive readout. *Phys. Rev. Lett.*, 102:200402, May 2009. doi: 10.1103/PhysRevLett.102.200402. URL http://link.aps.org/doi/10.1103/PhysRevLett.102.200402.

[2] H. Kramers. Scattering of light by atoms. *Atti Cong. Intern. Fisica Como*, 2:545–557, 1927.

[3] H. Lee and M. Scully. The physics of eit and lwi in v-type configurations. *Found. Phys.*, 28:585–600, 1998. ISSN 0015-9018. URL http://dx.doi.org/10.1023/A:1018709621908. 10.1023/A:1018709621908.

[4] M. Mücke, E. Figueroa, J. Bochmann, C. Hahn, K. Murr, S. Ritter, C. J. Villas-Boas, and G. Rempe. Electromagnetically induced transparency with single atoms in a cavity. *Nature*, 465(7299):755–758, 06 2010. URL http://dx.doi.org/10.1038/nature09093.

Appendix A

Appendices

Please refer to `https://groups.oist.jp/grad/academic-program-policies` for specifications.

Published articles

For convenience of the examiners, you may include here any number of PDF documents such as papers you published or submitted. Those documents will appear in the temporary version of the thesis, but will not be rendered on the final version to avoid copyright issues.

This is a sample PDF.

Graduate School

Academic and Examinations Timeline

May Entry | Sep Entry | Jan Entry | **All** | Faculty

Year	Term	May Enrollment Timeline	Sept Enrolment Timeline	Jan Enrolment Timeline	Milestone
1	1	May	Sep	Jan	Lab Rotation Proposal
		Jun	Oct	Feb	
		Jul	Nov	Mar	
		Aug	Dec	Apr	Lab Rotation Report & Evaluation
	2	Sep	Jan	May	Lab Rotation Proposal
		Oct	Feb	Jun	Mentor Report by Mentor
		Nov	Mar	Jul	
		Dec	Apr	Aug	Lab Rotation Report & Evaluation
	3	Jan	May	Sep	Lab Rotation Proposal
		Feb	Jun	Oct	Preliminary Thesis Supervisor Nomination / Fourth Rotation Request
		Mar	Jul	Nov	
		Apr	Aug	Dec	Lab Rotation Report & Evaluation
2	4	May	Sep	Jan	
		Jun	Oct	Feb	
		Jul	Nov	Mar	
		Aug	Dec	Apr	Provisional Thesis Proposal Title & Scope Confirmation of Third Committee Member or Co-supervisor
	5	Sep	Jan	May	
		Oct	Feb	Jun	Mentor Report by Mentor
		Nov	Mar	Jul	
		Dec	Apr	Aug	Thesis Proposal Submission Nomination of Examiners (Thesis Proposal) by Supervisor
	6	Jan	May	Sep	
		Feb	Jun	Oct	
		Mar	Jul	Nov	
		Apr	Aug	Dec	Qualifying examination PCD I Final submission Due Date
3	7	May	Sep	Jan	
		Jun	Oct	Feb	
		Jul	Nov	Mar	
		Aug	Dec	Apr	
	8	Sep	Jan	May	
		Oct	Feb	Jun	Research Progress Review -For Student -For Thesis Supervisor/Mentor/Third Committee Member/Co-supervisor
		Nov	Mar	Jul	
		Dec	Apr	Aug	
	9	Jan	May	Sep	
		Feb	Jun	Oct	
		Mar	Jul	Nov	
		Apr	Aug	Dec	
		May	Sep	Jan	
		Jun	Oct	Feb	