Dissertation Title

name surname

Supervisor: supervisor

Co-supervisor: cosupervisor

University of Malta

Faculty of Science

Publication date

Faculty of Science

Statement of Authenticity

The undersigned declare that this dissertation is based on work carried out under the auspices of the Department of Physics by the candidate as part fulfilment of the requirements of the degree of M.Sc.

name surname	cosupervisor	supervisor
Candidate	*Co-supervisor*	*Supervisor*

Dedication

To Eiichiro Oda
For fuelling my motivation through epic tales

Publications

If you have published and papers during your thesis include them here. BTW... well done!

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Acknowledgements

Write your acknowledgements within these curly brackets. To clear and skip lines you will have the use the double backslash command.

If you take a look at science in its everyday function, of course you find that scientists run the gamut of human emotions and personalities and character and so on. But there's one thing that is really striking to the outsider, and that is the gauntlet of criticism that is considered acceptable or even desirable. The poor graduate student at his or her Ph.D. oral exam is subjected to a withering crossfire of questions that sometimes seem hostile or contemptuous; this from the professors who have the candidate's future in their grasp. The students naturally are nervous; who wouldn't be? True, they've prepared for it for years. But they understand that at that critical moment they really have to be able to answer questions. So in preparing to defend their theses, they must anticipate questions; they have to think,"Where in my thesis is there a weakness that someone else might find because I sure better find it before they do, because if they find it and I'm not prepared, I'm in deep trouble."

Carl Sagan

Abstract

Write your abstract within these curly brackets. To clear and skip lines you will have the use the double backslash command.

After your first job, is anyone asking you what your GPA was? No, they don't care. They ask you: Are you a good leader? Do people follow you? Do you have integrity? Are you innovative? Do you solve problems? Somebody's got to do that homework and redesign the educational system so that it can actually train people to be successful in life.

I think the greatest teachers are not the ones that are best trained at educational tactics. I don't know a person who's ever said,"Boy, that teacher is so good! The teacher gives such good exams. That teacher gives such good homework sets!" No one has said that about a great teacher. That's not what people remember about the great teachers they've had.

The best educators are the ones that inspire their students. That inspiration comes from a passion that teachers have for the subject they're teaching. Most commonly, that person spent their lives studying that subject, and they bring an infectious enthusiasm to the audience.

I think many people have that enthusiasm, but they are prevented from being teachers because they didn't go through the teacher mill. Now you have teachers who have been through the teacher mill, yet they have no capacity to inspire anyone at all. It's the inspired student that continues to learn on their own. That's what separates the real achievers in the world from those who pedal along, finishing assignments.

Neil deGrasse Tyson

Acronyms

TiO_2 titanium dioxide.

DSC dye-sensitized solar cell.

PV Photovoltaic.

SC semiconductor.

Chapter 1

Introduction

This template was generated according to the University of Malta, Department of Physics guidelines [**?**]. In the following chapters some examples regarding the use of this template and other common commands are illustrated. Most of this and other information can be acquired for the LaTeX wiki books[1].

To use abbreviations add the acronyms command with the *acronyms.tex* file between the curly brackets. Add your abbreviations to the *acronyms.tex* file using the command

```
\newacronym{label}{abbreviation}{full_name}
e.x
\newacronym{pv}{PV}{Photovoltaic}
```

When you want to use the abbreviation use the commands

The first time a the acronym is used it is axiomatically written as the full name with the abbreviation in parentheses. The rest of the time it is written as the abbreviation. To generate the acronym page, or refresh it, one has to execute the command

```
makeglossaries <fileName>
```

[1] http://en.wikibooks.org/wiki/LaTeX/

`\gls{label}`	This command prints the term associated with <label> passed as its argument.
`\glspl{<label>}`	This command prints the plural of the defined therm, other than that it behaves in the same way as gls.
`\Gls{<label>}`	This command prints the singular form of the term with the first character converted to upper case.
`\Glspl{<label>}`	This command prints the plural form with first letter of the term converted to upper case.

from the terminal (unix) or cmd (windows). The following paragraph shows an example of how to use acronyms and how they are displayed.

Dye-sensitized solar cells (DSCs) are Photovoltaic (PV) cells using organic materials instead of semiconductors (SCs). They usually use nano-particles of titanium dioxide (TiO_2) as a SC to transfer electrons [**?**].

The rest of the text is lorem ipsum, just to show the type-setting, with the exception of a few example showing you how to use various environments and commands.

Chapter 2

Lorem Ipsum

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2.1 Section

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2.2 Section

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Chapter 3

Environments examples

3.1 scienceThesis.sty environments

Definition 3.1.1. This is an example of a definition

Example 3.1.1. This is an example of an example :)

Proposition 3.1.1. This is an example of a proposition.

Lemma 3.1.1. This is an example of a lemma.

Corollary 3.1.1. This is an example of a corollary

Theorem 3.1.1. This is an example of a theorem.

Proof. This is an example of a proof. □

3.2 LaTeX environments

Table 3.1 is an example of both, how to create tables in LaTeX and how to use cross-referencing. Equation 3.1 show the Schrödinger equation, an example of how to write equations, and how to cross-reference equations [**?**].

I	Ω
12	4
10	6
8	8
6	10

Table 3.1: long caption

$$i\hbar\frac{\partial\psi}{\partial t} = -\frac{\hbar^2}{2m}\nabla^2\psi + V(\mathbf{r}) \tag{3.1}$$

Figure 3.1 show how to insert graphics in a LaTeX documents and also how to cross-reference it.

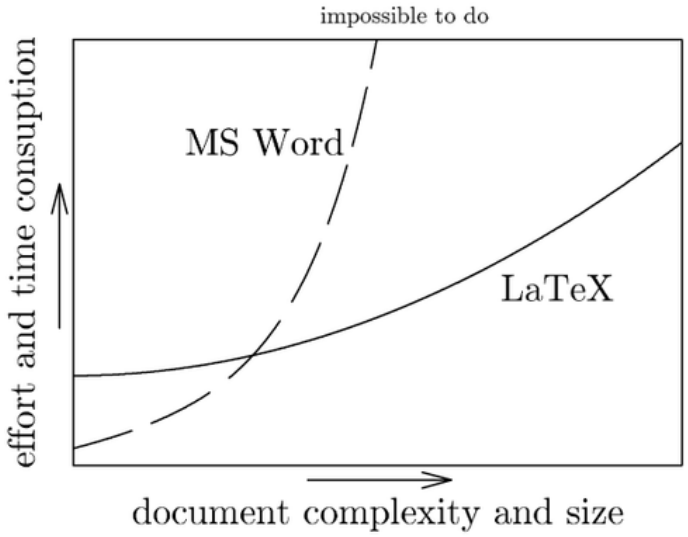

Figure 3.1: A plot show how much easier it is to write documents with LaTeX

Chapter 4

Chemistry examples

The following are examples of how to use the *mhchem* package.

$^{227}_{90}\mathrm{Th}^{+}$, $\mathrm{Ce}^{\mathrm{IV}}$, $\mathrm{KCr(SO_4)_2 \cdot 12\,H_2O}$, $\mathrm{RNO_2^{\cdot-}}$

$\mathrm{H_2 + \tfrac{1}{2}\,O_2{=}H_2O}$

$\mathrm{K_3[Fe(CN)_6] \rightleftharpoons 3\,K^+ + [Fe(CN)_6]^-}$

$\mathrm{H^+ + OH^- \rightleftharpoons H_2O}$

$\mathrm{NH_4NO_3 + H_2O \xrightarrow{\Delta} NH^+_{4(aq)} + NO_3{-}_{(aq)}}$

$\mathrm{X{=}Y{\equiv}Z}$, $\mathrm{CH_3{-}C{\equiv}C{=}CH_2}$, $\mathrm{A\cdots B}$

$$\mathrm{AgCl \rightleftharpoons Ag^+ + Cl^-} \tag{4.1}$$

$$\mathrm{CO_2 + 6\,H_2O \xrightarrow[Endothermic]{LightEnergy} C_6H_{12}O_6 + CO_2} \quad \Delta G^\circ = 2870\,\mathrm{kJ\,mol^{-1}} \tag{4.2}$$

For more information on how to use this package, download “The mhchem Bundle” pdf. []

Appendix A

Examples of code environments

A.1 The code environment

```
this is some code;
I hope you found this template useful.
```

A.2 The listings environment

```
BEFOREHAND: close door, each window & exit; wait until time.
    open spellbook, study, read (scan, select, tell us);
write it, print the hex while each watches,
    reverse its length, write again;
    kill spiders, pop them, chop, split, kill them.
        unlink arms, shift, wait & listen (listening, wait),
sort the flock (then, warn the "goats" & kill the "sheep");
    kill them, dump qualms, shift moralities,
    values aside, each one;
        die sheep! die to reverse the system
        you accept (reject, respect);
next step,
    kill the next sacrifice, each sacrifice,
    wait, redo ritual until "all the spirits are pleased";
    do it ("as they say").
do it(*everyone***must***participate***in***forbidden**s*e*x*).
return last victim; package body;
    exit crypt (time, times & "half a time") & close it,
    select (quickly) & warn your next victim;
AFTERWORDS: tell nobody.
    wait, wait until time;
    wait until next year, next decade;
        sleep, sleep, die yourself,
        die at last
# Larry Wall
```

The above poem/script was written in perl 3 by Larry Wall and is called *black perl* [**?**].