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University of Leeds

School of Physics and Astronomy

Submitted in accordance with the requirements for the degree of

Doctor of Philosophy

April, 2024

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Acknowledgements

Thanks everyone.

Abstract

C60 is pretty awesome for many reasons.

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Abbreviations

AC	Alternating Current	PCAR	Point Contact Andreev Reflections
BCS	Bardeen-Cooper-Schrieffer	MR	Magnetoresistance
DC	Direct Current	FET	Field Effect Transistor
FWHM	Full Width Half Maximum	UHV	Ultra High Vacuum

CHAPTER 1

Introduction

Thesis writing is lots of fun.

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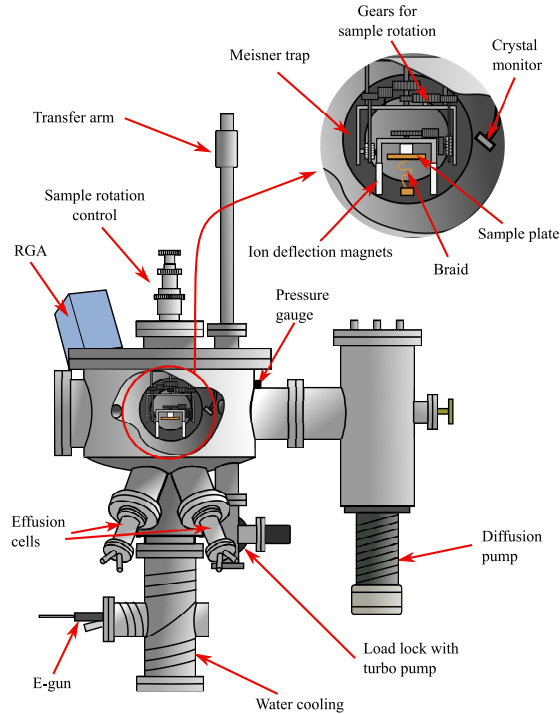


Figure 1.1: An example of how to place a figure with a caption and a label that you can use to cross reference the figure. Don't forget to cite the source of copied figures [1] and put the label after the caption to make the cross referenced figure number correct.

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Always make sure that every figure is referred to in the text. Here, for example, figure 1.3 shows one of our instruments. Tables work just like figures - see table 1.1 for example

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Country List			
Country Name or Area Name	ISO ALPHA 2 Code	ISO ALPHA 3 Code	ISO numeric Code
Afghanistan	AF	AFG	004
Aland Islands	AX	ALA	248
Albania	AL	ALB	008
Algeria	DZ	DZA	012
American Samoa	AS	ASM	016
Andorra	AD	AND	020
Angola	AO	AGO	024

Table 1.1: Tables are always a bit of a pain in $\text{\LaTeX} 2_{\epsilon}$ - but here is an example table taken from <https://www.overleaf.com/>. Make sure the label goes after the caption for figures and tables!

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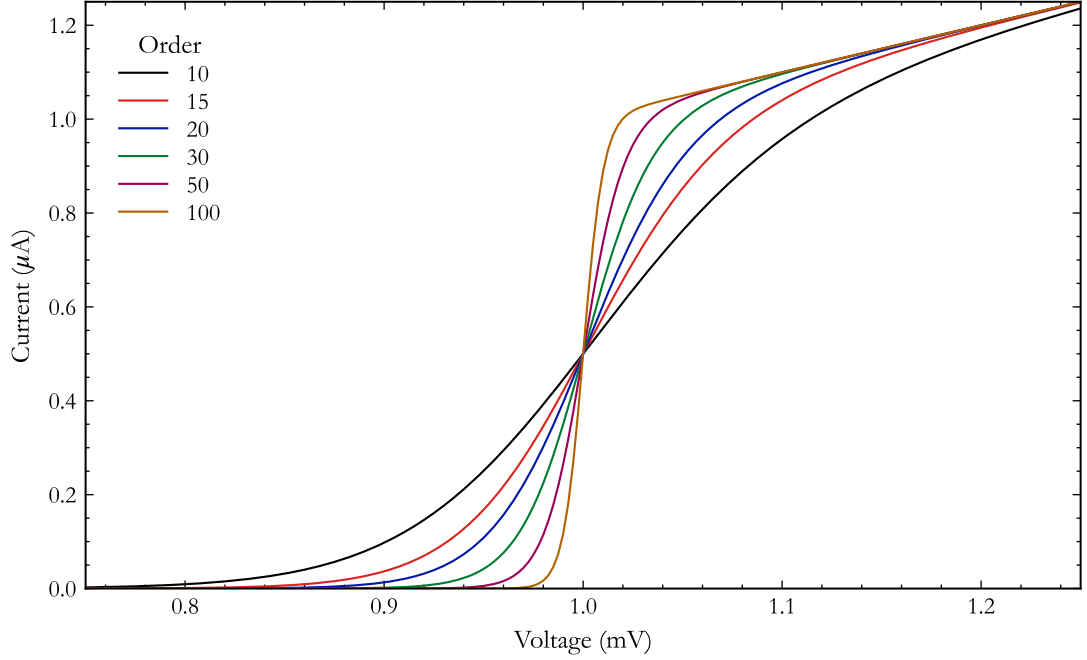


Figure 1.2: If you are making figures with Python, then I strongly recommend that you use the **stonerplots**[\[2\]](#) package. It has a “thesis” style that is set up for this template.

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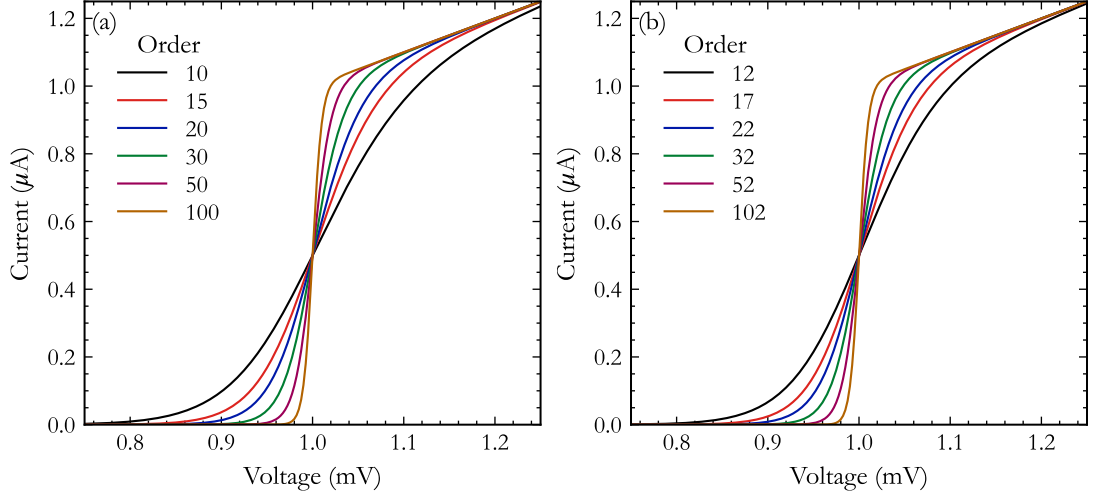


Figure 1.3: Double panel figures are also easily made with the **stonerplots**[2] package, and the MultiPanel context manager.

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CHAPTER 2

Material not in a chapter

This is the first appendix.

2.1 Bits of L^AT_EX advice

1. Do look at the output log and try to understand any errors - they are sometimes important!
2. In the final pdf, do a search for ? - it is what L^AT_EX will give when a reference is missing. Having missing references in your submitted thesis is, at best, embarrassing and potentially a failing matter.
3. A good quality bib file is important - make sure that entries are consistent in whether journals are abbreviated, capitalised and how Author names are presented. A good way to do this is to use Mendeley to import your bib file and then use its doi lookup feature which will re-write your bibliography entries in a standardised form. You then export the bibliography back out as a bib file.
4. Be particularly careful about older papers where the doi may not be easy to track down. Also watch out for JETP Letters that you are being consistent in citing the English language version (or the Russian, but don't mix and match!)
5. Although L^AT_EX guides may show you how to assemble a multi-part figure from within L^AT_EX, it can be hard to make sub-plots appear exactly the same size. We recommend using something like Inkscape to assemble the parts of a figure and lay them out nicely. Be careful if saving to pdf files that the fonts are preserved - otherwise you can lose greek symbols.
6. If preparing figures in Origin, set the plot size to be exactly the right size or exactly double size and then scale fonts and symbols accordingly. Use Origin's ability to copy formatting between graphs to make everything nicely consistent (e.g. frame sizes, thicknesses, colour schemes, point sizes and shapes).
7. In general resist the temptation to put [H] when placing figures and tables - in most cases it is better to let L^AT_EX work out where to put things. It can get tricky if you have a lot of figures one after another (perhaps a single multi-part figure is what you need?) - the placement option [p] can also help to move floats to a separate page of figures. See also the *afterpage* package.

REFERENCES

- [1] Joseph Thomas Batley. *Spin Transport in Lateral Spin Valves*. PhD thesis, University of Leeds, 2015.
- [2] Gavin Burnell. StonerPlots Python Package, April 2024. URL <https://github.com/stonerlab/stonerplots>.