



**Departamento de  
Física de la  
Materia Condensada  
Universidad** Zaragoza

# Report workbook

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# Glossary

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**Glossary item 1:** Glossary item 1. [1](#)

**Glossary item 2:** Glossary item 2. [1](#)

## **Declaration**

I hereby declare that the work presented in this thesis is entirely my own and that I did not use any other sources and references than the listed ones. I have marked all direct or indirect statements from other sources contained therein as quotations. Neither this work nor significant parts of it were part of another examination procedure. I have not published this work in whole or in part before. The electronic copy is consistent with all submitted copies.

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Zaragoza (Aragón), September 2024

# **Abstract**

---

This is justified text.

# 1

## Introduction

---

This is an introduction. **this is bold** *this is italic text*

This is [Glossary item 1](#) and this is [Glossary item 2](#).

Citation here<sup>[1]</sup>. Footnote url here<sup>1</sup>.

Another footnote simple<sup>2</sup>.

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<sup>1</sup><http://google.com>

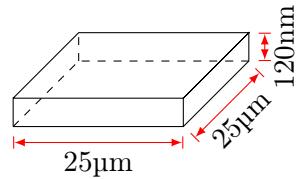
<sup>2</sup>this is a footnote

# 2

## Another chapter

---

This is a chapter.



**Figure 2.1:** Prism drawing

Second page.

Footnote url here with header<sup>3</sup>.

$$f = 28 \cdot \sqrt{(B_{DC} + (N_y - N_x) \cdot 0.86 \cdot 10^6 \cdot 4\pi \cdot 10^{-7}) \cdot (B_{DC} + (N_z - N_x) \cdot 0.86 \cdot 10^6) \cdot 4\pi \cdot 10^{-7}}$$

**Equation 2.1:** Theoretical Kittel equation expanded for a Permalloy thin-film for X-axis

$$f = 28 \cdot \sqrt{(B_{DC} + (N_y - N_x) \cdot 0.86 \cdot 10^6 \cdot 4\pi \cdot 10^{-7}) \cdot (B_{DC} + (N_z - N_x) \cdot 0.86 \cdot 10^6) \cdot 4\pi \cdot 10^{-7}}$$

This line is a comment in boxed formula

**Equation 2.2:** Theoretical Kittel equation expanded for a Permalloy thin-film for X-axis

$$f = 28 \cdot \sqrt{(B_{DC} + (N_y - N_x) \cdot 0.86 \cdot 10^6 \cdot 4\pi \cdot 10^{-7}) \cdot (B_{DC} + (N_z - N_x) \cdot 0.86 \cdot 10^6) \cdot 4\pi \cdot 10^{-7}}$$

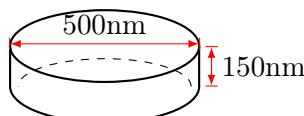
**Equation 2.3:** Theoretical Kittel equation expanded for a Permalloy thin-film for X-axis

## 2.1 Section here

This is a new section.

| Item<br>size1<br>(nm) | Item<br>size2<br>(nm) |
|-----------------------|-----------------------|
| 8                     | 600                   |
| 10                    | 400                   |
| 12                    | 300                   |

**Table 2.1:** Sample table



**Figure 2.2:** Disc sample figure

| Item<br>one<br>(m) | Item<br>two<br>(m)           | Item<br>three<br>(m) | Item<br>four<br>(m) |
|--------------------|------------------------------|----------------------|---------------------|
| 8                  | $15000 \times 800 \times 60$ | 7.5413550            | 0                   |
| 10                 | $15000 \times 450 \times 60$ | 9.4630770            | 0                   |
| 12                 | $15000 \times 350 \times 60$ | 10.368898            | 0                   |

**Table 2.2:** Table with complex cells

<sup>3</sup><http://google.com>

| <i>Item size</i><br>( $\mu\text{m}$ ) | <i>Object</i><br>(m) | <i>Object width</i><br>(nm) | <i>Current</i><br>(mA) | <i>Gap @ 500nm</i><br>(nT) | <i>Gap @ 1<math>\mu\text{m}</math></i><br>(nT) |
|---------------------------------------|----------------------|-----------------------------|------------------------|----------------------------|--|
| $15 \times 0.800 \times 0.06$         | 259.07               | 300                         | $1.61000 \times 10^4$  | 51.66902                   | 29.08373                                       |
|                                       |                      | 400                         |                        | 50.82305                   | 28.93193                                       |
|                                       |                      | 600                         |                        | 48.54992                   | 28.49336                                       |
| $15 \times 0.450 \times 0.06$         | 224.42               | 300                         | $2.37000 \times 10^4$  | 76.05934                   | 42.81274                                       |
|                                       |                      | 400                         |                        | 74.81401                   | 42.58931                                       |
|                                       |                      | 600                         |                        | 71.46784                   | 41.94378                                       |
| $15 \times 0.350 \times 0.06$         | 229.52               | 300                         | $2.64000 \times 10^4$  | 84.72435                   | 47.69013                                       |
|                                       |                      | 400                         |                        | 83.33715                   | 47.44119                                       |
|                                       |                      | 600                         |                        | 79.61009                   | 46.72226                                       |

**Table 2.3:** Complex table 2

**Important note:** This is a nice ToDo note.



Image 1



Image 2

**Figure 2.3:** Set of two images**Figure 2.4:** This is a single image



Image 1



Image 2

**Figure 2.5:** Set of two images, this reference<sup>[1]</sup> will show up in this caption but it will hide in List Of Figures



(a) Caption 1



(b) Caption 2

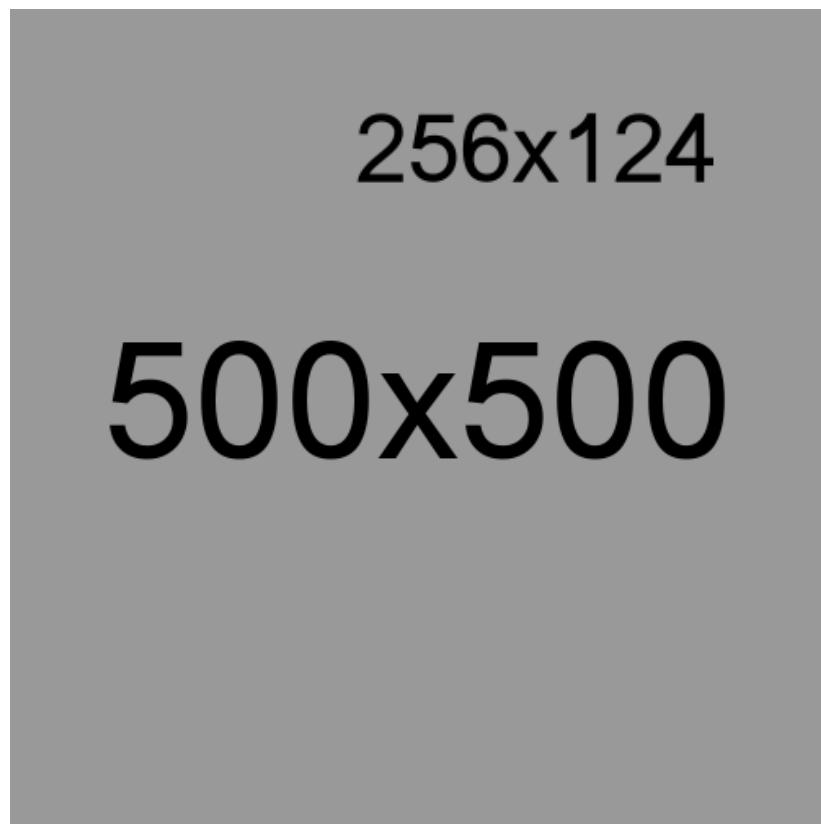


(c) Caption 3



(d) Caption 4

**Figure 2.6:** Main Caption



**Figure 2.7:** Inset image

# APPENDIX I

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## Title Appendix

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This is an appendix.

# Epilogue

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This ia an epilogue.

# Bibliography

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- [<sup>1</sup>] Yi Li, Tomas Polakovic, Yong-Lei Wang, Jing Xu, Sergi Lendinez, Zhizhi Zhang, Junjia Ding, Trupti Khaire, Hilal Saglam, Ralu Divan, John Pearson, Wai-Kwong Kwok, Zhili Xiao, Valentine Novosad, Axel Hoffmann, and Wei Zhang. Strong coupling between magnons and microwave photons in on-chip ferromagnet-superconductor thin-film devices. *Physical review letters*, 123:107701, September 2019.
- [<sup>2</sup>] Sergio Martínez-Losa Del Rincón. Unofficial LaTeX template for reports/books/thesis with corporate logos of Universidad de Zaragoza with a beautiful look and feel. <https://github.com/sergiomtzlosa/latex-template-report-unizar>, 2021.

# List of Publications

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- [<sup>1</sup>] Fernando Luis, Pablo J. Alonso, Olivier Roubeau, Verónica Velasco, David Zueco, David Aguila, Leoní A. Barrios, and Guillem Aromí. A dissymmetric [gd<sub>2</sub>] coordination molecular dimer hosting six addressable spin qubits, 2020.
- [<sup>2</sup>] Salvatore Savasta, Omar Di Stefano, Alessio Settineri, David Zueco, Stephen Hughes, and Franco Nori. Gauge principle and gauge invariance in quantum two-level systems, 2020.