



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

# Report workbook

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January 2022

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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), January 2022

# Abstract

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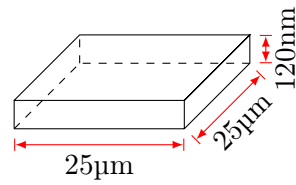
<sup>1</sup><http://google.com>

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

## Another chapter

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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

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

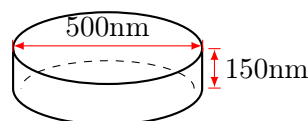
**Equation 2.3:** Theoretical Kittel equation expanded for a Permalloy thin-film for X-axis

## 2.1 Section here

This is a new section.

<i>Item</i> <i>size1</i> (nm)	<i>Item</i> <i>size2</i> (nm)
8	600
10	400
12	300

**Table 2.1:** Sample table



**Figure 2.2:** Disc sample figure

<i>Item</i> <i>one</i> (m)	<i>Item</i> <i>two</i> (m)	<i>Item</i> <i>three</i> (m)	<i>Item</i> <i>four</i> (m)
8	15000 × 800 × 60	7.5413550	0
10	15000 × 450 × 60	9.4630770	0
12	15000 × 350 × 60	10.368898	0

**Table 2.2:** Table with complex cells

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

<i>Item size</i> ( $\mu\text{m}$ )	<i>Object</i> (m)	<i>Object width</i> (nm)	<i>Current</i> (mA)	<i>Gap</i> @ 500nm (nT)	<i>Gap</i> @ 1 $\mu\text{m}$ (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.



(a) Image 1



(b) Image 2

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



(a) Image 1



(b) 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

# 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.

## Other links

- 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  $[\text{gd}_2]$  coordination molecular dimer hosting six addressable spin qubits, 2020.
- <sup>[2]</sup> Salvatore Savasta, Omar Di Stefano, Alessio Settinieri, David Zueco, Stephen Hughes, and Franco Nori. Gauge principle and gauge invariance in quantum two-level systems, 2020.