



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

# Report workbook

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February 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), February 2022

# **Abstract**

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This is justified text.

# 1

## Introduction

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

This a reference<sup>[1]</sup>.

This is **Glossary item 1** and this is **Glossary item 2**.

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

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

### Bibliography

- [1] 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.

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

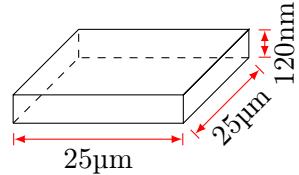
<sup>2</sup>this is a footnote

# 2

## Another chapter

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This is a chapter<sup>[1]</sup>.



**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

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

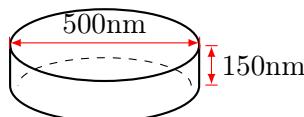
**Equation 2.3:** Theoretical Kittel equation expanded for a Permalloy thin-film for X-axis

## 2.1 Section here

This is a new section.

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

**Table 2.1:** Sample table



**Figure 2.2:** Disc sample figure

<i>Item one (m)</i>	<i>Item two (m)</i>	<i>Item three (m)</i>	<i>Item four (m)</i>
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

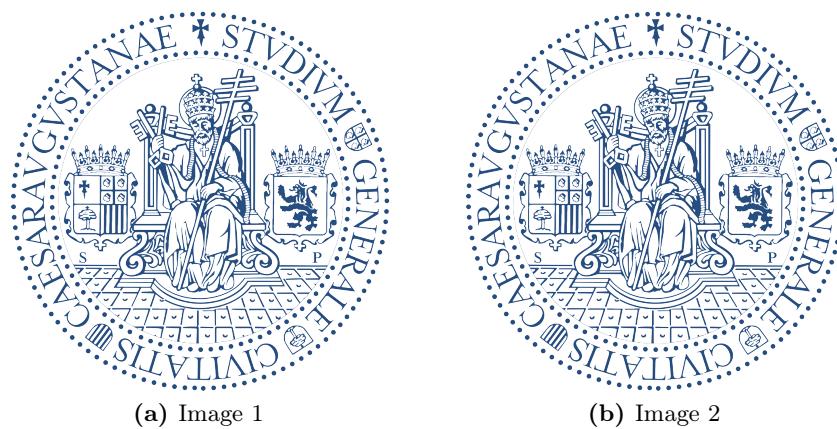
**Table 2.2:** Table with complex cells

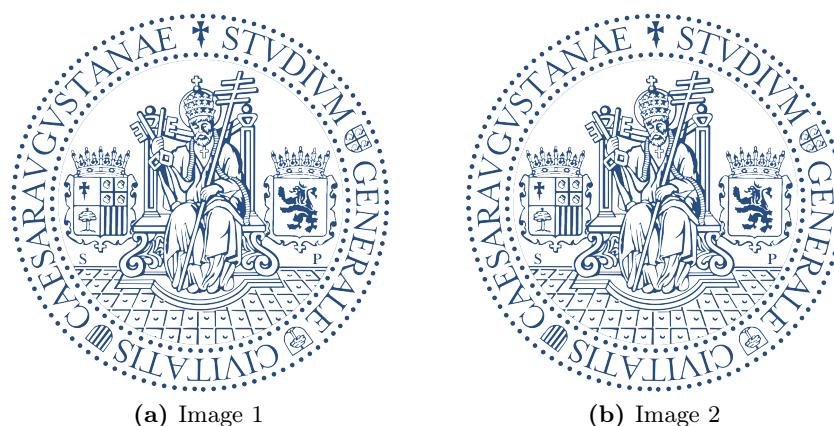
<sup>3</sup><http://google.com>

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

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



**Figure 2.5:** Set of two images, this reference<sup>[2]</sup> will show up in this caption but it will hide in List Of Figures

## Bibliography

- [1] Niobium Superconducting Nanowire, Anthony J. Annunziata, Daniel F. Santavicca, Joel D. Chudow, Luigi Frunzio, Michael J. Rooks, Aviad Frydman, and Daniel E. Prober. Single-photon detectors. *Physical review letters*, 2006.
- [2] Francesco Giazotto and María José Martínez-Pérez. The josephson heat interferometer. *Nature*, 492(7429):401–405, Dec 2012.

# Epilogue

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This ia an epilogue.

# 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.