Departamento de
Física de la
Materia Condensada
Universidad Zaragoza

Report workbook

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Glossary

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.

Zaragoza (Aragón), March 2023

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[1]. Footnote url here[1].

Another footnote simple[2].

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.

[2] 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. *ACS Photonics*, 2006.

[1] http://google.com
[2] this is a footnote

2 Another chapter

This is a chapter.

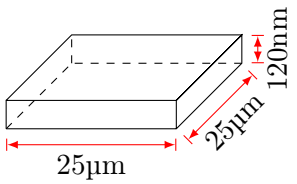

Figure 2.1: Prism drawing

Second page.

Footnote url here with header[3].

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

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

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

This line is a comment in boxed formula

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

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

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

2.1 Section here

This is a new section[2].

Item size1 (nm)	*Item size2* (nm)
8	600
10	400
12	300

Table 2.1: Sample table

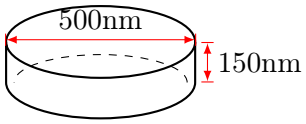

Figure 2.2: Disc sample figure

Item one (m)	*Item two* (m)	*Item three* (m)	*Item four* (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

[3] http://google.com

Item size (µm)	*Object* (m)	*Object width* (nm)	*Current* (mA)	*Gap @ 500nm* (nT)	*Gap @ 1µm* (nT)
15 × 0.800 × 0.06	259.07	300	1.61000×10^4	51.66902	29.08373
		400		50.82305	28.93193
		600		48.54992	28.49336
15 × 0.450 × 0.06	224.42	300	2.37000×10^4	76.05934	42.81274
		400		74.81401	42.58931
		600		71.46784	41.94378
15 × 0.350 × 0.06	229.52	300	2.64000×10^4	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[1] 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

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.

[2] 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. *ACS Photonics*, 2006.

Epilogue

This ia an epilogue.