My Thesis Title

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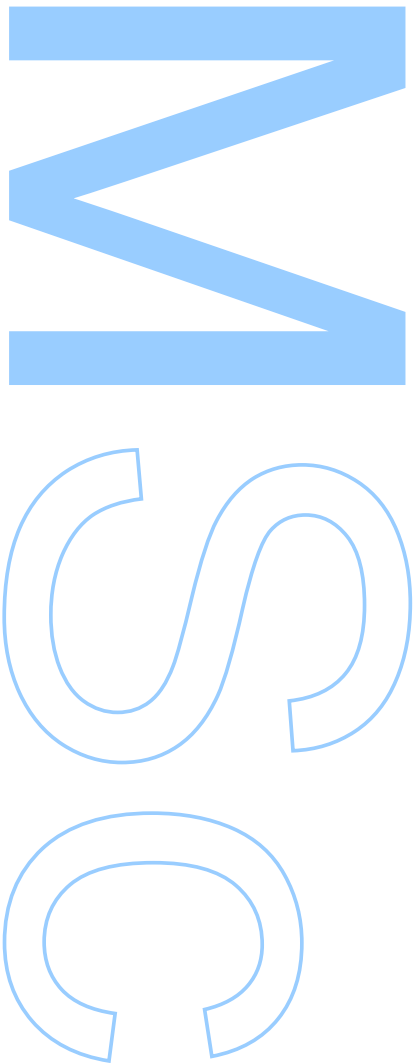

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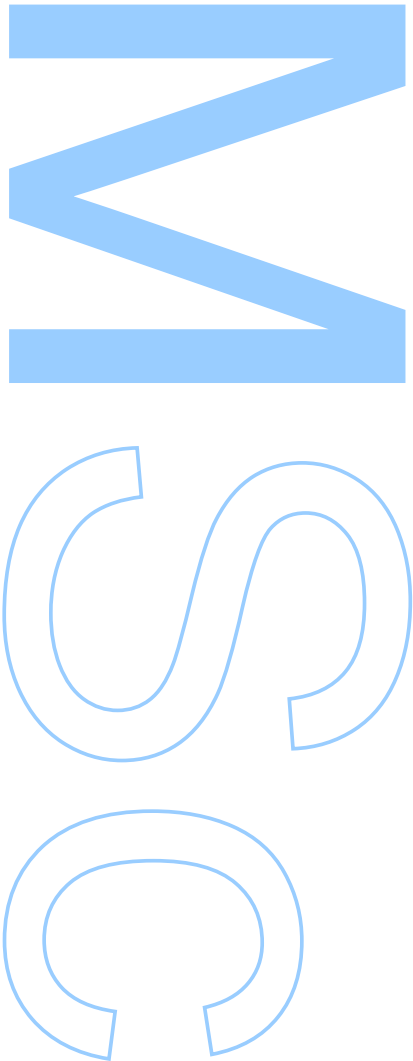
Todas as correções determinadas pelo júri, e só essas, foram efetuadas.

O Presidente do Júri,

Porto, _____/_____/_____



UNIVERSIDADE DO PORTO

MASTERS THESIS

MyThesis Title

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A thesis submitted in fulfilment of the requirements
for the degree of MSc. Engineering Physics

at the

Faculdade de Ciências da Universidade do Porto
Departamento de Física e Astronomia

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" I am and always will be the optimist, the hoper of far-flung hopes and the dreamer of improbable dreams "

Matt Smith as *The Doctor*, written by Matthew Graham

Acknowledgements

Acknowledge ALL the people!

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Abstract

Faculdade de Ciências da Universidade do Porto
Departamento de Física e Astronomia

MSc. Engineering Physics

MyThesis Title

by MyName MYLASTNAME

This thesis is about something, I guess.

UNIVERSIDADE DO PORTO

Resumo

Faculdade de Ciências da Universidade do Porto
Departamento de Física e Astronomia

Mestrado Integrado em Engenharia Física

Titulo da Tese em Portugês

por MyName MyLastName

Este tese é sobre alguma coisa

Contents

List of Figures

Chapter 1

Chapter Title Here

Welcome to the tutorial on how to use this thesis model. This is not to teach you how to use LaTeX. For that read a tutorial. But this aims to teach you how to do the basic stuff you will need in order to produce a decent document.

1.1 Citations

You can add extra info to you references, like [1, section 3]. You can also call them by author, like saying Fienup [1].

1.2 Figures

Let us start with a figure with two subfigures like in 1.1.

(A) FCUP's fat cat doing what cats do.

(B) FCUP's fat cat resting.

FIGURE 1.1: FCUP's fat cat.

Or two figures side by side like 1.2 and 1.3.

Or a figure with some text on the side, like 1.4, or even a Figure wrapped around in text, as seen on Figure 1.5.

FIGURE 1.2: FCUP's fat cat doing what cats do.

FIGURE 1.3: FCUP's fat cat.

And here we have some text related to this image. The text can occupy the same space as the image would normally do.

FIGURE 1.4: FCUP's fat cat.

This is where the float goes with text wrapping around it. You may embed tabular environment inside wraptable environment and customize as you like: Ultrices dui sapien eget mi proin sed libero. Ornare lectus sit amet est placerat in egestas erat imperdiet. Tortor dignissim convallis aenean et. Quam adipiscing vitae proin sagittis nisl rhoncus mattis. Vivamus at augue eget arcu dictum varius duis. Cursus turpis massa tincidunt dui. Leo in vitae turpis massa sed. Tempor orci eu lobortis elementum. Turpis egestas integer eget aliquet nibh praesent tristique magna. Sed blandit libero volutpat sed cras ornare arcu dui. Feugiat sed lectus vestibulum mattis ullamcorper velit sed ullamcorper. Interdum velit euismod in pellentesque massa placerat duis ultricies lacus. Ac ut consequat semper viverra nam. Dis parturient montes nascetur ridiculus mus. Mattis pellentesque id nibh tortor.

FIGURE 1.5: FCUP's fat cat.

1.2.1 SVGs

How to make a LaTeX document with vector images, where the text in the images has exactly the same font and size as in normal text? This article describes how this is done using the 'PDF/EPS/PS + LaTeX' output feature of Inkscape 0.48. Inkscape can export the graphics to PDF/EPS/PS, and the text to a LaTeX file. When the LaTeX file is input in the LaTeX document, the PDF/EPS/PS image is included with overlaid text. Because typesetting of the text is done by LaTeX, LaTeX commands can be used in images, such as writing equations, references and shorthand macros.

(requires Inkscape version 0.48 or higher; this document discusses features up to Inkscape 0.49)

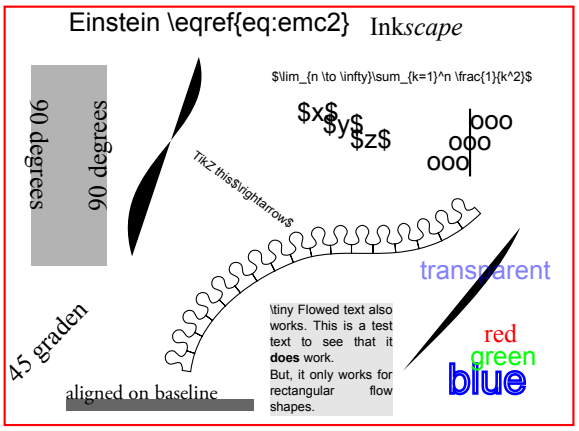

FIGURE 1.6: The test SVG image, as it is seen in Inkscape (exported to PDF *without* LaTeX option).

$$E = mc^2 \tag{1.1}$$

1.2.1.1 Automatic export

('write18' must be enabled, see the `epstopdf` package documentation. Add `-shell-escape` to the command line when calling `pdflatex`. And inkscape must be discoverable by the OS),

Whenever the SVG file is updated, it is possible to have LaTeX automatically call Inkscape to export the image to PDF and LaTeX again. This simplifies the workflow to

- Modify the SVG image in Inkscape;
- Save the SVG (Ctrl+S, no need to export to PDF);

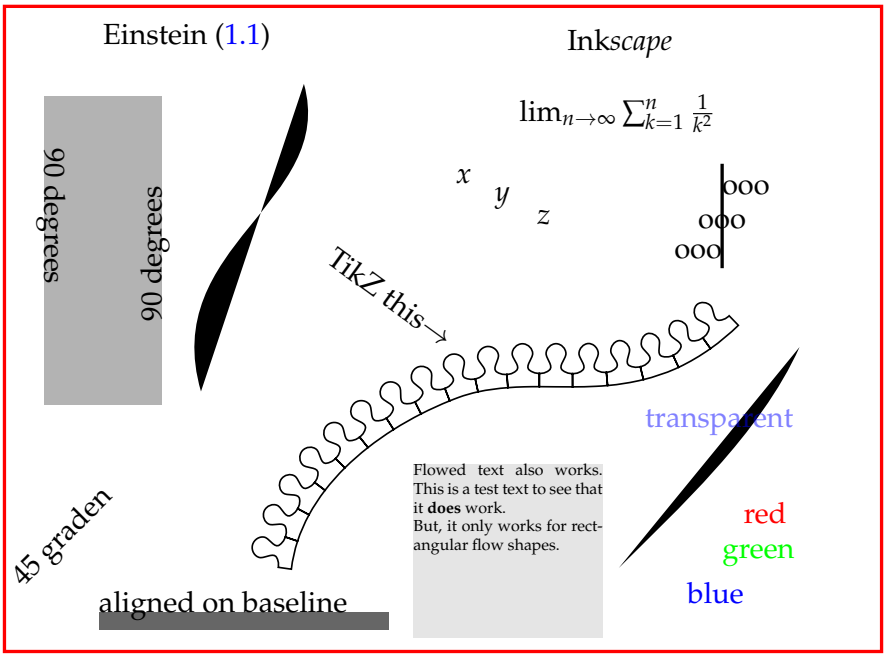

FIGURE 1.7: The test image, exported to PDF *with* LaTeX option.

- Recompile LaTeX document. pdfLaTeX will notice the SVG file has changed, and will automatically do the export for you.

1.3 Math

The following equation uses a custom mathematical operator defined in line 88 of preamble.tex:

$$\begin{aligned} \underset{\mathbf{x}_1,\mathbf{x}_2}{\operatorname{meshgrid}}\, \mathbf{x}_1 &= \begin{bmatrix} a_1 & b_1 & c_1 \\ a_1 & b_1 & c_1 \end{bmatrix} \\ \underset{\mathbf{x}_1,\mathbf{x}_2}{\operatorname{meshgrid}}\, \mathbf{x}_2 &= \begin{bmatrix} a_2 & a_2 & a_2 \\ b_2 & b_2 & b_2 \end{bmatrix} \end{aligned} \tag{1.2}$$

The following equation uses the custom ceil and floor operator defined in line 168 of the stock main.tex:

$$x = \left\lfloor \frac{y}{2} \right\rfloor + \left\lceil \frac{w}{2} \right\rceil \tag{1.3}$$

And this is an equation with multiple lines:

$$\begin{aligned} I_0 &= I' + I'' \cos(\Psi) \\ I_{\pi/2} &= -I'' \sin(\Psi) \\ I_{\pi} &= I' - I'' \cos(\Psi) \\ I_{3\pi/2} &= I'' \sin(\Psi) \end{aligned} \tag{1.4}$$

And this is some random Python code:

```
def Hello():
    """
      Meaningful docstring with in-depth explanation of this function
    """
    print(''Hello World !!'')

if __name__ == '__main__':
    Hello()
```

Appendix A

Appendix Title Here

Write your Appendix content here.

Bibliography

[1] J. R. Fienup, "Phase retrieval algorithms: a comparison," *Applied Optics*, vol. 21, no. 15, pp. 2758–2769, Aug. 1982. [Online]. Available: https://www.osapublishing.org/ao/abstract.cfm?uri=ao-21-15-2758 [Cited on page 1.]