



**Universidade Federal do Espírito Santo**

**Programa de Pós-Graduação em Astrofísica, Cosmologia e Gravitação**

## **Quantum effects in cosmology**

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Doctor of Philosophy in Astronomy & Physics

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## **Quantum effects in cosmology**

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A presente tese "*Quantum effects in cosmology*" foi submetida no ano de 2020 ao PPGCosmo por *Emmanuel Frion* como parte dos requisitos para a obtenção do título de Doutor em Astronomia e Física.

Caso esta tese venha a ser aprovada, esta folha deverá ser substituída pela correspondente de aprovação.

# Abstract

The abstract goes here.

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# Resumo

Versão em português do *abstract*.

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# Acknowledgments / Agradecimientos

This section does not need to be written in English.

Here you should acknowledge all those that contributed directly to the accomplishment of this work. You may add acknowledgements to indirect contributions.

By the end, you should acknowledge any relevant funding for the work of this thesis. Some funding agencies have strict rules on how to express these acknowledgements.

# Contents

<b>1. Introduction</b>	<b>1</b>
1.1. Introduction part 1 . . . . .	1
1.2. Introduction part 2 . . . . .	1
<b>2. A chapter title goes here</b>	<b>2</b>
2.1. Equations . . . . .	2
2.1.1. Two equations . . . . .	2
2.1.2. Particular cases . . . . .	2
2.2. Another section . . . . .	2
2.3. Chapter conclusions . . . . .	2
<b>3. Conclusions</b>	<b>3</b>
3.1. Summary of achievements . . . . .	3
3.2. Prospective directions . . . . .	3
<b>A. Further details on the post-Minkowskian expasion</b>	<b>4</b>
<b>B. The code on the <math>H_0</math> tension analysis</b>	<b>5</b>

# Introduction

## 1.1. Introduction part 1

## 1.2. Introduction part 2

We take the opportunity to cite [\[1, 2, 3\]](#).

# A chapter title goes here

## 2.1. Equations

A section with some subsections.

### 2.1.1. Two equations

We know that

$$\boldsymbol{F} = m\boldsymbol{a} \tag{2.1}$$

and

$$G_{\mu\nu} = 8\pi G T_{\mu\nu}. \tag{2.2}$$

Equations (2.1) and (2.2) are both very important. You may also group the equations inside `\eqref`: Naturally, eqs. (2.1, 2.2) are both very important. There is no contraction [4, 5, 3].

You can insert figures, as Figure 2.1.



Figure 2.1.: PPGCosmo logo.

### 2.1.2. Particular cases

Sometimes it is relevant to cite other sections, see for instance Section 1.2.

## 2.2. Another section

## 2.3. Chapter conclusions



## Conclusions

*The sections below are suggestions.*

### **3.1. Summary of achievements**

### **3.2. Prospective directions**

## **Further details on the post-Minkowskian expansion**

An appendix goes here.

## The code on the $H_0$ tension analysis

Another appendix.

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