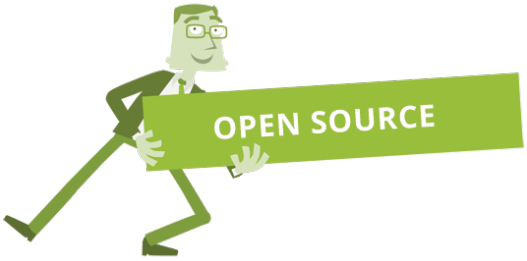

DOCTORAL THESIS

Thesis Title

A thesis submitted in fulfilment of the requirements
for the degree of Doctor of Philosophy

in the

Department of Sbadgioff
School of Poppete and Bi-poppete

Author:
Name SURNAME

Supervisor:
Dr. Tarapie TAPIOTA

10th June 2018

To me

ACKNOWLEDGEMENTS

Thanks

STATEMENT

I, Name SURNAME, hereby declare that this thesis has not been and will not be, submitted in whole or in part to another university for the award of any other degree.

Brighton,
10th June 2018

Name SURNAME

University of Sussex
School of Poppete and Bi-poppete
Department of Sbadgioff

DOCTORAL THESIS

Thesis Title

---

by Name SURNAME

ABSTRACT

This thesis presents some work made during someone's PhD

CONTENTS

TITLE CHAPTER 1

1

People are the best show in the world. And you don't even pay for the ticket

Charles Bukowski

Just to cite a book by Charles Bukowski [1]

TITLE CHAPTER 2

2

Here there are a couple of formulas. The $SU(2)$ doublet

$$\phi = \begin{pmatrix} \phi^+ \\ \phi^0 \end{pmatrix} \tag{2.1}$$

with ϕ^+ and ϕ^0 generic complex fields:

$$\phi^+ = \frac{\phi_1 + i\phi_2}{\sqrt{2}}, \qquad \phi^0 = \frac{\phi_3 + i\phi_4}{\sqrt{2}} \tag{2.2}$$

Consider a Lagrangian of the form:

$$\mathscr{L}_{\text{Higgs}} = (\partial_\mu \phi)^* \left(\partial^\mu \phi\right) - V(\phi) \tag{2.3}$$

where $V(\phi)$ is now the Higgs potential. Re-normalisability and $SU(2)_L \otimes U(1)_Y$ invariance require the Higgs potential to be of the following form:

$$V(\phi) = \mu^2 \phi^\dagger \phi + \lambda \left(\phi^\dagger \phi\right)^2 \tag{2.4}$$

The Lagrangian in Equation 2.3 is the Higgs Lagrangian if ϕ is chosen to be the following:

$$\phi = \begin{pmatrix} \phi^+ \\ \phi^0 \end{pmatrix} = \begin{pmatrix} G^+ \\ \frac{1}{\sqrt{2}}\left(v + H + iG^0\right) \end{pmatrix}$$

APPENDIX A

LIST OF ACRONYMS

ATLAS A Toroidal LHC ApparatuS

BIBLIOGRAPHY

[1] C. Bukowski, *Tales of Ordinary Madness*. Virgin, 2008.
https://books.google.it/books?id=ENuSzXQF55cC. 1

This thesis was typeset using the LaTeX typesetting system created by Leslie Lamport. The body text size is set to 11 pt with *Utopia Regular* with *Fourier* font, part of TeX Live. The bibliography was typeset using the A Toroidal LHC ApparatuS (ATLAS)-paper style.