

WEIZMANN INSTITUTE OF SCIENCE

Searches for new phenomena in final states with leptons and jets using the ATLAS detector

DISSERTATION

submitted in partial fulfilment of the requirements  
for the degree of

DOCTOR OF PHILOSOPHY

in Physics

by

Roy Schimmel Brener

Month, 2026



# TABLE OF CONTENTS

	Page
<b>LIST OF FIGURES</b>	<b>iii</b>
<b>LIST OF TABLES</b>	<b>iv</b>
<b>ACKNOWLEDGMENTS</b>	<b>v</b>
<b>ABSTRACT OF THE DISSERTATION</b>	<b>vi</b>
<b>1 The Standard Model</b>	<b>1</b>
1.1 Symmetries and Conservation Laws . . . . .	1
1.2 Matter and Interactions . . . . .	1
1.3 Spin-0, Spin-1/2, and Spin-1 Fields . . . . .	2
1.4 The Higgs Mechanism . . . . .	2
1.5 Limitations of the Standard Model . . . . .	2
<b>Bibliography</b>	<b>3</b>
<b>Appendix A Appendix Title</b>	<b>4</b>

# LIST OF FIGURES

	Page
1.1 Example source code. . . . .	1

# LIST OF TABLES

Page

# ACKNOWLEDGMENTS

I would like to thank...

(You must acknowledge grants and other funding assistance.

You may also acknowledge the contributions of professors and friends.

You also need to acknowledge any publishers of your previous work who have given you permission to incorporate that work into your dissertation. See Section 3.2 of the UCI Thesis and Dissertation Manual.)

# ABSTRACT OF THE DISSERTATION

Searches for new phenomena in final states with leptons and jets using the ATLAS detector

By

Roy Schimmel Brener

Weizmann Institute of Science, Month, 2026

The abstract of your contribution goes here.

# Chapter 1

## The Standard Model

This is an example using the  $\text{\LaTeX}$  template for UCI theses and dissertation documents [1].

Figure 1.1 is just for illustration purposes, as is Table ??.

### 1.1 Symmetries and Conservation Laws

### 1.2 Matter and Interactions

words about particles and interactions, forces of the standard model.

```
#include <iostream>
int main(int argc, char** argv) {
    std::cout << "Hello World." << std::endl;
    return 0;
}
```

Figure 1.1: Example source code.



**1.3 Spin-0, Spin-1/2, and Spin-1 Fields**

**1.4 The Higgs Mechanism**

**1.5 Limitations of the Standard Model**

# Bibliography

- [1] L. Otten. LaTeX template for thesis and dissertation documents at UC Irvine. <https://github.com/lotten/uci-thesis-latex/>, 2012.

# Appendix A

## Appendix Title

Supplementary material goes here. See for instance Figure A.1.

### A.1 Lorem Ipsum

dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

“I am glad I was up so late,  
for that’s the reason I was up so early.”  
*William Shakespeare (1564-1616), British dramatist, poet.*  
*Cloten, in Cymbeline, act 2, sc. 3, l. 33-4.*

Figure A.1: A deep quote.