### **Thesis**

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#### **Preface**

This is a Quarto book.

To learn more about Quarto books visit <a href="https://quarto.org/docs/books">https://quarto.org/docs/books</a>.

blablabla

bal

We know from the first fundamental theorem of calculus that for x in [a,b]:

$$\frac{d}{dx}\left(\int_a^x f(u)\,du\right) = f(x).$$

#### **Abstract**

### Zusammenfassung

### 1 Introduction

This is a book created from markdown and executable code. See Knuth (1984) for additional discussion of literate program-

#### 1.1 Test section

text

ming.

### 2 Cosmic particles

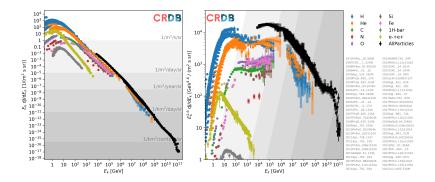


Figure 2.1: CRs

# 3 The IceCube Neutrino Observatory

### 4 Software Packages

- 4.1 skyllh
- 4.1.1 stacking
- 4.1.2 Seyfert Flux
- 4.2 p1skyllh
- 4.3 icetray
- 4.3.1 ml\_suite
- 4.3.2 photospline

## 5 Improved Point Source Analysis

- 5.1 PS likelihood
- 5.2 observables reconstruction
- 5.3 KDE, BDT
- 5.4 PS methods, skyscan, catalog search, binomial test
- 5.5 performance plots. Biases, sens, dp
- 5.6 results

### 6 Seyferts

- 6.1 seyfert neutrino connection
- 6.2 core-corona model
- 6.3 BASS catalog
- 6.3.1 swift
- 6.3.2 nustar?
- 6.4 PS methods, stacking
- 6.5 performance plots. Biases, sens, dp
- 6.6 results

# 7 Extended Point Source Analysis

- 7.1 IC79 subselection
- 7.2 skykde tool
- 7.3 performance plots. Biases, sens, dp
- 7.4 Results
- 7.5 Future work
- 7.5.1 normalizing flows
- 7.5.2 likelihood free inference

### **8 Conclusion**

### 9 Acknowledgements

### References

Knuth, Donald E. 1984. "Literate Programming."  $Comput.\ J.$  27 (2): 97–111. https://doi.org/10.1093/comjnl/27.2.97.