

**Thesis Title**

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# Acknowledgements

There are many people that have earned my gratitude for their contribution to my time in graduate school.

# Dedication

To those who held me up over the years

## Abstract

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# Chapter 1

## Introduction

- Chapter 2 briefly presents the history of, and science behind, the subjects presented in this thesis.
- In Chapter 3 the experiment is outlined.
- Chapter 4 describes the simulation process used in the analysis.
- Chapter 5 follows the chain of reconstruction software used to obtain meaningful results from data.
- Chapter 6 hashes out the strategy for analysis and presents the data and simulated sets that will be used in the analysis.
- Chapter 7 demonstrates the implementation of the event selection processes.
- In Chapter 8 those events selected in Chapter 7 are analyzed.
- Chapter 9 presents a final discussion of the analyses presented in the thesis.

## Chapter 2

# Physics of Neutrinos

## Chapter 3

# Experiment

## Chapter 4

# Simulation

## Chapter 5

# Event Reconstruction

## Chapter 6

# Data Analysis Strategy

## Chapter 7

# Event Selection



## Chapter 8

# Analysis

### 8.1 Analysis Procedure

### 8.2 Analysis Result

## Chapter 9

# Conclusion and Discussion

## References

## Appendix A

# Glossary and Acronyms

Care has been taken in this thesis to minimize the use of jargon and acronyms, but this cannot always be achieved. This appendix defines jargon terms in a glossary, and contains a table of acronyms and their meaning.

### A.1 Glossary

- **Cosmic-Ray Muon (CR  $\mu$ )** – A muon coming from the abundant energetic particles originating outside of the Earth’s atmosphere.

### A.2 Acronyms

Table A.1: Acronyms

Acronym	Meaning
CR $\mu$	Cosmic-Ray Muon