

A Search for Sterile Neutrinos at the NO ν A Far Detector

A DISSERTATION PRESENTED
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ABSTRACT

We measured things. And searched for other things. Here is what we found, please let me graduate.

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THIS IS THE DEDICATION.

Acknowledgments

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Introduction

1

A Brief History of Neutrinos

I.I POSSIBLE EVIDENCE OF STERILE NEUTRINOS

2

Theory of Neutrino Oscillations

2.1 STANDARD 3-FLAVOR OSCILLATIONS

2.2 MATTER EFFECTS

2.3 STERILE NEUTRINOS

3

The NO ν A Experiment

3.1 INTRODUCTION

4

Experiment Simulation

5

Event Reconstruction

5.1 RECONSTRUCTION CHAIN

5.2 CALIBRATION

6

Neutral Current Event Selection

7

Neutral Current Disappearance Analysis

8

Analysis Results and Systematic Errors

9

Conclusions and Moving Forward

The results of this analysis are consistent with no sterile neutrinos.

References



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