Measurement of reactor flux at short baseline in search for possible oscillations arising from the existence of eV-scale sterile neutrinos

Pranava Teja Surukuchi
Illinois Institute of Technology
Chicago, IL 60616

Thursday 30$^{\text{th}}$ April, 2015

(in partial fulfillment of comprehensive exam for Doctor of Philosophy in Physics)

Contents

1 Neutrinos Background and theory **2**
- 1.1 History . . . 2
- 1.2 phenomenology . . . 2
- 1.3 Establishment of certain properties in Neutrinos . . . 2
- 1.4 Reactor Neutrino experiments . . . 2

2 Anomalies **2**
- 2.1 Reactor Antineutrino anomaly . . . 2
- 2.2 all others . . . 2
- 2.3 blahblah . . . 2
- 2.4 Possible reasons for anomalies . . . 2

3 PROSPECT **2**
- 3.1 Location selection etc . . . 3
- 3.2 Background . . . 3
- 3.3 Detector characterisitcs . . . 3

4 Proposed PhD research **3**

5 Current work **3**

1 Neutrinos Background and theory

1.1 History

1.2 phenomenology

1.3 Establishment of certain properties in Neutrinos

1.4 Reactor Neutrino experiments

2 Anomalies

2.1 Reactor Antineutrino anomaly

2.2 all others

2.3 blahblah

2.4 Possible reasons for anomalies

3 PROSPECT

[?]

3.1 Location selection etc

3.2 Background

3.3 Detector characterisitcs

4 Proposed PhD research

5 Current work

References