Thesis Skeleton

Pruthvi Mehta

November 23, 2021

- 1 Neutrino Physics
- 2 The Super-Kamiokande Detector
- 3 Super-Kamiokande Detector Calibration
- 4 The UK Light Injection System
- 4.1 Hardware and Electronics
- 4.1.1 Data Processing
- 4.2 Light Profile Monte Carlo Development
- 4.2.1 Comparison with UK Light Injection System Data
- 4.2.2 Analysis Results and Parameter Measurement
- 5 Super-Kamiokande Gadolinium Upgrade
- 6 Measurement of Neutral Current Quasielastic Interactions with Super-Kamiokande Gadolinium Upgrade
- 6.1 Event Simulation
- 6.2 Event Reconstruction
- 6.3 Neutral Current Quasi Elastic Sample Selection
- 6.4 Neutron Tagging Algorithm
- 6.5 Application of Neutron Tagging Algorithm to MC and Data Samples
- 6.6 Neutron Tagging with Super-Kamiokande Gd
- 6.7 Final neutron multiplicity values
- 6.7.1 Systematic uncertainty calculations
- 6.7.2 Statistical uncertainty calculations
- 7 Conclusion
- 8 Bibliography