

Tau-neutrino Cross Section Paper

Proposed Outline

0. Abstract [Gtz]
1. Introduction [BL]
[brief review of experimental setup; review of emulsion target and scanning; brief outline of tau analysis; outline of this paper]
2. Data Collection and Reduction [RR]
 - 2.1 Triggering and running
 - 2.2 Filtering, stripping, scanning
 - 2.3 Final (all) neutrino event sample
3. Overview of Data Analysis
 - 3.0 Event reconstruction [BB]
 - 3.0.1 Spatial Resolution (Drift chambers, Sci Fi)
 - 3.0.2 Track fitting, momentum, resolution
 - 3.0.3 Neutrino Vertex Reconstruction, Spatial Resolution
 - 3.1. Emulsion track fitting / location [VP]
 - 3.1.0 Event location
 - 3.1.1 Momentum from Coulomb Scattering
 - 3.2. Secondary vertex analyses [BB]
 - 3.2.1 Decay Search
 - 3.3. Lepton tagging [BB]
 - 3.3.1 EM shower reconstruction, resolution
 - 3.3.2 Electron/gamma identification in emulsion
 - 3.4. ν_τ / charm Recognition Analysis [not assigned]
 - 3.4.1. Simple Topology / Kinematics
 - 3.4.2. Multivariate analysis
 - 3.4.3. ANN
4. Survey of Data (I propose: numu and nue Analysis)
 - 4.1. Expected Composition [Gtz]
 - 4.1.1 Muon and electron neutrino identification (scanning, ANN)
 - 4.2. ν_μ CC events [RR]
 - 4.2.1. Prompt and non-prompt
 - 4.2.2. μ^+ and μ^- ratio and spectra vs Monte Carlo
 - 4.3. ν_e CC events [BL]
 - 4.3.1. Estimated e energy
 - 4.3.2. nue spectrum vs MC
5. ν_τ Signal [EM]
 - 5.0 Data Reduction table
 - 5.1. List of event candidates (or table)
 - 5.2. Multi-variate analysis and table
 - 5.2.1 Backgrounds
 - 5.3 Comparison to charm events
6. Systematic Uncertainties
 - 6.1. POT [BL]
 - 6.2. ν Production in dump [BL]
 - 6.3. Electronic efficiencies [VP]
 - 6.3.1. Trigger, live-times, events-on-tape
 - 6.4. Analysis efficiencies [BL]
 - 6.4.1. Stripping / Scanning

- 6.4.2. Location
- 6.4.3. Decay search

- 7. ν_τ Cross Section [\[EM\]](#)
 - 7.0 Correction for threshold effects
 - 7.1. Relative
 - 7.2. Absolute
- 8. Conclusions and restate main results [\[RR\]](#)