

III.E1. FERMILAB NEUTRINO HYBRID SPECTROMETER

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The Fermilab Neutrino Hybrid Spectrometer (FNHS), with a fiducial mass of one ton of H_2 , two tons of D_2 , or five tons of light neon combined with a complete downstream system for identification and measurement of most secondaries, is a promising device to observe and analyze events with heavy quarks.

The FNHS consists of a bubble chamber (4 m long \times 2 m diameter) followed by an ISIS device to identify particles, a gamma detector with good spatial and energy resolution, a hadron calorimeter, and a muon identifier. The strong points of the FNHS for this analysis are

1. Very good spatial resolution in the bubble chamber, especially if holography is used.

2. Excellent ability to detect and measure most strange particles (K^\pm , K^0 , Σ^\pm).

The weakest point is the limited fiducial mass; however, a total exposure of 2.5×10^{18} protons on target (6 months) would yield 66,000 CC events, perhaps 30 $F^+ + \nu_\tau \tau^+$ events, 5500 D^+ , D^0 , 25 B events and 30 T events. Some such events (the $T + B + C + s$ cascade, for example) could produce a spectacular event for this device with four muons and numerous strange particles most of which would be fully analyzed.
