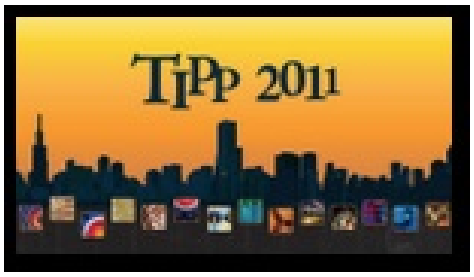

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Water Cherenkov Detector Event Scan And NuE Appearance Sensitivity Study For LBNE

Saturday 11 June 2011 09:30 (20 minutes)

Water Cherenkov (WC) and Liquid Argon (LAr) are two options under consideration for the far detector (FD) of the LBNE experiment. To make a choice, one of the issues is the FD's sensitivity to the NuE-appearance which involves the detection efficiency of the signal, NuE-CC, and the background, NC events. The proposed WC sensitivity is largely based upon the Super-Kaminokande (SK) experience. However, the SK reconstruction algorithm is not optimized for the LBNE energies, especially in the 1.5–5 GeV region covering the first oscillation maximum.

At the current stage of LBNE project, we are using event scanning as a tool to understand the various background processes to electron neutrinos. The status of WC scan effort comprising 2000 NuE-CC and 10,000 NC simulated events will be presented.

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