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Search for Muon Neutrino Disappearance in a Short-Baseline Accelerator Neutrino Beam

Neutrino oscillations have been observed and confirmed at Delta m 2 2 $^10^{-}$ (-3) and $^10^{-}$ (-5) eV 2 with various experiments. While oscillations at other mass splittings are prohibited by the current standard model, the LSND experiment observed an excess of electron antineutrinos in a muon antineutrino beam, indicating a possible oscillation at Delta m 2 1 eV 2 .

To test the oscillation at Delta m 2 1 eV 2 , we search for muon neutrino disappearance using the Fermilab Booster Neutrino beamline and two experiments, SciBooNE and MiniBooNE. The neutrino fluxes are measured in the SciBooNE and MiniBooNE detectors, located at 100 m and 540 m downstream from the neutrino production target, respectively. We collected beam data from June 2007 through August 2008 with SciBooNE, and over a five year period with MiniBooNE. Results from the flux measurement at SciBooNE and the SciBooNE-MiniBooNE joint oscillation analysis will be presented.

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