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The Short Baseline Neutrino Program at Fermilab

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The Fermilab Short-Baseline Neutrino (SBN) program, with three liquid argon time projection chamber (LAr-TPC) detectors located along the Booster Neutrino Beam, presents a rich physics and R&D opportunity. SBN will perform sensitive searches for neutrino oscillations in both appearance and disappearance channels at the 1 eV^2 mass-splitting scale, thereby testing the sterile neutrino interpretation of the anomalous excesses of electron (anti)neutrinos observed by LSND and MiniBooNE. Also, the SBN detectors play a major role in on-going R&D efforts aimed at realizing multi-kiloton-scale LAr-TPC detectors in the next generation long-baseline neutrino oscillation experiment DUNE. To form the SBN program, two additional detectors will join MicroBooNE (currently operational at 470m along the beam); the new Short-Baseline Near Detector (SBND) will be installed at 110m, and the largest existing LAr-TPC, the ICARUS600, will be transported to Fermilab in 2017 and sited at 600m. In this talk, we present the current status of the SBND and ICARUS detectors and review the physics reach of the full three-detector SBN program.

Experimental Collaboration

SBND, MicroBooNE, ICARUS

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