

The Short Baseline Neutrino Oscillation Program at Fermilab

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Neutrino Oscillation, i.e., discovery that neutrinos have mass, is perhaps the most striking recent experimental evidence of physics which found a crack in the Standard Model to give us a glimpse of the fundamental underlying theories. The Short-Baseline Neutrino (SBN) program makes use of a trio of LArTPC (Liquid Argon Time Projection Chamber) detectors – named the Short-Baseline Near Detector or SBND, MicroBooNE and ICARUS – positioned along Fermilab's Booster Neutrino Beam (BNB), to address the previously observed short-baseline neutrino anomalies.

LArTPC is a state-of-the-art technology for studying these mysterious particles and building massive neutrino detectors. LArTPCs provide 3D imaging of interaction events with excellent spatial resolution. This scalable detector technology allows us to make precision measurements of neutrino interactions. This talk will give an overview of the current and future short-baseline neutrino oscillation experiments, with a focus on the MicroBooNE experiment, and will discuss the prospects of addressing the short-baseline anomalies in the near future.

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