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Sensitivity of SBN to eV mass-scale sterile neutrino oscillation

The Short Baseline Neutrino (SBN) program is a three-detector experiment, consisting of the SBND, MicroBooNE, and ICARUS detectors, which will search for oscillations of neutrinos from the Booster Neutrino Beam at Fermilab. SBN will be sensitive to ν_μ disappearance and ν_e appearance, facilitating searches for eV mass-scale sterile neutrinos in the region of parameter space motivated by the LSND and MiniBooNE anomalies. The CAFAna fitting framework was developed in the context of the NOvA experiment and can be used to fit simulated SBN data with a "3+1" sterile neutrino model. We will demonstrate the sensitivity, including the impact of systematic uncertainty, of the three-detector SBN program to eV mass-scale sterile neutrino oscillation using the CAFAna fitting framework.

Mini-abstract

Demonstration of sensitivity to eV mass-scale sterile neutrino oscillations at SBN using CAFAna

Experiment/Collaboration

SBN

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