

Measurements of the Neutrino Flux Using the DUNE Near Detector

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The reference design of the near detector for the LBNE/F experiment is a high-resolution Fine-Grained Tracker (FGT) capable of precisely measuring all four species of neutrinos. Other detector options under consideration are liquid-argon and gaseous-argon TPCs, as well as a hybrid between the detector concepts. The goal of the ND is to constrain the systematic errors below the corresponding statistical error in the far detector, for all oscillation studies; and to conduct a wide range of precision measurements and searches in neutrino physics. We present sensitivity studies of the measurements –critical to constraining the systematics in oscillation searches –of the absolute and relative neutrino flux using various techniques. The precision in the determination of the absolute and relative fluxes achieved in DUNE ND will allow to fully exploit the potential of the (anti)-neutrino probe.

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