

Event selection for the NOvA 3 flavor analysis

Anastasiia Kalitkina

JINR

NOvA is a long-baseline accelerator-based neutrino oscillation experiment designed to measure electron (anti-)neutrino appearance and muon (anti-)neutrino disappearance. The experiment employs a 297t near detector at Fermilab and a larger 14kt far detector in Minnesota, both are tracking calorimeters filled with liquid scintillator. Event selection in NOvA is crucial for distinguishing neutrino interactions from background events. The experiment utilizes advanced techniques, including a Convolutional Visual Network algorithm, for event identification, categorization, and reconstruction. In 2024 the latest results of the 3-flavor oscillation analysis were obtained. They based on 10 years of data collecting, equivalent to 26.6×10^{20} protons-on-target (POT) statistics with neutrino beam and 12.5×10^{20} POT with antineutrino. In this poster, an improved event selection method will be presented. The main focus is on enhancing the statistic by low-energy electron neutrino events, which is useful for increasing the sensitivity to neutrino mass ordering.
