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Latest Results from the NOvA Experiment with 10 Years of Data

Abstract

NOvA is a long-baseline neutrino experiment at Fermilab with the primary goal of measuring neutrino oscillations. The two functionally identical detectors, placed 810km away, at Fermilab and Ash River Minnesota, measure the disappearance of muon (anti)neutrinos and the appearance of electron (anti)neutrinos produced from the Megawatt-capable NuMI beam. By comparing the spectra in the Near and Far detectors, we are able to extract precise measurements we can make precise measurements of PMNS mixing matrix parameters, as well as the neutrino mass splitting Δm^2_{32} and provide a constrain on the mass ordering and δ_{CP} . The intense NuMI beam also provides a large dataset at the ND, which aids in constraining the neutrino interaction model and uncertainties, as well as the extraction of the cross section of various neutrino scattering processes. In this talk I will summarize the latest 3-flavor oscillation measurements with 10 years of NOvA data and as well as recent cross section measurements.