

## First Oscillation Results from NOvA

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We present the first oscillation results from the NOvA experiment in both  $\nu_\mu$  disappearance and  $\nu_e$  appearance analyses based on  $2.74E20$  POT-equivalent. The results obtained with 7.6% of the expected baseline NOvA exposure showed unambiguous  $\nu_\mu$  disappearance signature and  $\nu_e$  appearance signal at 3.3 sigma for the primary  $\nu_e$  selector. NOvA is a long-baseline neutrino oscillation experiment optimized for  $\nu_\mu$  to  $\nu_e$  appearance. It consists of two functionally identical, liquid scintillator tracking calorimeters with a readout by APDs (avalanche photo-diodes). The Near Detector (329 t, 1 km from the target, and 115 m underground) at Fermilab, is used to study the neutrino beam spectrum and composition before oscillation, and measure background rate to the electron neutrino appearance search. The Far detector (14 kt, 810 km away, and at surface) in Northern Minnesota, observes the oscillated beam and is being used for extraction of oscillation parameters. Precise measurements of  $\theta_{13}$  are achieved by comparing electron neutrino rates observed by the two detectors, located 14 mrad off the NuMI neutrino beam axis. Running a NuMI facility upgraded to 700 kW of beam power in neutrino and anti-neutrino modes NOvA can contribute to the neutrino mass hierarchy, the octant of the  $\theta_{23}$  mixing angle, and to the search of CP violation in the leptonic sector.