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Recent NOvA Results and the Joint NOvA–T2K Analysis

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NOvA is one of the two leading long-baseline neutrino oscillation experiments currently in operation. It uses the 700 kW NuMI neutrino beam at Fermilab directed towards northern Minnesota in the US with two functionally identical scintillator-based detectors placed 810 km apart at off-axis locations. An arrangement that largely cancels common systematic uncertainties in neutrino oscillation measurements. By analyzing neutrino charged-current interactions in these detectors, the NOvA experiment studies muon neutrino disappearance and electron neutrino appearance to probe still undetermined physics parameters, such as the neutrino mass ordering, CP violation and the octant of the large mixing angle. NOvA can also study the disappearance of all three known neutrino flavors by analyzing neutral current interactions, thus enabling searches for physics beyond the three-flavor paradigm, such as mixing with light sterile neutrinos. In this talk, I will present the latest NOvA results and discuss the joint analysis performed together with the T2K collaboration, which combines the data sets of both experiments to enhance sensitivity to CP violation and neutrino mass ordering.

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