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Status of an Alternative Measurement of the Inclusive Muon Neutrino Charged-current Cross Section in the NOvA Near Detector

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NOvA is a long-baseline neutrino oscillation experiment. It uses the NuMI beam from Fermilab and two sampling calorimeter detectors off-axis from the beam. The 293 ton Near Detector measures the unoscillated neutrino energy spectrum, which can be used to predict the neutrino energy spectrum at the 14 kton Far Detector at Ash River, MN. The Near Detector also provides an excellent opportunity to measure cross sections with high statistics, which benefit current and future long-baseline neutrino oscillation experiments. This analysis implements new algorithms to identify ν_μ charge-current events by using visual deep learning tools such as convolutional neural networks. In this talk we present the status of a measurement of the inclusive ν_μ CC cross section in the NOvA Near Detector.

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