Poster session 2 – Tuesday 5 July

P2.081 **NOvA short-baseline tau-neutrino appearance search**

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on behalf of NOvA collaboration

Three-flavor neutrino oscillations have successfully explained a wide range of neutrino oscillation experiment results. However, anomalous results, such as the electron-antineutrino appearance excess seen by LSND and MiniBooNE, do not fit the three-flavor paradigm and can be explained by the addition of a sterile neutrino at a larger mass scale than the existing three flavor mass states. The NOvA experiment consists of two finely segmented, liquid scintillator detectors operating 14 mrad off-axis from the recently upgraded NuMI muon-neutrino beam. The Near Detector is located on the Fermilab campus, 1 km from the NuMI target, while the Far Detector is located at Ash River, MN, 810 km from the NuMI target. The NOvA experiment is primarily designed to measure electron-neutrino appearance at the Far Detector using the Near Detector to control systematic uncertainties; however, the Near Detector is well suited for searching for anomalous short-baseline oscillations. This poster will present a novel method for selecting tau neutrino interactions with high purity at the Near Detector using a convolutional neural network. Based on this method, the sensitivity to anomalous short-baseline tau-neutrino appearance due to sterile neutrino oscillations will be shown.