π^0 **mass reconstruction in NOvA Far Detector.** SIJITH EDAYATH[1], Cochin University of Science and Technology, India / Fermilab. — NOvA is a long-baseline neutrino oscillation experiment with functionally identical, segmented, tracking calorimeter Near and Far detectors. The detectors lie 14.6 mrad off-axis from the Fermilab NuMI beam, with a well-defined peak in neutrino energy at 2 GeV. The absolute calibration of the energy scale of the detectors is a major systematic uncertainty in long-baseline oscillation search in NOvA. Neutrino detectors make use of some standard candles for absolute energy calibration. Stopping muon energy distributions, Michel electron energy distributions, and invariant π^0 mass are among them. In this talk, we cover NOvA's use of a new method to identify π^0 with cosmic origins in the NOvA Far Detector. We employ a computer vision based particle identifier using convolutional neural networks (CVN) to identify π^0s, complementing an existing strategy to identify π^0 from the neutrino beam using more traditional methods in the Near Detector.

[1]Registered for PhD at Cochin University of Science and Technology, India and doing research in NOvA experiment at Fermilab.

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