Contribution ID: **67**   Type: **not specified**

Status of the measurement of the muon neutrino charged-current coherent pion production in the NOvA near detector

Charged Current (CC) coherent neutrino-nucleus pion production is characterized by little momentum transferred to the nucleus, which is left in its ground state. Despite the relatively large uncertainties on the production cross-section, coherent production of mesons by neutrinos represents an important process, as it can shed light on the structure of the weak current and can also constitute a potential source of background for modern neutrino oscillation experiments and searches for Beyond Standard Model (BSM) physics. We will present the status of a new measurement of CC coherent pion production in the NOvA near detector at the Fermi National laboratory (Fermilab). The analysis is based on the use of both particle identification and kinematic selection criteria based on Convolutional Neural Networks (CNN). Given the energy range 1-5 GeV accessible with the available NOvA exposure in the NuMI beam, the results will also be relevant for upcoming neutrino experiments like the Deep Underground Neutrino Experiment (DUNE).

Primary author: KURUPPU, Chatura (University Of South Carolina)

Presenter: KURUPPU, Chatura (University Of South Carolina)