38th INTERNATIONAL CONFERENCE
ON HIGH ENERGY PHYSICS
AUGUST 3 - 10, 2016
CHICAGO

Contribution ID: **1516** Type: **Poster**

Cosmic Muon induced EM Shower

Saturday, August 6, 2016 6:00 PM (2 hours)

The NOνA experiment is a ν_e appearance neutrino oscillation experiment at Fermilab. It identifies the ν_e signal by the electromagnetic (EM) showers induced by the electrons in the final state of neutrino interactions. Cosmic muon induced EM showers, dominated
by bremsstrahlung, are abundant in NOνA far detector. We use the Cosmic Muon- Removal technique to get pure shower sample from bremsstrahlung muons in data. We also used Cosmic muon decay in flight (DiF) EM showers which are highly pure EM showers.The large Cosmic-EM sample can be used to characterize the EM signature and provides valuable
checks of the MC simulation, reconstruction, PID algorithm, and calibration across
the NOνA detector.

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Session Classification: Poster Session

Track Classification: Neutrino Physics