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P1.031 **Calibration in the NOνA detectors**

D P Méndez

University of Sussex, UK

on behalf of NOvA collaboration

NOνA is a long-baseline neutrino oscillation experiment looking for muon neutrino disappearance and electron neutrino appearance. Having the longest baseline of any past or present accelerator experiment, NOνA uses the upgraded NuMI beam at Fermilab. The experiment measures oscillations within a muon neutrino beam using a 300 ton Near Detector and a 14 kiloton Far Detector placed 810 km away from each other, both located 14 milliradians off-axis.

The NOνA detectors are functionally equivalent tracking calorimeters made of alternating horizontal and vertical PVC planes composed of cells. Each cell is filled with liquid scintillator and a looped wavelength-shifting fiber where the signal is read out. APD signals are continuously integrated, digitized and recorded within a fixed time window around the NuMI spill. Signals from periodic time windows asynchronous to the beam spill are also recorded to collect cosmic rays which are used as a standard candle for calibration.

The purpose of the calibration is to convert the recorded signal into physically meaningful units: minimum ionizing particles and energy. Cosmic rays are used as source of consistent energy deposits across the detectors as the energy deposition of stopping muons is well understood from the Bethe-Bloch formula. This poster describes the calibration method for the calibration of NOνA's near and far detectors.

The purpose of the relative calibration is to provide constants and formulae such that an amount of energy deposited in the detector and registered by an APD can be expressed in comparable units no matter where it occurred. In the absolute calibration stage, the mean of the detector response distribution is found for data and MC. Then, the mean of the distribution of true energy deposits is used to provide a conversion factor between the detector response and the true energy deposited in the scintillator for minimum ionising muons.