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Reconstruction in the DUNE Near Detector Muon Spectrometer

martedì 18 giugno 2024 17:30 (2 ore)

The Deep Underground Neutrino Experiment (DUNE), currently under construction, will use a high-intensity neutrino beam from Fermilab and observe the neutrinos in the near detector based at Fermilab and the far detector complex located at SURF. The DUNE near detector complex will host a suite of detectors that are currently in development. The experiment will make precision measurements of the neutrino oscillation parameters including the CP violation phase and the mass ordering. It is also sensitive to neutrinos from galactic supernovas.

One of the near detectors is The Muon Spectrometer (TMS) that will primarily detect and measure properties of the muons resulting from neutrino interactions exiting the preceding near detector. TMS will consist of alternating layers of plastic scintillators, in form of bars, and steel. The scintillator bars will be read out by WLS fibers and SiPMs and detect the scintillation light created by through-going charged particles.
The performance for different detector geometries was studied and will be presented in this poster.

Poster prize

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