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Charged Particle Tracking in NOvA

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The NuMI Off-Axis ν Appearance (NOvA) experiment is a long baseline neutrino oscillation experiment using a neutrino source created from the NuMI Beamline at Fermilab. The experiment will study the oscillations of muon neutrinos to electron neutrinos using two functionally identical plastic, liquid scintillator filled detectors placed 14 milliradians off-axis to the NuMI beam. Charged current neutrino interactions will be used to observe the neutrino flavor from identification of the final state lepton. Reconstruction of muon charged particle tracks plays an important role in both the short term goals of detector alignment and calibration as well as longer term oscillation analyses through the identification of muon charged current events. A preliminary method of muon track recognition and track fitting based on a Kalman filter is presented.

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