



Contribution ID: 303

Type: **Poster session**

3D reconstruction in DUNE

The Deep Underground Neutrino Experiment (DUNE) is a long-baseline neutrino oscillation experiment. DUNE consists of a set of near and far detectors placed in the path of an intense neutrino beam created at Fermilab. This will allow us to assess fundamental features of neutrino oscillation physics, such as leptonic CP violation and the mass hierarchy, as well as supernovae and proton decay physics. The far detector will involve at least three liquid argon time-projection chambers and a fourth « Module of Opportunity ». Each module will contain 17.5 kt of liquid argon filled in 62.0 x 15.1 x 14.0 m³ cryostats and will be able to reconstruct the 3-Dimensional trajectories of charged particles passing through the argon. To perform trajectory reconstruction DUNE uses Pandora, a multi-algorithm reconstruction framework relying on pattern recognition. Two designs are being studied regarding how to measure the ionization signal: one with three readout views and one with only two readout views. Pandora's 2-view reconstruction chain will be presented in this poster.

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Session Classification: Neutrino Physics Session 2

Track Classification: Neutrino Physics