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The Pandora reconstruction for Dual-Phase liquid argon TPCs

The Deep Underground Neutrino Experiment (DUNE) is a next-generation neutrino oscillation experiment, whose Far Detector will consist of four 10 kton liquid argon time projection chambers (LArTPC). A candidate technology for DUNE is the Dual-Phase (DP) LArTPC. In this design, incident charged particles ionise a bulk volume of liquid argon; the ionisation electrons drift vertically to the surface where they are extracted in an argon gas phase, amplified, and collected at an anode. A 250 ton DP LArTPC detector, ProtoDUNE-DP, is currently operating at CERN to prototype this technology. Reconstruction for ProtoDUNE-DP data requires state-of-the-art pattern recognition to exploit the fine granularity of such technology. The Pandora multi-algorithm reconstruction, based on advanced particle flow techniques and employed in multiple LArTPC experiments, is readily applicable to ProtoDUNE-DP. This poster outlines the effort to adapt and expand the Pandora reconstruction for DP detectors.

Mini-abstract

Adaptation of the Pandora Single-Phase LArTPC reconstruction to Dual-Phase LArTPCs

Experiment/Collaboration

DUNE

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