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Measurement of space charge effects and Energy calibration in ProtoDUNE-SP

The single-phase liquid argon prototype at CERN (ProtoDUNE-SP) acts as a validation of the design for the DUNE single-phase far detector. With a total mass of 770 tons, it is the largest monolithic liquid argon single-phase time projection chamber in the world. ProtoDUNE-SP collected test-beam in autumn of 2018 and has been collecting cosmic and special calibration data since the end of 2018.
The accumulation of positive ions in a LArTPC located on the surface can distort the electric field and the reconstructed particle trajectories. It is critical to understand and correct for the space charge effects in order to achieve the desired spatial and calorimetric resolutions in the LArTPC. This talk will present the measurement of space charge effects and the calorimetric measurements of the detector in ProtoDUNE-SP.

Working group

WG6

Presenter: MOTE, Mitchell W (LSU)

Session Classification: Poster session NB: do not use Safari; use Firefox, Chrome or Edge