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Physics performance of a PCB-based pixelated LArTPC anode (LArPix) PETER MADIGAN, University of California, Berkeley, DUNE COLLABORATION — Collection of true 3D ionization information in liquid argon time-projection chambers (LArTPCs) enables their use in higher-occupancy environments. A scalable 3D charge-readout scheme utilizing a custom-designed cryogenic 64-channel ASIC (LArPix-v2) and a PCB-based anode has been developed. To demonstrate the capabilities of this system, a large-format 4,900-pixel anode has been built and successfully tested in a 40-kg LArTPC with 30-cm drift (SingleCube). The results from a study of cosmic ray muons imaged with SingeCube will be presented. This demonstration paves the way for using large-scale pixel-based readout in LArTPCs, such as the DUNE Near Detector.

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