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Cryogenic Charge Readout Electronics for LArTPCs in DUNE

The Deep Underground Neutrino Experiment (DUNE) will employ liquid argon time projection chambers (LArTPCs) at unprecedented scales for its far detectors and under unprecedented neutrino beam intensities in its near detector. To meet their performance requirements for ionization electron readout, these LArTPCs require custom electronics capable of operating in cryogenic conditions. This has resulted in a 3-ASIC solution for wire/strip readout in DUNE's far detectors, and in the LArPix ASIC for pixelated readout in DUNE's near detector. This talk will present the design of these electronics, along with their performance results from recent prototypes.

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