

## 2x2 demonstrator in 10 minutes

*Monday, 26 June 2023 11:15 (15 minutes)*

The 2x2 demonstrator is a prototype of the DUNE Near Detector (ND). Like the DUNE ND, the 2x2 features an array of modular, pixelated, LArTPCs and a muon tagging system (MINERvA). Following its installation within the NuMI beam line later this year, the 2x2 will become the first pixelated LArTPC to take neutrino data. The detector has an active LAr mass of 2.6 metric tons and is equipped with 377k charge-sensitive pixels with 4mm pixel pitch and thin-profile scintillation traps that will provide 25% optical coverage. Initial analysis efforts will be searching for charged track multiplicities, N-P inelastic scattering, using beta decays for calibrations,  $39\pi\pi$  and MeV scale energy resolution. Additional studies include measurements of the mesonless anti- $\nu\mu$  CC cross section, and decays involving Compton scattering photons. Aside from these  $\pi^0$  measurements, the 2x2 will provide insight into the performance and capabilities of the DUNE ND.

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