

## **ProtoDUNE-SP's performance, physics status, and future plans**

*Tuesday 22 August 2023 14:20 (20 minutes)*

The ProtoDUNE-SP detector is a single-phase liquid argon time projection chamber measuring  $7.2 \times 6.1 \times 7.0 \text{ m}^3$  in active volume. It is designed as a test bed and full-scale prototype for the elements of the first far detector module of the Deep Underground Neutrino Experiment (DUNE). Located at the CERN Neutrino Platform, the detector was exposed to a tagged and momentum-analyzed particle beam with momentum settings ranging from 0.3 GeV/c to 7 GeV/c and collected more than four million beam events. Additionally, the detector operated for approximately two years, continuously collecting cosmic ray events. We present the performance of the detector which has met or surpassed the specifications set for the DUNE far detector. The status of physics analyses including hadron-Ar cross sections and measurements of liquid argon properties will be summarized. Talk will conclude with plans for the coming Run2 with ProtoDUNE-HD (horizontal drift).

**Primary author:** OH, Sungbin (Fermilab (US))

**Presenter:** OH, Sungbin (Fermilab (US))

**Session Classification:** parallel (room#303)

**Track Classification:** WG6: Detector Physics