2022 NP04 beam test

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H2/H4 users meeting - 30th March 2022

Goals of ProtoDUNE

ProtoDUNE-SP/HD (NP04):
- LAr TPC prototypes of the first DUNE far detector module, built with final design components as for DUNE and following the same QA/QC and installation procedures.
- 750 ton LAr cryostat downstream of H4 beam line exposed to low momentum tertiary beam. Twin cryostat installed on H2 beam line.

Goals:
- Benchmark the performance of the LAr TPC
- Evaluation of the long term stability
- Calibrate the TPC with neutrons and low energy (energy) sources
- Events reconstruction and analysis
- Measure hadron-nucleus cross section to reduce DUNE systematics

Beam (H4) requirements

Two weeks (the later, the better) + possible parasitic time.
Requested and being discussed with SPSC.

Secondary beam:
- hadrons at highest intensity and momentum (~ 50 GeV/c)

Tertiary beam:
- e, p, pi, K, mu
- positive polarity
- 0.5 GeV/c - 7 GeV/c
- more statistics at lower momenta

No infrastructure required
Ask to install the beam pipe before NP04 secondary target