

ND-LAr Institute Board

M. Weber, D. Dwyer

Dec 2, 2024

Agenda

- 2x2 and FSD and plans
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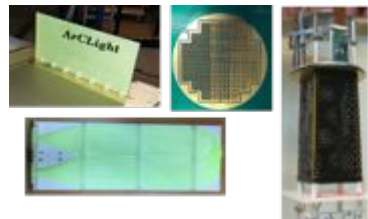
ND-LAr Plan

Technical documentation at:
<https://edms.cern.ch/project/CERN-0000220117>

2016-2019

ArgonCube R&D

Demonstrations of component technologies



TRL-4
- Ready for CD-1

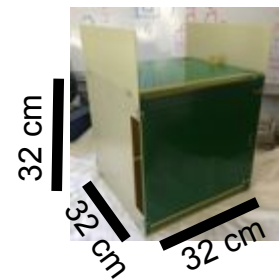
Published July 2021

CDR

2020

SingleCube

Integrated TPC test at small-scale



TRL-5

2021

ArgonCube Module 0

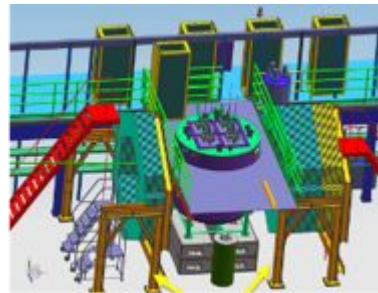
full functionality prototype



2022-2024

"2x2" Physics Demonstrator

Four mid-scale TPC modules in neutrino beam



TRL-7 (physics)

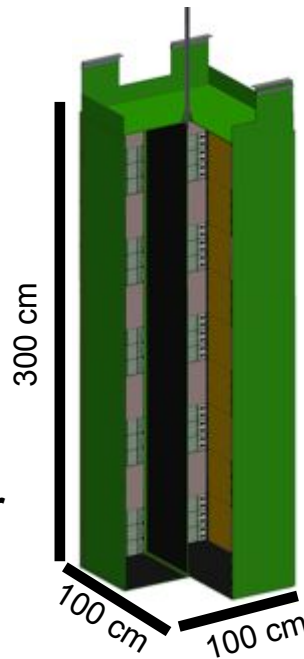
2022

PDR

2023-2024

Full-scale ND Demonstrator

1 Full-scale ND-LAr TPC module



WE ARE HERE

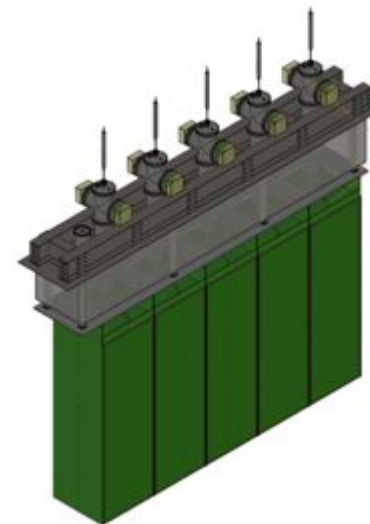
FDR

Final design review

TRL-7 (engineering)

2024-2026

Five-Module Row Pre-production & Cryostat Lid Integration Test



PRR

Production readiness review

2026-2028

Production

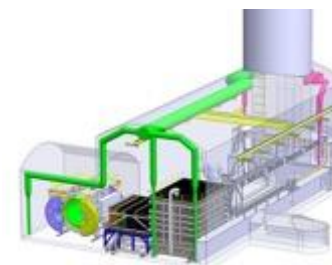
35 (+5) production modules, each fully tested



2028-2030

Installation

Support of TPC module installation in Near Site
 Activity driven by Near Site Integration (NSI)



No 2x2 NuMI beam in FY25

Just in: message from FNAL directorate:

“As you know, we have been working to understand the complex’s readiness to support Main Injector beam in FY25. Given the current challenge with the Kautz Road substation transformers, and the MI heat exchangers, **we regret to say that we are unable to provide beam for the Main Injector programs in FY25. ...**”

- Situation was known to be difficult
- Communication at the DUNE call Nov 15th
- Held general consortium meeting Nov 21st and collected input through survey

Here we want to hear from the PIs and look forward

2x2 perspectives

See slides by Zoya/Pedro Nov 21st

https://indico.fnal.gov/event/67129/contributions/304063/attachments/183404/252115/112124_ConsortiumMeeting-3.pdf

Workshop at CERN: <https://indico.fnal.gov/event/67027/>

DUNE ND Prototypes and Sim/Reco Joint Workshop

Jan 24 – 25, 2025
Europe/Zurich timezone

- Overview
- Timetable
- Registration
- Accommodation
- Venue
- Site access and other practical information
- Visa letters
- How to get to CERN
- CERN Wi-fi Network
- CERN Map
- Remote connection

The ND sim/reco and ND Prototypes Analysis working groups will have a joint workshop at CERN on January 24-25, 2025, shortly before the DUNE [collaboration meeting](#).

During the workshop, we will address the latest in 2x2 analysis as well as the most recent developments in ND sim/reco tools. In addition to advancing our work in these areas, the primary goal is to prepare for upcoming reviews in the first quarter of 2025.

We expect the workshop to begin at 9.00am and to end around 5.30pm local time on both days. Experts and newcomers from both groups are welcome to attend. We anticipate dedicating a substantial portion of the time to discussions and working sessions. As is usually the case, we plan to have activities that will help bring newcomers up to speed, such as tutorials.

We hope most people can attend in person, but we plan to offer a remote connection. Only those participating in person for at least one of the two days need to register. Please note that the registration will take you to a page hosted in the CERN indico.

Starts Jan 24, 2025, 9:00 AM
Ends Jan 25, 2025, 5:00 PM
Europe/Zurich

J. Pedro Ochoa
Linda Cremonesi
Matteo Tenti
Zoya Vallari

There are no materials yet.

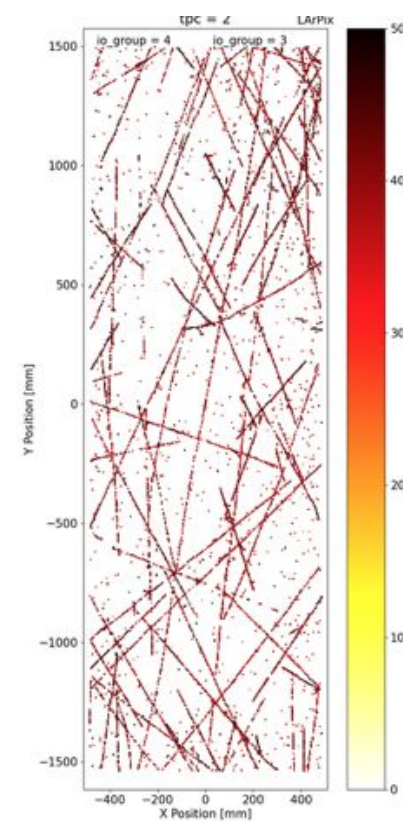
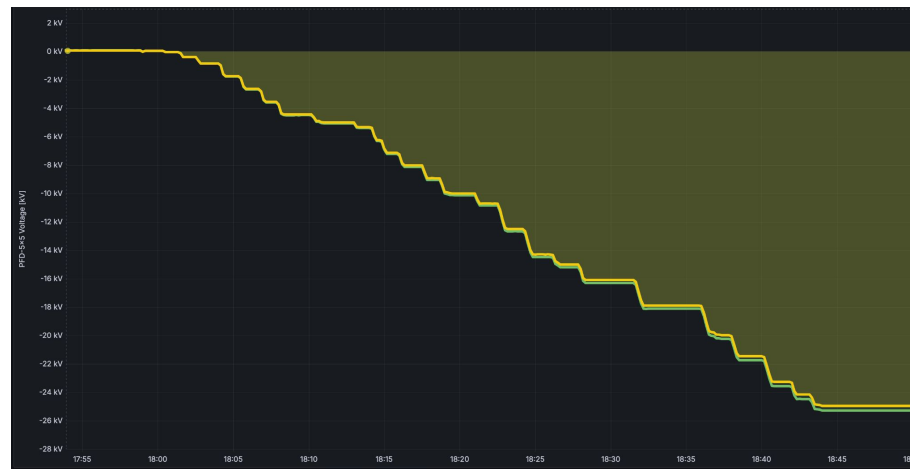
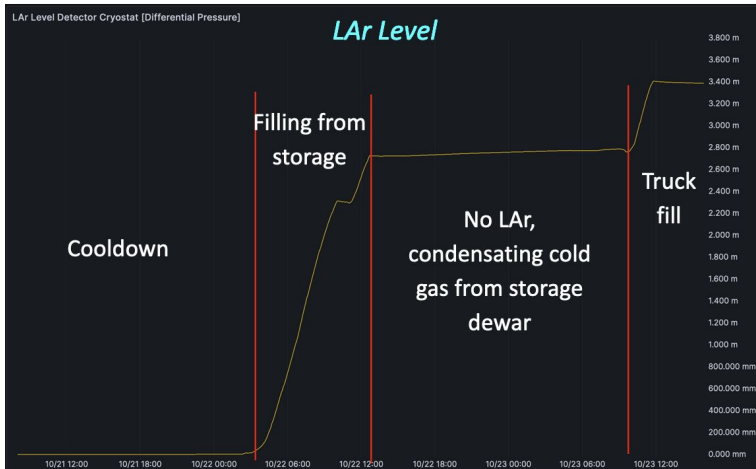
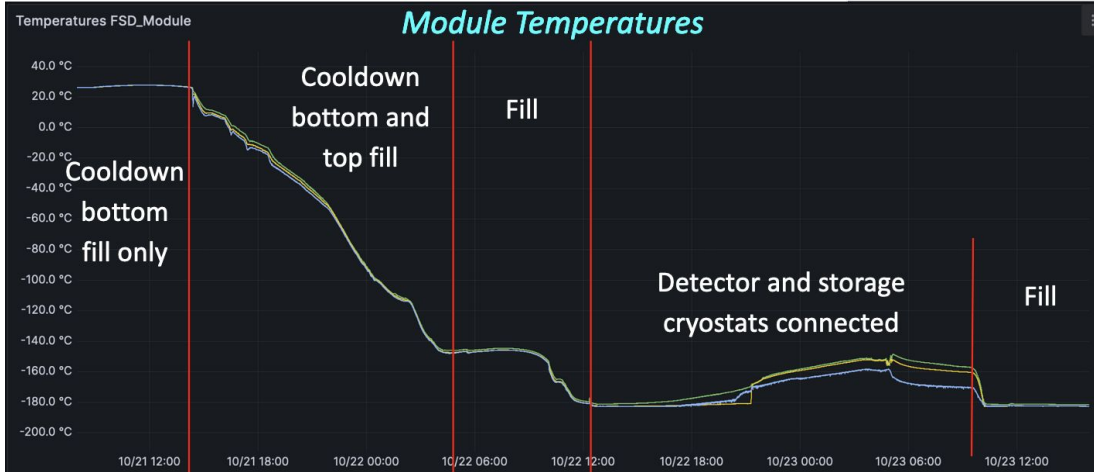
Physics-quality data collected by 2x2 in July 2024:

POT	# of spills	# of LAr interactions
~1.3e19 POT	~325k	~45k

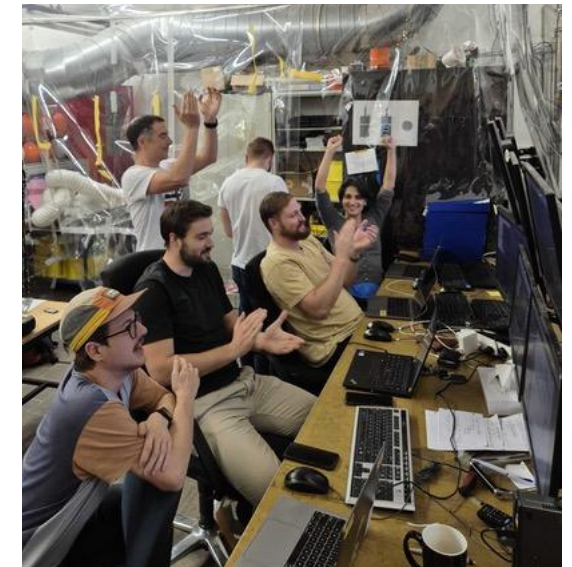
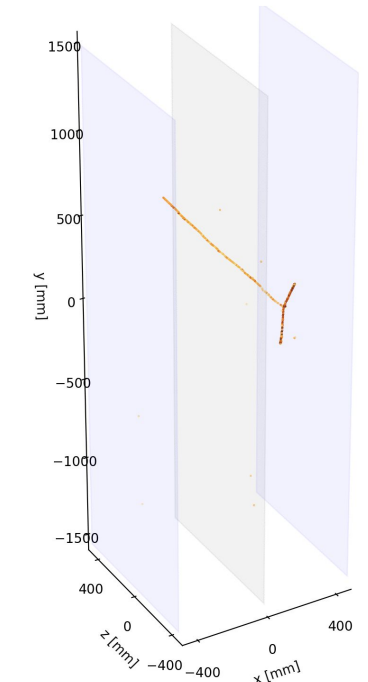
Additional data sets were also collected in alternative configurations, and we have the cosmic data (now also from FSD!)

FSD!

- Cooldown and filling between October 21st and 23rd
- HV ramp without issues to nominal (in a test to ~twice nominal)
- 3 weeks stable data taking
- Run ended Nov 13th

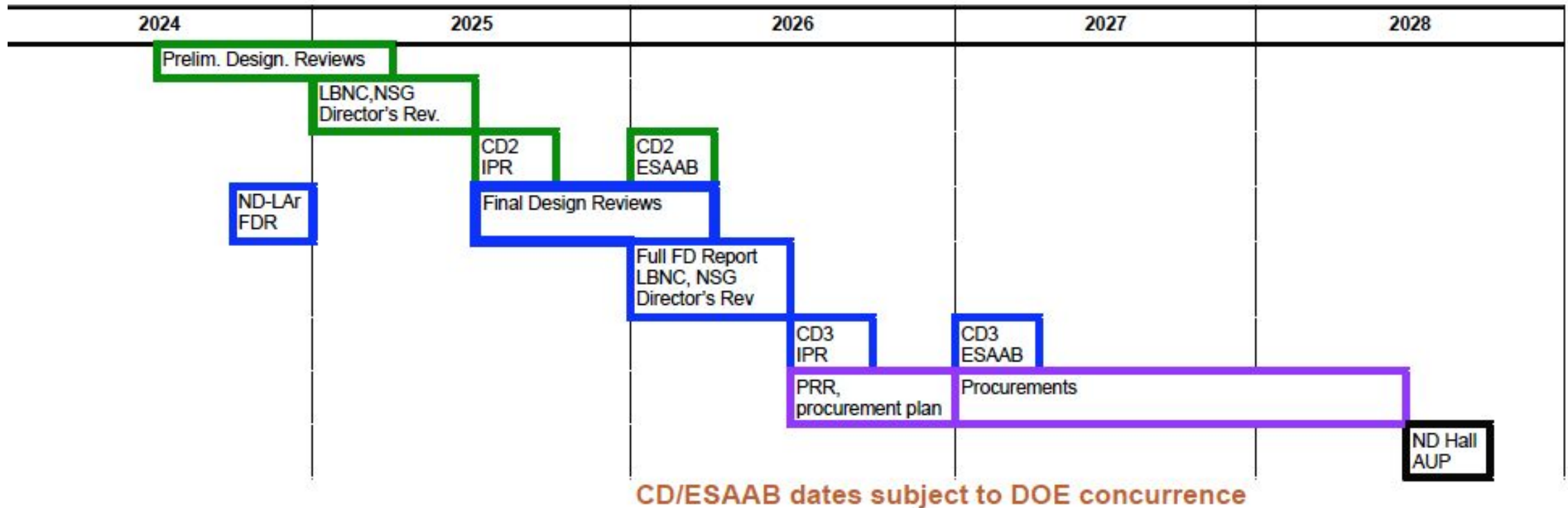


Event 132, ID 132 - 2024-11-06 21:02:59 UTC



FDR

- Need analysis
- Needs documentation (TDR)
- Spread over many months (Q4-2024 to Q2-2025) to satisfy readiness and needs from funding agencies



Discussion

- There is not going to be NuMI beam in FY25
- We did operate the 2x2
- We did operate a full-size module of ND-LAr
- We need continued effort on 2x2/FSD
- There are plans for measurements
- We will hold Final Design Review(s)

- Plan in 3 phases:
 - Now through collab meeting / workshop
 - Collab meeting through FDRs complete
 - FDRs through potential FY26 NuMI and 5-module-row ramp-up.

We want to listen...

and understand needs from groups in terms of results and graduation/careers