

LAr R&D Progress Updates

Yichen

1/29/26



Lab Safety and Space Management

▶ Winter weather safety

- Please be alert to the slippery conditions outdoors
- Another storm this weekend

▶ HighBay lab space change

- sPHENIX moving out of the area on the west side of Highbay
- Another EIC experiment is moving in to the take space
- Just helped lifting the marble table



LN2 Portable Dewar Ordering

▶ 230L Portable LN2 dewar for CE and LAr R&D

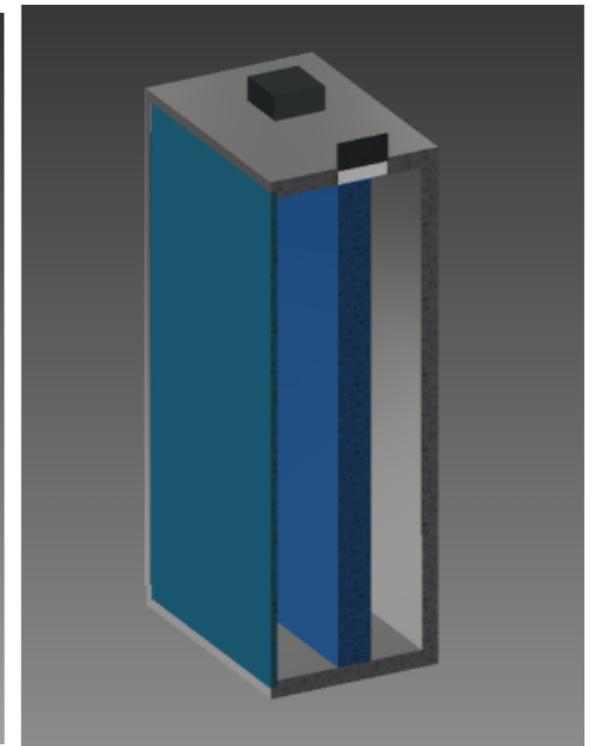
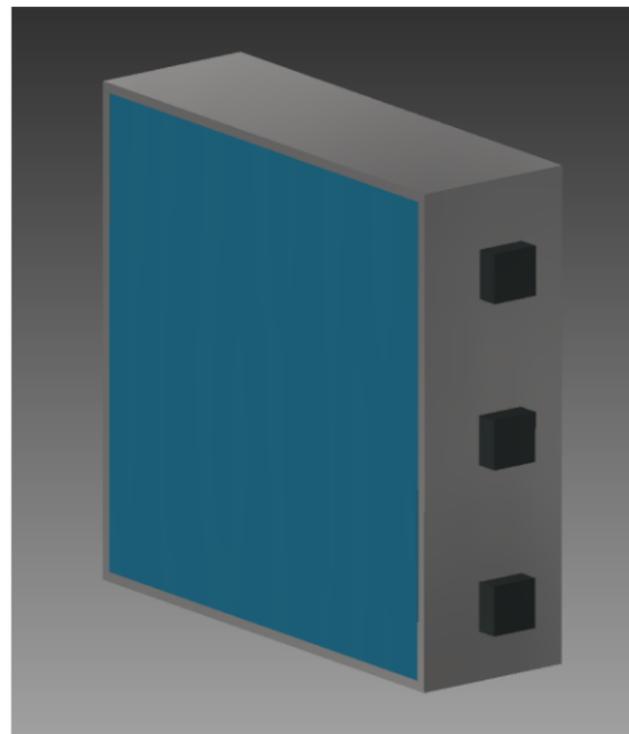
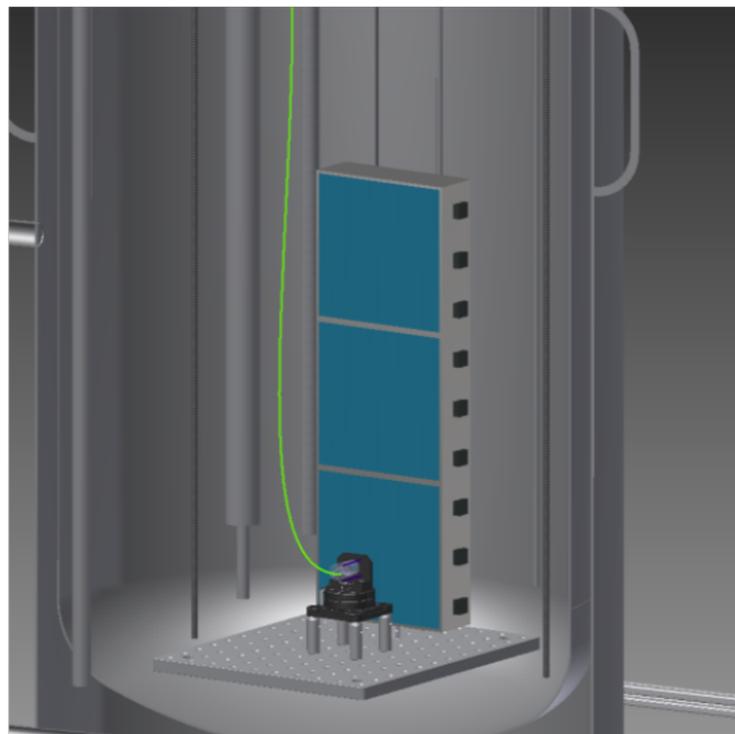
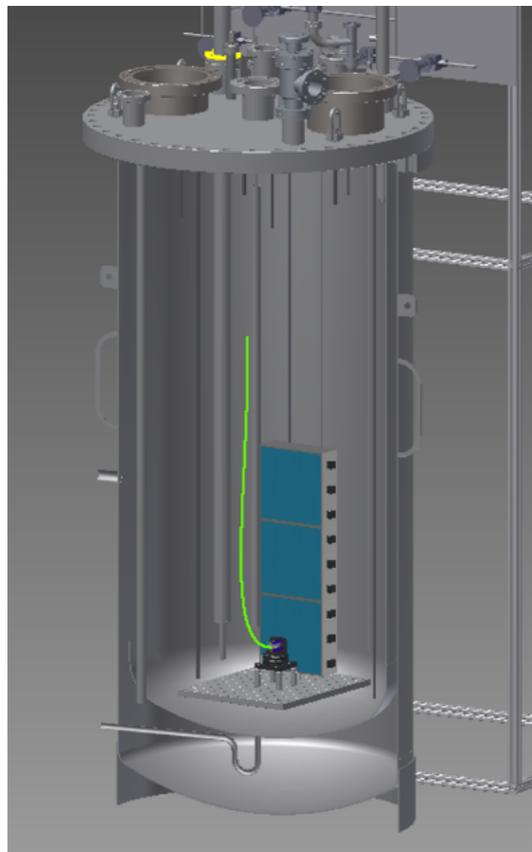
- Hucheng agreed to fund the purchase with DUNE project, ordering 1x for now to test out, unit price \$4738 w/ 2wks lead time
- The 230MP RB dewar now equipped with a adjustable pressure build device to adjust the pressure 40-160psi, satisfying the needs of both CE and LAr R&D without modification
- If the performance meets the expectation, we are going to get another 2-3 dewars



260 PDS Testing Design

► Conceptual arrangement of WLS detector with XARAPUCA-like structure

- All setup on optical breadboard
- 3 modules stacking up shown in the model
 - FD2 size pTP filter 14.4cm x 14.4 cm dimensions on the outside
 - WLS plate with multiple-SiPM collection on the side
 - Reflective surfaces inside the module
- Light input with UV fiber with collimator mounted on a rotational stage
- The drawings provided to Chao for the WLS LDRD-A talk today



260L System Cryogenic Operation

▸ **LAr ordering**

- LAr PO was dispatched on yesterday
- Delivery expected on 02/09
- I will be away 02/04-02/06
- Plan to start filling on 02/10

▸ **Leak check and purge**

- Leak tightness validated with leak detector
- Conducting 1x run of pump and purge operation(two more rounds before filling)

▸ **Slow control system**

- Rewiring the slow control sensors and DAQ program
- A good opportunity for the paper writing

Publication

▶ **pTP coating paper**

- Thanks to Jay's effort, the paper has been submitted to JINST and available on arXiv: <https://arxiv.org/abs/2601.17161>
- Drew almost immediate attention from Helmut
 - He asked for comparison between the industrial coating and chemical spray on coating
 - Jay provided slides after discussion with SBU colleagues
 - Checking with Yimin for an updated cost estimation

▶ **260-L system operation and purity performance paper**

- Given there is no major upgrade to further improve the purity
- I'm writing up another JINST paper demonstrating the system's performance with quick turnaround time
- Just restarted on the overleaf project: <https://www.overleaf.com/project/663a49981a73e6afddc9b27e>
- Expect have the first draft by next week