

# 260-L LAr System Progress Report

Yichen, Sergey, Steve

6/6/23



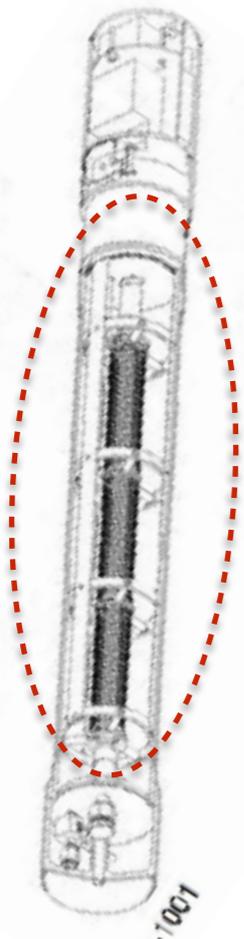
# Lab Safety and Space Management

- **Updates from the Fermilab accident**
  - Work resumed for heights below 4 feet, still paused for work 4+ height
  - All workers with work at height trainings need to take a mandatory seminar
- **Safety reminders for the coming summer students**
  - A lot of summer students/interns are expected on site during the summer
  - Very important to ensure the lab safety
  - Please watch out for the summer students around
  - Even not the students work with you
  - Answer questions they might have
  - Offer helps if they need
- **LN2 plumbing into Highbay**
  - Volodyla is trying to move forward with the project
  - Requested updated quote from Technifab and Cryofab

# Xenon Search Effort at BNL for PIONEER Test

- There is a global Xenon supply shortage at this moment, bulk price quoted as \$18/g
- BNL agreed to contribute 20 Liters of LXe for the test at PSI
- The Xenon is stored inside the 14x Xenon-1001 Gamma-Ray Detectors in storage since 2007, estimated ~20 L in LXe
  - After chemical analysis, the Xenon purity is 99.89%, with 0.109% H<sub>2</sub> and 28 ppm of H<sub>2</sub>O. No other impurities detected
- Additional search effort was made to get more Xenon
  - BNL Xenon inventory record has been pulled from the lab Chemical Management System (CMS)
  - Located additional ~1.45 LXe we own
  - Reached out to all owners with large amounts of Xenon and found an additional ~10 L LXe could be borrowed
- Lab setup to collect and transfer the Xenon to PSI
  - Initiated the safety review process for the setup
  - Actively looking for the safety compliance cylinders for the trans filling and shipment

Xenon volume



~20 L in 14 detectors

## More Xenon We own



~0.45 L



~1.0L

## Xenon by other owner We could try to borrow



0.3L+1.4L  
From ATF

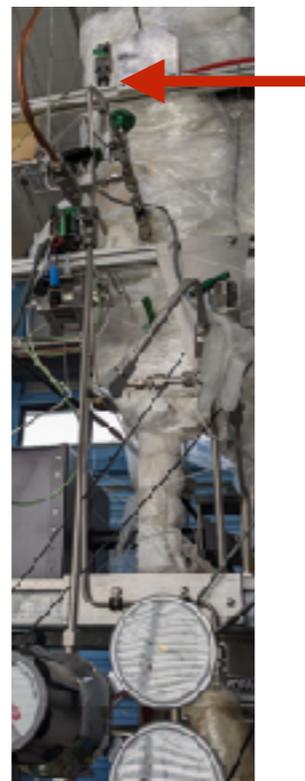


~10 L

# 260-L System 2nd purity run

## ► Inline filter activation

- The activation started last week
- Due to the high gas pressure setting on the regulator. Relief valve popped off with a large amount of activation vented to the air overnight on Sat.
- To ensure sufficiently activation, I conducted a repeat activation yesterday with a new activation cylinder
- Expected to finish tonight
- Will continue with the performance validation test with gas analyzers following our plan



# 260-L System 2nd purity run

## ▶ Lesson learned for the inline filter activation

- Plumbing reconfiguration is time-consuming
- Not efficient to repeat the activation before each running. The inline filter reactivation can be done when the cryogenic work in progress
- UHP burst disk design by BS&B is complete, waiting for the price
- Installation of the burst disk to the current inline filter cylinder requires a lot of work
- The most efficient way is to construct a new inline filter cylinder with new parts/fittings
- We have parts in stock and ordering new scrubber materials and insulation materials

