

260-L LAr System Progress Report

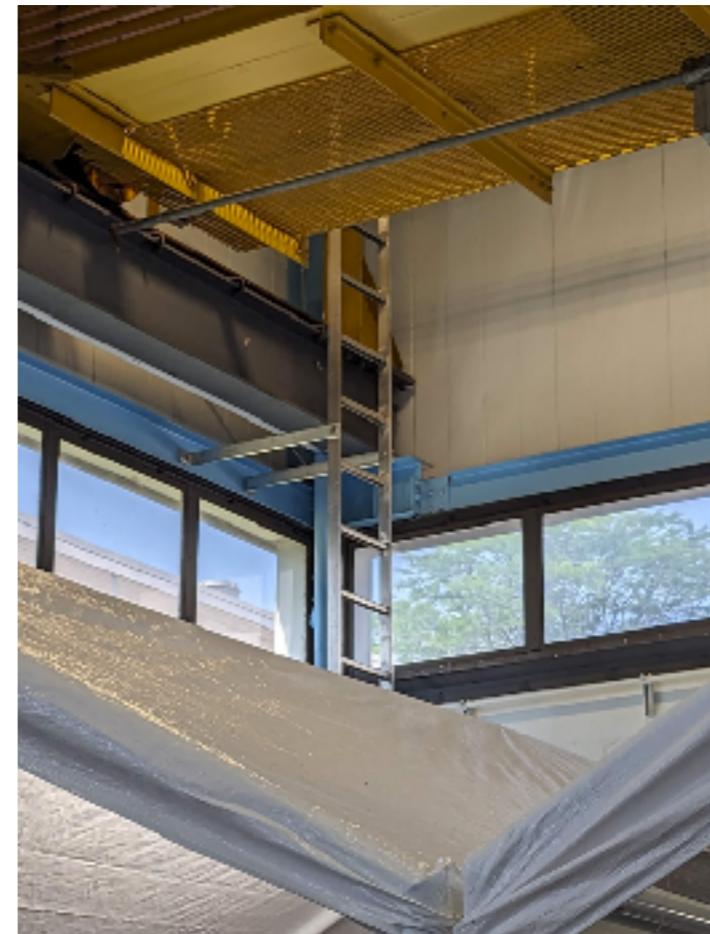
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Lab Safety and Space Management

- Safety reminders for the coming summer students
 - A lot of summer students/interns are expected on-site during the summer
 - Please watch out for the summer students around
- Crane Ladder Replacement
 - New ladder was installed on the south side of the wall
 - Waiting for the installation of a blocker to finish
 - The crane LOTO is expected to be released once the project finished



260-L System 2nd purity run

▸ Leak detector malfunctioning issue resolved

- Using the leak detector to pump on the LN2 super-insulated hose to verify
- The symptom is still the same
 - *pump stops immediately after starting the pumping process at roughing pump stage. The pumping can start after multiple attempts.*
- I have started the discussion with the vendor about returning for repair
- The tech support provided a new series of troubleshooting steps for the last try
- The re-calibration of the inlet pressure sensor resolved the issues
 - The inlet pressure reading was too high that was interpreted by the control system as a false pressure spike which triggers the protection mechanism. A very rare issue seen on a new leak detector.
 - Now the leak detector can start pumping normally from roughing to turbo pumping stages
 - Will double-check the performance when the top flange is assembled.



260-L System 2nd purity run

▶ **Inline filter performance validation test**

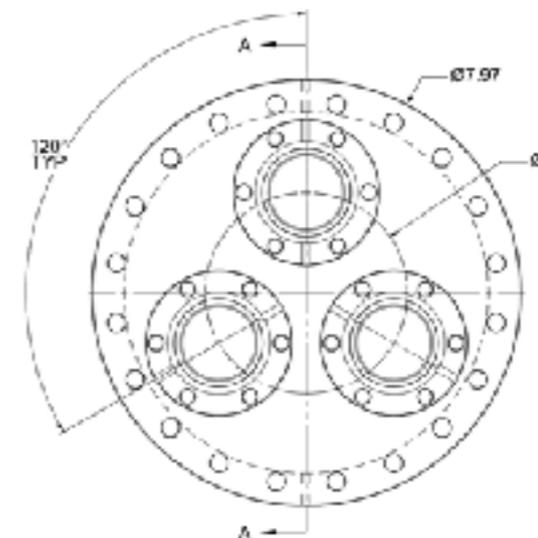
- The broken compressed air tube was replaced, including all the old compressed air tube put in service at the same time to avoid the future occurrence
- Initial test showing the purification by the filter with a high baseline
- Baking and purging the gas sampling line with evaporated commercial GAr to reduce the baseline

▶ **LN2 filling hose re-pumping**

- The LN2 filling hose was found lost vacuum
- Using the leak detector to pumping it down

▶ **Instrumentation Conflat Fabrications**

- The vendor finished the fabrication of the 8-inch flange with 3x 2.75 conflat ports, which shipped out today



LXe Collection for PIONEER

- Located the source of aluminum cylinders after meeting with Airgas
- Cylinder Availability for purchase:
 - Airgas can supply new aluminum gas cylinders from *Thunderbird*, the same *Luxfer* cylinder used by the LUX experiment, price is \$600 per cylinder, for 80A cylinder
- Xenon Cylinder Shipping:
 - The International Department of Airgas should be able to help with the shipping of cylinders to Switzerland. Sangeeta is making the inquiry internally.
- Global Xenon Supply:
 - Airgas indicated that the Xenon supply situation has improved, with some contracted customers recently receiving Xenon deliveries.
- Bulk Xenon Quote:
 - Airgas expressed their willingness to provide a quote for a large quantity of Xenon upon our request, considering the demand and time constraints.
- Also quoted with Praxair for 60-80 Liter LXe, e.g. 180-240kg

EDIT School 2023 preparation

- ▶ **Excellence in Detector and Instrumentation Technologies** <https://www.bnl.gov/icfa-editschool/>
 - Dates: Oct. 10-20th
 - Goals: school series on the major aspects of detectors and instrumentation technologies for particle physics with both lectures and labs
 - Attendance: ~50 person, Graduate students, and first year Postdoc
 - LAr Technology is one of the topics with 1/2 date lectures and 7-day rotating labs
- ▶ **Lectures:**
 - LArTPC principle and cryogenic system by Yichen
 - LArTPC reconstruction by Haiwang/Nitish
 - LArTPC cold Electronics by Shanshan
- ▶ **Labs: ~7 Students divided into 3-4 groups between two test stands and switch in the middle**
 - Local 260 L LAr system cryogenic operation
 - Cryogenic system operation/monitoring
 - Refilling LN2 dewar from 6000-gallon supply tank
 - Change LN2 supply for 260-L system cryogenic operation
 - Assembly for new inline filter
 - Leak check the for new inline filter (Follow with activation if time permits)
 - LXe transfer(If time permits)
 - Cold Electronics test stand
 - ASIC test with the Dual DUT test board and CTS