

# 260-L LAr System Progress Report

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# Lab Safety and Space Management

- COVID level in Suffolk County is MEDIUM now
- Face masks are optional onsite at BNL
- CRP coldbox ESR is still under review
- Large LN2 tank is scheduled to be refilled with 3000 gallons LN2 for the CRP test tomorrow
- Parking lot north of Highbay will be evacuated tomorrow

# LAr Tank Weighting test

## ▸ LAr Supply Dewar Weight measured with hoist scale

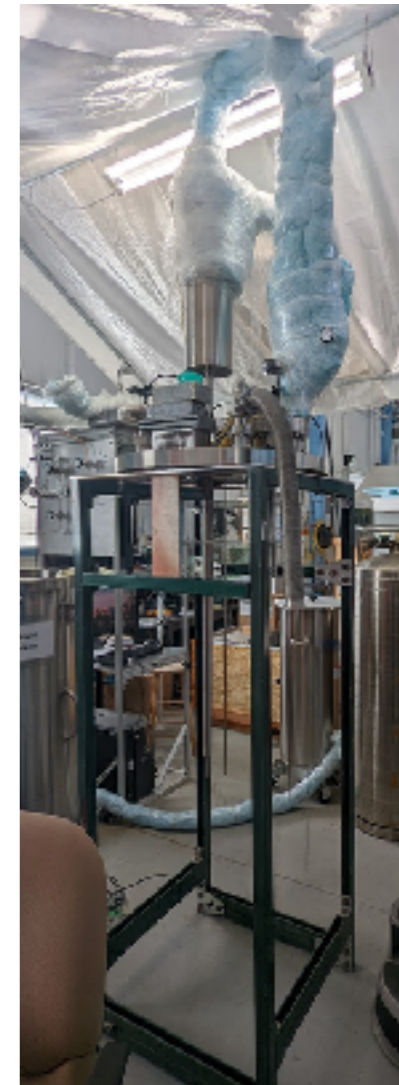
- The supply dewar used in last run is measured to 120.8 kg (266 lb), almost empty
- The dewar used in previous is measured to be 128 kg (282 lb)
- Full tank of LAr is expected to be 753 lb
  - Crane capacity is 15ton
  - Scale limit is 2000 lb
  - Slings total capacity 2000lb



Nominal Volumetric Capacity (liters)	160	180	230
<b>Physical Dimensions</b>			
Empty Weight (lbs)	750	760	310
Filled Weight (lbs)			
Nitrogen	514	556	667
Oxygen	622	672	825
Argon	695	753	936

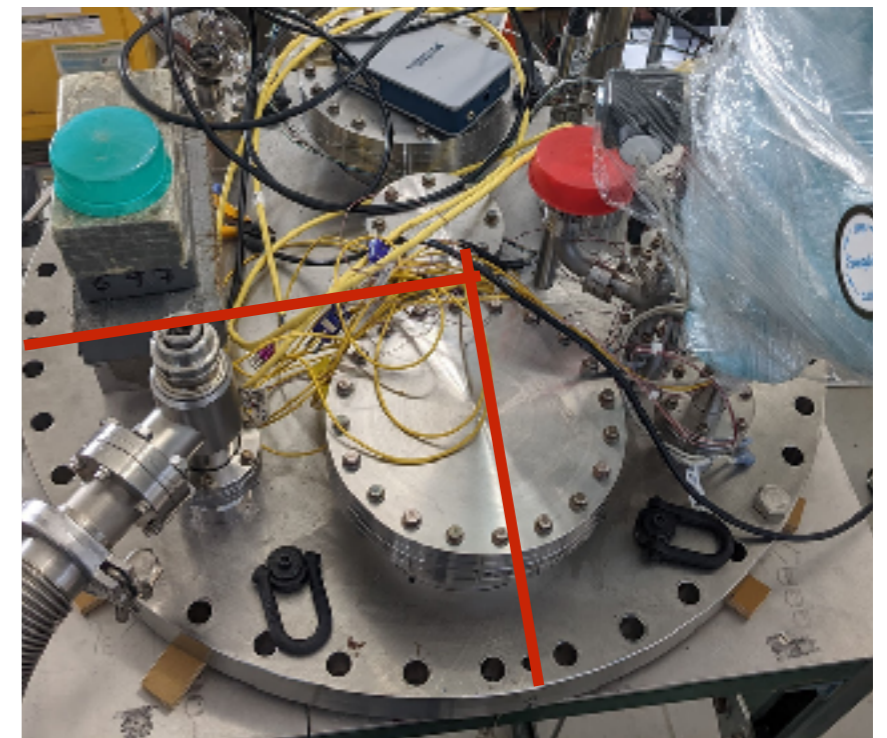
# 260L System Opening up

- ▶ **The system is opened up**
  - All cables and plumbing disconnected
  - Top flanged opened up and moving to assembly stand
  - The lifting process is overall smooth



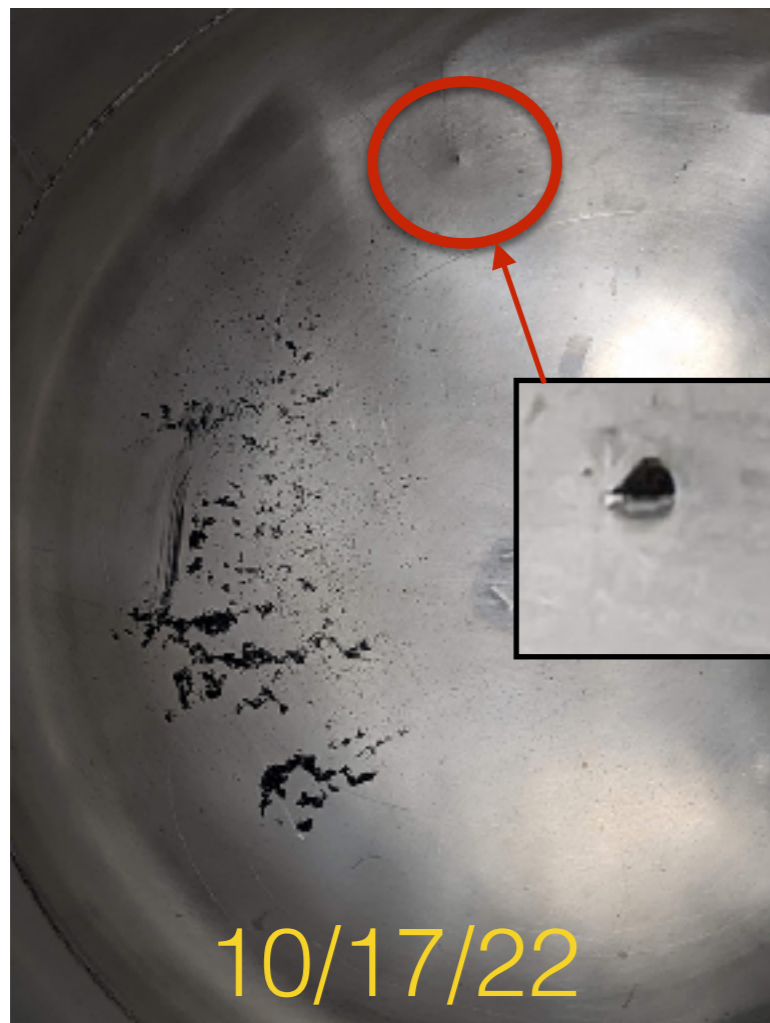
# Findings at the bottom of the Dewar

- ▶ **Black powder found at the bottom of the dewar after opening up**
  - Very fine granularity and greasy, graphite like, not like rubber debris in the engineering run
  - Never being observed in previous operation
  - Need spectrometer to know component
  - Spread only at one quadrant of at bottom
  - Below the spare 6 inch conflat flange and pumping/vent ports
  - No obvious sources found from the top flange and tubings



# Findings at the bottom of the Dewar

- ▶ A “dark spot” observed at the bottom
  - It looks like a hole by visual
  - After check previous photos, the spot has always been there
  - Close look with an endoscope can tell there is a dent
  - Will tip over the dewar and crawl in to get a closer look to clear the worries



# High Performance Dichroic Filter Workshop

- ▶ **We held a small workshop on High Performance Dichroic Filter for the SBIR-II**
  - SBIR-II in collaboration with Raytum Photonics started officially on Oct. 1 for 2 years on high performance dichroic filter
  - Raytum has the technology with Atomic Layer Deposition to produce filter with designated cutoff wavelength, different from traditional Physical Vapor Deposition
  - The filters are planned to be used with LAr, WbLS experiment
  - 260L system is planned to be used to test the X-Arapuca with the ALD dichroic filter
  - The workshop is to generate the technical requirements to Raytum
  - We are planning to send the requirements asap

