

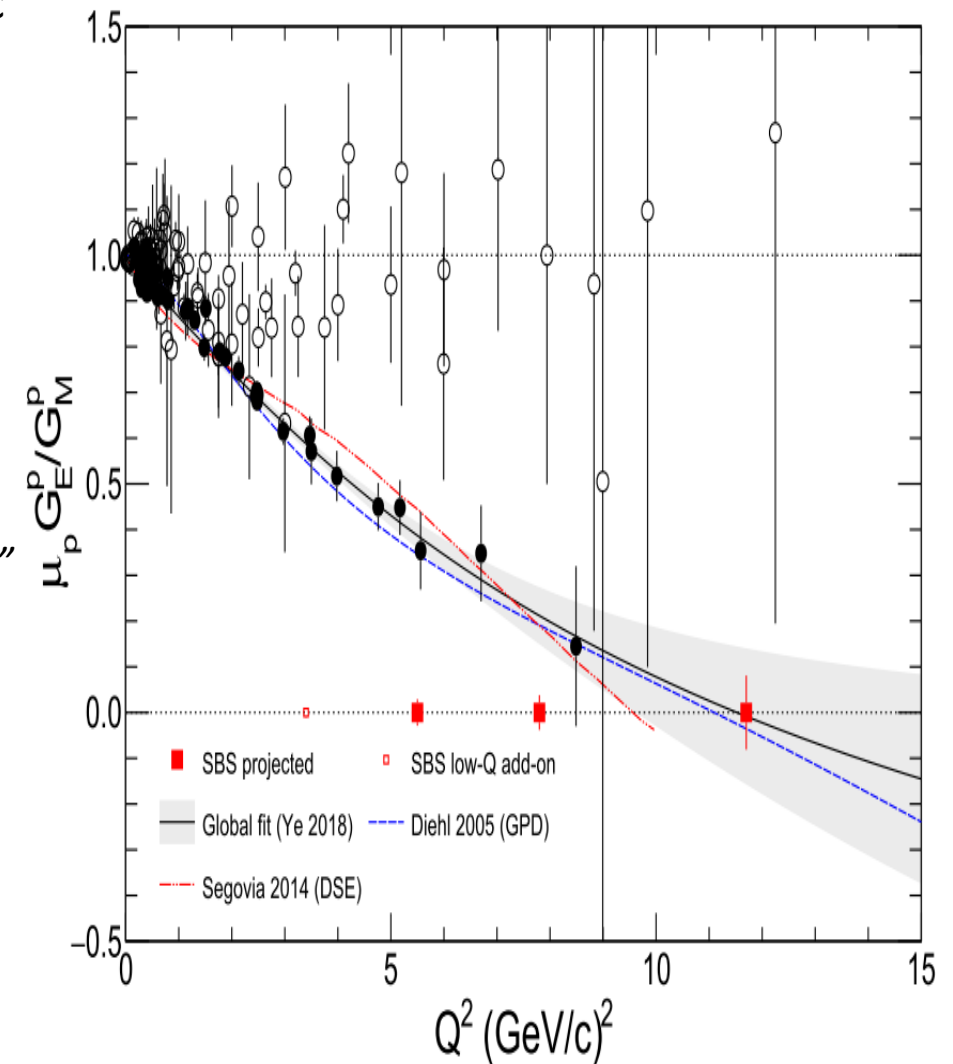
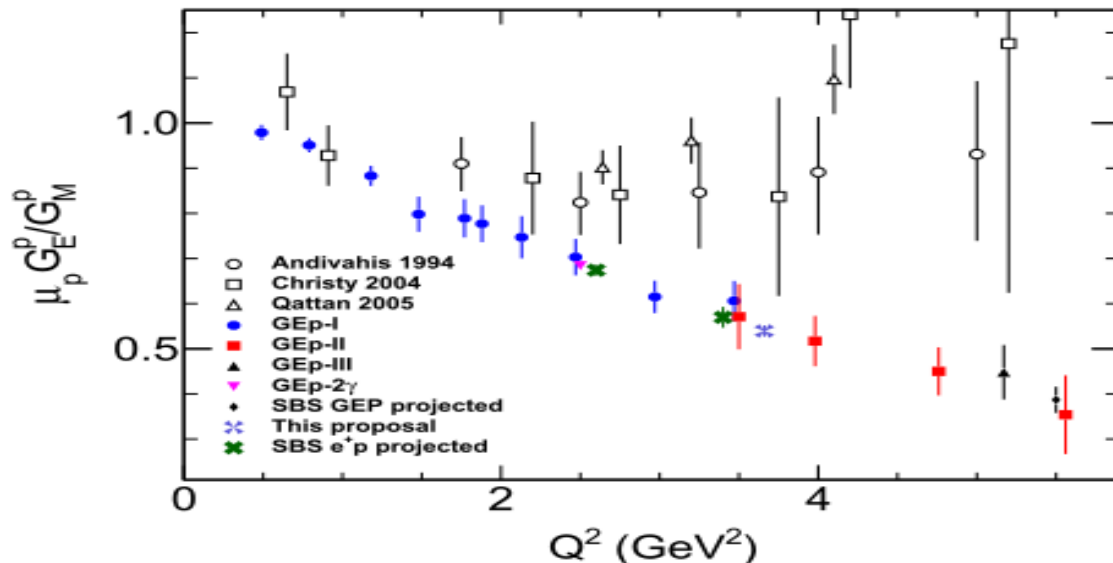
Hall A Status



Jab 2025 SoLID Collaboration Meeting

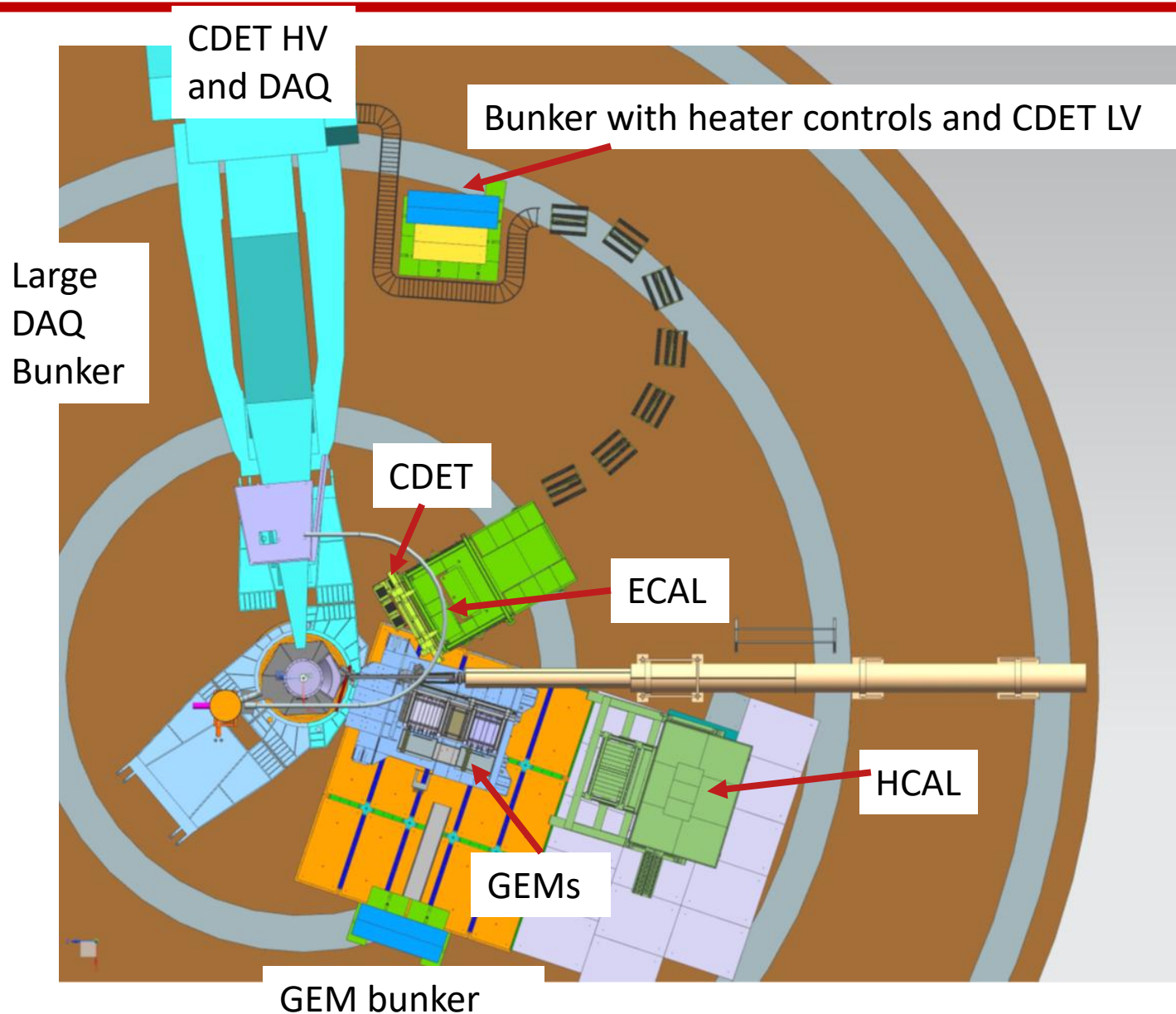
GEP: Ratio of proton electric to magnetic form factor

- Last experiment in series of neutron and proton elastic electric and magnetic form factor experiments.
- Plan to start beam in late Feb 2025, Lab scheduled for 25 weeks of running.
- E12-07-109 Measure proton electric form factor to $Q^2 = 12$
- E12-24-010 High-precision measurement of proton form factor ratio with Polarization Transfer,
 - Spokespeople: A. Puckett*, J. Bernauer and A. Schmidt
 - Measure proton G_E/G_M to 1% statistical precision at $Q^2 = 3.8$
 - *“The primary motivation for this request is to improve the precision of the polarization data at this Q^2 in anticipation of the comparison to a future measurement using positrons, described in a previous LOI to PAC51 (LOI12-23-008).”*



Figures by Andrew Puckett from E12-24-010 proposal

Overview of detectors: Layout for $Q^2=12$ kinematic point



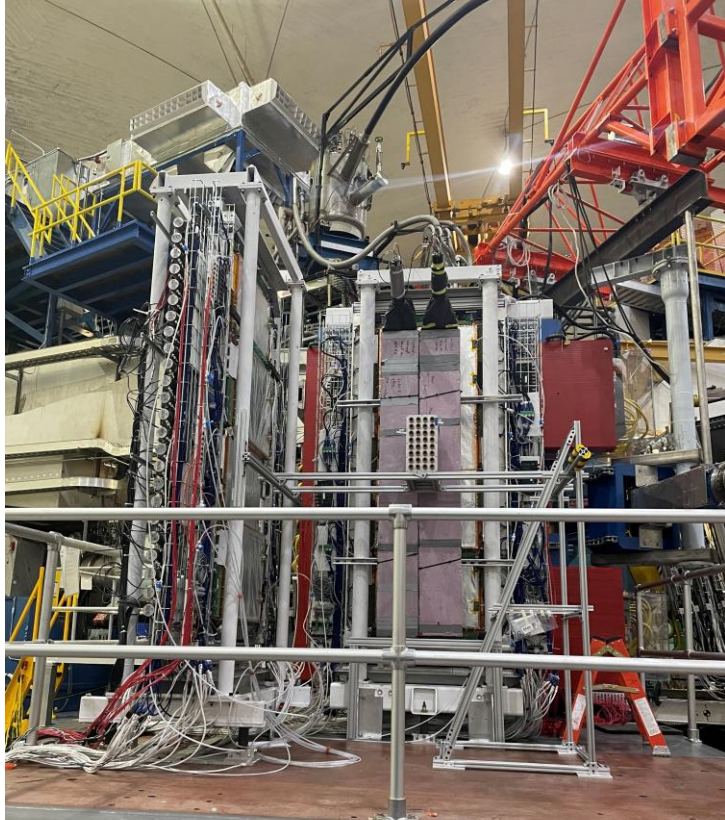
Electron Detection

- Electron Calorimeter (ECAL)
 - 1656 Lead glass blocks
 - Trigger formed in FADC from clusters
 - Need good energy calibration at FADC
 - Tight cut on elastic to reduce accidentals
 - Measure angle and energy
- Coordinate Detector (CDET)
 - 2352 scintillator bars
 - Measures vertical angle
 - Aids track finding in front GEMs
 - Reduce the photon background

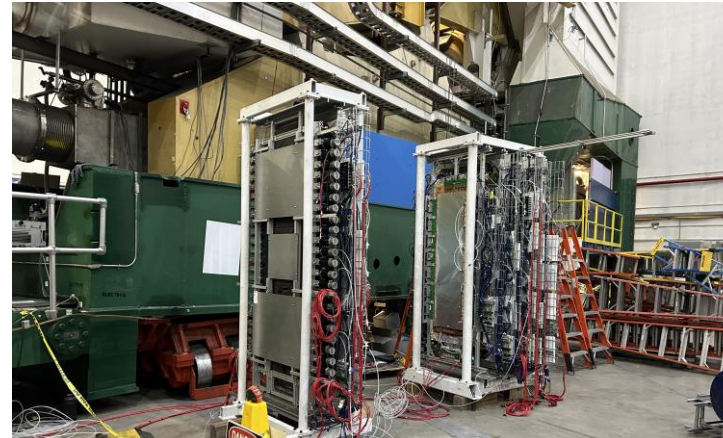
Proton Detection

- GEMS Front and rear tracker
 - Each 8 layers of GEMs
 - Measure momentum, z-target, angles
 - Plastic analyzer for rescattering protons
 - Measure the recoil polarization of protons
- Hadron Calorimeter (HCAL)
 - 288 iron/scintillator blocks
 - Trigger formed in FADC from clusters
 - Aids track finding in rear trackers

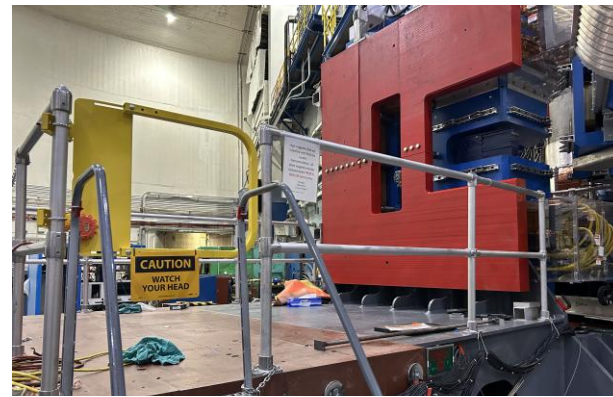
Hall A: Deinstalling BigBite and SBS GEN-RP



GEN-RP SBS detectors before experiment started. The large scintillators used for cosmics were removed.



GEN-RP SBS GEM detectors moved off SBS



SBS counterweight is cleared off



BigBite magnet stored in the TestLab

Hall A Fire Suppression replacement and MOLLER Switchgear

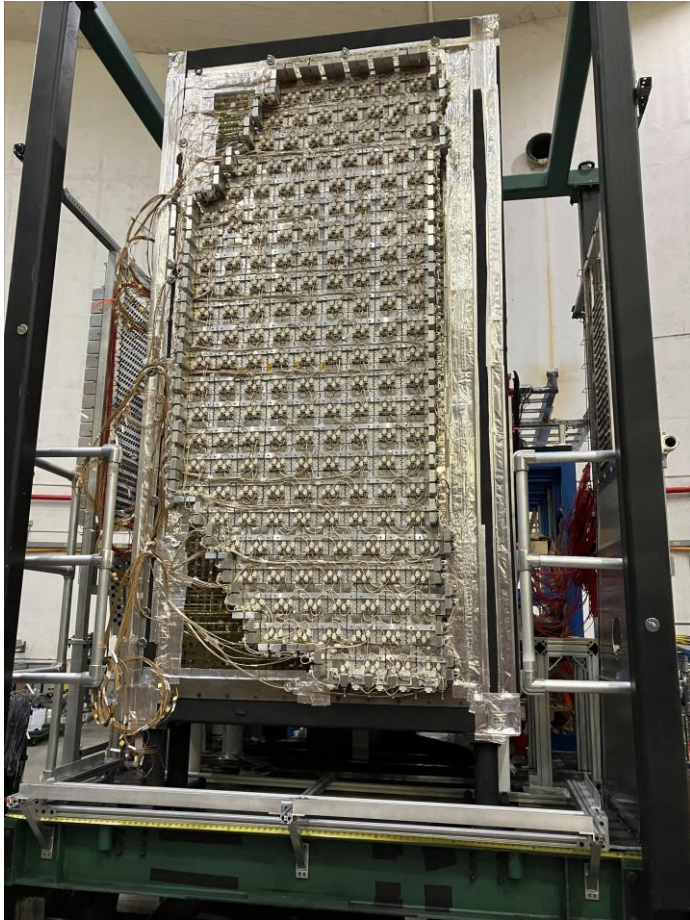


Fire Suppression replacement

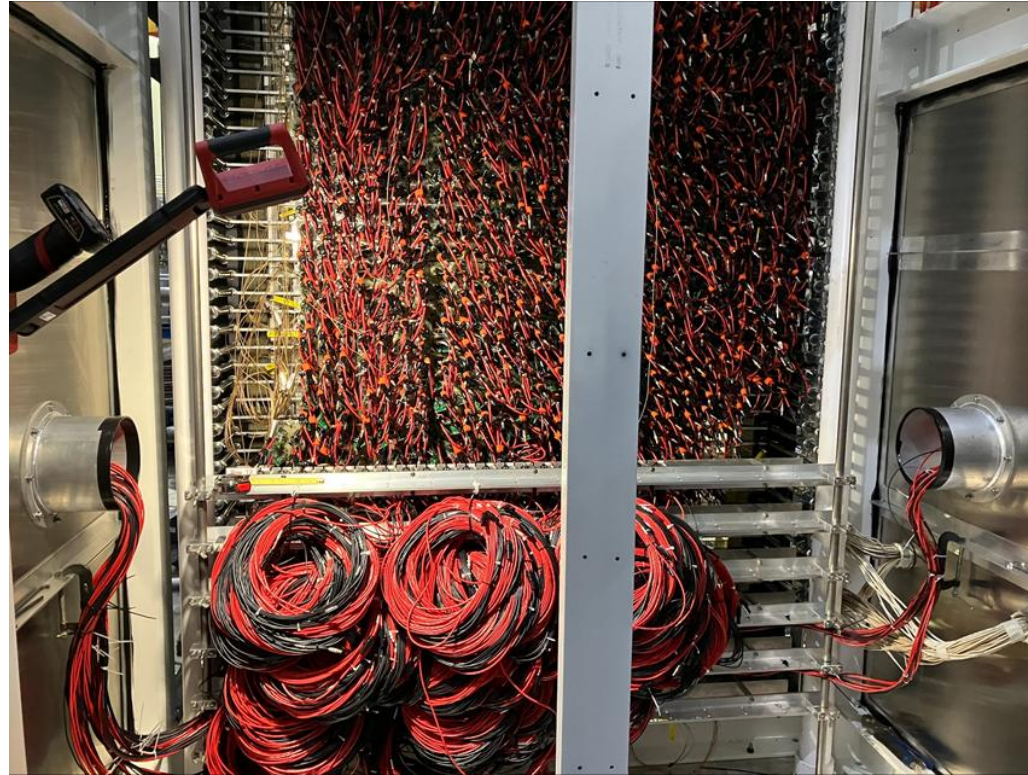
Fire suppression work is complete in both Hall A and C

Switch gears for MOLLER Power supplies
All installation work is complete.

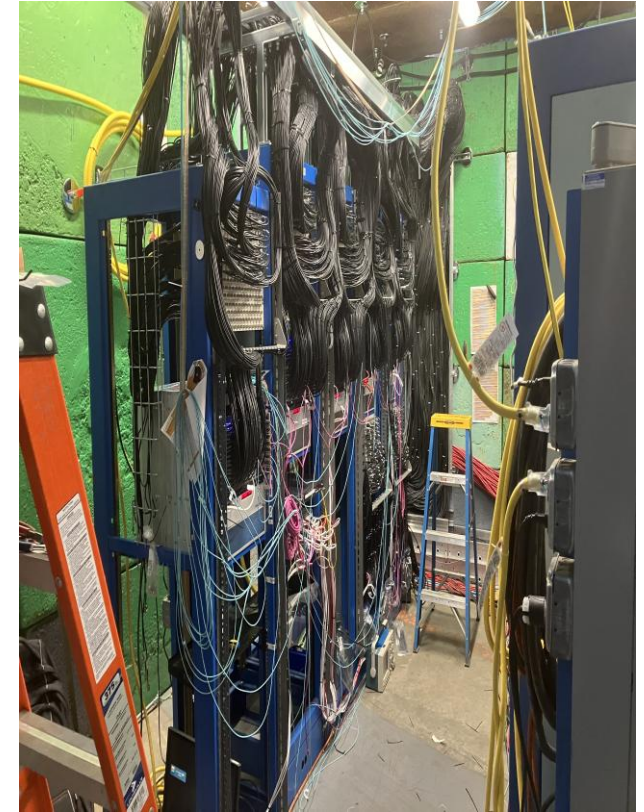
ECAL installation



After the heaters installed



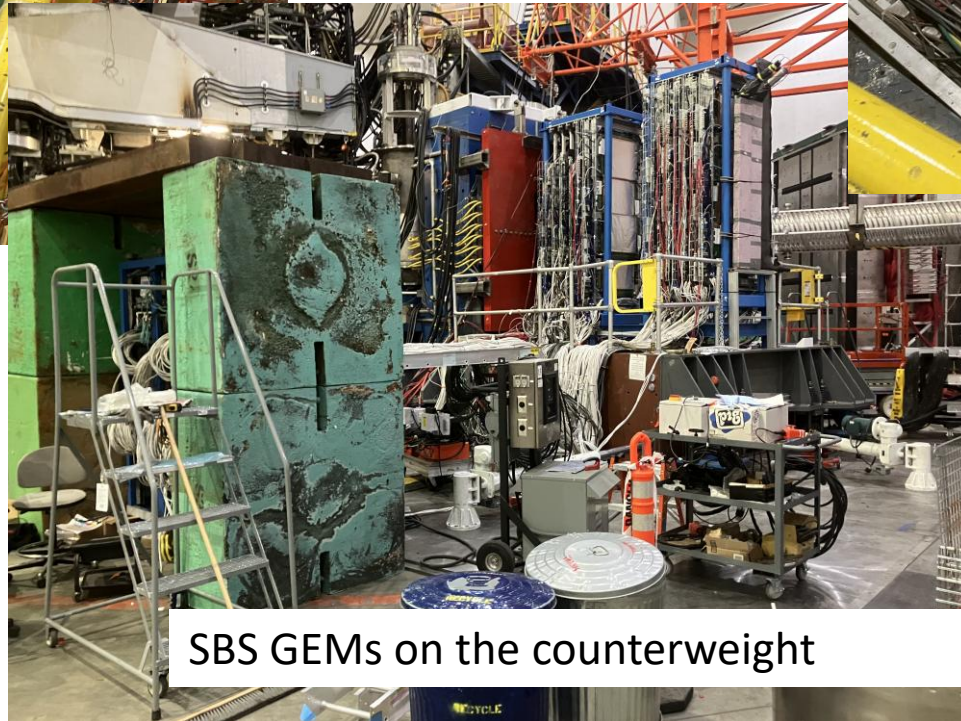
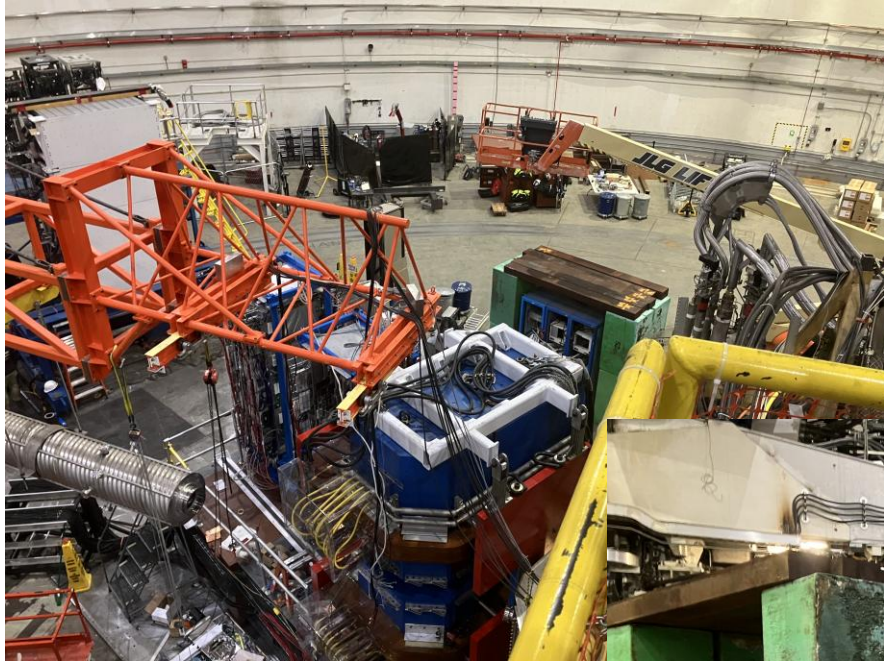
The ECAL PMT and dividers installed. Rear enclosure and cooling system installed. Picture at the beginning of the cable installation.



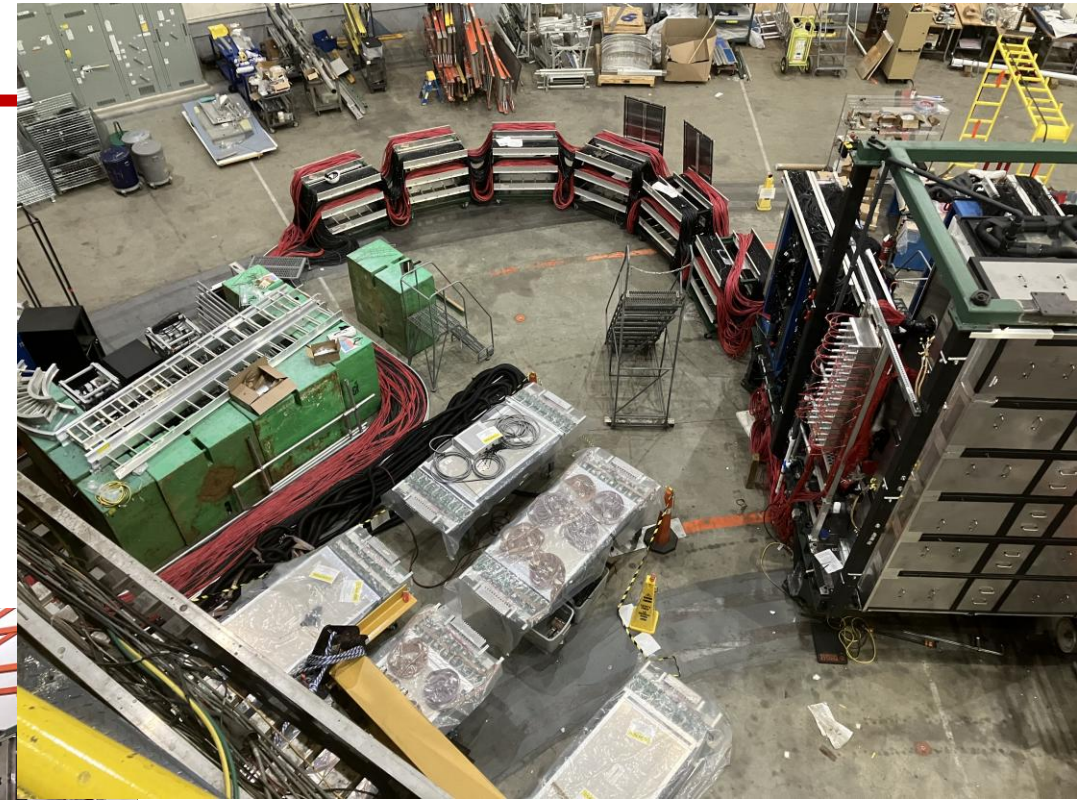
The DAQ electronics in the SBS bunker.

Ecal installation

Overview of SBS magnet and GEMs with HCAL.



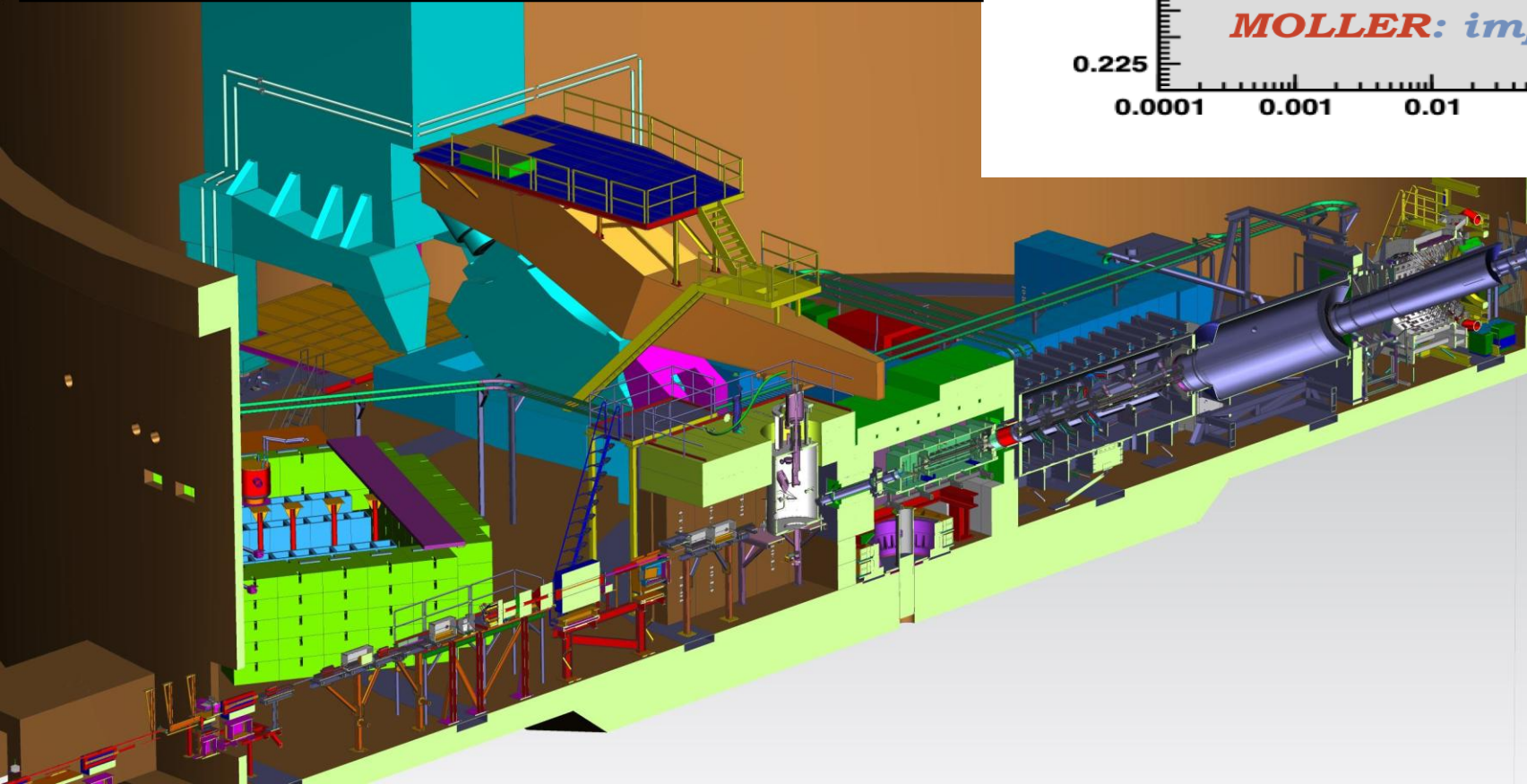
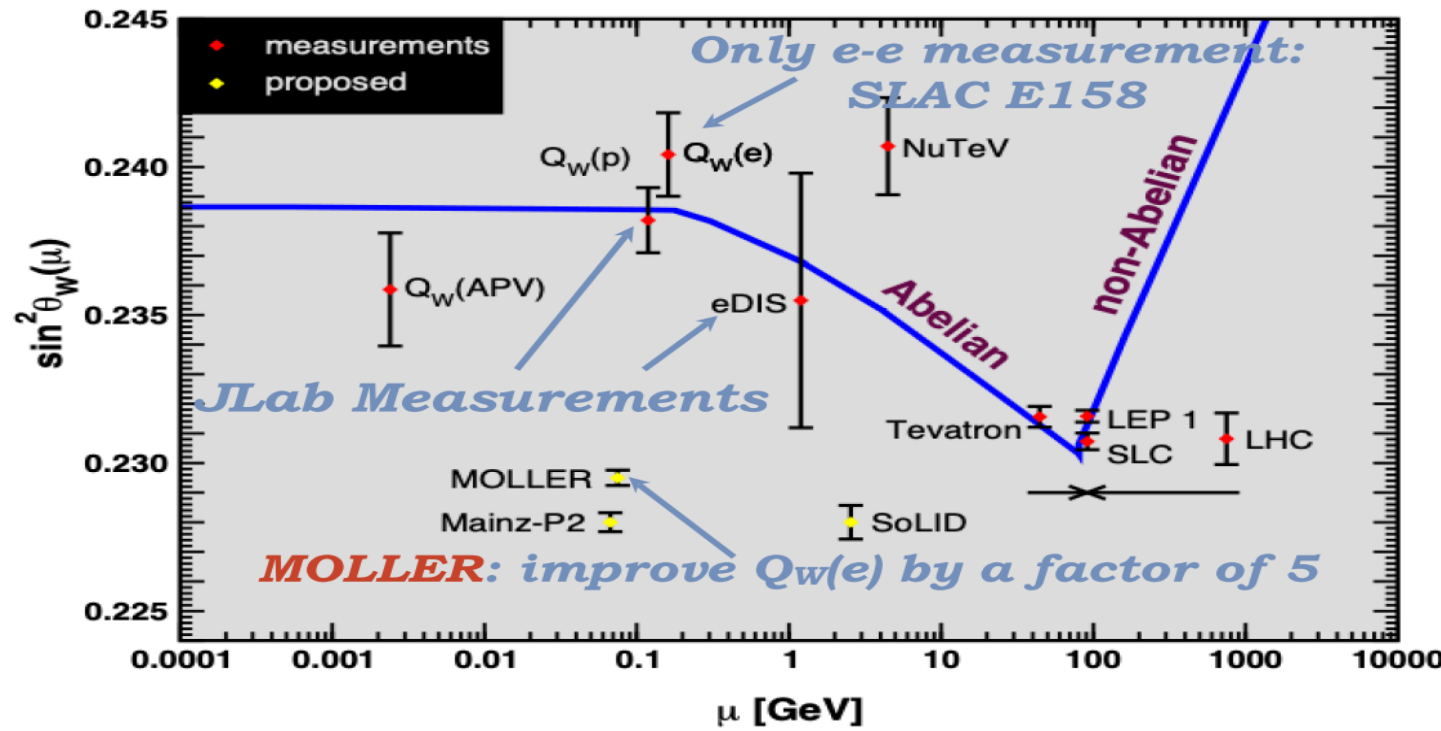
SBS GEMs on the counterweight



Top view of CDET planes and ECAL

MOLLER Project

- Inflation Reduction Act provided full funding.
- Last year, passed CD-3A review and spending CD-3A funds.
- ESAAB Approval: MOLLER Project CD-2/3
- Installation starts after GEp running
- 3 years of running.



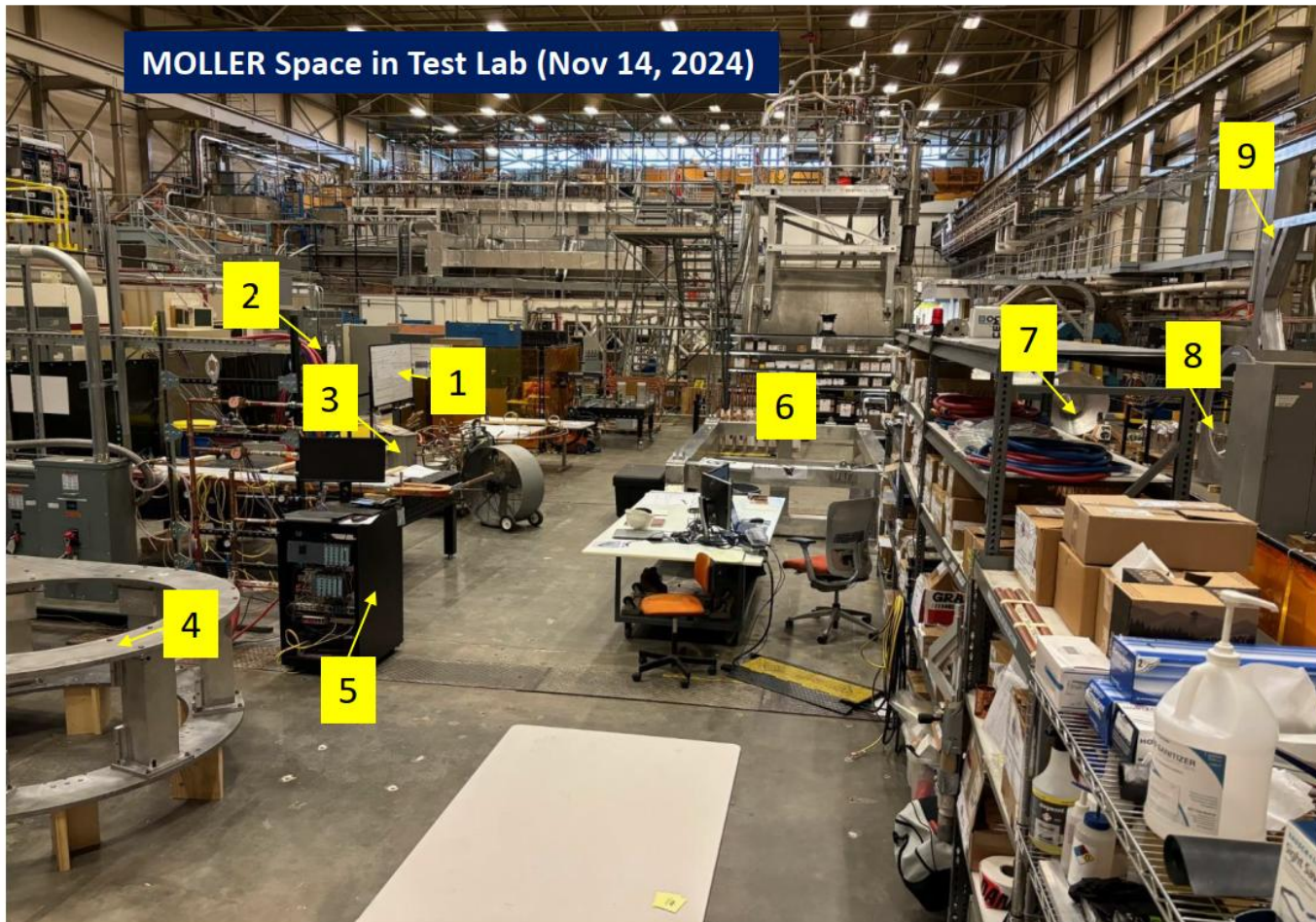
MOLLER updates

November 19th, 2024

Jefferson Lab **MAGNET GROUP**

MOLLER

Magnet Group – General



MOLLER Space in Test Lab (Nov 14, 2024)



New Power Source



Water Header

- ❑ Big Bertha secured (thanks to Hall D)
- ❑ Provides - 120V, 208V 3-Ph, 480V 3-Ph

- ❑ Help from - Acc/Engg
- ❑ Setting up the water header
- ❑ Purpose is to remove flux prior to leak testing
- ❑ Requires 208V 3phase

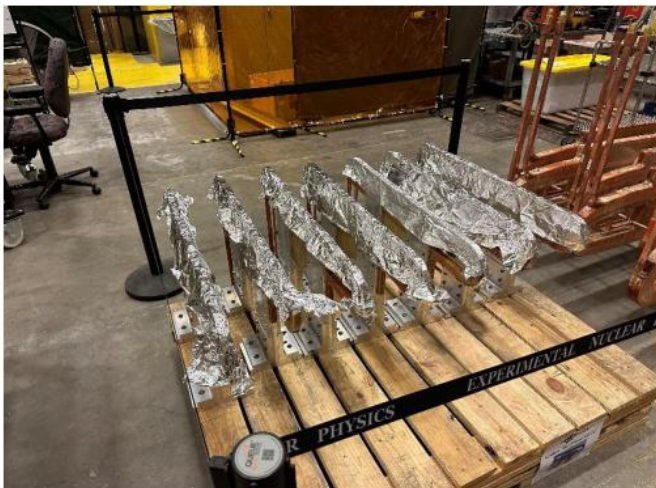
- 1. White board meeting area
- 2. Big Bertha Power source
- 3. Water Header (Flushing)
- 4. TM2 space/support frame
- 5. I&C rack for test lab

- 6. Drift pipe support
- 7. Detector pipe
- 8. TM4 support frame
- 9. Detector pipe support frame

MOLLER updates

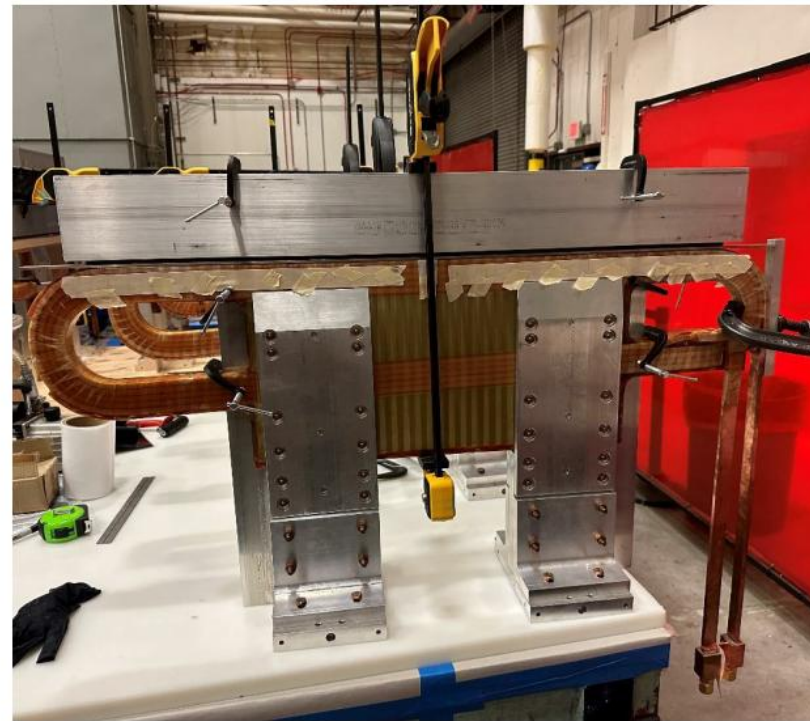
MOLLER

SC1 coils – Fully clamped and sanded, 7 of 7 High potted w/o Belly plates



Magnet Group and team – General

SC2 Coils - Fully clamped and sanded, Belly plates positioned with spacer wires, 7 of 7 hi-potted



✓ Hi-pot – Test completed, and all passed the test up to 1.5 kV (leakage current test, $<0.3 \mu\text{A}$) – THANKS to Morgan Cook (Hall-B)

Ready to Hi-pot and then epoxy on Belly plate (BP) and Tooling balls (TB)
Note - Z stop, Tape holding wires, Foam putting even pressure on BP, TB not installed here.

MOLLER Major Components Highlights



SoLID efforts since last meeting

- SoLID leadership had a meeting with new Lab Director Kimberly Sawyer, Paul Souder made presentation.
- Associate Director of Science for Nuclear Physics, Linda Horton, visited JLab in Nov:
 - Haiyan Gao made a presentation about SoLID
- In December, Haiyan Gao made presentation on SoLID to the JSA S&T Mission Committee meeting.
- Lab leadership plans to present the cost sharing plan at the LMBB in Feb 2025
 - Lab Capitol account would be used for a GEM project and a LGC project
 - Lab OPS account would be used for magnet testing.
 - From 2023-2025 Lab Capitol used for Generic DAQ that can be used for SoLID.
- Planned DAQ test
- Support plans for an additional beam test of SoLID detectors during the FY26 running.
- Jlab support efforts to obtain new pre R&D funds for GEM readout and tracking options, MCP-PMT