

# Hall A Update



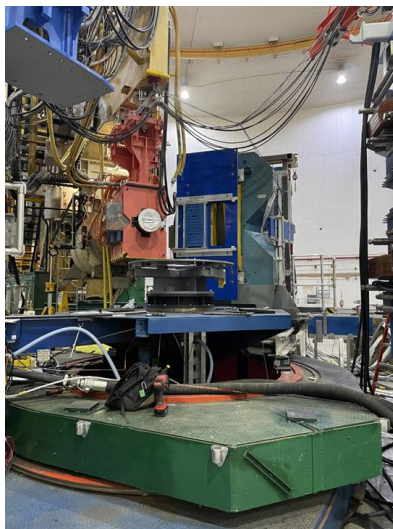
May 2023 SoLID Collaboration Meeting

# Hall A GEn with polarized $^3\text{He}$ target installation

Removing Cryotarget



Scattering chamber removed



Helmholtz coil installed



Frame to hold iron magnet shielding installed



Installing oven



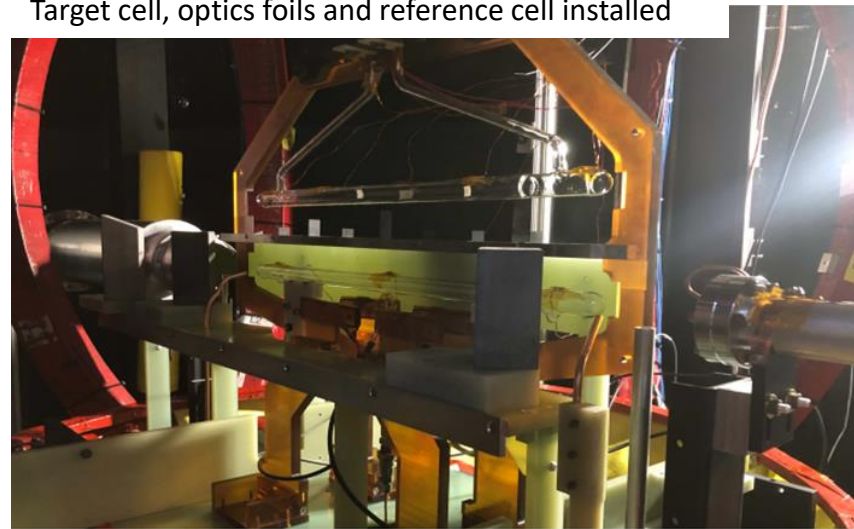
Gary Penman

Installing oven



Arun Tadepalli, Gary Penman and Bill Henry

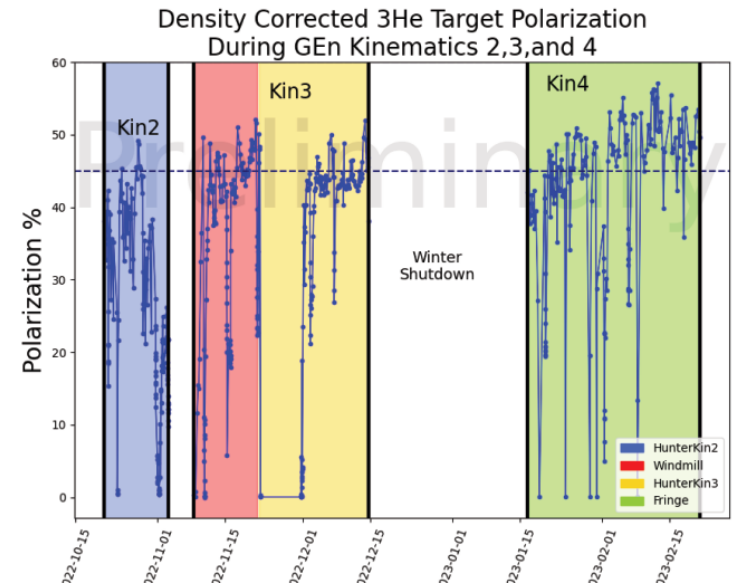
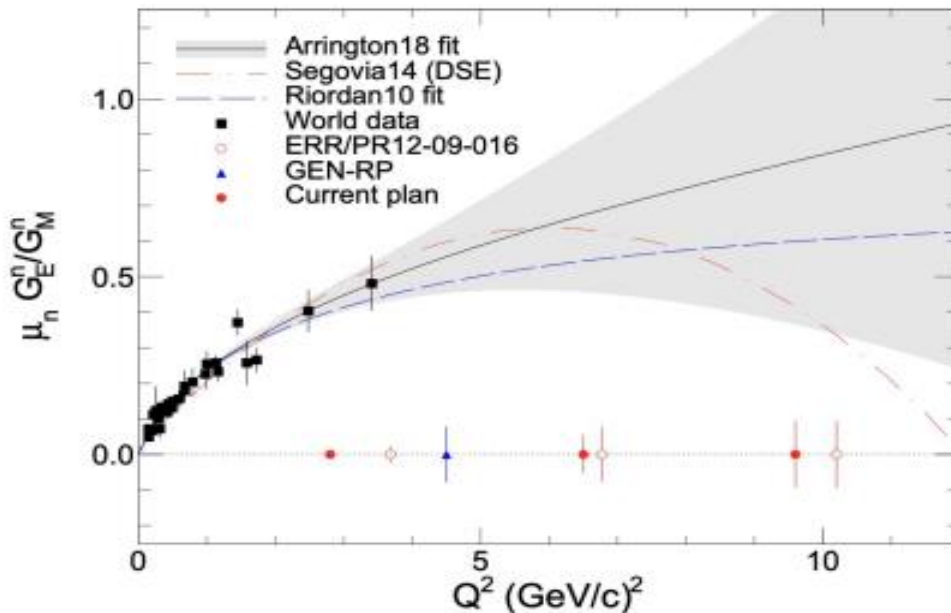
Target cell, optics foils and reference cell installed





# GEn using polarized helium target

- Started running the experiment at beginning of Oct 2022
- First time running with 60cm long  $^3\text{He}$  cell
  - 45-50% polarization in beam!
- Completed the  $Q^2 = 3.0$  and  $6.8$  kinematics by Dec 2022.
- Started the  $Q^2 = 9.9$  kinematics in Jan 2023.
  - Beam availability was only 25% at 45uA for Hall A (with Hall C only at 40uA).
  - Only got 50C out of need 157C.
  - Need to continue GEn experiment into the next run period.

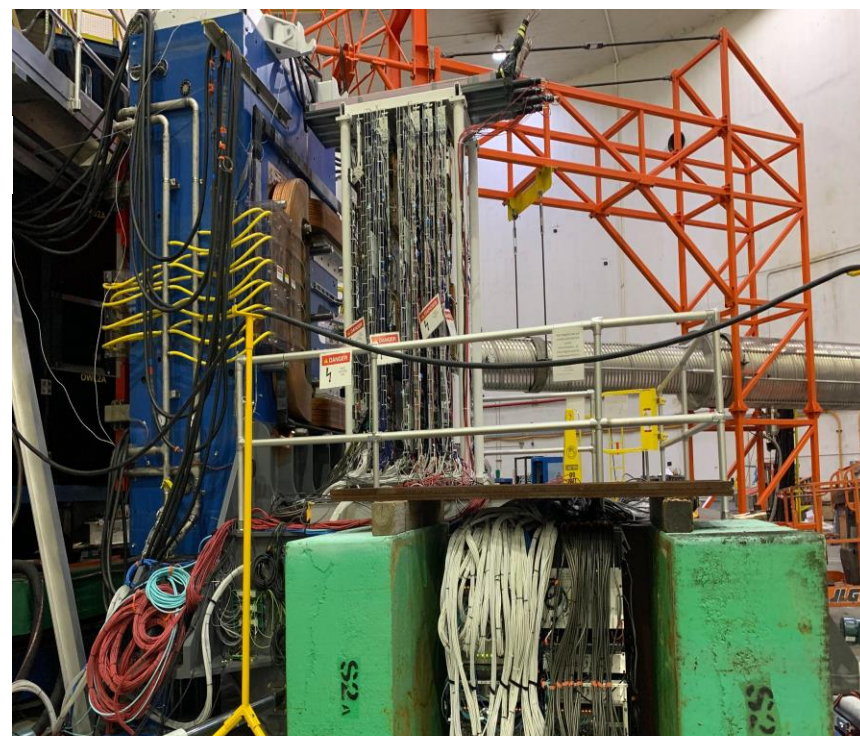
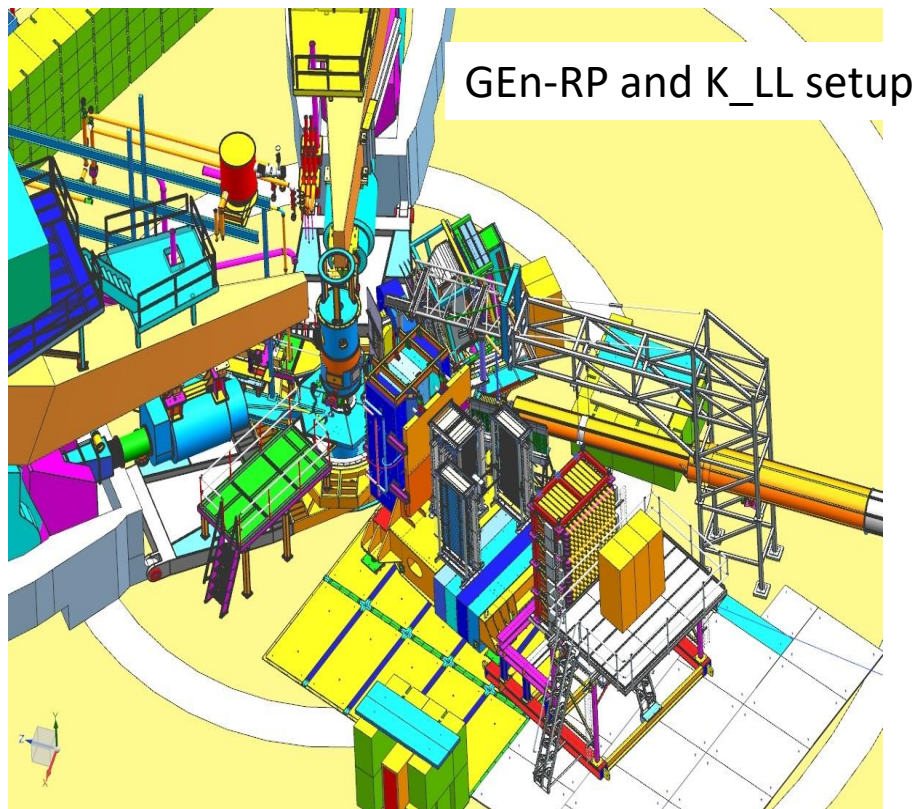


# Updated Hall A Run Schedule

Date	Activity
March 20 <sup>th</sup> – May 29 <sup>th</sup> 2023	SAD work in the Hall A
May 29 <sup>th</sup> – July 21 2023	<b>Hall A Crane repair</b>
July 21- Aug 10 2023	Hall A prepare for beam
Aug 10 – Oct 2 2023	Run 3He GEn and A_LL
Oct 3 2023 – Jan 30 2024	Deinstall polarized 3He target, modify beam line and install cryotarget
Jan 31 – Feb 26 2024	Run GEn-RP and K_LL
Feb 27 2024	Start Deinstall GEn-RP and installing GEp
Aug 26 2024	Start running GEp

# GEn and K\_LL in Feb 2024

- Measurement of the Ratio GEn/GMn by the Double-polarized  $^2\text{H}(\vec{e}, e' \vec{n})$  Reaction
  - Outgoing neutron polarization measured by charge exchange
  - Additional polarization measurement using the side detectors
- Polarization Transfer in Wide-Angle Charged Pion Photoproduction (K\_LL)



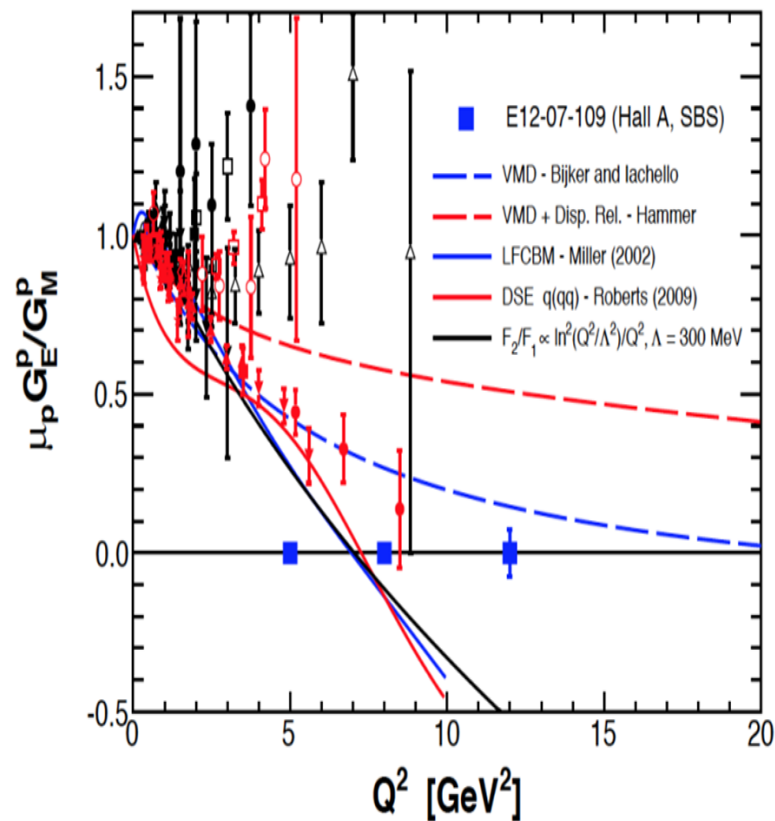
Inline SBS GEMs installed and used in GEn.





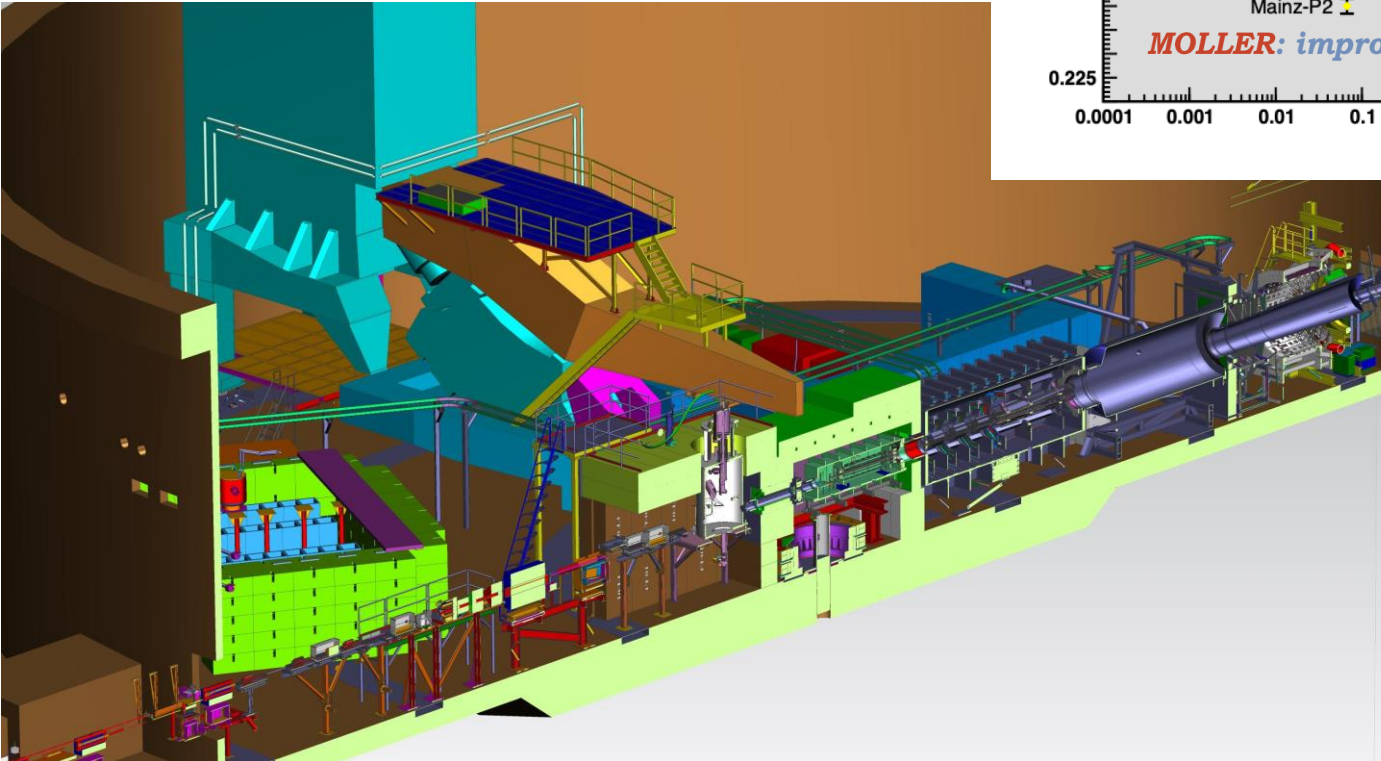
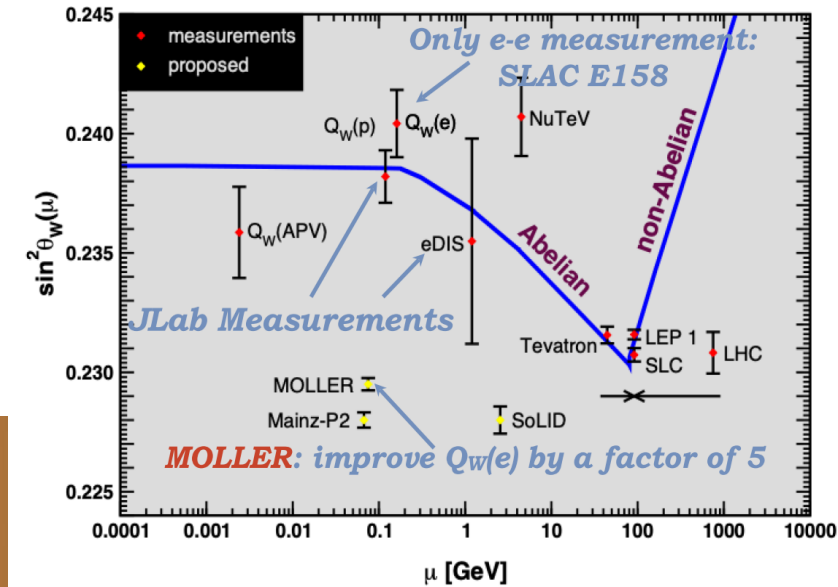
# GEP experiment

- Installation begins in March 2024 and ends Aug 2024
- Experiment runs from Aug 2024 to Dec 2024
- Measure to  $Q^2 = 12$



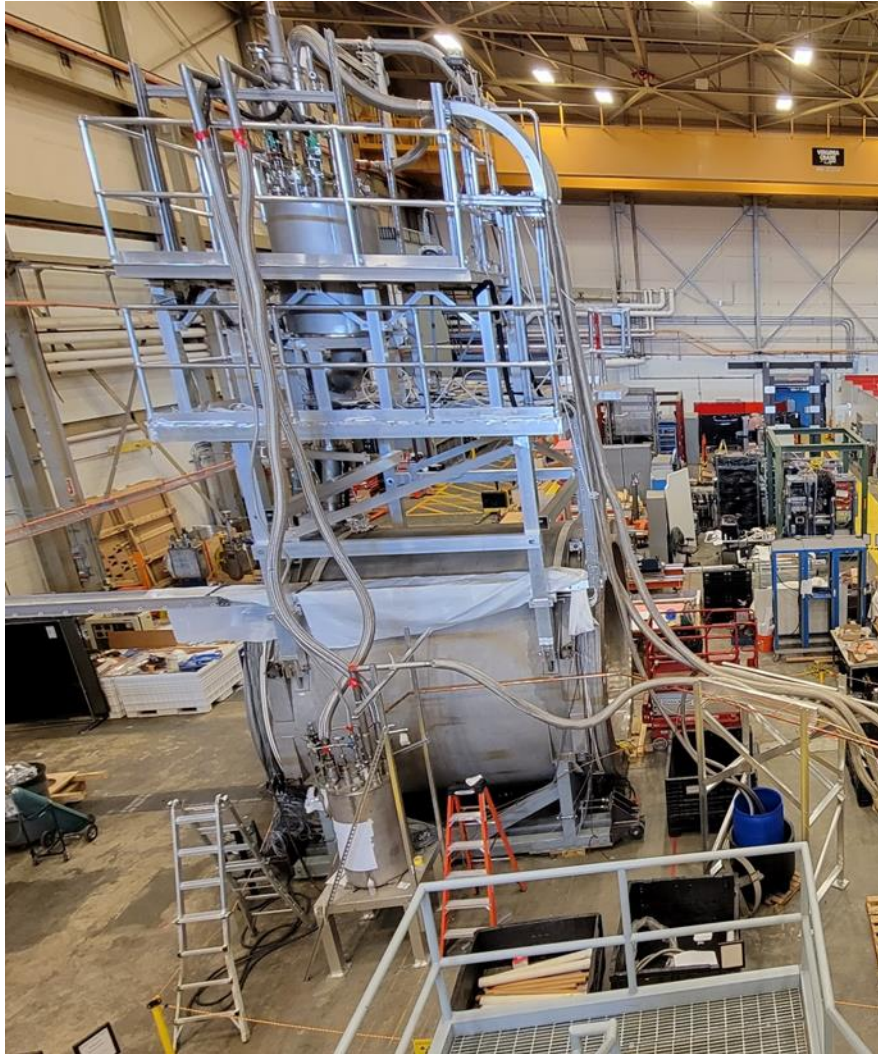
# MOLLER Project

- Inflation Reduction Act provided full funding.
- Passed Cd-3A review and spending CD-3A funds.
- CD2 /CD3 review in October.
- Aggressive installation schedule of 15 months after GEp run ends
- 3 years of running.





# CLEO cold test



- Test done at end of March 2023
- Warm up has just finished up
- Tremendous work by Whit Seay , Heidi Fansler and Steve Lassiter during the long cool down ( two months). On call 24 hours to monitor cool down.
- Concerted effort from Hall A techs, Hall C techs, SSG group, Hall B techs, DSG group, cryo group over the past 1 ½ years. Plus efforts of Hall A and C designers and engineers.





# Conclusion

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- Hall A crane repair in June and July 2023.
- GEn polarized  $^3\text{He}$  target experiment needed to be extended to run from Aug 10, 2023 to Oct 2, 2023.
- Oct 2023 – Jan 2024 Switchover from  $^3\text{He}$  to cryotarget and GEn-RP experiment which runs in Feb 2024.
- GEp installation from March 2024 to Aug 2024 then runs.
- MOLLER has 15 months installation with 3 years of running from 2026-2029.