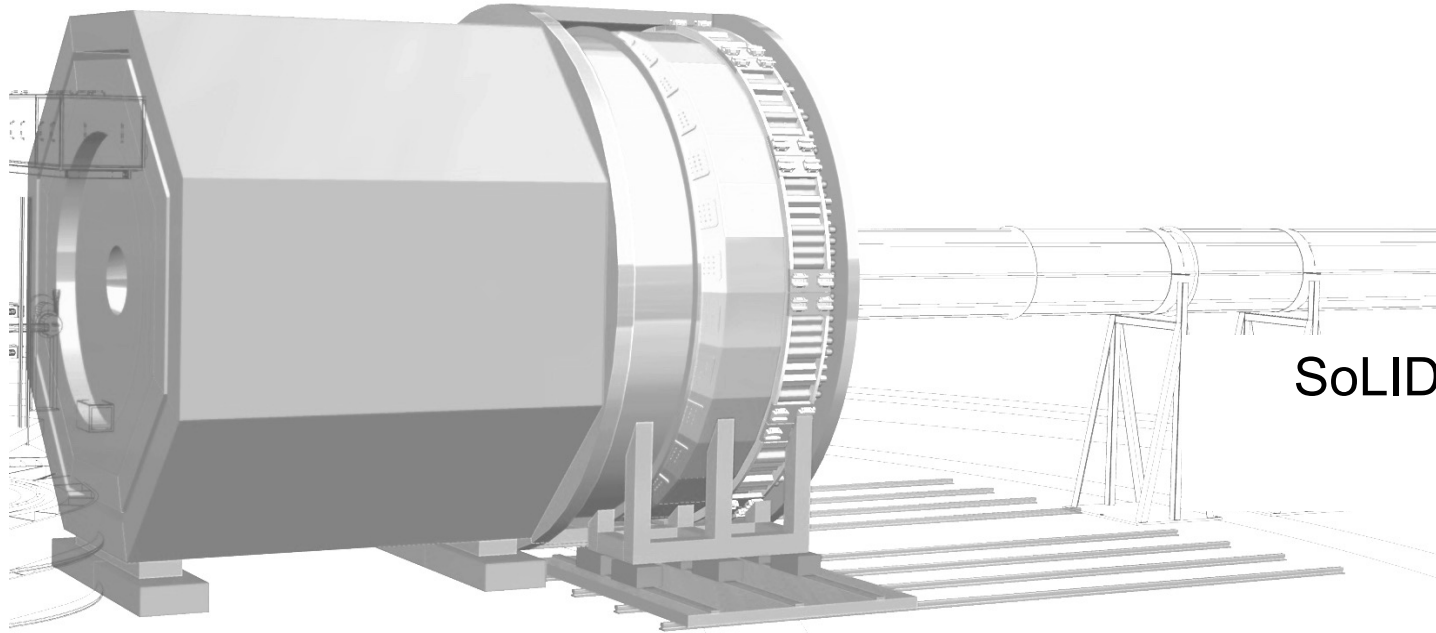


# SoLID Update



SoLID Collaboration Meeting  
May 8-9, 2023

Jian-ping Chen  
Jefferson Lab



# Outline

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1. Progress Since May 2022 Collaboration Meeting
2. Recent Development
3. Physics Program
4. Plan for the Next Steps

# Progress Since May 2022 Collaboration Meeting

- Pre-R&D:
  - After completion of 1<sup>st</sup> DOE funded pre-R&D, DOE funded 2<sup>nd</sup> pre-R&D
  - 1. Detector BeamTest in Hall C: Xiaochao Zheng and Team
    - Focus on ECal, with GEMs/Cherenkov/ Scintillators
    - Completed data taking. Analysis ongoing (Michael Nycz/Xinzhan Bai/Ye Tian)
  - 2. DAQ GEM (VMM) readout test: bench test ongoing, Beam test planned (Alexandre Camsonne)
- CLEOII Magnet Test Completed (Whit Seay)
- Other subsystems:
  - Software (Chao Peng/David Lawrence)
  - ECal (Michael Nycz)
  - GEM (Nilanga Liyanage)
  - LGC (Michael Paolone)
  - HGC (Zhiwen Zhao)
  - MRPC (Kai Sun)
- Project Status
  - Science Review **Feedback: positive report, recommend to move to next step**
  - DOE: Do well in Long Range Plan, R&D

# SoLID Recent Developments

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- **Discussion with DOE/NP**

- SoLID is encouraged to make a strong case (***“significant prominence”***) in Long Rang Plan (LRP)

- QCD town meeting: SoLID part of Recommendation #1**

- SoLID Whitepaper as input to the LRP

- (Accepted to Publish in J. Phy. G)

- R&D, synergy to EIC, to ***“preemptively reduce risk/cost for SoLID”***

- Submitted two AI/ML proposals: Tracking (Alexandre Camsonne)

- PID (Zhiwen Zhao)

- **Strong support from JLab: to help SoLID move forward**

# SoLID Physics Programs

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- Last PAC (2022)
  - All SoLID proposals went through jeopardy process/review
  - All 5 SoLID proposals were re-approved.
    - 4 retaining A rating, 1 upgrade from A- to A.
  - New Proposal: Single beam normal spin asymmetry approved with A-
  - New Proposal: PVEMC conditional approval
- Review Session Tuesday Afternoon
  - New Proposal: DDVCS (Alexandre Camsonne)
  - Run-group proposal; SIDIS cross sections (Shuo Jia)
  - LOI: Study  $N \rightarrow \Delta$  transition form factors with SoLID (Michael Paolone)
- SoLID@JLab22

# Plan for the Next Steps

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- Complete Analysis of Detector Beam Test Data (Nycz/Bai/Tian)  
Comparison with simulation. Verify/refine the design.
- Complete pre-R&D Activities on DAQ (Alexandre Camsonne)
- Complete Analysis of Magnet Test Data and Plan for Next Step (Whit Seay)
- Detector Development
  - Cherokov Mirrors (Michael Paolone)
  - HGC prototyping (Zhiwen)
  - MRPC test (Kai Sun)
- Software Development
  - Synergy with EIC software development (Lawrence/Peng)
  - Continue AI/ML collaboration with JLab data science group
- Long Range Plan Process/Community Awareness
- Preparations to be Ready for Project
- Work with JLab, DOE/ONP to move SoLID forward