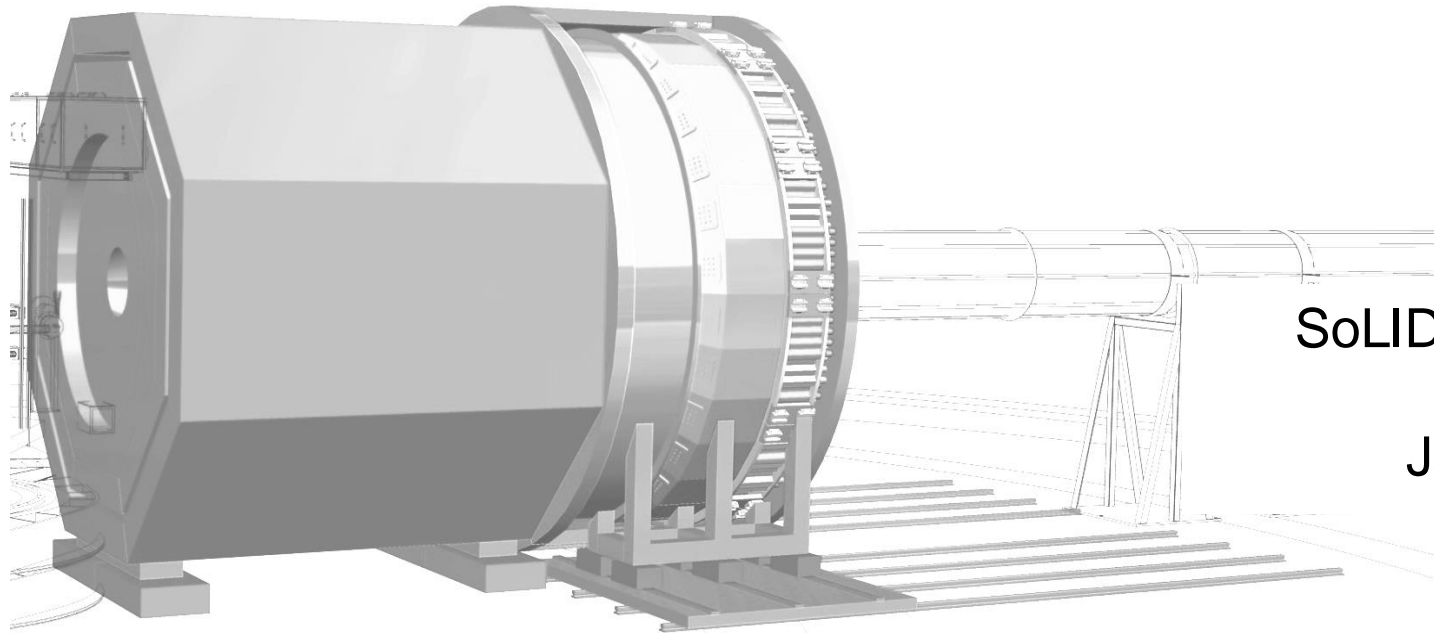


SoLID Update



SoLID Collaboration Meeting
@ Jefferson Lab
January 9-10, 2025

Jian-ping Chen
Jefferson Lab



Outline

1. Progress Since May 2024 Collaboration Meeting
2. SoLID impact @ JLab22
3. Plan for the Next Steps

Progress Since May 2024 Collaboration Meeting

- **Project Status**

1. LRP recommendation and strong endorsement
DOE Facility Review: waiting for across field evaluation and report
(no new project approval before the Facility Review Report)
2. JLab cost sharing plan presentations/discussions with DOE/NP
JLab plans to have it as the default plan to be presented to next LMBB
(last year it was presented to DOE at LMBB as an option)

- **Pre-R&D Activities:**

1. 2nd DOE-funded Detector Beam Test in Hall C: analysis complete,
write-up draft in review (Ye Tian, Xiaochao Zheng)
 2. DAQ system tests (Alexandre Camsonne)
 3. New beam test planned for run period of next FY (Klaus Dehmelt)
 4. New pre-R&D plan
GEM readout (Alexandre Camsonne)
Tracking Options (Huongng Nguyen/Siqi He)
MCP-PMT (Junqi Xie/Xiaochao Zheng)
- discussions with DOE/Medium Energy: encouraging feedback**
5. Magnet test: part of JLab cost sharing plan (Whit Seay)

Progress Since May 2024 Collaboration Meeting

- **Progress in All Subsystems**

- Engineering/Design/Magnet (Whit Seay)

- Software (Chao Peng)

- Collaboration between EIC and SoLID (Markus Diefenthaler)

- GEM/Tracking (Huong Nguyen)

- R&D progress in u-R-Groove (Siqi He)

- LGC (Michael Paolone)

- HGC (Zhiwen Zhao, Garth Huber)

- ECal (Xiaochao Zheng)

- Detector (MRPC/ECal) R&D from China Side (Zhihong Ye)

- **Physics:**

- SoLID impact in JLab22 (Chim Him Leung)

- Progress in physics cases: Threshold J/ψ and gravitational FF (Zein-Eddine Meziani)

- SoLID Impact Study on SIDIS cross sections with MAPS (Matteo Cerutti)

- Run-group proposal: SIDIS cross section (Ye Tian)

- **Other Developments**

- SoLID physics case presented to JLab new director and DOE/NP new leadership

- SoLID strategy presented to JLab S&T committee

- Possible NSF funding with mid-scale program

Recent Development: SoLID Impact @ JLab22

- ❖ Previous (before May SoLID Collaboration Meeting) studies on SoLID@JLab22
 - SIDIS-TMD projections (Vlad Khachatryan, Shou Jia, ...)
 - J/ψ Projections (Sylvester Joosten, Zein-Eddine Meziani, ...)
 - PVDIS Projections (Xiaochao Zheng, Michael Nycz, ...)
 - DDVC (Alexandre Camsonne, Zhiwen Zhao, ...)
 - ❖ New Studies: Polarized light sea quark (Ching Him Leung, Ye Tian, ...)
 - Tensor-TMDs (Jiwen Poudel, David Ruth, Nathaly Santiesteban, ...)
 - ❖ JLab22 Workshop @ Frascati, December 9-13, 2024
 - <https://agenda.infn.it/event/39742>
 - 4 SoLID Talks: Light sea quark (J. P. Chen), SIDIS-TMD (Zhihong Ye)
 - PVDIS (Michael Nycz), Tensor-TMD (Nathaly Santiesteban)
 - Also in J/ψ talk and DDVCS talk, SoLID is highlighted
- . SoLID will play an essential role in high luminosity JLab22

Partonic Structure & Spin WG Summary

Jian-ping Chen,
Ioana Niculescu,
Nobuo Sato

Science at the Luminosity Frontier:
Jefferson Lab at 22 GeV,
Frascati, 12,13 2024



JLab 22, a machine for high resolution of nucleon & meson sea in the intermediate and high x

Plan for the Next Steps

- SoLID Collaboration with Strong Support from JLab, work with DOE/ONP to Move SoLID Forward
 - Be ready when time comes
 - Other funding opportunities (NSF, Canada, ...)
- JLab Cost Sharing Plan
 - Magnet testing
 - Capital projects for part of detectors and DAQ
- pre-R&D Activities
 - GEM readout (Alexandre Camsonne)
 - Tracking options (Huong Nguyen)
 - MCP-PMT (Junqi Xie, Xiaochao Zheng)
 - Beam test with (near complete set of) prototype detectors (Klaus Dehmelt)
- Continue subsystem/software development
 - Software development, synergy with EIC (Chao Peng, Markus Diefenthaler)
 - AI/ML and Stream Readout
 - Detectors
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