

SpinQuest Status

Proton PMG / All Experimenters' Meeting

Aug 01, 2024

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University of Virginia

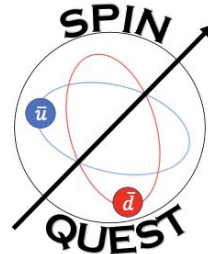


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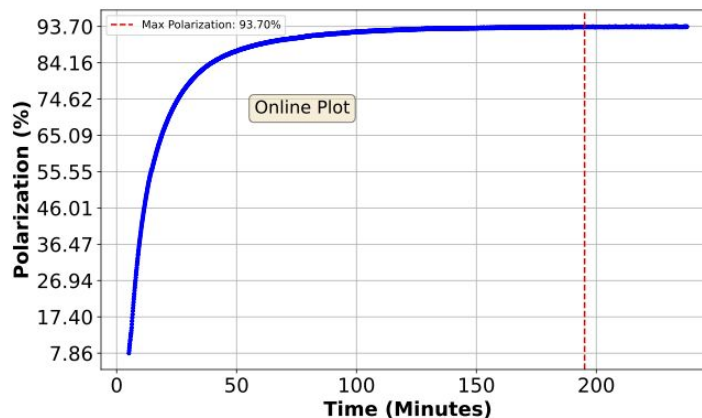
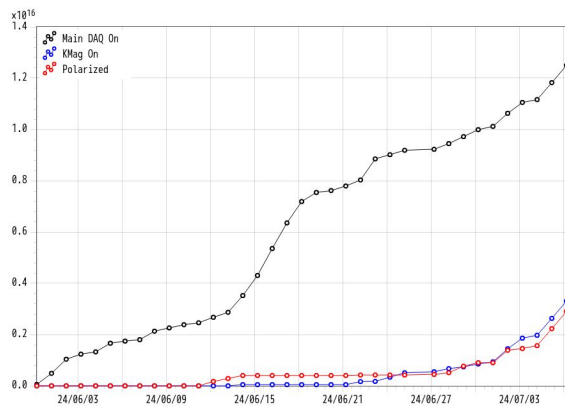


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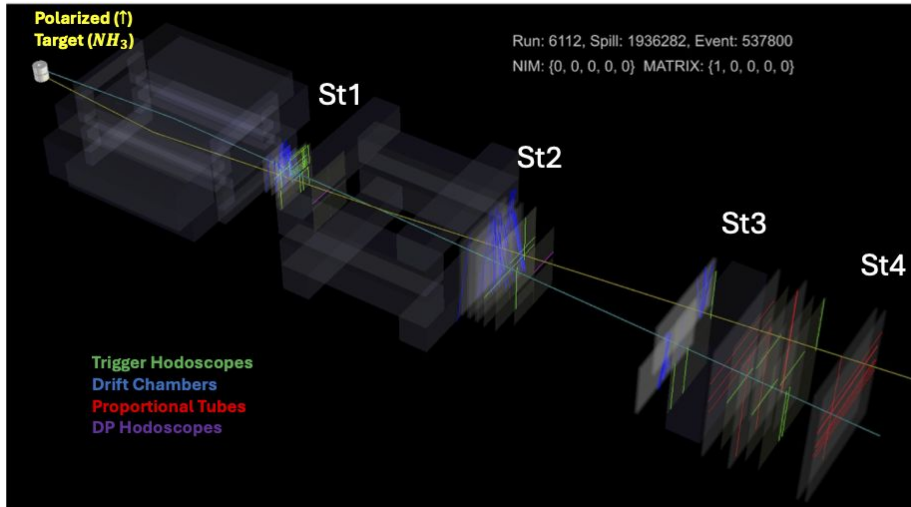
SpinQuest Beam Commissioning Achievements: **Polarized Target and Spectrometer**

1. Aligned the beam on the target cell.
2. Conducted tests with polarized CH₂ and NH₃; collected highly polarized NH₃ data.
3. Commissioned the quench system for maximum intensity operation in Nov 2024.
4. Tested the target annealing method to enhance polarization.
5. Tested the DAQ system with a high-intensity beam.
6. Monitored the beam intensity timing.



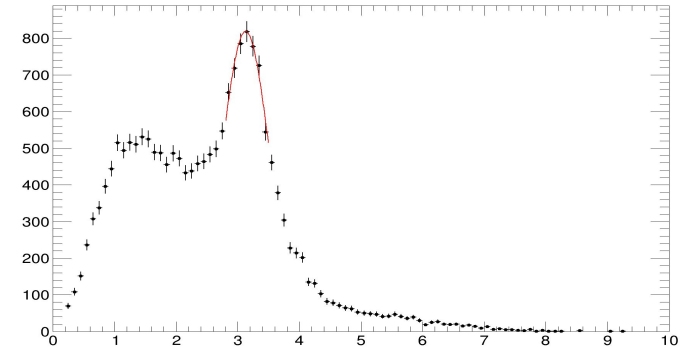
Thanks to Evan, Susan, Mike, the MCR groups, RSO, RCT, IH, and the Fire Department.

SpinQuest Beam Commissioning Achievements: Production Data and J/Ψ peak

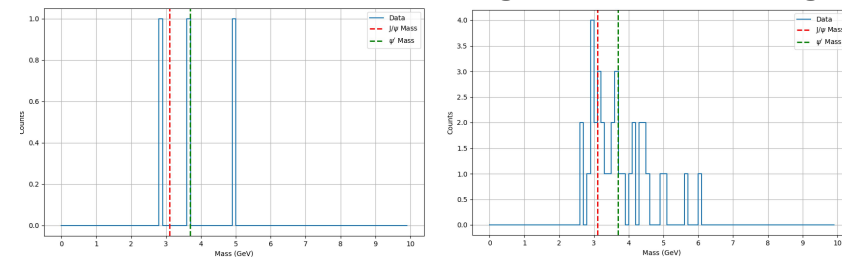


- Clear J/ψ and high-mass dimuon events observed in the semi-online reconstruction
- Offline analysis of the commissioning and production data is ongoing

Semi-online Reconstruction



Realtime online monitoring with and without KMag

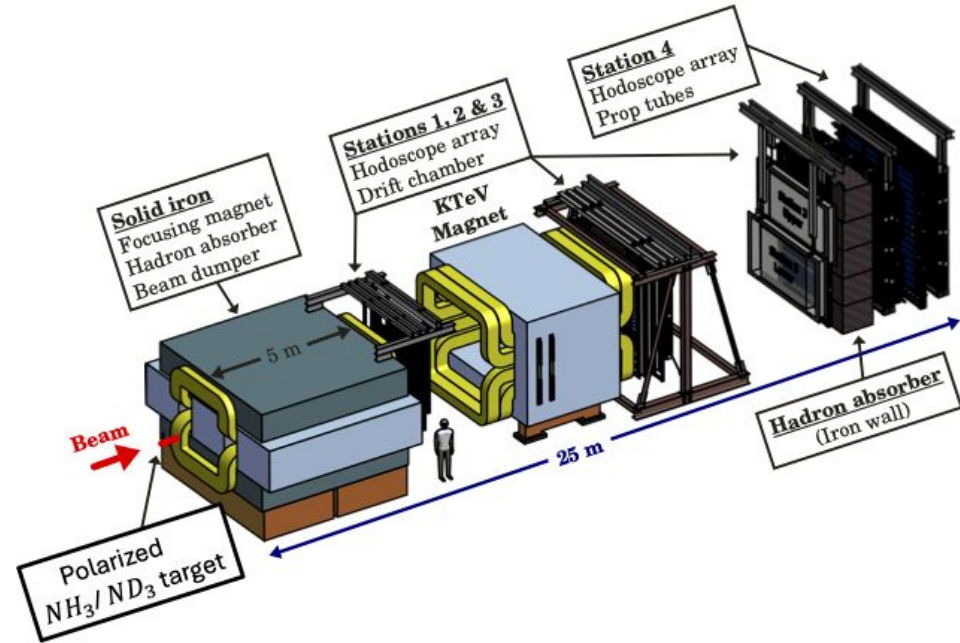


SpinQuest Beam Commissioning Achievements: **Safety Standard**

- All ammonia related procedures have been executed without issue as required (filling cups, loading insert, storage, shipping).
- Shipped irradiated ammonia back to the University of Virginia for testing and storage.
- Recent target insert survey have measured **essentially zero** mrem/hour.
- NM3 and Cave have also measured very low where only the beamline indicates any activity



General Spectrometer Status



Operational:

- Trigger hodoscope planes in all stations.
- Most of the drift chamber planes in St1, St2, and St3.
- FMag.
- Trigger and DAQ.

Needs Repair:

- KMag.
- Some chamber planes in stations 1 and 2 need debugging due to HV trips.

Polarized Target Status

1. The entire polarized system is under maintenance.
2. We are analyzing the polarization data offline.
3. Due to the maintenance of the NS2 cooling tower, our liquefier system and pumps have been turned off.

Summary

1. We had success running the beam during commissioning.
2. Currently, we are analyzing the commissioning data.
3. We are also fixing broken or noisy detectors.
4. Additionally, we are preparing the polarized target system for long-term operation with high polarization using NH₃/ND₃.