

SpinQuest/E1039 Update

(On behalf of the SpinQuest Collaboration)

*Proton Program Management Group (PMG)
May 2, 2024*

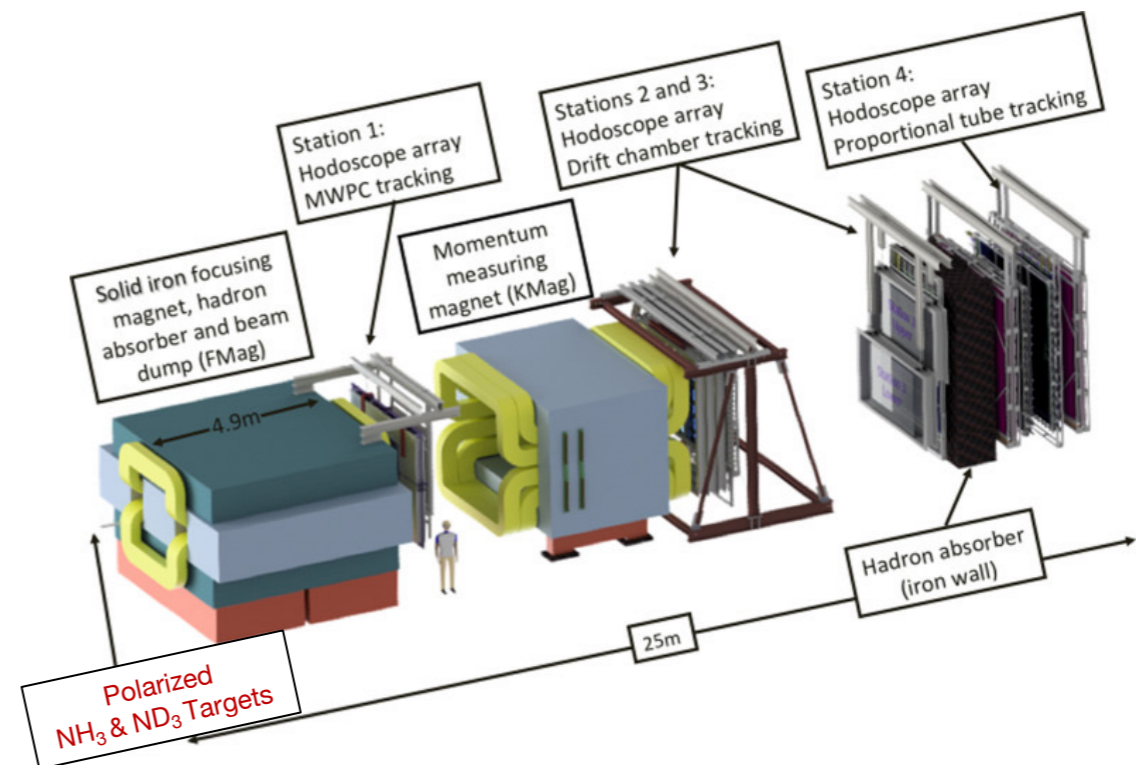
Ievgen Lavrukhin



SpinQuest Spectrometer Status

Spectrometer Status:

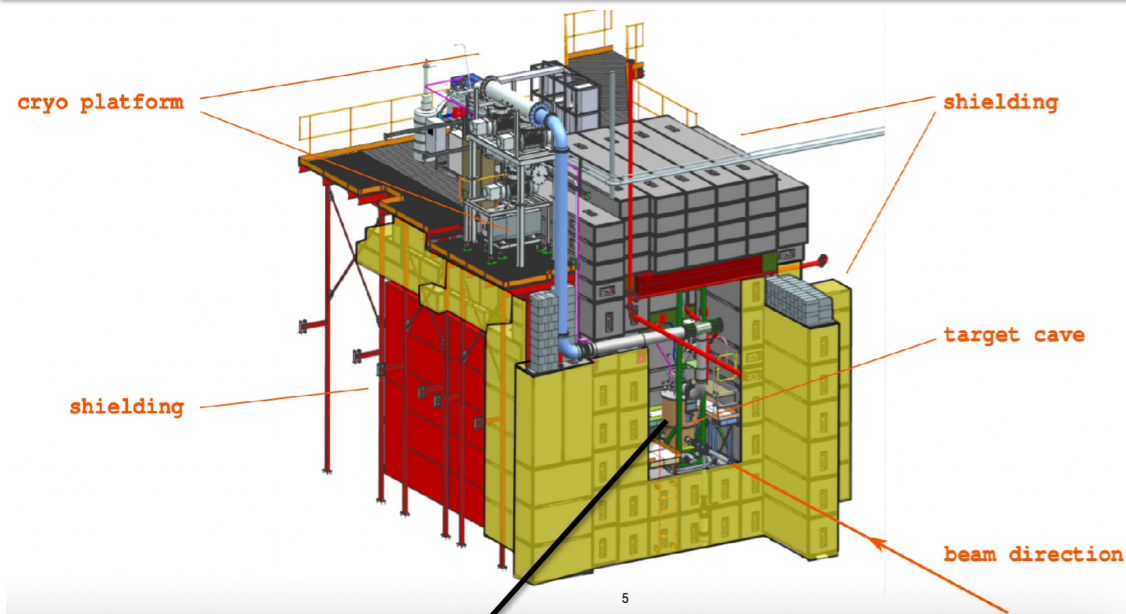
- All Detectors are in a working and meet requirements!
- DAQ and detectors are tested with cosmics.



Remaining tasks before beam:

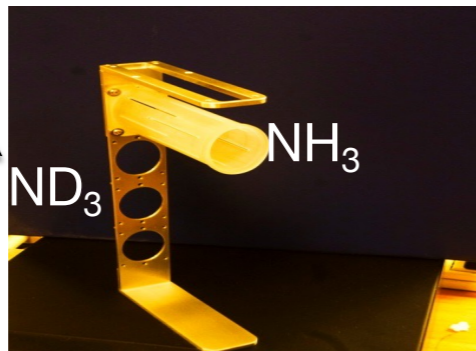
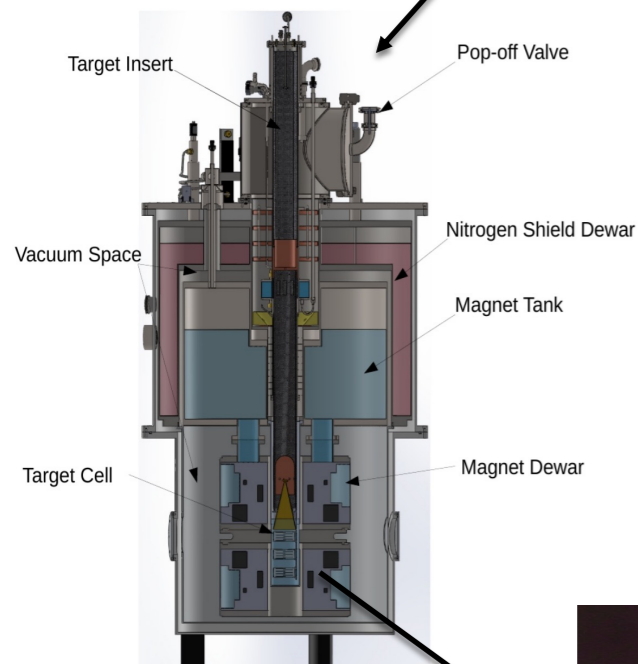
- Testing KMag and Fmag. ✓ \Rightarrow
 - Fmag is ready.
 - Kmag had issues with power supply.
 \Rightarrow seems to be fixed now.
 \Rightarrow testing ...
- Finalizing NIM-based calibration trigger. ✓
- Finishing Dark Photon trigger integration into Main DAQ. ✓ \Rightarrow
 - Hardware was assembled.
 - Testing trigger!
- Complete System Test. ✓

SpinQuest Target Status



Target Status:

- Target is Fully installed passed all reviews!
- Permission to use ammonia!
- Routine target maintenance.
- New NH_3 will arrive this week.
- Finishing UPS installation
=> completed when UPS system arrives.



Commissioning with Beam and Day-One Physics

Commissioning with stable beam ($\approx 3-4$ weeks):

- Tune the operation of the spectrometer components in-beam.
- Commission the new FPGA-trigger for data taking.
- Verify operation of the DAQ, Slow Control, and Online Reconstruction systems in-beam.
- Determine the maximum on-target beam intensity at which cryogenic target magnet can operate without quenching.

Data Taking (remaining time):

- Combined J/ψ and Drell-Yan data taking.
- Dark Photon data taking at background.

Thank you!