



Muons report

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Proton PMG / AEM

12-Dec-2024

<https://indico.fnal.gov/event/67309/>

Cryogenic Full Flow Purifier has arrived at FNAL

- Inspections / acceptance ongoing at D0 Assembly Bldg (DAB)
- Electricians working to prep Muon Campus building #1 (MC1)
- Purifier to be brought to MC1 in ~Spring



At vendor



At DAB

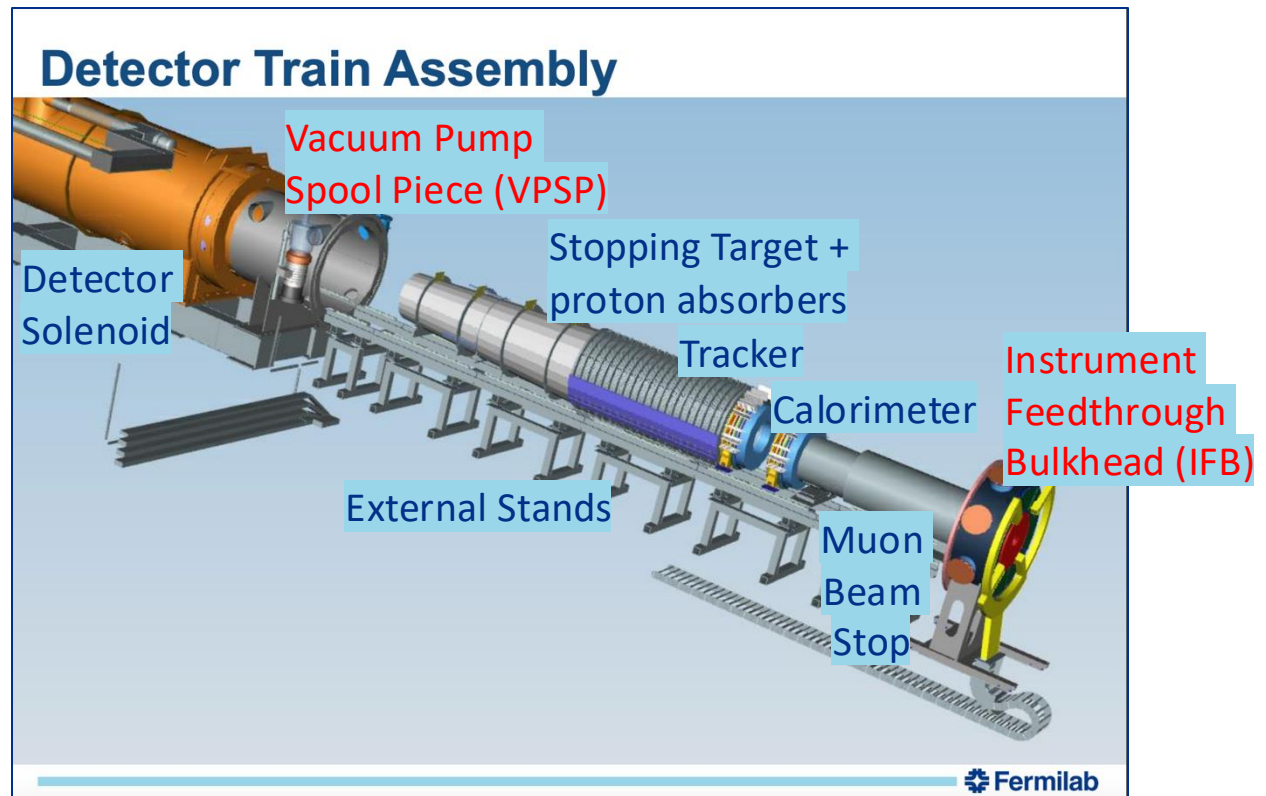
Some of the prep work to receive solenoids

- Upstream and downstream Transport Solenoids (TSu and TSd) superconductors have been **spliced from end-to-end**
 - Feedbox → vertical transfer line → horizontal transfer line → solenoid
- TSu : voltage taps wired, all helium pipes welded, starting to leak check
- TSd : thermal shield done, continuing to chase a leak in the N2 piping...
 - Then... heat sink wires, wrap with MLI, then put together vacuum jacket
- TSu-TSd interconnect: receiving pieces for heating
 - ... this will re-enable the possibility to rotate collimator at this interconnect
- Moved dump resistor refurbishment / testing from high bay to DAB
 - Allows unfettered access to work on the dump resistors
 - Clears the high bay to receive other large components

Detector Solenoid endcap arrived at Mu2e

- Recall: Detector Solenoid (DS) endcap comprises...
 - Vacuum Pump Spool Piece (VPSP)
 - For pumping insulating vacuum & muon beamline
 - Instrumentation Feedthrough Bulkhead (IFB)
 - For cables and optical fibers for detector train

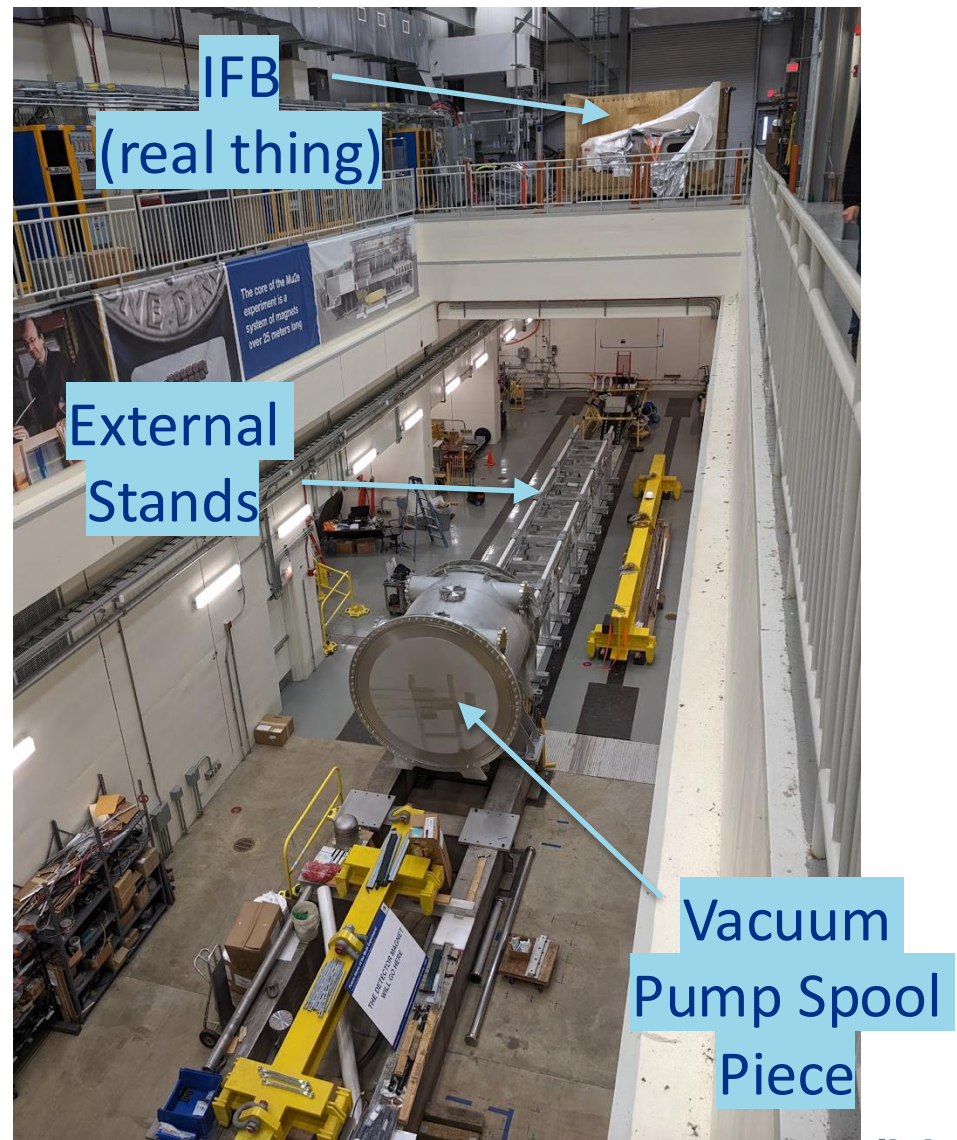
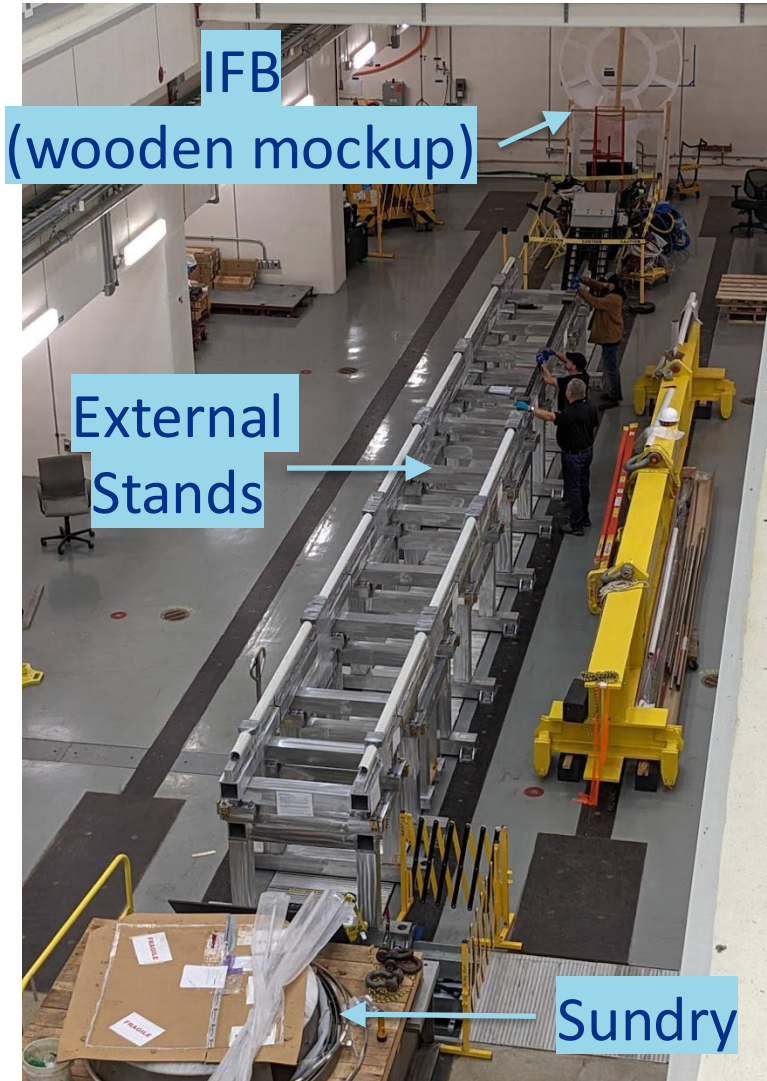
Model of detector train on external stands between VPSP and IFB when extracted from the DS for servicing →



Before

... and....

After



Extinction Monitor: prep work to hang collimator

- Moved Production Solenoid (PS) stand so we can hang extinction collimator filter
 - Also part of prep work to receive PS

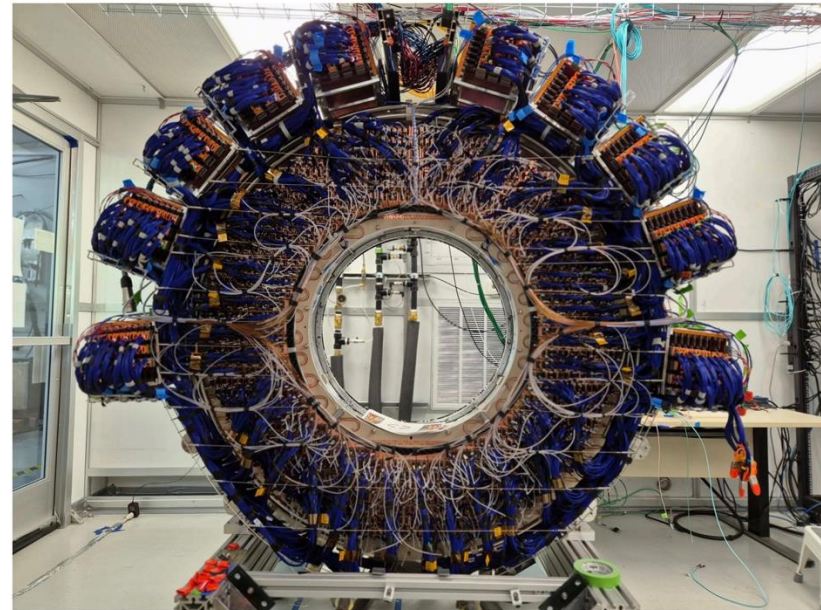


Detectors

- Tracker
 - All 36 planes have been constructed
 - Reviewing station assembly procedures
- Calorimeter
 - Testing readout of all channels on Disk-1
 - DT generator is back on-site after having been worked on by the vendor
- Cosmic Ray Veto
 - understanding power consumption of read out electronics
- Stopping Target Monitor
 - Designing stands
- Data Acquisition
 - Polling for date for Global Run #4
 - Started “mini-global runs” to maintain momentum between Global Runs



Plane team and final plane 36!

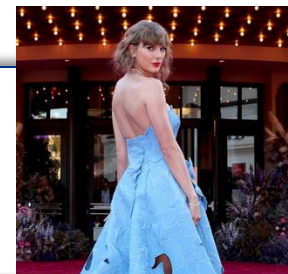


Power for Muon Campus

- Feeder 46A work delayed to start of 2025 Summer Shutdown
 - Feeder 46A cable runs through manhole through which Feeder 24 cable runs... which feeds Muon Campus
- Delay in receiving parts for MC-1 Automatic Transfer Switch
 - Expecting MC-1 ATS to be replaced in January 2025
- Mu2e is keenly interested in the developing plans for PIP-II
 - As we understand, there is a lot of work for PIP-II that has the potential to affect power & cryo for Mu2e (A0, MC1, and MC2)

Muon g-2

- 11-13 Dec: Muon g-2 collaboration meeting
- Today: Muon g-2 Symposium, aka the Muon g-2 ERAs Tour
 - Thursday 12-Dec 3:00-4:30pm in One West



ANNOUNCEMENTS AND NOTICES

Mini-symposium: Muon g-2 ERAs Tour

December 6, 2024

When: Thursday, Dec. 12 2024, 3:00-4:30 p.m.

Where: One West, Wilson Hall

Zoom: <https://fnal.zoom.us/j/91206720208?pwd=iAKPP82FZaWwvF17bj9EBXNa4QIRvV.1>

The measurement of the magnetic anomaly of the muon has a long-standing history of many experiments continuously improving the measurement precision. The latest iteration, the Muon g-2 experiment at Fermilab, has successfully acquired its full statistics and concluded its operation. While the collaboration is finishing the final analysis of the data taken in 2022 – 2024, we would like to celebrate the accomplishments of the experiment and review both the history and the Fermilab experiment. Prof. Lee Roberts (Boston University) and Prof. David Hertzog (University of Washington), both former Co-Spokesperson of the Fermilab E989 experiment, will review the many decades of history of the muon anomaly as well as the highlights of the Muon g-2 experiment at Fermilab.

65 Years of Muon g-2 – presented by Prof. Lee Roberts

The Birth, Growth, Maturity, and Legacy of FNAL E989: Measurement of Muon g-2 to 140 ppb – presented by Prof. David Hertzog

<https://inside.fnal.gov/2024/12/mini-symposium-muon-g-2-eras-tour/>

Backup