Fermilab U.S. DEPARTMENT OF ENERGY | Office of Science

Muon g-2 Status

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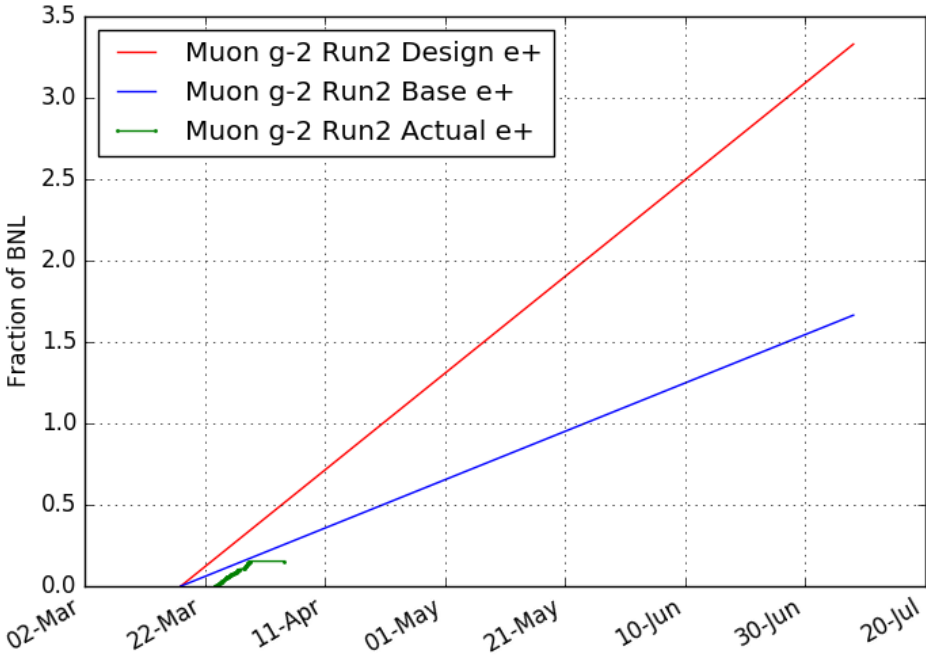
Since last PMG…

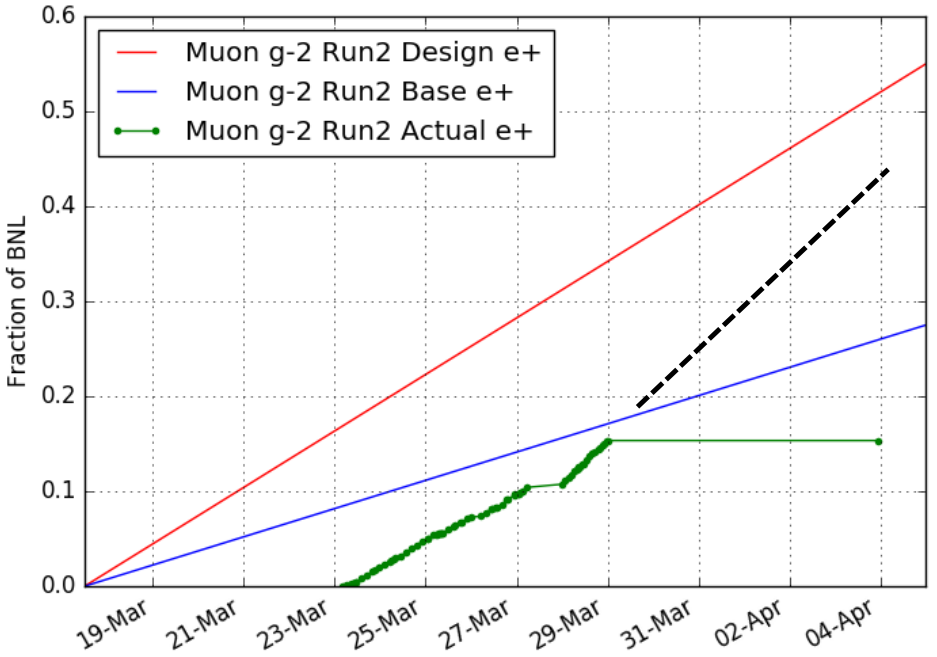
- We've begun production running after completing several days of beam tuning / optimization and systematic studies.

- This was punctuated by the Li lens failure. We ran at 8 / 16 pulses but have now settled on 16 pulses (-15% current) that reduces our stored beam by 19%.

- Nevertheless even with this 19% reduction we are accumulating e^+ at x1.3 vs run-1

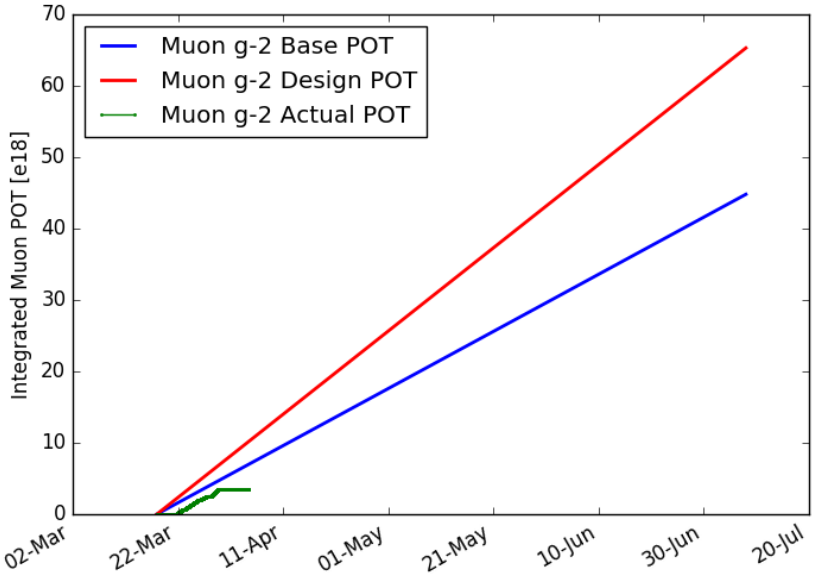
Performance Plots …

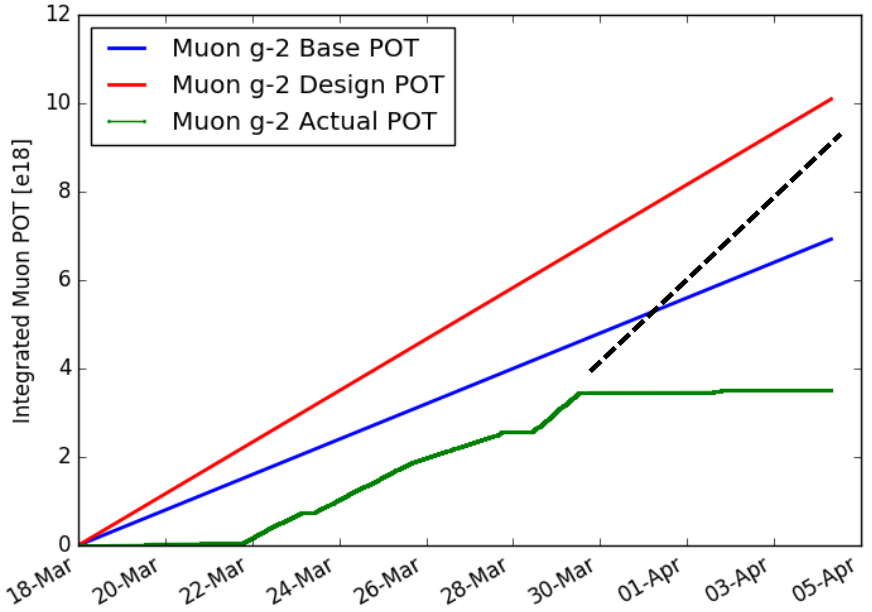




Trying to make these easily available via services password on g2web.fnal.gov

Performance plot : POT

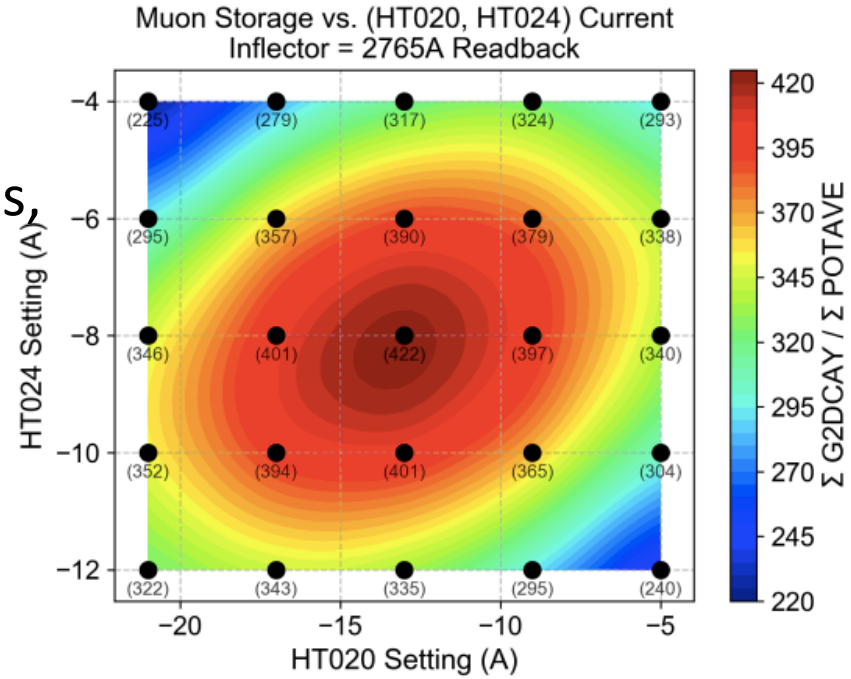


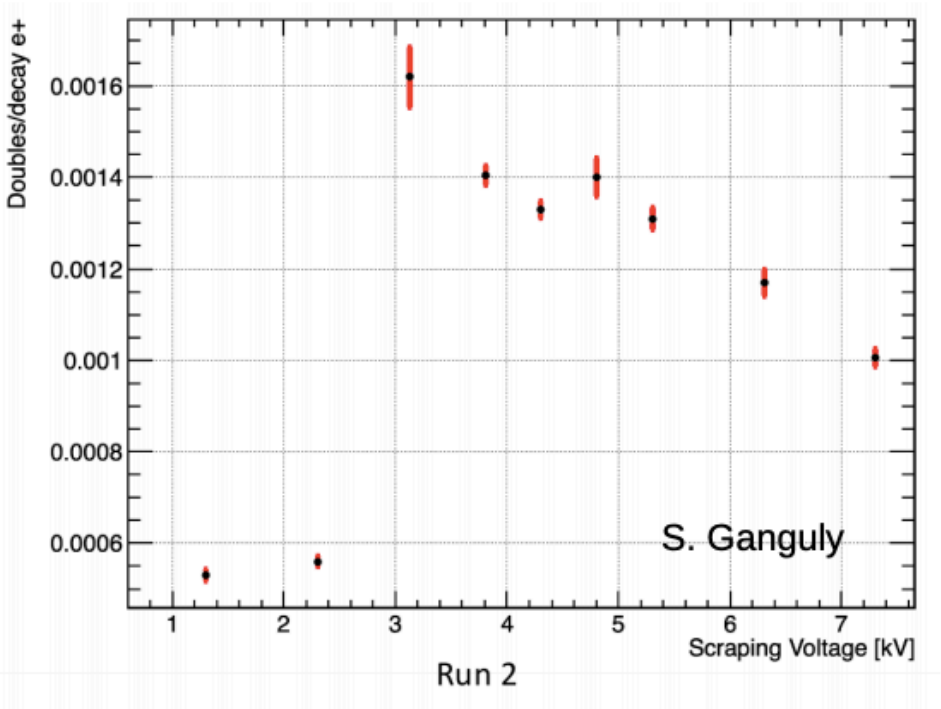


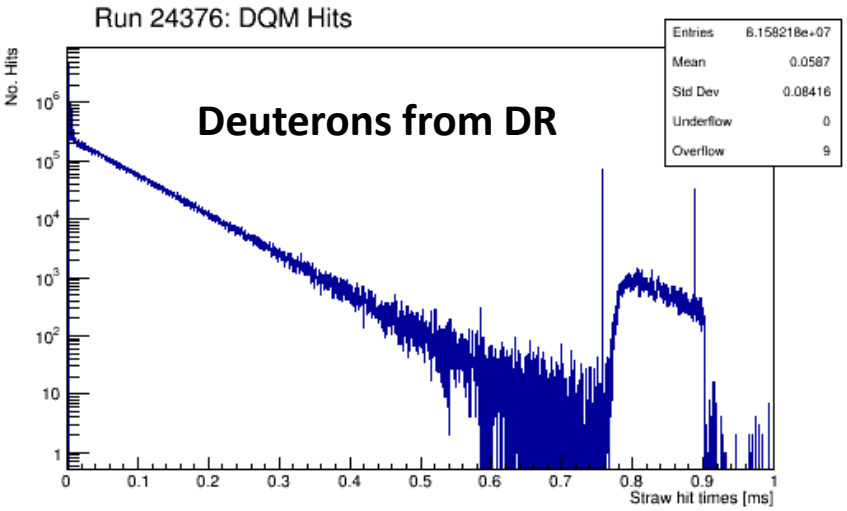
Systematic Studies

- Inflector current, quad scraping, fiber harps, quad resonances, kicker timing, final focus

- Wedges: 4-8% gain with old lens current and 6% with -10% lens current







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Kicker Optimisation

Majority of work has been in trying to realise a stable operating point for the kickers.

We have run at our desired 160 kV but this has resulted in cable failures and excessive sparking in K3 and to a lesser extent K2.

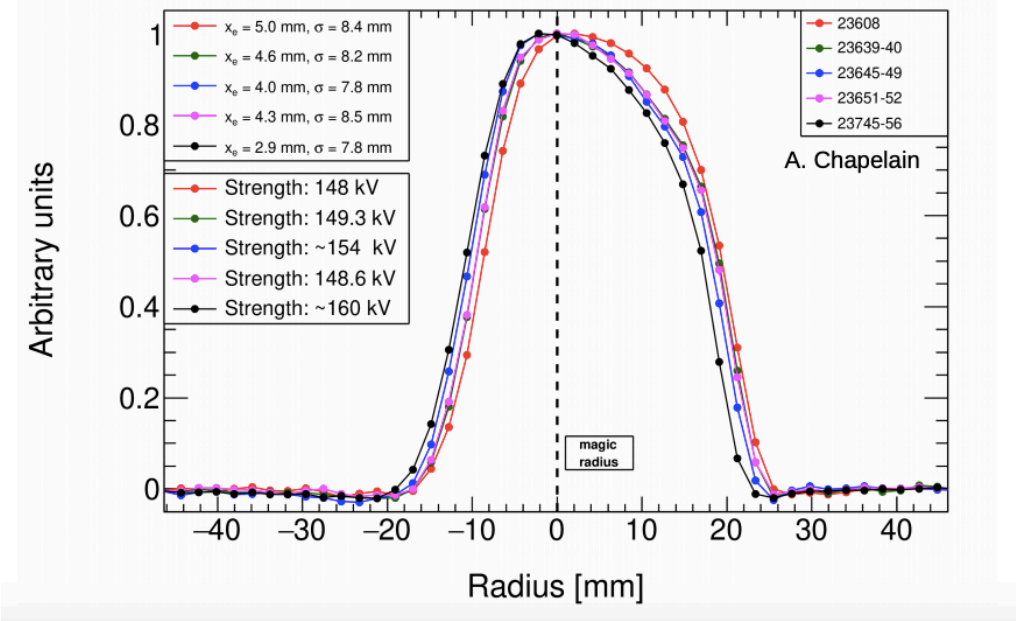
We have identified a deficiency in the K3 feedthrough that caused this sparking (limited it to 35kV)

This was addressed in the last 2 days and we should be ready for beam again at the weekend.

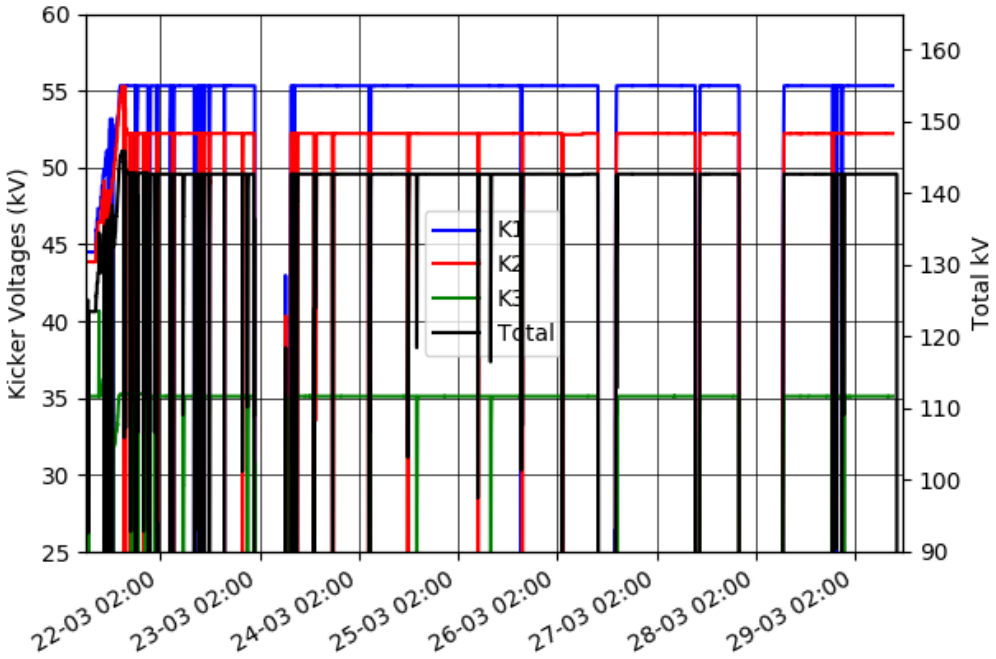
Other systems: cryo, quads, DAQ etc have been stable.

Processing of run-2 offline data proceeding OK along with run-1 reprocessing

Kicker Optimisation



Noticeable reduction in sparking over time → 2-3 a day.



We have limited cable spares
and the swap incurs downtime

We are thus defining a run programme combining
stability / stats (lower kick) vs improved systematic (higher kick)
operating points in the 135 – 150 kV range