

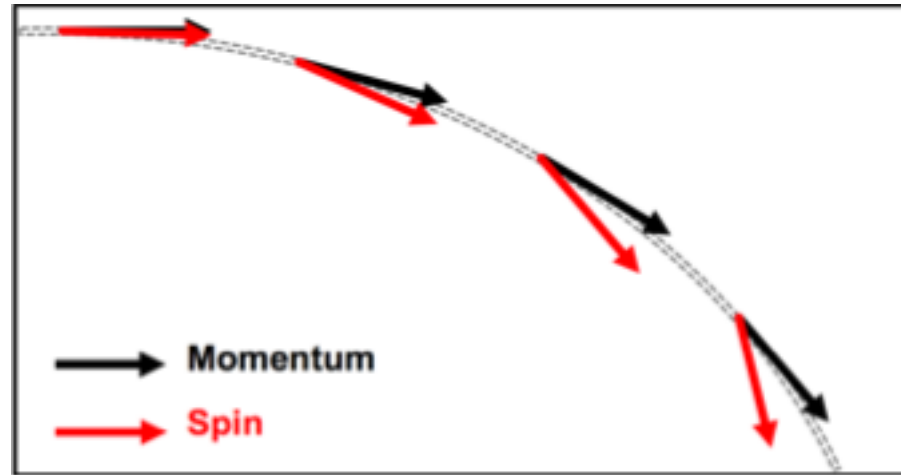
Fermilab Muon $g-2$ Update

NEWS 2nd Annual Meeting

Matthias Smith

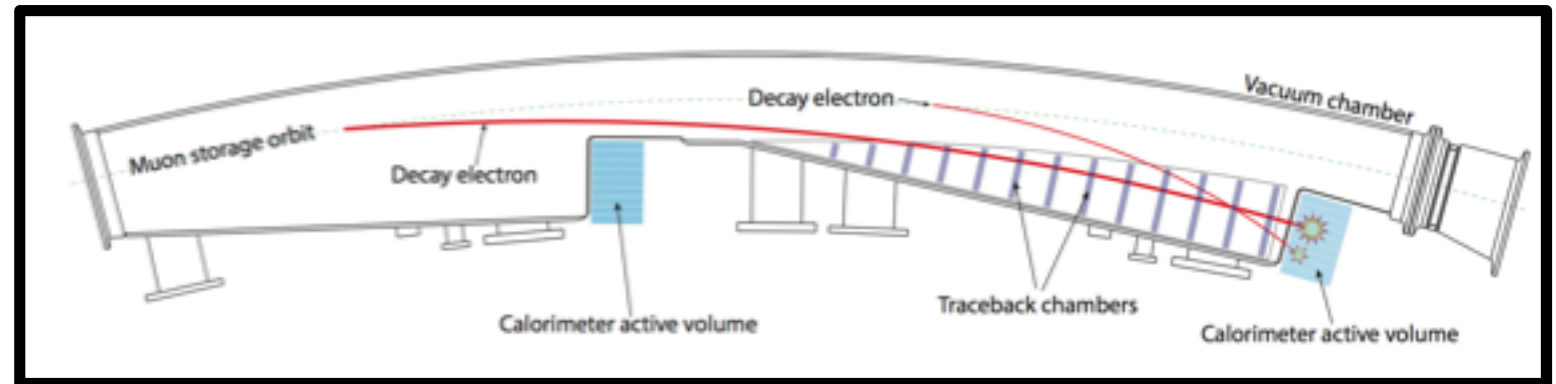
Very Brief Muon g-2 Overview

- Spin polarized muons in cyclotron
- High energy decays enhanced when spin aligns with momentum
- Measure spin phase advance and magnetic field

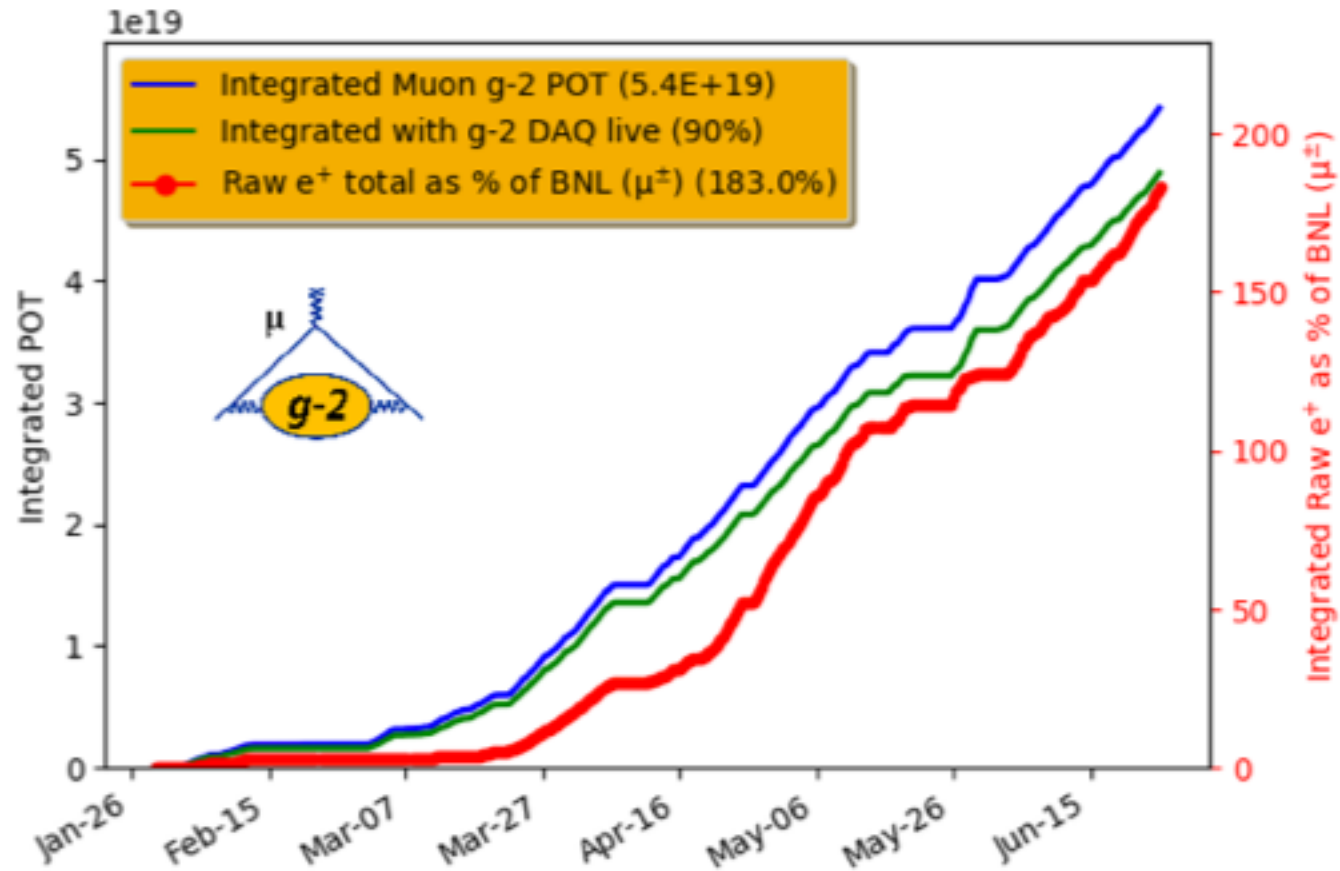


$$a_{\mu, \text{expt}} = \frac{g_e}{2} \boxed{\frac{\omega_a}{\omega_p}} \frac{m_\mu}{m_e} \frac{\mu_p}{\mu_e}$$

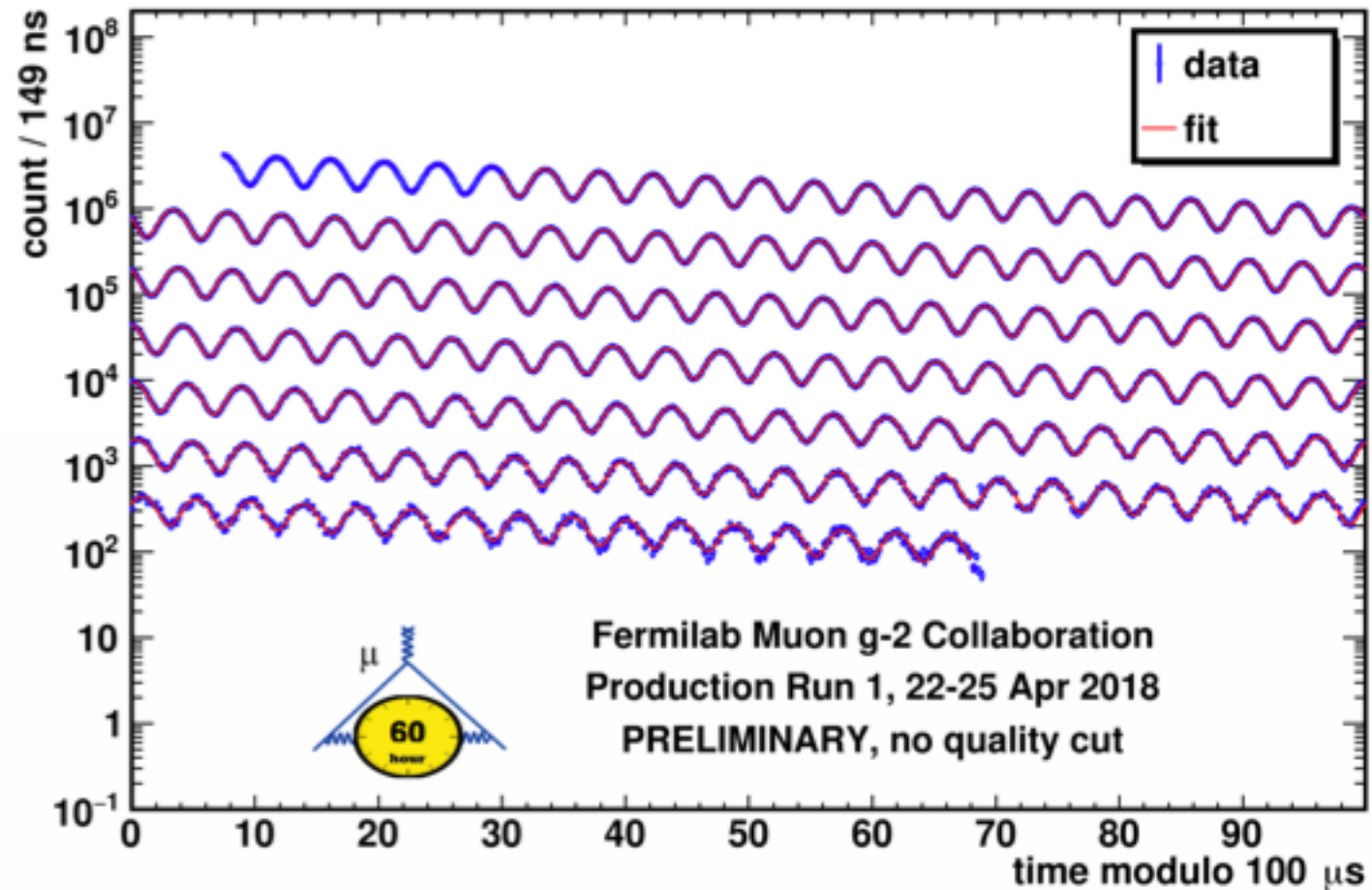
Measured by us



In the Midst of Physics Run 1

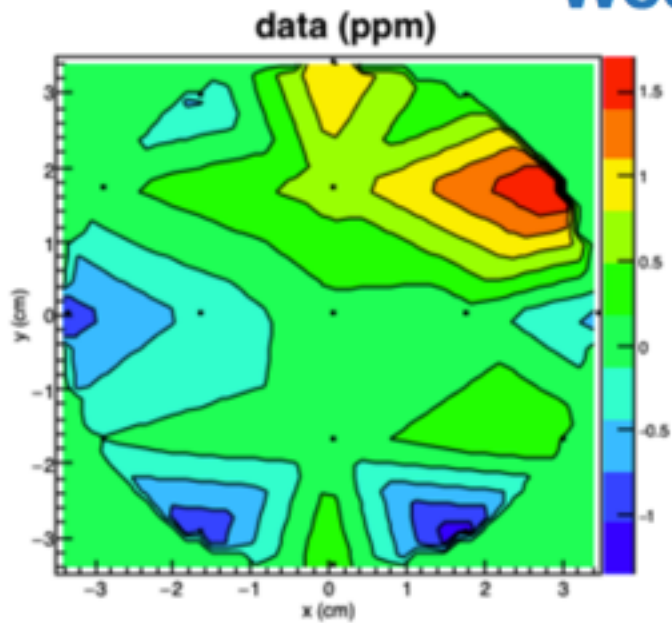


Began ω_a Analysis



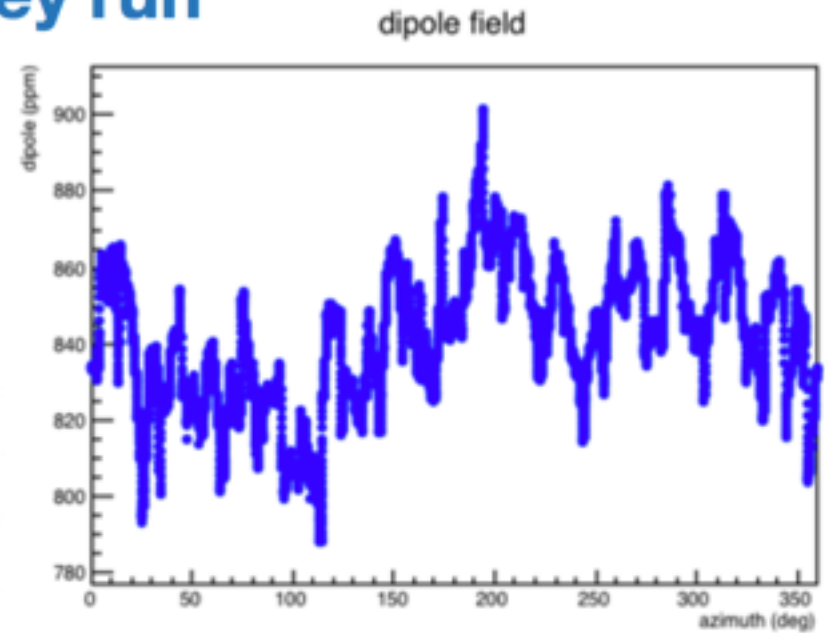
Began ω_p Analysis

Wednesday trolley run



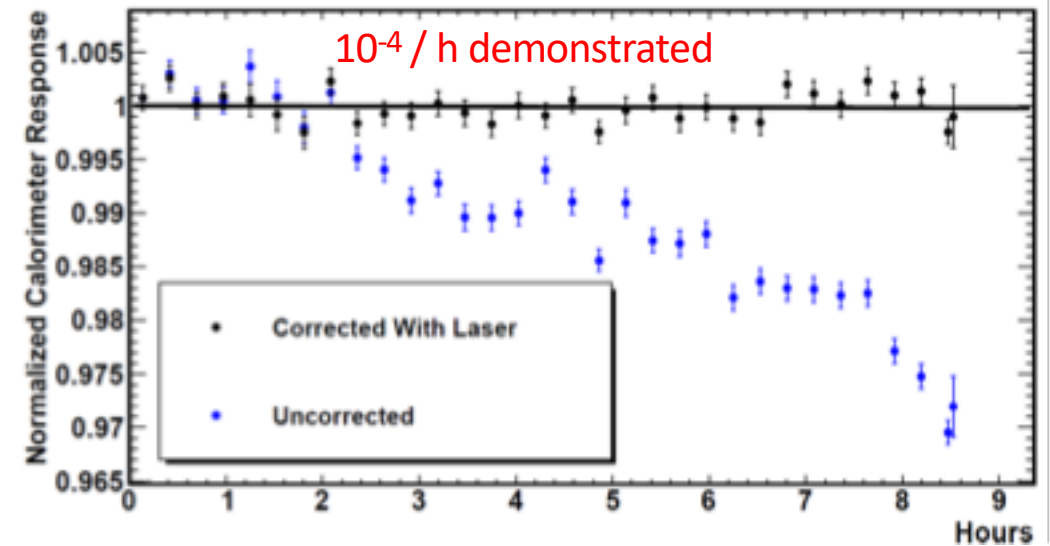
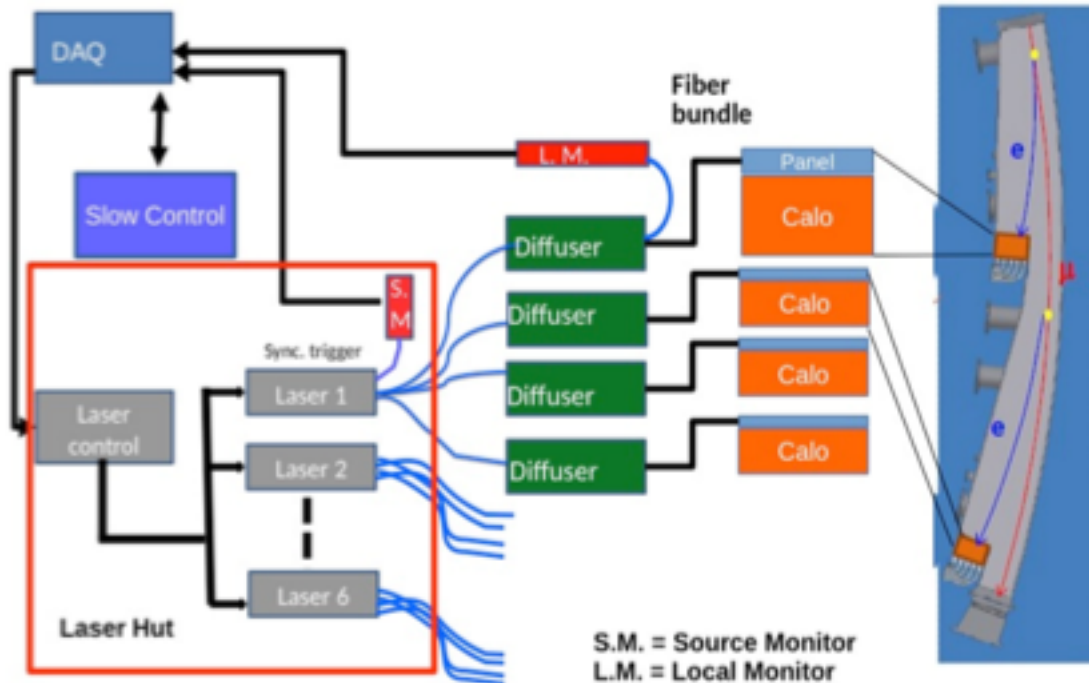
	Norm	Skew
Quad	0.55	0.70
Sext	-0.24	0.51
Octu	-0.05	0.34
Decu	0.24	0.07
Dipole	-0.0	

Run 4226

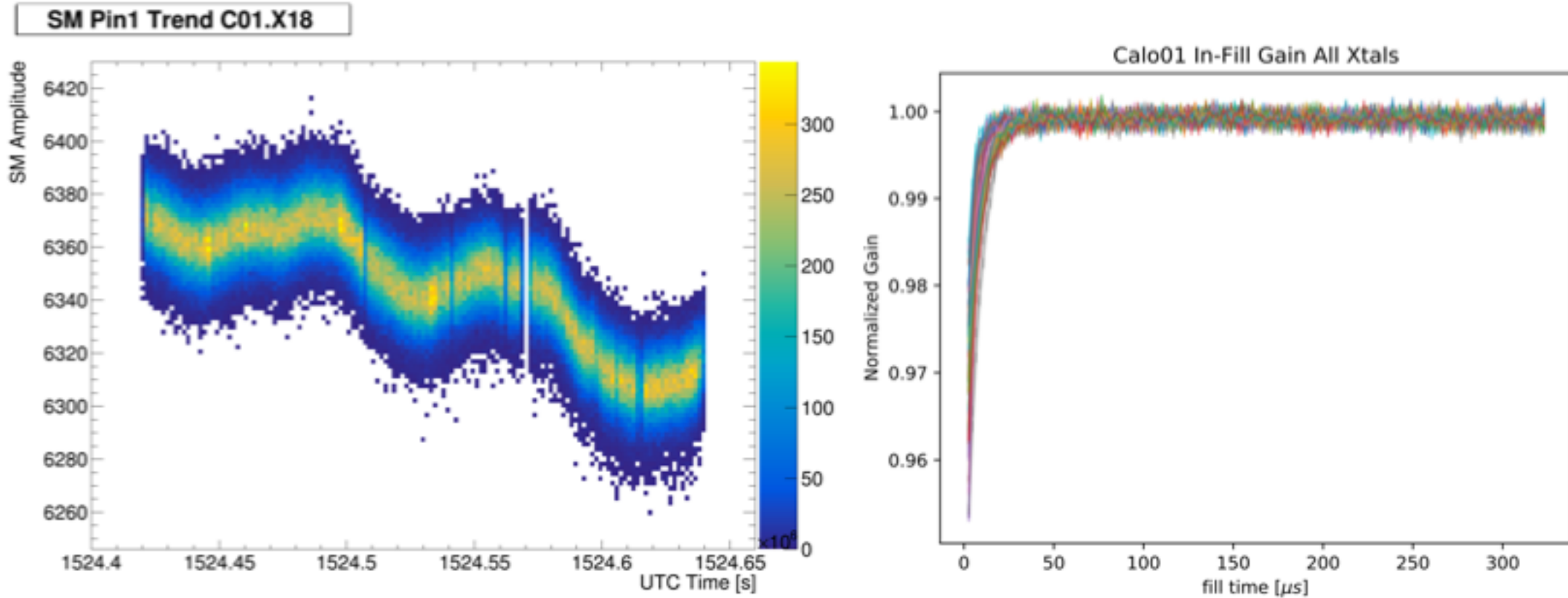


Laser Calibration System

- The focus of the Italian g-2 group



Laser Gain Corrections for ω_a Analysis



Summary

- Run 1 data taking in progress
 - Ends in a few weeks
- No preliminary results yet
 - ppm level results are not far off