Contribution ID: **40** Type: **Oral**

Muon g-2 in 10 minutes

Tuesday, 11 June 2019 16:45 (15 minutes)

The Muon $g-2$ Experiment (E989) is measuring the magnetic anomaly, a_μ, of the muon to 140 parts per billion (ppb) to resolve the outstanding discrepancy between the value predicted by the Standard Model and the best measurement to date. The magnetic anomaly receives contributions from loops of any particle type in the muon-photon vertex, so a discrepancy between theory and experiment is a strong indication of physics beyond the Standard Model. Determining a_μ involves storing muons in a well-known and highly uniform magnetic field and measuring their anomalous precession frequency, ω_a—the rate at which their spins rotate relative to their momenta. Segmented electromagnetic calorimeters measure the hit times and energies of decay positrons to probe ω_a. NMR probes measure and track the 1.45 T magnetic field in terms of the Larmor precession frequency of a free proton, ω_p. Pulsed magnetic kickers allow proper injection onto the 7.1 m radius storage orbit, and pulsed electrostatic quadrupoles provide vertical focusing of the muon beam. Following explanation of the motivation and experimental technique of Muon $g-2$, some snippets of the data taken in Run 1 and Run 2 will be shown.

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