



Contribution ID: 73

Type: **Oral**

The New $g-2$ and Muon EDM experiment at Fermilab

Thursday 14 October 2010 14:50 (30 minutes)

The Brookhaven E821 experiment measured the muon's anomalous magnetic moment to a precision of 0.54 ppm. At this time, the standard model prediction is known to similar precision. When experiment and theory are compared, the difference exceeds 3 standard deviations in significance. What is this telling us? I will review the current status, the more popular interpretations, and most importantly, describe the effort of a new collaboration aiming to improve the experimental precision by more than a factor of 4. The new experiment will use the E821 storage ring, relocated to Fermilab, where the suite of beams and rings there offer a very attractive environment such that 20 times the statistics can be obtained in about 1 year of running. In addition to the $g-2$ measurement, a parasitic muon EDM test will be made, with the aim of up to 100 times improvement compared to E821.

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Session Classification: Session Th - 3

Track Classification: Precision experiments with pions and muons