

Abstract Submitted
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E-Field/Pitch corrections for Run-1 of the Muon $g-2$ Experiment at Fermilab¹ DAVID TARAZONA, Michigan State University, MUON G-2 COLLABORATION — The Muon $g-2$ Experiment at Fermilab (E989) measures the anomalous magnetic moment of the muon, a_μ , with improved precision compared to the previous experiment at Brookhaven National Lab. The new measurement will serve as strong probe of effects of physics beyond the Standard Model (SM) and perhaps validate or disprove other theoretical models outside the SM. Of particular importance is the action of the guide fields of the Muon $g-2$ Storage Ring on the stored beam, which affects its overall spin precession frequency relative to the cyclotron frequency. This relative frequency, also known as ω_a , plays a crucial role in the determination of the muon magnetic anomaly. Experimental techniques with well-established theoretical backgrounds to characterize the stored beam allow to directly quantify the corrections to ω_a due to such effects. Furthermore, with the support of beam dynamics simulations the associated errors that contribute to the E989 final measurement systematic uncertainty are determined.

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David Tarazona
Michigan State University

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