

Abstract Submitted  
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**Understanding Particle Loss Rates in the Muon g-2 Experiment Storage Ring**<sup>1</sup> MICHAEL SYPHERS, Northern Illinois Univ — The Muon g-2 Experiment (E989) at Fermilab seeks to measure the anomalous magnetic moment of the muon to high precision for direct comparison with the predictions of the Standard Model at an unprecedented level. Using a precision magnetic field with electrostatic quadrupole focusing, the decaying muons produce positrons which can be tracked and analyzed. During the measurements within each data-taking window, muons can be lost from the storage ring prior to their decay due to a variety of other dynamical processes. If the “lost muon” distribution has a different average polarization than the distribution that gets measured by the experimental detectors, then this can lead to a systematic error in the final spin precession frequency analysis and hence an error on the anomalous moment determination. In this talk we investigate possible sources of particle loss, estimates of their respective rates, and the scale of the limits on their contribution to a systematic error.

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