

APR21-2021-001318

Abstract for an Invited Paper
for the APR21 Meeting of
the American Physical Society

Recent results from the Muon $g - 2$ Experiment at Fermilab¹

ANNA DRIUTTI, University of Kentucky

At present the most recent experimental measurement of the anomalous magnetic moment of the muon and the Standard Model prediction differ by more than 3 standard deviations, which indicates the possibility of new physics. The Muon $g - 2$ Experiment aims to have a final measurement with a precision of 140 parts per billion, which is a four-fold improvement over the previous BNL results. An intense muon beam is circulated inside of a storage ring with a uniform magnetic field. The muon anomaly is measured by precisely determining the muon spin precession frequency, relative to the muon momentum, and the average magnetic field seen by the beam. This talk will discuss the status of the Run-1 data analysis, focusing on the unique experimental challenges presented during this first production run.

¹We acknowledge support from the Fermi Research Alliance, LLC under Contract No. DE-AC02-07CH11359 with the U.S. DOE-OHEP. The author is supported by award #1812417 from the National Science Foundation.