

# Run-2/3 measurement of the muon anomalous magnetic moment by the Muon g-2 experiment at Fermilab

Thursday 18 July 2024 10:45 (15 minutes)

The Muon g-2 experiment at Fermilab aims to measure the muon magnetic moment anomaly,  $a_\mu = (g-2)/2$ , with a final accuracy of 0.14 parts per million (ppm). The experiment's first result, published in 2021 and based on Run-1 data collected in 2018, confirmed the previous result obtained at Brookhaven National Laboratory with a similar sensitivity of 0.46 ppm. In this talk, we will present the improvements in systematic and statistical uncertainties in the latest result, based on the 2019 and 2020 datasets of Run-2 and Run-3. These datasets contain a factor of four more data than in Run-1, thus entering a new sensitivity regime to g-2 which led to the unprecedented uncertainty of 0.20 ppm. We will also discuss the future prospects for the experiment, the projected uncertainties on  $a_\mu$  for the final publication which will include the last three datasets collected from 2021 to 2023, and an overview of the comparison with the Standard Model prediction for muon g-2.

## Alternate track

1. Beyond the Standard Model

## I read the instructions above

Yes

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