

Status and Future Plans of the g-2 Experiment at Fermilab

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The measurement of the anomalous muon magnetic moment, $a_\mu \equiv (g_\mu - 2)/2$, more than a decade ago by the Brookhaven (BNL) E821 experiment differs at a 3.7σ level from the theoretical predictions from the Standard Model (SM). This result is among the largest observed deviations from the SM and comprises a hint of physics beyond the Standard Model.

The new Muon g-2 experiment at Fermilab, E989, set out to confirm or dissolve this discrepancy by determining a_μ to a precision of 140 parts per billion, a four-fold improvement over the E821 measurement. In its first two physics runs (2017/18 and 2019) more than a factor two in statistics with respect to BNL has been collected. An overview of the experimental technique will be discussed, along with an update of the analysis of the Run-1 data, a Run-2 overview and an outlook on the upcoming Run-3 starting in fall 2019.

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Author: Dr CORRODI, Simon (Argonne National Laboratory)

Presenter: Dr CORRODI, Simon (Argonne National Laboratory)

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