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## Status of the Muon g-2 experiment at Fermilab

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The Muon g-2 Experiment (E989) at Fermilab has been designed to measure the muon anomalous magnetic moment with a precision of 140 part-per-billion (ppb), reducing by four times today's 540 ppb uncertainty, which is dominated by the BNL E821 collaboration final result. Data-taking has begun in February 2018 and the collaboration aims at producing a preliminary result in 2019, based on a statistical sample that is already larger than the E821 sample. E989 measures the spin precession frequency of 3.1 GeV positive muons circulating in a 15 m diameter storage ring with an especially uniform magnetic field, with a design goal of 100 ppb for the statistical uncertainty and 70

ppm for the systematic one. The average magnetic field is measured with NMR probes with a goal total uncertainty of 70 ppb, entirely systematic. These two measurements, combined with several other much more precisely known Physics constants, will determine the muon anomaly with a precision of 140 ppb.

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