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Muon $g-2$ at Fermilab: Challenging the Standard Model and searching for New Physics BRENDAN KIBURG, Fermilab, MUON G-2 COLLABORATION — The Muon $g-2$ experiment at Fermilab will measure the muon's anomalous magnetic moment, a_μ, to 140 parts-per-billion. Modern electroweak and QCD calculations for a_μ differ from the Brookhaven E821 experimental result by 3.6 σ. To test this discrepancy the Muon $g-2$ experiment will implement several upgrades to the E821 approach and collect 20 times as many muons. This talk will outline possible sources that could be responsible for this hint of new physics. A brief overview of the experimental status will be described. The upgrades associated with the ongoing storage ring magnet reassembly and the production and measurement of the highly uniform magnetic field will be highlighted.

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