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The FNAL muon $g-2$ experiment

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The 2004 measurement of the muon's anomalous magnetic moment by the E821 experiment at Brookhaven is the second most cited paper in experimental particle physics behind the observation of neutrino oscillations. This measured value differs by 3.6σ from the Standard Model (SM) prediction. This may be indicative of new physics beyond the SM or a statistical fluctuation. In this talk I will outline the role the UK is playing in a new experiment, E989, at FNAL, that will measure the muon's anomalous magnetic moment with a precision four times better than the E821 experiment and so resolve this issue. This precision is sufficient to establish evidence for new physics beyond the SM at more than 5σ should the present anomaly be confirmed.

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