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The new muon $g-2$ experiment at Fermilab

One of the most powerful tools for constraining new physics models is the measurement of the anomalous magnetic moment of the muon. This measurement has been performed most recently at Brookhaven by E821 by measuring the spin precession of muons stored in a uniform magnetic field. A proposal has been submitted to Fermilab to repeat this measurement with a factor of 21 increase in statistics and factor of 4 reduction in the total error using the existing Fermilab accelerator complex and by relocating the E821 storage ring from Brookhaven to Fermilab. We will discuss the scientific motivation, the layout of the new experiment, and cover the status of the proposal. This would be the first in a series of precision muon experiments hosted by Fermilab and would double the physics output of the currently approved muon program with roughly a 10% increase in cost.

Author: CASEY, Brendan (Fermilab)

Presenter: CASEY, Brendan (Fermilab)

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