

03 MUON g-2

Status of the Fermilab muon ($g-2$) experiment

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摘要 The New Muon ($g-2$) Collaboration at Fermilab has proposed to measure the anomalous magnetic moment of the muon, a_μ , a factor of four better than was done in E821 at the Brookhaven AGS, which obtained $a_\mu = [116\,592\,089(63)] \times 10^{-11} \pm 0.54$ ppm. The last digit of a_μ is changed from the published value owing to a new value of the ratio of the muon-to-proton magnetic moment that has become available. At present there appears to be a difference between the Standard-Model value and the measured value, at the ~ 3 standard deviation level when electron-positron annihilation data are used to determine the lowest-order hadronic piece of the Standard Model contribution. The improved experiment, along with further advances in the determination of the hadronic contribution, should clarify this difference. Because of its ability to constrain the interpretation of discoveries made at the LHC, the improved measurement will be of significant value, whatever discoveries may come from the LHC.

关键词 [measurement, muon anomalous magnetic moment](#)

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