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Muon g-2/edm at J-PARC

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The anomalous magnetic moment of the muon, a_mu = (g_mu - 2)/2, has been measured to 0.54 ppm, and when compared to the Standard Model (SM) calculation of similar precision, a discrepancy of 3.6 sigma remains unexplained. This is perhaps a hint of new interactions beyond the SM, stimulating much theoretical interest and speculation. The muon g-2 experiment responsible for this measurement, Brookhaven E821, is to be repeated by Fermilab E989 using the same 14 m diameter storage ring with the goal of a fourfold reduction of uncertainty. Meanwhile, an alternative method has been proposed and developed to become the J-PARC muon g-2/edm experiment, E34. While the J-PARC goal is similar, the storage ring is a mere 0.66 m in diameter and the techniques are largely new in order to avoid where possible any systematic biases common to 821 and 989. The J-PARC g-2/edm experiment presents many challenges, and some significant progress in meeting them will be described in this talk.

- on behalf of the J-PARC muon g-2/edm (E34) collaboration

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