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The Status of the Muon EDM Search with the Muon g-2 Experiment at Fermilab

This talk covers the status of the muon electric dipole moment search at the Fermilab Muon g-2 experiment. Electric dipole moments of fundamental particles violate CP, and are zero at tree level in the Standard Model, but significantly enhanced in many extensions of the SM. The Muon g-2 experiment is designed for a high precision measurement of the magnetic dipole moment of the (anti-)muon, using spin precession in a magnetic storage ring. Any electric dipole moment of the muon would introduce a vertical component to the spin precession, and hence a vertical modulation in the distribution of positrons from anti-muon decays, which can be measured using the tracking detectors. The current direct limit on the EDM of the muon is 1.8x10^{-19}, set by the Brookhaven Muon g-2 experiment. The Fermilab Muon g-2 experiment will extend the sensitivity to around 10^{-20} with the full dataset. The talk will describe the analysis methodology and current results.

Working Group

WG 4: Muon Physics

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