

The MUonE experiment: a novel way to measure the hadronic contribution to the muon $g-2$

Friday 19 July 2024 08:30 (15 minutes)

The MUonE experiment at CERN aims to determine the leading-order hadronic contribution to the muon $g - 2$, a_μ^{HLO} , by an innovative approach, using elastic scattering of 160 GeV muons on atomic electrons in a low- Z target. a_μ^{HLO} is extracted from the precision measurement of the shape of the differential cross section of the muon-electron elastic process. The target precision is few per mill, competitive with the use of data from experiments at e^+e^- colliders or lattice QCD, whose tensions currently limit the comparison between theoretical and experimental value of the muon $g - 2$. The M2 beamline at CERN provided the necessary intensity needed to reach the statistical goal in few years of data taking. The experimental challenge relies in the precise control of the systematic effects. We will present the progress achieved by the experiment in the last years, the current status, and the future plans of the experiment.

Alternate track

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