

## Status of the MUonE experiment

*Tuesday, 16 August 2022 17:35 (25 minutes)*

The latest measurement of the muon g-2 announced at Fermilab exhibits a  $4.2\sigma$  discrepancy from the currently accepted Standard Model prediction. The main source of uncertainty on the theoretical value is represented by the leading order hadronic contribution  $a_\mu^{HLO}$ , which is traditionally determined through a data-driven dispersive approach. A recent calculation of  $a_\mu^{HLO}$  based on lattice QCD is in tension with the dispersive evaluation, and weakens the discrepancy between theory and experiment to  $1.5\sigma$ . An independent crosscheck of  $a_\mu^{HLO}$  is thus required to solve this tension and consolidate the theoretical prediction. The MUonE experiment proposes a novel approach to determine  $a_\mu^{HLO}$  by measuring the running of the electromagnetic coupling constant in the space-like region, via  $\mu - e$  elastic scattering. The measurement will be performed by scattering a 160 GeV muon beam, currently available at CERN's North Area, on the atomic electrons of a low-Z target. A Test Run on a reduced detector is planned to validate this proposal. The status of the experiment in view of the Test Run will be presented.

### Category

talk

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**Session Classification:** Session 2