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The MUonE Experiment and First Results from the 2025 Test Run

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The MUonE experiment, currently under preparation at CERN, aims to measure the running of the electromagnetic coupling α in the elastic μe scattering process, from which the dominant hadronic contribution to the anomalous magnetic moment of the muon can be extracted. We present performance results from the Phase 1 MUonE test-beam campaign carried out in summer 2025 at the CERN SPS M2 beamline, using CMS 2S silicon modules exposed to a high-rate 160 GeV muon beam. A description of the full detector used will be given. The talk will highlight the main findings and the status of the ongoing analysis. The results from this test run will give indications on the choices for the final detector dedicated to a high-precision measurement of muon-electron elastic scattering.

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