

MUonE experiment at SPS

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MUonE experiment is planned to be operating at the SPS accelerator in 2022-2023 (pilot run) and 2023-27. The MUonE project provides a great potential to search for New Physics in the sector of anomalous muon magnetic moment a_μ , independently from the searches at LHC. The discrepancy between the most accurate determination of a_μ and the Standard Model predictions lies in the 4.2 standard deviations range, being a basis for a series of pioneering experiments expected to improve the precision of a_μ determination by a factor of four. Nevertheless, an analogous improvement is therefore required in the precision of theoretical prediction, dominated by uncertainty related to hadronic contribution, expected to be the main limitation of potential discovery. MUonE experiment will allow for a precise measurement of hadronic contribution to a_μ employing the measurement of shape of the differential cross section for the $\mu e \rightarrow \mu e$ elastic process. This would help to increase the significance of observed discrepancy to the level of 7 standard deviations.

Primary author: KUCHARCZYK, Marcin (IFJ PAN)

Presenter: KUCHARCZYK, Marcin (IFJ PAN)

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