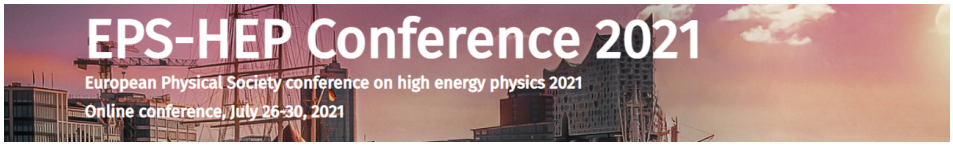

Contribution ID: **834** Type: **Parallel session talk**

Measurement of the muon precession frequency in magnetic field for the measurement of the muon magnetic anomaly

Thursday, 29 July 2021 16:50 (20 minutes)

The FNAL Muon g-2 collaboration has performed a measurement of the muon magnetic anomaly to 0.46 ppm, based on the ratio between the observed spin precession frequencies of orbiting positive muons to protons at rest in the same magnetic field. We describe how the muon precession frequency has been measured by fitting the modulation of the rate of high energy positrons detected by the experiment calorimeters. The muon precession measurement has been performed in a blind way, with 11 analyses performed by 6 independent groups, employing comprehensive fit models with up to 25 fit parameters. Additional studies have been completed to estimate several systematic uncertainties due to the detector response. statistical uncertainty of 0.43 ppm has been obtained using about 8.2 billion muon decays recorded at FNAL in 2018, while the systematic uncertainty has been estimated to be 0.06 ppm.

First author

Alberto Lusiani

Email

alberto.lusiani@pi.infn.it

Collaboration / Activity

FNAL Muon g-2

Primary author: LUSIANI, Alberto (Scuola Normale Superiore and INFN, sezione di Pisa)

Presenter: LUSIANI, Alberto (Scuola Normale Superiore and INFN, sezione di Pisa)

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