

High precision calculation of the hadronic vacuum polarisation contribution to the muon anomaly

Friday, 20 September 2024 09:00 (30 minutes)

We present a new lattice QCD calculation of the leading order hadronic vacuum polarization contribution to the muon anomalous magnetic moment a_μ with a 40% reduction of the uncertainties. The short and intermediate distance window contributions are computed on 28 ensembles with 6 different lattice spacings, while the (small) long distance contributions are obtained using input from experiments in a low-energy regime where they all agree. Combined with other standard model contributions our result leads to a prediction that differs from the measurement of a_μ by only 0.9 standard deviations. This provides a remarkable validation of the standard model to 0.37ppm.

Primary author: FRECH, Fabian Justus (Bergische Universität Wuppertal)

Presenter: FRECH, Fabian Justus (Bergische Universität Wuppertal)

Session Classification: Plenary session 5