Hadronic Contributions to New Physics Searches



Contribution ID: 38

Type: not specified

The hadronic vacuum polarization contribution to aµ from full lattice QCD

Thursday 29 September 2016 15:35 (35 minutes)

Summary

I will report on recent lattice QCD results for the up/down, strange, charm and bottom quark pieces of the hadronic vacuum polarisation contribution

to a_{μ} including results at physical u/d quark masses.

In particular I will discuss the recent HPQCD calculation (1601.03071) that gives a total

HVP contribution of $666(6)(12) \times 10^{-10}$ where the systematic error includes

uncertainties from quark-line disconnected diagrams and QED/isospin effects.

This result implies a discrepancy between the current experimental determination of a_{μ} and the Standard model of 3σ .

I will discuss prospects for improvements to this result.

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Session Classification: Muon g-2