Contribution ID: **406** Type: **Parallel Talk**

The muon g-2 anomaly confronts new physics in $e^{\pm}$ and $^{\pm}$ final states scattering

Friday, 8 July 2022 12:06 (17 minutes)

The discrepancy between the standard model prediction for the muon anomalous magnetic moment and the experimental result is accompanied by other anomalies. A crucial input for the prediction is the hadronic vacuum polarization inferred from hadronic data. However, the two most accurate determinations from KLOE and BaBar disagree by almost 3 sigma. Additionally, the combined data-driven result also disagrees with the most precise lattice determination. We show that all these discrepancies could be accounted for by a new boson produced resonantly around the KLOE centre of mass energy and decaying promptly yielding lepton pairs in the final states. We then present a simple model that can reconcile the KLOE and BaBar results, the data-driven and the lattice SM predictions, and eventually the predicted and measured values of the muon anomalous magnetic moment, while complying with all phenomenological constraints.

In-person participation

Yes

Primary authors: DARMÉ, Luc Jean Marie; NARDI, Enrico (Istituto Nazionale di Fisica Nucleare); GRILLI DI CORTONA, Giovanni (Istituto Nazionale di Fisica Nucleare)

Presenter: DARMÉ, Luc Jean Marie

Session Classification: Quark and Lepton Flavour Physics

Track Classification: Quark and Lepton Flavour Physics