



Contribution ID: 96

Type: **Invited Talk**

Tension for the anomalous magnetic moment of the muon: 4.2 sigma, indeed?

Wednesday 24 May 2023 14:30 (45 minutes)

Twenty years ago, in an experiment at Brookhaven National Laboratory, physicists detected what seemed to be a discrepancy between measurements of the muon's magnetic moment and theoretical calculations of what that measurement should be, raising the tantalizing possibility of physical particles or forces as yet undiscovered. The Fermilab team has announced that their precise measurement supports this possibility. The reported significance for new physics is 4.2 sigma just slightly below the discovery level of 5 sigma. However, an extensive new calculation of the muon's magnetic moment using lattice QCD by the BMW-collaboration reduces the gap between theory and experimental measurements. In this talk both the theoretical and experimental aspects are summarized with two possible narratives: a) almost discovery or b) Standard Model re-inforced. Some details of the lattice calculation are also shown.

Primary author: FODOR, Zoltan

Presenter: FODOR, Zoltan

Session Classification: Wednesday 3

Track Classification: tests and extensions of the Standard Model of elementary particles