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

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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 caluculation are also shown.

Author: FODOR, Zoltan

Presenter: FODOR, Zoltan

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