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Theoretical Advances in g-2 (lattice)

Thursday, 6 June 2024 14:00 (30 minutes)

The muon's anomalous magnetic moment is now known with a precision of 0.19 ppm with the latest run-2 and run-3 results of the Fermilab g-2 experiment. Further improvement in the precision of the experimental result is expected in the near future as the analysis of the final, subsequent run's 4, 5 and 6 are underway. On the theoretical side, the largest source of uncertainty in the 0.37 ppm determination from the muon g-2 theory initiative white-paper is the hadronic vacuum polarization (HVP) contribution, followed by the sub-leading hadronic light-by-light (HLbL) contribution. Lattice QCD provides a systematically-improvable approach for obtaining these quantities with minimal experimental input. In this talk I will provide an overview of the current status of the lattice g-2 community's ongoing efforts to calculate the HVP and HLbL contributions to a level of precision commensurate with experiment.

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