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Review of Lattice Muon g-2 HLbL Calculation

Wednesday, July 25, 2018 10:00 AM (30 minutes)

Recent lattice QCD results for hadron light-by-light
scattering (HLbL) and its contribution to muon anomalous magnetic
moments (g-2) will be reviewed. There are currently more than three
standard deviations between the BNL experimental result and the
theoretical prediction. The Fermilab/JPARC experiments will reduce the
experimental uncertainty by a factor of four. The uncertainty of
theory prediction needs to be reduced to a similar level. With the
recent progress in the dispersive approaches and the lattice
calculations in determining the hadron vacuum polarization (HVP)
contribution to muon g-2, HLbL is becoming the leading source of
uncertainty in the theoretical prediction. Lattice QCD provides a
systematic improvable way to calculate HLbL and a result with reliable
error can be eventually obtained. In this regard, I overview the
recent progress in the lattice calculations of HLbL, the current
status of the calculation, and the future plans. In particular, I
would discuss the method for handling the finite volume errors and the
discretization errors.

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