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## Hadronic vacuum polarization contribution to the muon $g-2$ at short and long distances

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We present an update on our ongoing computation of the hadronic vacuum polarization contribution to the anomalous magnetic moment of the muon, focusing on short and long distance contributions in the time-momentum representation. By combining lattice QCD and perturbation theory at short distances and utilizing a broad range of lattice spacings, we achieve a controlled continuum extrapolation. The quark mass dependence, critical for the long-distance contribution, is constrained using several ensembles that are either at or near physical quark masses. Advanced noise reduction techniques allow for a precise evaluation of the long-distance regime for both isovector and isoscalar contributions.

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