

# The hadronic vacuum polarization contribution to $(g - 2)_\mu$ from $2 + 1$ flavours of $O(a)$ improved Wilson quarks

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We report on our ongoing project to determine the leading-order hadronic vacuum polarisation contribution to the muon  $g - 2$ , using ensembles with  $N_f = 2 + 1$  flavours of  $O(a)$  improved Wilson quarks generated by the CLS effort, with pion masses down to the physical value. We employ  $O(a)$  improved versions of the local and conserved vector currents to compute the contributions of the light, strange and charm quarks to  $(g - 2)_\mu$ , using the time-momentum representation. We perform a detailed investigation of the systematic effects arising from constraining the long-distance regime of the vector correlator. To this end we make use of auxiliary calculations in the iso-vector channel using distillation and the Lüscher formalism. Our results are corrected for finite-volume effects by computing the timelike pion form factor in finite and infinite volume. For certain parameter choices, the corrections computed in this way can also be confronted with results determined on different volumes. Currently, the overall precision of our results is limited by the uncertainties in the lattice scale.

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