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Time windows of the muon HVP from twisted mass lattice QCD

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We present new lattice results of the ETM Collaboration for the SM prediction of the so-called intermediate window (W) and short-distance (SD) contributions to the leading-order hadronic vacuum polarization (HVP) term of the muon anomalous magnetic moment, a_μ^{HVP}.
Our results are obtained from extensive simulations of twisted mass lattice QCD with dynamical up, down, strange and charm quarks at physical mass values, different volumes, and lattice spacings down to $a \sim 0.057$ fm. Our determinations of $a_\mu^{HVP}(W)$ and $a_\mu^{HVP}(SD)$ are compared with existing lattice results and with their dispersive counterparts based on experimental data for e^+e^- annihilation into hadrons. The comparison with dispersive data confirms the tension in $a_\mu^{HVP}(W)$ while showing no significant tension in $a_\mu^{HVP}(SD)$.

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