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A new strategy for evaluating the LO HVP contribution to (g-2)_mu on the lattice

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We propose a hybrid strategy for the lattice evaluation of the leading order hadronic vacuum polarization contribution to the anomalous magnetic moment of the muon. The strategy combines direct numerical integration of lattice data for Q^2 greater than Q^2 _min with the use of fit forms to handle the lattice data in the low- Q^2 region Q^2 less than Q^2 _min. Using a physical model for the I=1 subtracted vector polarization, constructed from experimental data, we study the systematics of this strategy, determining how low a choice of Q^2 _min is possible for current lattice simulations, and identifying three types of fit forms whose use in the low- Q^2 region will lead to results with systematic uncertainties well below the 1% level.

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