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# Hadronic vaccum polarization discrepancy between lattice QCD and data-driven approaches and one possible new physics scenario resolution.

We present the latest lattice results for the hadronic vacuum polarization from lattice QCD. In order to isolate the different origin of systematic errors in lattice computations, the observable is decomposed into several windows. The latest discrepancy between the data-driven theory prediction of the intermediate and long distance window of the hadronic vacuum polarization using the experimental input of  $e+e-$  to hadrons cross-section and the lattice predictions have sparked several new physics scenarios. We elaborate on the Mainz results for the intermediate and long distance windows and discuss one such new physics scenario, a new baryon number gauge boson ( $Z'$ ) which can explain the discrepancy. We briefly illustrate the new model parameter landscape and various bounds from other relevant experiments.

## Field of contribution

Theory

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