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Data Driven Calculation of Hadronic Vacuum Polarisation Contributions to Muon $g-2$

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The 5.2σ discrepancy between the 2020 theoretical evaluation of the muon anomalous magnetic moment a_μ and the most recent measurement made by the Fermilab muon $g - 2$ collaboration has the potential to be one of the most significant results in modern particle physics. However, tensions between experimental inputs to the dispersive calculation of the hadronic vacuum polarisation (HVP) contribution to a_μ , and further tensions with lattice calculations, suggest matters may not be so clear-cut and raise important and interesting questions. I will present my ongoing work with the KNTW collaboration to produce a new calculation of a_μ^{HVP} , with the ultimate aim of answering these questions and contributing significantly to an extremely precise test of the Standard Model.

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