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

*Thursday, 19 December 2024 09:10 (30 minutes)*

The  $5.2\sigma$  discrepancy between the 2020 theoretical evaluation of the muon anomalous magnetic moment  $a_\mu$  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  $a_\mu$ , 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  $a_\mu^{HVP}$ , with the ultimate aim of answering these questions and contributing significantly to an extremely precise test of the Standard Model.

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