

RESULTS OF G-2 EXPERIMENT

Experimental

$$\frac{g-2}{2} = 0.001162 \pm 0.000005$$

Theoretical

$$\begin{aligned} \frac{g-2}{2} &= \frac{\alpha}{2\pi} + 0.75 \left(\frac{\alpha}{\pi} \right)^2 \\ &= 0.001161 + 0.000004 \\ &= 0.001165 \end{aligned}$$

To one standard deviation we now have the following cut-off limits:

Photon propagator	< 0.2 f	> 1 GeV/c
Muon vertex	< 0.15 f	> 1.3 "
Muon propagator	< 0.075 f	> 2.7 "
Fundamental length	< 0.06 f	> 3.3 "

$$\text{Muon mass} = (206.768 \pm 0.003) m_e$$

$$\text{Charge of muon} = (1.00000 \pm 0.00005) e$$

$$\text{Charge of } \nu_{\mu} = (0.00000 \pm 0.00005) e .$$

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