

## Hidden Photons in light of g-2

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Recently, the Muon g-2 collaboration released their first result of the muon anomalous magnetic moment  $(g - 2)_\mu$  measured with the E989 experiment at Fermilab. When combined with previous data this result confirms a  $4.2 \sigma$  excess over the Standard Model prediction. In light of this exciting news an anomaly-free  $U(1)_{L_\mu - L_\tau}$  allows for an explanation of  $(g - 2)_\mu$  with a novel MeV-mass hidden photon. Focussing on neutrino interactions, I will present a dedicated strategy of how to combine measurements from muon beam, coherent neutrino-nucleus scattering and direct detection experiments to independently confirm  $U(1)_{L_\mu - L_\tau}$  as a solution to  $(g - 2)_\mu$  and discriminate it from a simplified muon-coupled  $U(1)_{L_\mu}$  mediator.

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