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A last chance for kinetic mixing: explaining $(g-2)_{\mu}$ with semi-visible dark photons

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We reconsider kinetically mixed dark photons as an explanation of the $(g-2)_{\mu}$ anomaly. While fully visible and invisible dark photon decays are excluded, a semi-visible solution can still explain the discrepancy. We explicitly re-evaluate the constraints from B-factories and fixed-target experiments, namely BaBar and NA64, pointing to a solution in terms of dark sector models with dark neutral leptons with fast decays or co-annihilating dark matter candidates. Several of these models lead to upscattering signatures at neutrino experiments.

In-person participation

Yes

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