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g-2 Model Building with Portal Matter

Tuesday 27 June 2023 15:40 (20 minutes)

In this talk I discuss recent work on model building for the anomalous muon magnetic moment with "portal matter" vector-like fermions charged under both SM hypercharge and a hidden Abelian gauge group U(1)D which can induce kinetic mixing at one loop. The portal matter fields are a well-motivated extension of simplified dark matter models in which the dark matter candidate interacts with the SM via the U(1)D gauge boson in which case the loop-induced kinetic mixing from the portal matter is of the appropriate magnitude to recreate the observed dark matter relic abundance for dark matter and dark gauge bosons in the sub-GeV regime. If the portal matter fields are sufficiently light they may have other phenomenological implications either from direct production or precision effects. I will outline a minimal model of portal matter that resolves the anomaly and discuss the other phenomenological probes of this construction.

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