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Getting chirality right: single scalar leptoquark solutions to the (g-2)_{e/mu} puzzle

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We identify the two scalar leptoquarks capable of generating sign-dependent contributions to leptonic magnetic moments, ⊠2~(3,2,7/6) and ⊠1~(3,1,−1/3), as is a strong possibility given current measurements. We consider the case in which the electron and muon sectors are decoupled, and real-valued Yukawa couplings are specified using an up-type quark mass-diagonal basis. This allows us to identify a previously overlooked region of parameter space, where strong constraints from LFV decays may be avoided. We also comment on the viability of these simple models for studies of leptonic EDMs. This analysis can be embedded within broader flavour anomaly studies, including those of hierarchical leptoquark coupling structures.

Summary

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