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(I) Z' Bosons in Supersymmetry: Mass Limits, Dark Matter, Anomalous Magnetic Moments, and Flavour Anomalies

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Augmenting MSSM by an Abelian $U(1)'$ gauge symmetry offers a viable solution to the μ problem in supersymmetry. Unfortunately, in most instances, collider phenomenology of such models is limited by stringent limits on the Z' boson mass from the ATLAS and CMS collaborations. Here we investigate possibilities of lowering the mass in either leptophobic models, by employing kinetic mixing, or in models with non-universal $U(1)'$ charges. We explore implications of such models on resolving flavour anomalies in B decays and $(g - 2)_{\mu,e}$ discrepancies. We verify consistency of these models with dark matter bounds and indicate the most promising collider signals.

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