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Supersymmetry Breaking in a Minimal Anomalous Extension of the MSSM

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We study a supersymmetry breaking mechanism in the context of a minimal anomalous extension of the MSSM (arXiv:1102.5040). The anomaly cancellation mechanism is achieved through the Green-Schwarz mechanism. We assume that the standard MSSM superpotential is perturbatively realized, except for the μ -term which has a non-perturbative origin. The presence of this term is expected in many intersecting D-brane models which can be considered as the ultraviolet completion of our model. We show how soft supersymmetry breaking terms arise in this framework. Then we study the mass spectrum of the theory and the phenomenology of the new U(1)'s.

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