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Constraints for a Z' boson with non-universal couplings in a supersymmetric model

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We explored in a supersymmetric extension to a $U(1)_X$ non-universal model (Phys. Rev. D 100, 055037) some features regarding the fermion mass hierarchy and the Higgs mass at tree level. The Z' boson included within the non-universal symmetry involves D-terms in the Lagrangian that can predict a 125 GeV Higgs boson, avoiding the necessity of large radiative corrections. In the present work we discuss how this is possible. Additionally, we compare our results with CMS and ATLAS upper bounds on dilepton l^+l^- and diboson W^+W^- production and derive with it some constraints for the Z' mass.

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