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SOME NUMERICAL RESULTS FOR THE ANOMALOUS MAGNETIC MOMENT PARAMETER OF THE W BOSON IN BROKEN SUPERSYMMETRIC $SU_L(2) \times U_Y(1)$

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ABSTRACT

The main purpose of this note is to present numerical values [limits] on the Anomalous Magnetic Moment [AMM] parameter of the W boson in broken-supersymmetric version of the standard model as the masses of the supersymmetric particles are varied. It was shown previously that in the supersymmetric limit the AMM parameter received partial cancellation among members of each supermultiplet. In our numerical analysis we are able to reproduce the previous result of partial cancellations, thus providing a check on our numerical evaluations. Although the AMM parameter shows some sensitivity to the variation of the masses of the supersymmetric particles, the actual values of the various contributions to this parameter like the quadrupole parameter remain small in the context of broken-supersymmetric extension of the standard model.

1. INTRODUCTION.

In a previous note [1] we gave numerical values of various contributions to the anomalous quadrupole moment parameter in broken-supersymmetric extension of the standard model. The purpose of this note is to do the same for the AMM parameter. For the benifit of the readers who are not familar with that paper we repeat the relevant points again.

Supersymmetry is one of the most elegant extensions of the standard model. It solves the hierarchy problem, one of the main drawbacks of grand unified theories, by introducing a fermion-boson symmetry. It is precisely this beautiful property of supersymmetry which provides a hope of unifying all forces of nature [We mean generalizations of global supersymmetry like supergravity and superstring theories.], and also allows forces and matter to be treated on the same footing. As a consequence of the fermi-bose symmetry, many new degrees of freedom corresponding to the supersymmetric partners [S-P] of the standard particles are predicted by the theory. However aesthetically appealing a theory might be, it must stand the test of the

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