Singlet extensions of the MSSM with Z_4 R-symmetry

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Singlet extensions of the MSSM with Z_4 R-symmetry are discussed. It is shown that holomorphic zeros can avoid a potentially large coefficient of the term linear in the singlet. The emerging model has both an effective mu-term and a supersymmetric mass term m_N for the singlet which are controlled by the gravitino mass. The mu-term turns out to be suppressed against m_N by about one or two orders of magnitude. We argue that this class of models might provide us with a solution to the little hierarchy problem of the MSSM.

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