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The SSM with Suppressed SUSY Charge

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A new version of the SSM Action is constructed. The constuction starts with the usual SSM before any breaking is implemented. So there are the usual Chiral SU(2) Doublets and Singlets for the Left and Right Quark and Lepton Superfields, and the usual two Chiral SU(2) Doublets for the Higgs Superfields. One more Chiral SU(2) Triplet Higgs Superfield is added. These are coupled as usual to the Gauge Superfields for $SU(3) \times SU(2) \times U(1)$. No other Superfields are used, and no spontaneous or explicit breaking of SUSY is assumed. No hidden or messenger sector is assumed. There is a Master Equation that implements exact SUSY in this starting theory.

The Chiral multiplets are then subjected to a set of 'Exchange Transformations', which remove some or all of the Scalars from the Chiral Multiplets. These change the Chiral Multiplets into two new kinds of SUSY Multiplet that have Suppressed SUSY Charge'.
The Exchange Transformations preserve SUSY exactly, in the sense that the resulting model still exactly satisfies a new Master Equation for SUSY.

These Exchange Transformations are chosen so that all the Squarks and Sleptons are removed. So this new SSM is exactly equal to the old Standard Model in its Matter sector. The Higgs sector has half of its Scalar Fields removed. The remaining Higgs Scalars develop VEVs to give mass to the Quarks and Leptons, and they also spontaneously break the Gauge symmetry from $SU(2) \times SU(1)$ down to $U(1)$. One major difference from the old Standard Model is the prediction of two new Higgs Bosons, and their masses, which are predicted to be approximately 13.4 TeV. Another major difference is the prediction of Gauginos and Higgsinos which are degenerate in Mass with the Gauge and Higgs Bosons. These Gauginos and Higgsinos are also uncoupled to the Quarks and Leptons.

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