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Radiative Breaking of the Minimal Supersymmetric Left-Right Model

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We propose a new variation to the SUSY Left-Right model (LRM) by extending the Minimal B-L model. Starting from energies of $\sqrt{s} > 7$ TeV, we can describe an intermediate scale for Grand Unification along the Pati-Salam path from $SO(10)$. Here the breaking of $SU(2)_L \times SU(2)_R \times U(1)_{B-L} \rightarrow SU(2)_L \times U(1)_Y$ is by a doublet rather than a triplet. Analyzing the RGE equations, the right handed neutral component of the doublet L^c acquires a negative mass squared at low energies. At least one generation spontaneously acquires a nonzero VEV and breaks the LRM symmetry into the MSSM. A seesaw is induced through gauge couplings maintaining light active neutrinos as well as heavy sterile neutrinos after Left-Right Breaking.

Primary author: Mr PAPAPIETRO, Nathan (University of Alabama)

Co-author: Dr OKADA, Nobuchika (University of Alabama)

Presenter: Mr PAPAPIETRO, Nathan (University of Alabama)

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