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## Mass Spectrum and Dark Matter in the CSE6SSM

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$E_6$  inspired SUSY models are a well-motivated class of models that can solve the  $\mu$  problem in the MSSM and allow for the tree-level Higgs mass to be increased. In the simplest variants of these models, multiple exact and approximate discrete symmetries must be introduced for the model to be phenomenologically viable. Here we study a constrained version of a recently proposed  $E_6$  inspired model, the CSE<sub>6</sub>SSM, in which only a single, exact custodial symmetry is required. We perform scans over the parameter space of the model to identify regions with a SM-like Higgs with a mass of 125 GeV and sparticle masses above existing limits. The obtained solutions lead to distinctive new physics signatures that would enable the model to be discovered at run II of the LHC. At the same time, the observed dark matter relic abundance is accounted for by the lightest MSSM-like neutralino. We find that in these scenarios the predicted direct detection cross sections are close to the current limits from LUX and would be easily discoverable at XENON1T.

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