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New Signatures of Electroweakino Sectors

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Electroweak sectors of beyond the Standard Model theories can contain several new degrees of freedom that are lighter than the 125 GeV Higgs boson, and hidden to present LHC searches. One example is the Next-to-Minimanl Supersymmetric Standard Model (NMSSM) augmented with a Peccei-Quinn (PQ) symmetry. In this talk we highlight many new signatures arising from this model that can be looked for at the LHC. This includes new cascade decays of the neutralinos, as well as those of the 125 GeV Higgs boson. We also discuss the role of dark matter (DM) experiments in covering regions of parameter space for scenarios in which the lightest neutralino is a DM candidate.

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