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Search for Natural SUSY with inclusive search strategies at the LHC using the CMS detector

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Natural SUSY suggests the existence of light stop quarks, accessible at the LHC, which are the focus of a dedicated CMS search program. Here we present a more inclusive strategy. We look for a SUSY signal as an excess on a falling background distribution in the kinematic planes identified by several sets of variables. Complementary searches are described including all hadronic as well as one lepton final states, with and without the use of jet substructure techniques to identify boosted W bosons that decay hadronically. In all cases, b-tagging is used as a tool to reduce SM backgrounds. We show that these inclusive analyses have excellent sensitivity to both direct stop pair production as well as stops coming from decays of heavier sparticles, and other b-rich final states from cascade decays of gluinos, sbottoms, or stops.

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