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A light singlino in the NMSSM: Challenges for SUSY searches at the LHC

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A light singlino in the NMSSM can reduce considerably the missing transverse energy at the end of sparticle decay cascades. This happens when the NLSP (typically bino-like) decays into a light singlino plus a Higgs boson with a mass just below the NLSP mass. This Higgs boson can be the SM-like Higgs, or a lighter NMSSM-specific Higgs boson. When such a scenario is realised, upper bounds on squark and gluino masses from the LHC run I are considerably reduced. Searches for SUSY at the run II should include searches for the remnants of two Higgs bosons per event, with yet unknown masses. Concrete proposals for such searches are made, including signal/background analyses.

additional information

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