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SUSY searches in trilepton final states at the LHC

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he direct production of neutralino-chargino pairs in the mSUGRA scenario with decays to a pure trilepton final state has a significant cross section at low neutralino masses and is a viable SUSY discovery channel at the LHC. The main Standard Model background are from Z/gamma + jets, WZ/gamma and ttbar channels where dileptons appear from Z decays and a third lepton is coming either from W decay or jets. The large total and missing transverse energy of the event used for other SUSY channels is not efficient for the direct production of low mass gauginos thus making isolation and identification of fake leptons a major task for the trilepton signature.
We evaluate signal selection criteria using the CMS detector simulation. A 5 sigma signal can be observed in the opposite sign same flavor dilepton invariant mass at an integrated luminosity above 10 fb-1 for m(1/2) < 170 GeV.

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