

Search for gluino-mediated bottom- and top-squark production in all hadronic and single lepton multijet final states from pp collisions at $\sqrt{s} = 8$ TeV using the CMS detector

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Two searches for gluino-mediated supersymmetry are presented based on events with large missing transverse energy and multiple jets, with some of the jets being identified as a bottom-quark jet. These searches cover two separate final states, one containing exactly zero isolated leptons, and the other containing exactly one isolated muon or electron. Both searches have been performed using proton-proton collision data corresponding an integrated luminosity of 19.4 fb^{-1} recorded at a center-of-mass energy of 8 TeV with the CMS detector at the LHC in 2012. The observed numbers of events are found to be consistent with the standard model expectation. Thus, exclusion limits on new physics are evaluated for simplified supersymmetric scenarios in which gluino pair production is followed by the decay of each gluino to an undetected lightest supersymmetric particle and either a bottom or top quark-antiquark pair, based on the production cross section calculated to next-to-leading-order plus next-to-leading-logarithm accuracy.

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