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Search for Gluino-Mediated Stop Pair Production in Events with b-jets and Large Missing Transverse Momentum Collected with the ATLAS Detector

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A search for supersymmetry involving the pair production of gluions decaying via stop quarks into the lightest neutralino $\tilde{\chi}_1^0$ is reported. It uses LHC *pp* collision data at $\sqrt{s} = 13\ TeV$ with an integrated luminosity of $139 fb^{-1}$ collected with the ATLAS detector in 2015-2018. The search is performed in events containing large missing transverse momentum and several energetic jets, at least three of which must be identified as originating from b-quarks. The analysis is done in two final states, one of which is required to have at least one charged lepton (electron or muon), and the second one is required the veto on leptons. Expected exclusion limit for gluino and neutralino masses is evaluated using simplified signal model. It is found to be $800\ GeV$ and below for neutralino masses with gluino masses of less than $2275\ GeV$ at the 95% confidence level.

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Yes

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