

Abstract Submitted  
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**A Study on Multi-Jets Final States at the Large Hadron Collider<sup>1</sup>**

MAYA AMOUZEGAR, Univ of Maryland-College Park, EVA HALKIADAKIS, AMITABH LATH, SCOTT THOMAS, YURI GERSHTEIN, Rutgers University, CMS COLLABORATION — The LHC (Large Hadron Collider) at CERN, located in Geneva, Switzerland, collides protons at a center of mass energy of 13 TeV. The CMS (Compact Muon Solenoid) detector is one of the four experiments that detects collisions at the LHC. One of the new physics phenomenon that is looked for by the CMS detector is Supersymmetry (SUSY). In our method, we look for these particles by looking at multi-jets final states in interactions that produce up to 8 jets in their final states. By comparing jets in new physics signals with ones produced through QCD, we would be able to predict where new physics might be lying. Since the standard model interactions mostly produce di-jets, if there is an excess of jets at a certain energy, it is possible that a process beyond the standard model is producing those jets. Most of the simulated Monte Carlo signals considered are R-Parity Violating SUSY interactions. In order to perform these studies, we studied the jets' transverse momentum (Pt) divided by the total hadronic energy in the event (HT) as a function of the jet multiplicity, between 2 and 8 jets. If there is an excess of transverse momentum, there is the possibility that SUSY particles are created and are decaying into jets.

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