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Search for low mass three-jet resonances at the Compact Muon Solenoid[1] HANNAH GLASER, Virginia Tech , AMITABH LATH, EVA HALKIADAKIS, YURI GERSHTEIN, ELLIOT HUGHES, ABHIJITH GANDRAKOTA, Rutgers University, CMS COLLABORATION — The Standard Model of physics describes everything we currently know about fundamental particles and their interactions, however it is not complete. One approach used in the search for new physics is to perform an analysis on experimental data which would be sensitive to a "supersymmetric partner" to a known particle. This new particle would possess the same properties as one from Standard Model, save for its mass and its spin, which would be off by . The gluon is a Standard Model particle that is both a carrier of and a participant in the Strong Force. A theoretical partner to the gluon, the "gluino," would decay to three quarks observed as a three-jet resonance in the detector, making it a viable target for multi-jet analysis. This work applies the techniques of this approach to a lower mass range than has yet been examined to determine whether they can successfully be used at this scale. The data used in this study came from 13 TeV proton-proton collisions produced by the Large Hadron Collider (LHC) in Geneva, Switzerland and collected by the Compact Muon Solenoid (CMS) detector.

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