Search for pair-produced three-jet resonances in proton-proton collisions at root s=13 TeV

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Abstract

A search has been performed for pair-produced resonances decaying into three jets. The proton-proton collision data used for this analysis were collected with the CMS detector in 2016 at a center-of-mass energy of 13 TeV and correspond to an integrated luminosity of 35.9 fb(-1). The mass range from 200 to 2000 GeV is explored in four separate mass regions. The observations show agreement with standard model expectations. The results are interpreted within the framework of R-parity violating SUSY, where pair-produced gluinos decay to a six quark final state. Gluino masses below 1500 GeV are excluded at 95% confidence level. An analysis based on data with multijet events reconstructed at the trigger level extends the reach to masses as low as 200 GeV. Improved analysis techniques have led to enhanced sensitivity, allowing the most stringent limits to date to be set on gluino pair production.

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