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Inclusive search for supersymmetry using razor variables in pp collisions at $s = 13$ TeV (Article) [\(Open Access\)](#)

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Abstract

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An inclusive search for supersymmetry using razor variables is performed in events with four or more jets and no more than one lepton. The results are based on a sample of proton-proton collisions corresponding to an integrated luminosity of 2.3 fb⁻¹ collected with the CMS experiment at a center-of-mass energy of $s = 13$ TeV. No significant excess over the background prediction is observed in data, and 95% confidence level exclusion limits are placed on the masses of new heavy particles in a variety of simplified models. Assuming that pair-produced gluinos decay only via three-body processes involving third-generation quarks plus a neutralino, and that the neutralino is the lightest supersymmetric particle with a mass of 200 GeV, gluino masses below 1.6 TeV are excluded for any branching fractions for the individual gluino decay modes. For some specific decay mode scenarios, gluino masses up to 1.65 TeV are excluded. For decays to first- and second-generation quarks and a neutralino with a mass of 200 GeV, gluinos with masses up to 1.4 TeV are excluded. Pair production of top squarks decaying to a top quark and a neutralino with a mass of 100 GeV is excluded for top squark masses up to 750 GeV. © 2017 CERN.

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