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## Search for supersymmetry in proton-proton collisions at 13 TeV in final states with jets and missing transverse momentum (Article) [\(Open Access\)](#)

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### Abstract

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Results are reported from a search for supersymmetric particles in the final state with multiple jets and large missing transverse momentum. The search uses a sample of proton-proton collisions at  $s = 13$  TeV collected with the CMS detector in 2016–2018, corresponding to an integrated luminosity of  $137 \text{ fb}^{-1}$ , representing essentially the full LHC Run 2 data sample. The analysis is performed in a four-dimensional search region defined in terms of the number of jets, the number of tagged bottom quark jets, the scalar sum of jet transverse momenta, and the magnitude of the vector sum of jet transverse momenta. No significant excess in the event yield is observed relative to the expected background contributions from standard model processes. Limits on the pair production of gluinos and squarks are obtained in the framework of simplified models for supersymmetric particle production and decay processes. Assuming the lightest supersymmetric particle to be a neutralino, lower limits on the gluino mass as large as 2000 to 2310 GeV are obtained at 95% confidence level, while lower limits on the squark mass as large as 1190 to 1630 GeV are obtained, depending on the production scenario. [Figure not available: see fulltext.]. © 2019, The Author(s).

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Search for supersymmetry in events with a photon, jets, b -jets,