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## Search for Supersymmetry in pp Collisions at $s = 13$ TeV in the Single-Lepton Final State Using the Sum of Masses of Large-Radius Jets (Article)

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### Abstract

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Results are reported from a search for supersymmetric particles in proton-proton collisions in the final state with a single lepton, multiple jets, including at least one b-tagged jet, and large missing transverse momentum. The search uses a sample of proton-proton collision data at  $s = 13$  TeV recorded by the CMS experiment at the LHC, corresponding to an integrated luminosity of 35.9 fb<sup>-1</sup>. The observed event yields in the signal regions are consistent with those expected from standard model backgrounds. The results are interpreted in the context of simplified models of supersymmetry involving gluino pair production, with gluino decay into either on- or off-mass-shell top squarks. Assuming that the top squarks decay into a top quark plus a stable, weakly interacting neutralino, scenarios with gluino masses up to about 1.9 TeV are excluded at 95% confidence level for neutralino masses up to about 1 TeV. © 2017 CERN, for the CMS Collaboration. Published by the American Physical Society under the terms of the <https://creativecommons.org/licenses/by/4.0/> Creative Commons Attribution 4.0 International license. Further distribution of this work must maintain attribution to the author(s) and the published article's title, journal citation, and DOI.

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