Document details

‹ Back to results | 1 of 28 Next ›

Physical Review D
Volume 99, Issue 5, 1 March 2019, Article number 052001

Search for pair production of first-generation scalar leptoquarks at s =13 TeV (Article) (Open Access)

Sirunyan, A.M.[a], Tumasyan, A.[a], Adam, W.[b], Ambrogi, F.[b], Asilar, E.[b], Bergauer, T.[b], Brandstetter, J.[b], Dragicevic, M.[b], Erö, J.[b], Escalante Del Valle, A.[b], Flechl, M.[b], Frühwirth, R.[b,gx], Ghete, V.M.[b], Hrubec, J.[b], Jeitler, M.[b,gx], Krammer, N.[b], Krätschmer, I.[b], Liko, D.[b], Madlener, T.[b], Mikulec, I.[b], Rad, N.[b],

View additional authors

[a]Yerevan Physics Institute, Yerevan, Armenia
[b]Institut für Hochenergiephysik, Wien, Austria
[c]Institute for Nuclear Problems, Minsk, Belarus

View additional affiliations

Abstract

View references (94)

A search for the pair production of first-generation scalar leptoquarks is performed using proton-proton collision data recorded at 13 TeV center-of-mass energy with the CMS detector at the LHC. The data correspond to an integrated luminosity of 35.9 fb-1. The leptoquarks are assumed to decay promptly to a quark and either an electron or a neutrino, with branching fractions β and 1-β, respectively. The search targets the decay final states comprising two electrons, or one electron and large missing transverse momentum, along with two quarks that are detected as hadronic jets. First-generation scalar leptoquarks with masses below 1435 (1270) GeV are excluded for β=1.0(0.5). These are the most stringent limits on the mass of first-generation scalar leptoquarks to date. The data are also interpreted to set exclusion limits in the context of an R-parity violating supersymmetric model, predicting promptly decaying top squarks with a similar dielectron final state. © 2019 2019 CERN, for the CMS Collaboration.

ISSN: 24700010
Source Type: Journal
Original language: English
DOI: 10.1103/PhysRevD.99.052002
Document Type: Article
Publisher: American Physical Society

References (94)

View in search results format ›

View all 94 references

1 Glashow, S.L.
Partial-symmetries of weak interactions

(1961) *Nuclear Physics*, 22 (4), pp. 579-588. Cited 2920 times.
doi: 10.1016/0029-5582(61)90469-2

View at Publisher