

Document details

[< Back to results](#) | 1 of 1[Export](#) [Download](#) [Print](#) [E-mail](#) [Save to PDF](#) [Add to List](#) [More...](#)[View at Publisher](#)

Physical Review Letters

Volume 122, Issue 2, 14 January 2019, Article number 021801

Search for the Higgs Boson Decaying to Two Muons in Proton-Proton Collisions 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, Brondolin, E.^b, Dragicevic, M.^b, Erö, J.^b, Escalante Del Valle, A.^b, Flechl, M.^b, Frühwirth, R.^{b,gu}, Ghete, V.M.^b, Hrubec, J.^b, Jeitler, M.^{b,gu}, Krammer, N.^b, Krätschmer, I.^b, Liko, D.^b, Madlener, T.^b, Mikulec, I.^b, Rad, N.^b,[View additional authors](#) ^aYerevan Physics Institute, Yerevan, Armenia^bInstitut für Hochenergiephysik, Wien, Austria^cInstitute for Nuclear Problems, Minsk, Belarus[View additional affiliations](#) **Abstract**

A search for the Higgs boson decaying to two oppositely charged muons is presented using data recorded by the CMS experiment at the CERN LHC in 2016 at a center-of-mass energy $s = 13$ TeV, corresponding to an integrated luminosity of 35.9 fb⁻¹. Data are found to be compatible with the predicted background. For a Higgs boson with a mass of 125.09 GeV, the 95% confidence level observed (background-only expected) upper limit on the production cross section times the branching fraction to a pair of muons is found to be 3.0 (2.5) times the standard model expectation. In combination with data recorded at center-of-mass energies $s = 7$ and 8 TeV, the background-only expected upper limit improves to 2.2 times the standard model value with a standard model expected significance of 1.0 standard deviation. The corresponding observed upper limit is 2.9 with an observed significance of 0.9 standard deviation. This corresponds to an observed upper limit on the standard model Higgs boson branching fraction to muons of 6.4×10^{-4} and to an observed signal strength of $1.0 \pm 1.0(\text{stat}) \pm 0.1(\text{syst})$. © 2019 CERN. for the CMS Collaboration. Published by the American Physical Society under the terms of the [»https://creativecommons.org/licenses/by/4.0/»](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. Funded by SCOAP³.

SciVal Topic Prominence Topic: [jets](#) | [production](#) | [parton shower](#)

Prominence percentile: 99.875

Indexed keywords

Engineering controlled terms:

[Charged particles](#) [Statistics](#)

Engineering uncontrolled terms

[Branching fractions](#) [Center-of-mass energies](#) [Confidence levels](#) [Integrated luminosity](#) [Production cross section](#) [Proton proton collisions](#) [Standard deviation](#) [The standard model](#)

Engineering main heading:

[Bosons](#)**Metrics**

0 Citations in Scopus

0 Field-Weighted Citation Impact

**PlumX Metrics**

Usage, Captures, Mentions, Social Media and Citations beyond Scopus.

Cited by 0 documents

Inform me when this document is cited in Scopus:

[Set citation alert >](#)[Set citation feed >](#)**Related documents**

Find more related documents in Scopus based on:

[Authors >](#) [Keywords >](#)

ISSN: 00319007
CODEN: PRLTA
Source Type: Journal
Original language: English

DOI: 10.1103/PhysRevLett.122.021801
PubMed ID: 30720313
Document Type: Article
Publisher: American Physical Society

© Copyright 2019 Elsevier B.V., All rights reserved.

< Back to results | 1 of 1

^ Top of page

About Scopus

What is Scopus
Content coverage
Scopus blog
Scopus API
Privacy matters

Language

日本語に切り替える
切换到简体中文
切换到繁體中文
Русский язык

Customer Service

Help
Contact us

ELSEVIER

[Terms and conditions ↗](#) [Privacy policy ↗](#)

Copyright © 2019 Elsevier B.V. All rights reserved. Scopus® is a registered trademark of Elsevier B.V.
We use cookies to help provide and enhance our service and tailor content. By continuing, you agree to the use of cookies.

 RELX Group™