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Search for lepton-flavour-violating decays of Higgs-like bosons

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Group Author(s): LHCb Collaboration

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EUROPEAN PHYSICAL JOURNAL C

Volume: 78 Issue: 12

Article Number: 1008

DOI: 10.1140/epjc/s10052-018-6386-8

Published: DEC 12 2018

Document Type: Article

[View Journal Impact](#)

Abstract

A search is presented for a Higgs-like boson with mass in the range 45 to 195 GeV/c(2) decaying into a muon and a tau lepton. The dataset consists of proton-proton interactions at a centre-of-mass energy of 8 TeV, collected by the LHCb experiment, corresponding to an integrated luminosity of 2 fb⁻¹. The tau leptons are reconstructed in both leptonic and hadronic decay channels. An upper limit on the production cross-section multiplied by the branching fraction at 95% confidence level is set and ranges from 22 pb for a boson mass of 45 GeV/c(2) to 4 pb for a mass of 195 GeV/c(2).

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Funding

Funding Agency	Grant Number
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CAPES (Brazil)	
CNPq (Brazil)	
FAPERJ (Brazil)	
FINEP (Brazil)	
MOST (China)	
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