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Search for W Boson Decays to Three Charged Pions (Article) (Open Access)

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Abstract

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For the first time, a search for the rare decay of the W boson to three charged pions has been performed. Proton-proton collision data recorded by the CMS experiment at a center-of-mass energy of 13 TeV, corresponding to an integrated luminosity of 77.3 fb-1, have been analyzed. No significant excess is observed above the background expectation. An upper limit of 1.01×10-6 is set at 95% confidence level on the branching fraction of the W boson to three charged pions. This provides a strong motivation for theoretical calculations of this branching fraction. © 2019 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. Funded by SCOAP 3 .

SciVal Topic Prominence

Topic: Collisions | Jets | Proton–proton collisions

Prominence percentile: 99.939

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