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Search for leptophobic Z′ bosons decaying into four-lepton final states in proton–proton collisions at s=8TeV (Article) (Open Access)

Khachatryan, V.[aa], Sirunyan, A.M.[a], Tumasyan, A.[a], Adam, W.[b], Asilar, E.[b], Bergauer, T.[b], Brandstetter, J.[b], Brondolin, E.[b], Dragicevic, M.[b], Erö, J.[b], Flechl, M.[b], Friedl, M.[b], Frühwirth, R.[b], Ghete, V.M.[b], Hartl, C.[b], Hörmann, N.[b], Hrubec, J.[b], Jeitler, M.[b], König, A.[b], Krätschmer, I.[b], Liko, D.[b], Matsushita, T.[b], Mikulec, I.[b],

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Abstract

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A search for heavy narrow resonances decaying into four-lepton final states has been performed using proton–proton collision data at s=8TeV collected by the CMS experiment, corresponding to an integrated luminosity of 19.7fb^{-1}. No excess of events over the standard model background expectation is observed. Upper limits for a benchmark model on the product of cross section and branching fraction for the production of these heavy narrow resonances are presented. The limit excludes leptophobic Z′ bosons with masses below 2.5TeV within the benchmark model. This is the first result to constrain a leptophobic Z′ resonance in the four-lepton channel. © 2017 The Author(s)

Author keywords

CMS Exotica Four leptons LHC Physics Z′

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