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Search for charged Higgs bosons in the $H^{\pm} ? t^{\pm} ?_t$ decay channel in proton-proton collisions at √s=13 TeV (Article) (Open Access)

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Abstract

A search is presented for charged Higgs bosons in the $H^{\pm} ? t^{\pm} ?_t$ decay mode in the hadronic final state and in final states with an electron or a muon. The search is based on proton-proton collision data recorded by the CMS experiment in 2016 at a center-of-mass energy of 13 TeV, corresponding to an integrated luminosity of 35.9 fb^{-1}. The results agree with the background expectation from the standard model. Upper limits at 95% confidence level are set on the production cross section times branching fraction to $t^{\pm} ?_t$ for an $H^{\pm}$ in the mass range of 80GeV to 3TeV, including the region near the top quark mass. The observed limit ranges from 6 pb at 80 GeV to 5 fb at 3 TeV. The limits are interpreted in the context of the minimal supersymmetric standard model $m_h^{hod -}$ scenario.[Figure not available: see fulltext.]. © 2019, The Author(s).

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