

Search for heavy resonances decaying to a top quark and a bottom quark in the lepton plus jets final state in proton-proton collisions at 13 TeV

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Abstract

A search is presented for narrow heavy resonances decaying to a top quark and a bottom quark using data collected by the CMS experiment at root s= 13 TeV in 2016. The data set analyzed corresponds to an integrated luminosity of 35.9fb(-1). Final states that include a single lepton (e, mu), multiple jets, and missing transverse momentum are analyzed. No evidence is found for the production of a W' boson, and the production of right-handed W' bosons is excluded at 95% confidence level for masses up to 3.6 TeV depending on the scenario considered. Exclusion limits for W' bosons are also presented as a function of their coupling strength to left- and right-handed fermions. These limits on a W' boson decaying via a top and a bottom quark are the most stringent published to date. (c) 2017 The Author. Published by Elsevier B.V.

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