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Search for Charged Higgs decaying into a top and bottom quark with a single leptonic final state MICHAEL LUKASIK, JINGYU LUO, Brown University, CMS COLLABORATION — Many extensions of the Standard Model include the addition of a charged Higgs boson. The two-Higgs doublet model (2HDM) is one such extension that predicts a doublet of such particles. The type II model of 2HDM predicts three neutral Higgs bosons along with a positive and negative charged pair of Higgs bosons. In this talk, we present a search for these charged Higgs bosons decaying into a top and bottom quark and ending in a single leptonic final state. We perform a multivariable analysis using a Boosted Decision Tree approach to aid in signal and background discrimination. CMS data collected at 13 TeV in 2017 (41.5 fbˆ{-1}) and 2018 (59.97 fbˆ{-1}) are considered in this search.

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