

Search for Charged Higgs decaying into a top and bottom quark with a single leptonic final state

Tuesday, July 13, 2021 3:30 PM (15 minutes)

Many extensions of the Standard Model include the addition of charged Higgs bosons. The two-Higgs doublet model (2HDM) is one such extension that predicts the presence of charged Higgs bosons. The 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 with single-lepton final states. We perform a multivariable analysis using a Gradient Boosted Decision Tree approach to aid in signal-to-background discrimination. CMS data collected at 13 TeV in 2016 (35.9 fb^{-1}), 2017 (41.5 fb^{-1}), and 2018 (59.97 fb^{-1}) are considered in this search.

Are you are a member of the APS Division of Particles and Fields?

Yes

Primary authors: LUO, Jingyu (Brown University (US)); LUKASIK, Michael (Brown University (US))

Presenter: LUO, Jingyu (Brown University (US))

Session Classification: Beyond Standard Model

Track Classification: Beyond Standard Model Physics