

Abstract Submitted
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Charged Higgs searches in ATLAS 13 TeV center of mass pp collision data¹ JUSTIN GRIFFITHS, Univ. of Texas, Arlington, ATLAS COLLABORATION — This talk will summarize the search for a charged Higgs that decays to a hadronically decaying tau lepton and its associated neutrino. At high $\tan\beta$, a Charged Higgs will decay primarily to a $t\bar{b}$ or $\tau\nu$ final state. In such scenarios, the Charged Higgs will be produced in association with a top quark. The final state in this search consists of a hadronically decaying top, at least one b-quark initiated jet, a hadronically decaying tau lepton, and large missing transverse energy from the associated tau neutrinos. The results of Run 1 charged higgs searches at ATLAS will be briefly summarized, including $H^+ \rightarrow c\bar{s}$, $t\bar{b}$, W^+Z , and $\tau\nu$. The proton-proton center-of-mass energy increase from Run 1 leads to an increase of the theoretical cross sections by a factor of 4-10, depending on the mass of the charged Higgs. Due to this increase, the run 2 sensitivity is expected to exceed the Run 1 sensitivity with only 3.2 fb^{-1} of 13 TeV collisions data.

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