



Contribution ID: 452

Type: Experimental poster

## Search for $W'$ bosons decaying to a top and a bottom quark at $\sqrt{s}=13$ TeV in the hadronic final state with CMS

Thursday, June 10, 2021 6:45 PM (1 hour)

A search is performed for  $W'$  bosons decaying to a top and a bottom quark in the all-hadronic final state, in proton-proton collisions at a center-of-mass energy of 13 TeV using the data collected by the CMS experiment between 2016 and 2018, corresponding to an integrated luminosity of  $137 \text{ fb}^{-1}$ . Deep neural network algorithms are used to identify the jet initiated by the bottom quark and the jet containing the decay products of the top quark when the  $W$  boson from the top quark decays hadronically. No excess above the estimated standard model background is observed. Both left- and right-handed  $W'$  bosons with masses below 3.4 TeV are excluded at 95% confidence level, and the most stringent limits to date on  $W'$  bosons decaying to a top and a bottom quark in the all-hadronic final state are obtained.

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**Session Classification:** Poster Session

**Track Classification:** TeV-Scale BSM