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Search for a W' decaying to tb in the lepton plus jets final state with the ATLAS detector using 36.1 fb^{-1} of pp collision data at $\sqrt{s}=13 \text{ TeV}$

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A search for new charged massive gauge bosons, called W' , decaying to tb , is performed with the ATLAS detector in the decay channel leading to final states with an electron or muon, 2 or 3 jets and missing transverse momentum. This search uses a dataset corresponding to an integrated luminosity of 36.1 fb^{-1} of pp collisions produced at the LHC and collected during 2015 and 2016. The data is found to be consistent with the Standard Model expectation. Therefore limits are set on the $W' \rightarrow tb$ cross section times branching ratio and on the W' boson effective couplings as a function of the W' boson mass.

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