

## Search for $W' \rightarrow tb$ in the all-hadronic final state with the ATLAS detector

*Tuesday, 13 July 2021 15:30 (15 minutes)*

A search for a new heavy boson  $W'$  in proton-proton collisions at  $\sqrt{s} = 13$  TeV is presented. The search focuses on the decay of the  $W'$  to a top quark and a bottom quark, using the full Run 2 dataset collected with the ATLAS detector at the LHC with an integrated luminosity of  $139 \text{ fb}^{-1}$ . The talk will give an overview of the analysis, which includes the hadronic-decaying top-quark identification using a Deep Neural Network trained on jet substructure variables and the data-driven background estimation. It will show the search sensitivity as expected exclusion limits on the  $W'$  production cross-section times the top-bottom channel branching ratio for several  $W'$  masses between 1.5 and 6 TeV.

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