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Call for Abstracts Search for pair production of vector-like quarks in the Wb+X final state using the full Run 2 dataset of pp collisions at sqrt{s} = 13 TeV from the ATLAS detector

Monday, 12 July 2021 15:00 (15 minutes)

Vector-like quarks (VLQ) are predicted in many extensions to the Standard Model (SM), especially those aimed at solving the hierarchy problem. Their vector-like nature allows them to extend the SM while still being compatible with electroweak sector measurements. In many models, VLQs decay to a SM boson and to a third-generation quark. Pair production of VLQ provides a model-independent method of searching due to the Quantum Chromodynamics production of the particles. This talk presents a search for pair production of vector-like top quarks that each decay into a SM W boson and a bottom quark, with one W boson decaying leptonically and the other decaying hadronically. The analysis takes advantage of boosted boson identification and data-driven correction of the dominant ttbar background prediction to improve sensitivity. Further, this analysis extends the previous analysis sensitivity by including the full 140fb^{-1} dataset of pp collisions at $\sqrt{s}$ =13 TeV collected with the ATLAS detector.

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

Yes

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