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**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** EVAN VAN DE WALL, Oklahoma State University-Stillwater, ATLAS COLLABORATION — 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 decays 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 a data-driven correction of the dominant  $t\bar{t}$  background prediction to improve sensitivity. Furthermore, this analysis extends the previous analysis sensitivity by including the full Run 2 ATLAS dataset.

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