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VBS measurement in semileptonic final states with ATLAS Run-2 data (20+10)

Vector boson scattering (VBS) processes probe the fundamental structure of electroweak (EW) interactions and provide a high sensitivity to new physics phenomena affecting gauge and Higgs couplings. The semileptonic final states, where one of the scattered electroweak boson decays hadronically into a quark/antiquark pair and the other boson decays leptonically into electrons, muons or neutrinos, has high statistics in the WW, WZ and ZZ processes. The hadronically decaying gauge boson can be reconstructed as two small-radius jets or one large-radius jet in case of high boost. Semileptonic final states VBS was studied in an ATLAS Run-2 analysis using 139/fb of proton collisions at a center-of-mass energy of 13 TeV, allowing to measure the fiducial cross section for EW diboson production accompanied with jets in semileptonic final states. The results are also interpreted in an Effective Fields Theories (EFT) framework to set constraints on anomalous Quartic Gauge Couplings (aQGC) through dimension-8 operators.

Track/session

Plenary track

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