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Measurement of electroweak gauge boson production in association with jets at ATLAS

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Measurements of individual electroweak bosons at hadron colliders provide stringent tests of perturbative QCD and improve the modelling of background to many BSM searches. We present the measurement of the production of W boson in association with D^+ and D^{*+} mesons. This precision measurement provides information about the strange content of the proton and is compared to NLO theoretical calculations. Also presented is the production of Z bosons in association with b-tagged large-radius jets. The result highlights issues with the modelling of an additional hadronic activity and provides a distinction between flavour-number schemes used in theoretical predictions. Finally, differential measurements of W and Z production with large missing transverse momentum in association with jets are discussed and compared to the state-of-the-art QCD theoretical predictions. The production rate of Z+jet events with large missing transverse momentum is used to measure the decay width of the Z boson decaying to neutrinos.

Collaboration / Activity

ATLAS

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