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Vector boson plus jets measurements with the ATLAS detector (20+10min)

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The inclusive production of W and Z bosons as well the off-shell Z/gamma* production are standard candles at hadron colliders. The measurement of their production cross-sections can be compared to theory calculations at NNLO QCD and have an impact on our knowledge of the parton densities of the proton. Run1 studies carried out by the ATLAS Collaboration are reviewed and first LHC Run2 results will be included if available. Productions of jets in association with a W or a Z boson in proton-proton collisions are important processes to study QCD in multi-scale environments. The cross section, differential in several kinematics variables, have been measured with the ATLAS detector in 7 TeV proton-proton collisions and compared to high-order QCD calculations and Monte Carlo simulations. The ratio of (Z+jets)/(W+jets) provides a precise test of QCD due to the large cancellations of theoretical and experimental uncertainties. In addition the cross section of single W and Z boson production is measured in the boson hadronic decay channels, in the high pT region. In this measurement substructure techniques have been employed to enhance the signal sensitivity.

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