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A Measurement of the Ratio of the $W + 1$ Jet to $Z + 1$ Jet Cross Sections with ATLAS

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The measurement of hadronic activity recoiling against W and Z vector bosons provides an important test of perturbative QCD, as well as a method of searching for new physics in a model independent fashion. We present a study of the cross-section ratio for the production of W and Z gauge bosons in association with exactly one jet $R\text{-jets} = (W+1\text{jet})/(Z+1\text{jet})$, in pp collisions at $\sqrt{s} = 7$ TeV. The study is performed in the electron and muon channels with data collected with the ATLAS detector at the LHC. The ratio $R\text{-jets}$ is studied as a function of the cumulative transverse momentum p_T distribution of the jet. Residual systematic uncertainties are parameterized in the same p_T distribution. This result can be compared to NLO pQCD calculations and the prediction from LO matrix element + parton shower generators.

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