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Study of W and jets associated production with CMS

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We present a study on the associated production of hadronic jets and W bosons in proton-proton collisions at the center of mass energy of 7 TeV using the data collected by the CMS experiment at the LHC. The associated production of vector bosons and jets provides a stringent and important test of perturbative QCD calculations and it is an important background in searches for new physics and in studies about the top quark. We show results on multiplicity and transverse momentum distributions of jets and we report on the measurements of the cross section ratios $\sigma(W + \geq n \text{ jets})/\sigma(W)$ and $\sigma(W + \geq (n + 1) \text{ jets})/\sigma(W + \geq n \text{ jets})$, where n is the number of jets reconstructed with a threshold of 30 GeV. We finally report on the results for the W charge asymmetry as a function of the number of jets.

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