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Measurement of single and multi-jet cross sections in proton-proton collisions at 7 TeV centre-of-mass energy with ATLAS

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Single and multiple et cross sections have been measured in proton-proton collisions at a centre-of-mass energy of 7 TeV using the ATLAS detector. The anti-kt algorithm is used to identify jets. Inclusive single-jet differential cross sections are presented as functions of jet transverse momentum and rapidity. Dijet cross sections are presented as functions of dijet mass and angle. The measurements extend the previously measured kinematic region to higher rapidities, and to both higher and lower values of transverse momentum. The results are compared to next-to-leading-order QCD calculations matched to leading-logarithmic parton showers.

Additionally, measurements are presented of multijet cross sections, and of the azimuthal correlation between dijets, which are sensivitive to higher or QCD effects. Measurements of dijets separated by large intervals of rapidity are also presented, where a veto is applied based on the presence of further jets with the rapdity interval. The measurements are compared to NLO QCD and higher multiplictity LO QCD calculations matched to parton showers using leading-logarithmic approximations in the scale, Q2. The large rapdity-interval distribitions are also compared to calcultations using approximations based on resumming the leading-logarthmic terms in rapidity.

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