

Studies of jet production properties and the strong coupling constant with the ATLAS detector

Several aspects of jet production in pp collisions have been measured by the ATLAS collaboration. The momentum-weighted sum of the charges of tracks associated to a jet is sensitive to the electrical charge of the parton initiating the jet. The distribution of the so-called jet charge has been measured in dijet events using pp collision data at 8 TeV with the ATLAS detector. The measurement of the dijet azimuthal decorrelations, as well as the jet-jet energy correlations are sensitive to the strong coupling constant. Measurements of multi-jet systems with or without a veto on additional jets, probe QCD radiation effects. Jet shapes have been measured in $t\bar{t}$ events for light flavour as well as heavy flavour jets. These measurements constitute precision tests of QCD in a new energy regime.

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