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High-ET isolated-photon plus jets production in pp collisions at √s=8 TeV with the ATLAS detector

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The production of prompt photons in association with jets in proton–proton collisions provides a testing ground for perturbative QCD (pQCD) with a hard colourless probe less affected by hadronisation effects than jet production. The measurements of the angular correlations between the photon and the jets can be used to probe the dynamics of the hard-scattering process. We present here a cross-section measurement using final states with at least one, two or three hadronic jets in addition to an isolated photon, differential in a wide range of kinematic variables describing the photon+jet production dynamic. Colour-coherence effects were investigated in events with a photon accompanied by two jets. The results are compared to recent theoretical predictions.

The production of multi-jet final states at hadron colliders probes pQCD at several mass scales. The processes can also be used to probe the gluon density function of the proton. The ATLAS collaboration has used multi-jets events, recorded at a center of mass energy of 8 TeV, to measure the transverse energy-energy correlations and its asymmetry and derive a measurement of the strong coupling constant.

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