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Precision measurements of jet and photon production at ATLAS

Tuesday 22 August 2023 09:05 (15 minutes)

The production of jets and prompt isolated photons at hadron colliders provides stringent tests of perturbative QCD. The latest measurements by the ATLAS experiment, using proton-proton collision data at $\sqrt{s}$ =13 TeV, are presented. Prompt inclusive photon production is measured for two distinct photon isolation cones, R=0.2 and 0.4, as well as for their ratio. The measurement is sensitive to gluon parton density distribution. Various measurements using dijet events are presented, as well. The measurement of new event-shape jet observables defined in terms of reference geometries with cylindrical and circular symmetries using the energy mover???s distance are discussed. In addition, measurements of variables probing the properties of the multijet energy flow and cross-section ratios of two- and three-jet production are highlighted. The measurements are compared to state-of-the-art NLO and NNLO predictions and used to determine the strong coupling constant.

Collaboration / Activity

ATLAS

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