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Measurements of jet fragmentation and jet substructures at ATLAS

In this talk, we present four measurements that probe the internal structure of jets using data collected by the ATLAS experiment. First, a measurement of the properties of jet fragmentation using charged particle tracks is presented, including charged particle multiplicity, jet charge, the summed fragmentation function, the momentum transverse to the jet axis, and the radial profile of the jet are measured. In addition, jet substructure observables are measured in $t\bar{t}$ and inclusive jet events. If available, the measurement of soft drop jet substructure observables in dijet events will be also presented. Finally, a measurement of the Lund Plane is also presented, using charged particles reconstructed inside jets in inclusive jet events. All measurements are performed using proton-proton collision data collected with the ATLAS detector at $\sqrt{s}=13$ TeV. The measurements are corrected for detector effects and are compared to the predictions of up-to-date Monte Carlo event generators and to the state-of-the-art calculations. New event generator configurations for the modelling of jet production, derived using ATLAS data will also be presented.

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Author: ATLAS, Collaboration (ATLAS Collaboration)

Presenter: ATLAS, Collaboration (ATLAS Collaboration)

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