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Jet Substructure Measurements with the ATLAS Detector

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Abstract: Calculations of jet substructure observables which are accurate beyond leading-logarithmic accuracy have recently become available. Such observables are significant not only for probing a new regime of QCD at a hadron collider, but also for improving the understanding of jet substructure properties that are used in many studies at the Large Hadron Collider. In this talk, we discuss first measurement of jet substructure quantities at a hadron collider, calculated at next-to-next-to-leading-logarithm accuracy. The soft drop mass is measured in dijet events with the ATLAS detector at 13 TeV, unfolded to particle-level and compared to Monte Carlo simulations.

If available, we present a measurement of substructure variables in ttbar and inclusive jet events, using data collected by the ATLAS experiment at $\sqrt{s}$ = 13 TeV. The measurements are performed with large-radius jets. They are corrected for detector effects, represented as particle-level distributions and are compared to the predictions of various Monte Carlo event generators.

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