

Jet Substructure Measurements Sensitive to Soft QCD effects with the ATLAS Detector

Tuesday 12 December 2017 15:50 (15 minutes)

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.

In addition, we present a measurement of the splitting scales in the kt jet-clustering algorithm for final states containing a Z-boson candidate at a centre-of-mass energy of 8 TeV. The data are also corrected for detector effects and are compared to state-of-the-art Monte Carlo predictions.

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Session Classification: WG1: Minimum Bias and Underlying Event