Resummation, Evolution, Factorization 2021



Contribution ID: 21

Type: not specified

Precision measurements using soft drop jet mass

Friday 19 November 2021 14:00 (20 minutes)

Soft drop jet mass is an attractive candidate for precision measurements such as the top mass m_t and the strong coupling constant α_s , as it can be perturbatively calculable to high accuracy besides being more robust against nonperturbative and underlying event corrections. In this talk I will describe the prospects for the top mass and α_s -determination at the LHC using soft drop jet mass by combining state-of-the-art resummed predictions with a field theoretic treatment of nonperturbative power corrections. I will show that the observable is promising for m_t measurement in a definite top mass scheme with calO(1) GeV uncertainty. On the other hand, the dominant uncertainty in the α_s -determination is limited by nonperturbative corrections, and for measurements on $p_T \geq 1$ TeV, is saturated to about 2%.

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