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Towards precision strong coupling and top mass extraction using soft-drop jet mass

Tuesday 3 August 2021 17:15 (15 minutes)

The soft drop jet mass cross section is as an attractive candidate for precision measurements such as ⌧⌧ and top mass, as it can be perturbatively calculable to high accuracy besides being more robust against nonperturbative and underlying event corrections. In this talk I will focus our work on studying prospects of measurement of ⌧⌧ at the LHC using state of the art resummed cross section matched to fixed order, including power corrections in a field theoretic framework, and a precise treatment of the soft drop cusp. We estimate the ultimate theoretical limitation on ⌧⌧ measurement at the LHC from the perturbative, nonperturbative and normalisation uncertainties. I will also provide updates on our theory effort on top mass measurement using soft drop jet mass as a part of the collaboration with ATLAS, and recent work on improvements in the description of the hadronization corrections and effects of underlying event for the observable.

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