Contribution ID: **38** Type: **not specified**

Precision Higgs Phenomenology at N3LO and beyond

Thursday, November 10, 2022 4:40 PM (15 minutes)

Collider experiments will achieve percent level precision measurements of several processes key to answer some of the most pressing questions of contemporary particle physics. In this talk I will show that the capability to predict and describe such observables at next-to-next-to-next-to-leading order (N3LO) in QCD perturbation theory is crucial to fully exploit these experimental measurements.
I will describe how to compute differential distributions via slicing methods and illustrate the calculation of the N3LO TMD beam functions which were the missing ingredient for extending these techniques to N3LO.
Finally, I will present the recent calculation of the rapidity anomalous dimension (Collins-Soper kernel) to N4LO needed for the resummation of the Higgs transverse momentum spectrum at fourth logarithmic accuracy (N4LL).

Type of talk

Theory

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Session Classification: Thursday Session A

Track Classification: Physics Topics: Precision measurements