12th International Workshop on Boosted Object Phenomenology, Reconstruction and Searches in HEP (BOOST 2020 webinars)

Contribution ID: 23

Type: Abstract for poster-session

Calculation for Non-global Logarithms with Neural Networks

Tuesday 21 July 2020 17:00 (9 minutes)

High-precision all-order calculations can only be performed for a narrow class of observables, which are sensitive to radiation over the entire final state phase-space. When phase-space boundaries are introduced, the resummation is affected by so-called non-global logarithms, which have an intricate all-order structure. In this talk, we present a first-principle calculation for the non-global logarithms, and some improvements for higher-order calculation and resummation are proposed with artificial neural networks, which can dramatically speed up needed theory calculations.

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Session Classification: Session 6

Track Classification: Measurements and Calculations