

Benoit Assi – HEP Seminar – 11/21/2023
FNAL

Title: A NLL accurate parton shower algorithm in Sherpa

Abstract: Parton shower Monte-Carlo programs are pivotal for achieving precise event simulations in Collider Experiments. Over recent years, the emphasis on their logarithmic accuracy has grown considerably. I will provide an introduction to parton showers and resummation then proceed to an in-depth discussion of the Alaric algorithm. This new approach introduces a simple model for the evolution of both massive and massless partons that replaces the explicit angular ordering of the coherent branching formalism with a differentially accurate simulation of soft-gluon radiation by means of a non-trivial dependence on azimuthal angles. In the new algorithm, initial and final state evolution are treated on the same footing. I will present an implementation of final-state evolution and all formula required for fully differential matching at next-to-leading order in QCD.