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The PanScales project: parton showers beyond leading-log accuracy

Thursday, 7 April 2022 12:30 (20 minutes)

Parton showers lie at the core of general purpose Monte Carlo event generators. They aim at correctly describing the phase-space for QCD branchings across disparate energy scales. A natural question, largely overlooked in the literature, is up to which degree of logarithmic accuracy do parton showers meet this goal. In this talk, I'll present a new class of dipole showers for hadronic collisions, the PanScales showers, that are next-to-leading log accurate according to the criteria first introduced in [1]. In turn, I'll show that a standard dipole shower mimicking the one used in Pythia, Herwirg or Sherpa fails to reach NLL accuracy in certain global observables. To end up, I'll outline some ideas on how to incorporate the PanScales showers into jet quenching Monte-Carlo event generators.
[1] Phys.Rev.Lett. 125 (2020) 5, 052002

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