

Super-leading logarithms from effective field theory

Thursday 17 July 2025 12:00 (30 minutes)

Factorization theorems for non-global observables at hadron colliders can be used to resum super-leading logarithms (SLLs) and we present a phenomenological analysis of their numerical impact in $pp \rightarrow 2$ jets.

SLLs are closely related to collinear factorization breaking and are driven by a double-logarithmic evolution equation in an effective field theory. The compatibility of this double-logarithmic evolution with single-logarithmic PDF evolution at low scales implies stringent consistency conditions on the low-energy matrix element of this effective theory.

We will derive these conditions in our talk; the explicit computations necessary to verify consistency at the three-loop level will be covered in a separate presentation.

Authors: SCHWIENBACHER, Dominik; NEUBERT, Matthias (Johannes Gutenberg University Mainz); HAGER, Patrick Angus; JASKIEWICZ, Sebastian Eryk (University of Bern); BECHER, Thomas Georg (Universitaet Bern (CH))

Presenter: BECHER, Thomas Georg (Universitaet Bern (CH))