

Super-leading logarithms and PDF factorization

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I analyze the low-energy dynamics of gap-between-jets cross sections at hadron colliders, for which phase factors in the hard amplitudes spoil collinear cancellations and lead to double ('super-leading') logarithmic behavior. Based on a method-of-regions analysis, I identify three-loop contributions from perturbative active-active Glauber-gluon exchanges with the correct structure to render the cross section consistent with PDF factorization below the gap veto scale. From this, two important conclusions may be drawn: first, no double-logarithmic terms appear in the scale evolution below the veto scale, and second, the DGLAP evolution must be correctly matched as well.

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: SCHWIENBACHER, Dominik

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