

# XXVIII International Workshop on Deep-Inelastic Scattering and Related Subjects



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## Forward trijet production and saturation

*Tuesday, 13 April 2021 11:13 (18 minutes)*

A framework to study gluon saturation in QCD using trijet processes is presented.

The so-called small- $x$  Improved Transverse Momentum Dependent factorization (ITMD) was originally formulated for the dijet final states in hadron collisions. I present results for a multiparton extension, in particular for trijets both for proton-proton and proton-lead collisions at center of mass energy 5.02 TeV. Differences related to both the change from standard  $k_T$ -factorization to ITMD factorization as well as differences between  $p$ - $p$  collision and  $p$ -Pb are shown. Large changes in the distributions going from one to the other factorization approach allow to improve the small- $x$  gluon distributions and to validate the two approaches. The significant reduction of the nuclear modification ratio indicates that it may be possible to use trijets in the search for saturation effects.

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