

10th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions



Contribution ID: 309

Type: Oral Presentation

Probing gluon saturation through precision studies of inclusive dijet and photon+dijet production in e+A DIS at small x

Tuesday, June 2, 2020 1:55 PM (20 minutes)

We present the first computation of the next-to-leading order (NLO) impact factors for inclusive dijet and photon+dijet production in e+A DIS at small x in the framework of the Color Glass Condensate (CGC) effective field theory. When combined with the recent derivation of JIMWLK small x evolution to next-to-leading logarithm in x accuracy, these results provide us with a prediction of the photon+dijet and dijet cross-sections in e+A DIS to $O(\alpha_S^3 \ln(1/x))$ accuracy. The novel momentum space computational techniques developed in our work allow us to extend our work to higher loop orders and we will discuss the progress towards that direction in the context of inclusive dijet production.

This methodology can also be employed in precision computations for p+A collisions and the realization of these precision studies at small x , both for DIS and hadron-hadron (nucleus) collisions, will pave the way towards the quantitative global analyses of data required for a definitive understanding of the systematics of gluon saturation.

Collaboration (if applicable)

Track

Initial State

Contribution type

Contributed Talk

Primary authors: ROY, Kaushik; VENUGOPALAN, Raju (Brookhaven National Laboratory)

Presenter: ROY, Kaushik

Session Classification: Parallel

Track Classification: Initial State