

DIS2023: XXX International Workshop on Deep-Inelastic Scattering and Related Subjects



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Type: **Parallel talk**

The small- x dynamics in the CTEQ-TEA PDFs and the application to the Forward Physics Facility

Tuesday, 28 March 2023 10:00 (20 minutes)

When parton momentum fraction x of hadron becomes small, an enhancement from small- x logarithms shows up, and eventually, we enter into a partonic saturation region. A consistent treatment of the small- x logarithms requires an all-order resummation which can be achieved with the BFKL formalism. However, a boundary to delineate the small- x resummation region from saturation one is ambiguous. In this study, we take a x -dependent DIS scale motivated by the saturation model in a global analysis, which improves the QCD description of the HERA DIS data. In parallel, we also explore the BFKL-improved DGLAP evolution, which achieves a similar χ^2 for the same data set. We compare various impacts of these two methods on the parton distributions and emphasize the phenomenological implications on the Forward Physics Facility.

Submitted on behalf of a Collaboration?

Yes

Participate in poster competition?

No

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