

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



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Type: **Parallel talk**

Target mass corrections in lepton-nuclear DIS

Tuesday 28 March 2023 10:00 (20 minutes)

Motivated by the wide range of kinematics covered by current and planned DIS facilities, we revisit the formalism, practical implementation, and numerical impact of target mass corrections (TMCs) for DIS on nuclear targets. These corrections are especially crucial for EIC physics. Within the Operator Product Expansion (OPE) formalism, we extend the analysis from individual nucleon targets (p,n) to nuclear targets, and express these nuclear TMCs in terms of re-scaled (or averaged) kinematic variables. An important aspect is that we use only nuclear, and later partonic, degrees of freedom. Additionally, we show the connection between the OPE and the Parton Model formalisms. Our results provide a representation of nuclear TMCs that seem to be universal for all nuclear targets; this allows us to construct a (computationally efficient) single-parameter fit for all nuclear TMCs that is in good numerical agreement with the full TMC computation. Finally, we discuss in detail the qualitative and quantitative differences between nuclear TMCs built in the OPE and the parton model formalisms, and also give numerical predictions for current and future facilities.

Submitted on behalf of a Collaboration?

No

Participate in poster competition?

No

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