



Contribution ID: 252

Type: **Oral presentation**

Deeply Virtual Compton Scattering to the twist-four accuracy: Impact of finite- t and target mass corrections

Wednesday 30 April 2014 14:00 (25 minutes)

We carry out the first complete calculation of kinematic power corrections $\sim t/Q^2$ and $\sim m^2/Q^2$ to several key observables in Deeply Virtual Compton Scattering.

The issue of convention dependence of the leading twist approximation is discussed in detail.

In addition we work out representations for the higher twist corrections in terms of double distributions, Mellin-Barnes integrals and also within a dissipative framework.

This study removes an important source of uncertainties in the QCD predictions for intermediate photon virtualities $Q^2 \sim 1\text{-}5 \text{ GeV}^2$ that are accessible in the existing and planned experiments. In particular the finite- t corrections are significant and must be taken into account in the data analysis.

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Session Classification: WG6: Spin Physics

Track Classification: WG6: Spin Physics