

The 3D structure of pions at future electron-ion colliders

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Nowadays the study of hadron's structure is triggering ambitious efforts, both on the theoretical and experimental side. The advent of new facilities such as the EIC or the EICc is expected to shed light on many of the still open questions about hadron's complexity. This work takes advantage of the such situation to perform the first systematic feasibility study of accessing generalised parton distributions of the pion at an electron-ion collider through deeply virtual Compton scattering. Relying on state of the art models for pion GPDs fulfilling by construction all the theoretical properties required by QCD, we compute the amplitude for DVCS at EIC and EICc kinematics. Predictions for the expected number of events and beam spin asymmetries are shown, demonstrating that gluon content gives the dominant contribution to the DVCS amplitude, modulating the expected number of events and observed beam spin asymmetries. Finally, through comparison with phenomenological models for pion GPDs we argue that DVCS might be accessible at the forthcoming electron-ion colliders or, in the worst case scenario, must yield crucial information about the origin of glue within pions.

Submitted on behalf of a Collaboration?

No

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