

Update On GPD Factorization Validity Studies For Meson Production

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The development of the GPD formalism in the last 25 years is a groundbreaking advance in our understanding of the structure of the nucleon. Unifying the concepts of parton distributions and of hadronic form factors, they contain a wealth of new information about how quarks and gluons make up hadrons. For example, GPDs correlate different parton configurations in the hadron at the quantum mechanical level. A recent theorem allows the reaction amplitude to be factorized into a hard part, representing the interaction of the incident virtual photon probe with the parton, and a soft part containing the GPD, representing the response of the nucleon to this interaction. This factorization relies on several assumptions that may not be true at low four momentum transfer (Q^2) for meson production. This presentation will give the projected results of the recently completed Pion-LT experiment from Jefferson Lab Hall C. These results will test the validity of GPD factorization in the range of $Q^2 = 1.45 \text{ GeV}^2$ to $Q^2 = 8.5 \text{ GeV}^2$, and will have implications for several GPD extraction experiments currently planned.

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