

# Update On GPD Factorization Validity Studies For Meson Production

*Saturday, 18 February 2023 17:30 (15 minutes)*

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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