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Deeply Virtual Compton Scattering at Jefferson Laboratory

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The internal structure of the nucleon - that is, what ordinary matter is made of and what the laws describing it are at their most fundamental level - is still not fully understood by modern nuclear physics. Form factors provide insight about parton positions while parton distribution functions give information about their momentum distribution inside the nucleon, but no correlations can be established between parton positions and momenta at this level.
Introduced in the mid 90's, Generalized Parton Distributions (GPDs) provide a higher level of information since they correlate longitudinal momentum and transverse position of partons inside the nucleon. GPDs give a three-dimensional description of the internal structure of the nucleon, as well as insights on the nucleon spin structure.
It has been established that GPDs are experimentally accessible through Deeply Virtual Compton Scattering (DVCS) and its interference with the Bethe-Heitler process. A worldwide experimental program was started in the early 2000's, and more specifically, a DVCS experiment studying the process ep -> epγ was performed at Jefferson Laboratory, Hall A (Virginia, USA) between 2014 and 2016.
The analysis of the data taken during this latest DVCS experiment will allow us to extract the DVCS helicity-dependent cross sections as a function of the momentum transfer: Q^2. These cross sections will then allow us to access the GPDs of interest and get insights on their dependence in Q^2, and thus, improve our understanding of the internal structure of the nucleon.
This talk is going to focus on the ongoing analysis of these data.

Auteur principal: M. GEORGES, Frederic (IPN)

Orateur: M. GEORGES, Frederic (IPN)

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