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Experimental Overview of GPDs

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Generalised Parton Distribution functions (GPDs) have emerged as a very powerful tool to investigate the three-dimensional structure of nucleons, as they encode the correlation between the longitudinal momenta and the transverse positions of their constituents, quarks and gluons. GPDs appear in the non-perturbative description of lepton-induced exclusive reactions, and can be studied in fixed target or collider experiments where a lepton beam interacts with proton or nuclear targets. The mapping of GPDs over the widest possible kinematical domain requires a combined analysis of experimental data collected at different beam energies, and is one of the major physics goals of ongoing and planned experiments at CERN and Jlab. Deeply Virtual Compton Scattering (DVCS), that is the exclusive production of a single real photon in lepton-nucleon interactions, is considered as the "golden" channel for accessing GPDs. However, different combinations of quark and gluon GPDs can be accessed when the photon is replaced by a meson in the final state (Deeply Virtual Meson Production or DVMP). In my talk I will revise the current status of DVCS and DVMP measurements, with particular emphasis on the recent results from Jlab and CERN. In my summary I will also give some perspectives offered by possible future facilities.

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