

DVCS in Hall A

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I would like to bring your attention on the Hall A experimental program about GPDs at JLab. Two experiments have been recently performed investigating GPDs via the DVCS reaction off the proton and off the neutron. They involve the HRS spectrometer for the detection of the scattered electron and a new PbF₂ calorimeter for the detection of the emitted photon. The latter was specially designed to sustain luminosities of $4 \cdot 10^{37} \text{ cm}^{-2}/\text{s}$ in the direct vicinity of the target, and at small angles. The difference between cross sections for opposite longitudinal polarization of the electron beam and the unpolarized cross section have been measured. The experiment on the proton provided strong indication supporting factorization at Q^2 as low as 2 GeV^2 , therefore validating a GPD based analysis. The unpolarized cross section data provided evident deviations from the Bethe-Heitler cross section, leading to an integral measurement of GPDs. The experiment on a deuterium target provided first measurements of the DVCS off the neutron, particularly sensitive to the least known GPD E, and the DVCS off the deuteron. Within a model dependent analysis, these data provide constraints on the u- and d-quark angular momentum.

Author: VOUTIER, Eric (LPSC / Université Joseph Fourier)

Presenter: VOUTIER, Eric (LPSC / Université Joseph Fourier)

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