

DIS2023: XXX International Workshop on Deep-Inelastic Scattering and Related Subjects



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Type: **Parallel talk**

Inclusive electron scattering off the proton with CLAS12 at JLab

Thursday, 30 March 2023 09:00 (20 minutes)

Electron scattering data off protons from the CLAS12 detector in Hall B at Jefferson Laboratory have become available and cover a wide kinematic range in W up to 2.5 GeV and Q^2 up to 9 GeV², offering new opportunities to explore inclusive, semi-inclusive, and fully exclusive reactions. A study that aims to extract the inclusive electroproduction cross sections from the CLAS12 data collected at a beam energy of 10.6 GeV from an unpolarized liquid-hydrogen target is now almost finished and preliminary results will be presented. Because of the large acceptance of CLAS12, these data offer a unique opportunity to measure inclusive cross sections at W from the meson electroproduction threshold to 2.5 GeV within any given Q^2 -bin from 2.5 to 9 GeV². This unique W -coverage at fixed Q^2 -values is of particular importance for the extension of our knowledge on the nucleon parton distribution function from the data on F_2 structure function in the resonance region by employing the existing CLAS results on the $\gamma p N^*$ electroexcitation amplitudes. These studies also offer valuable input for the exploration of quark-hadron duality.

Submitted on behalf of a Collaboration?

No

Participate in poster competition?

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