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Combined analysis of inclusive/exclusive electroproduction from low to high x

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We present our study of proton structure functions in view of the CLAS12 experiments planned in the near future, which are to study electron scattering observables at a wide Q^2 range and with high precision in x . CLAS experiments have achieved major advances in the study of the N^* region of the electroproduction spectrum, and the data on electrocouplings of the many baryon resonances in the mass range up to 1.8 GeV showed consistency between the different meson channels.

We model the resonant contributions to inclusive electron scattering, using the electrocoupling data as input. Our results are thus based on the reliable extraction of the separate resonance contributions from exclusive reactions. The combination of the resonance model with a non-resonant background based on Regge models enables for the first time a combined description of the low and high- x regions of the proton structure functions. Understanding the transition between these regions is important for a precise extraction of the hadronic contribution to the proton Lamb shift and tests on quark-hadron duality.

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