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Studying Two-Photon Exchange at high Q^2 with the HERA Collider Data

Two-photon exchange (TPE) is one of the leading explanations for discrepancies in measurements of the proton electromagnetic form factors. It has been proposed that TPE could impact not only elastic scattering but also the cross sections for both inclusive deep inelastic scattering (DIS) and semi-inclusive DIS, thereby affecting the interpretation of DIS structure functions in terms of parton distributions. It is expected that higher-order QED effects such as TPE should manifest as a deviation from unity in the ratio of \epp and \emp DIS cross sections.

In this talk, I will present an analysis of two-photon exchange effects at Q^2 up to 300 GeV^2 using the existing inclusive $e^{\pm}p$ DIS data from HERA and SLAC.

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