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First determination of the charge-averaged $e^{\pm}$-p cross section[1]
JAN BERNAUER, State Univ of NY - Stony Brook, AXEL SCHMIDT, George Washington University, OLYMPUS COLLABORATION — Proton form factors are a touchstone for our understanding of nucleon structure. While new experiments are advancing the precision frontier, their interpretation is hampered by the uncertainty in two-photon exchange corrections. We present here the first high-precision determination of the charge-averaged $e^{\pm}$-proton cross section, where two-photon exchange is suppressed in first order. The data were taken by the OLYMPUS collaboration to directly measure two-photon-exchange corrections via the cross section ratio, but careful analysis allowed us to extract the cross sections themselves. The data cover a highly interesting kinematic region where $G_M/G_{\text{std. dip.}}$ exhibits a threshold/turn-over behavior in current fits and will have significant impact on form factor extractions.

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