

Results from the OLYMPUS Experiment at DESY

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Hard two-photon exchange has been favored theoretically to explain the previously observed discrepancy in measurements of the elastic proton electric-to-magnetic form factor ratio with polarized and unpolarized methods. Several experiments have been carried out to investigate the effects of two-photon exchange. The OLYMPUS experiment at DESY has been one of three dedicated experiments to use comparisons of positron-proton and electron-proton scattering to unequivocally determine the effects of two-photon exchange. The results indicate only little dependence of the cross section on the lepton charge and generate significant doubt in the hard two-photon exchange hypothesis. There is evidence for the need of higher theoretical accuracy in the calculation of radiative corrections. Results from the OLYMPUS experiment will be presented.

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