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Two-photon exchange in elastic *ep* scattering and the status of the OLYMPUS experiment DOUGLAS HASELL, M.I.T., OLYMPUS COLLABORATION — Two-photon exchange in elastic *ep* scattering is believed to explain the observed discrepancy in the proton electric to magnetic form factor ratio, $\mu_p G_E^p/G_M^p$, measured by Rosenbluth separation and by polarization transfer methods. To quantitatively determine the contribution of two-photon exchange to elastic scattering the OLYMPUS experiment was proposed and operated at the DESY laboratory in Hamburg, Germany to measure the ratio in the elastic scattering cross sections, $\sigma_{e^+p}/\sigma_{e^-p}$. The OLYMPUS experiment used the positron and electron beams of the DORIS storage ring at a beam energy of 2.01 GeV incident on a windowless, internal, hydrogen gas target. A left/right symmetric detector measured the rates for elastic scattering over a broad kinematic range together with a redundant set of luminosity monitors. Approximately 4.45 fb^{-1} of integrated luminosity was collected. The current status of the OLYMPUS analysis will be presented.

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