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## Measurement of the $t$ dependence in exclusive photoproduction of Upsilon (1S) mesons at HERA

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The exclusive photoproduction reaction  $\gamma p \rightarrow \text{Upsilon}(1S) p$  has been studied with the ZEUS detector in ep collisions at HERA using an integrated luminosity of 468 pb<sup>-1</sup>. The measurement covers the kinematic range  $60 < W < 220$  GeV and  $Q^2 < 1$  GeV<sup>2</sup>, where  $W$  is the photon-proton centre-of-mass energy and  $Q^2$  is the photon virtuality. The exponential slope,  $b$ , of the  $t$  dependence of the cross section, where  $t$  is the squared four-momentum transfer at the proton vertex, has been measured, yielding  $b = 4.3 \pm 2.0 \pm 1.3$  (stat.)  $\pm 0.5 \pm 0.6$  (syst.) GeV<sup>2</sup>. This constitutes the first measurement of the  $t$  dependence of the  $\gamma p \rightarrow \text{Upsilon}(1S) p$  cross section.

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