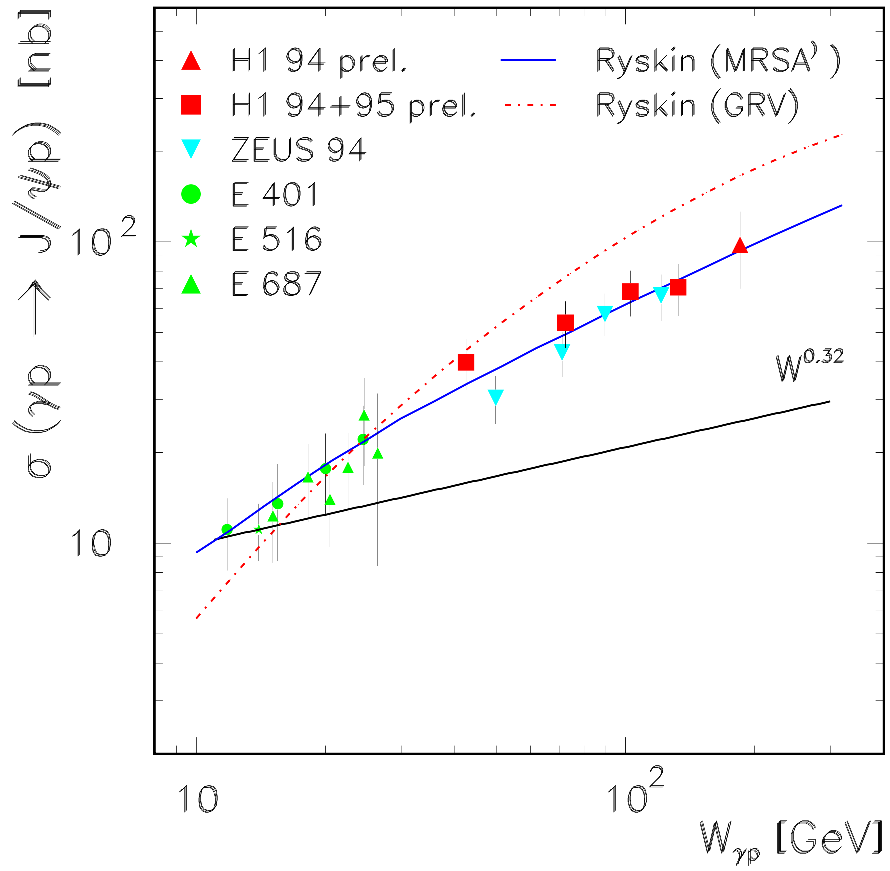
Elastic J/ψ Production – $\sigma_{\gamma p}(W_{\gamma p})$

H1 and ZEUS measured total inclusive J/ψ photoproduction cross section for elastic processes , defined by $z > 0.9$ (and no signal in forward det.)



- σ rises steeper with $W_{\gamma p}$ than expected from Regge theory ($\varepsilon = 0.08$)

  $\sigma(\gamma p \to J/\psi p) \sim W_{\gamma p}^{4\varepsilon}$ $\quad 4\varepsilon = 0.92 \pm 0.14 \pm 0.10$ (Zeus), 0.9 (H1)

  rise clearly seen from HERA data alone $\Longrightarrow$ not just a soft $I\!P$

- measurement well described by pQCD approach with $W_{\gamma p}$ dependence coupled to low-x behaviour of gluon density in the proton
- complementary way to extract the gluon density the proton