



Contribution ID: 18

Type: not specified

Measurement of the cross-section ratio $\sigma(\psi(2S))/\sigma(J/\psi(1S))$ in exclusive photoproduction at HERA

Tuesday, 27 September 2022 08:50 (20 minutes)

On behalf of the ZEUS Collaboration.
Submitted to JHEP.

The exclusive photoproduction reactions $\gamma p \rightarrow J/\psi(1S) p$ and $\gamma p \rightarrow \psi(2S) p$ have been measured at an ep centre-of-mass energy of 318 GeV with the ZEUS detector at HERA using an integrated luminosity of 373 pb⁻¹. The measurement was made in the kinematic range $30 < W < 180$ GeV, $Q^2 < 1$ GeV² and $|t| < 1$ GeV², where W is the photon-proton centre-of-mass energy, Q^2 is the photon virtuality and t is the squared four-momentum transfer at the proton vertex. The decay channels used were $J/\psi(1S) \rightarrow \mu^+\mu^-$, $\psi(2S) \rightarrow \mu^+\mu^-$ and $\psi(2S) \rightarrow J/\psi(1S)\pi^+\pi^-$ with subsequent decay $J/\psi(1S) \rightarrow \mu^+\mu^-$. The ratio of the production cross sections, $R = \sigma(\psi(2S))/\sigma(J/\psi(1S))$, has been measured as a function of W and $|t|$ and compared to previous data in photoproduction and deep inelastic scattering and with predictions of QCD-inspired models of exclusive vector-meson production, which are in reasonable agreement with the data.

Presenter: GRZELAK, Grzegorz

Session Classification: Low x, PDFs and hadronic final states

Track Classification: Low x, PDFs and hadronic final states