



Contribution ID: 110

Type: Parallel Session Talk

## Measurement of the $\Psi(2S)$ to $J/\Psi$ cross section ratio in photoproduction with the ZEUS detector at HERA

Wednesday 10 April 2019 09:10 (20 minutes)

The exclusive photoproduction reaction  $\gamma p \rightarrow \psi(2S)p$  has been studied with the ZEUS detector in  $ep$  collisions at HERA using an integrated luminosity of  $350 \text{ pb}^{-1}$ , in the kinematic range  $30 < W < 180 \text{ GeV}$ ,  $Q^2 < 1 \text{ GeV}^2$ ,  $|t| < 5 \text{ GeV}^2$ , where  $W$  is the photon-proton centre-of-mass energy,  $Q^2$  - the photon virtuality and  $t$  -four-momentum transfer at the proton vertex. The  $\psi(2S)$  mesons were identified via the decay channels:  $\psi(2S) \rightarrow \mu^+\mu^-$  and  $J/\psi\pi^+\pi^-$  with  $J/\psi \rightarrow \mu^+\mu^-$ . The ratio of the production cross sections  $R = \sigma(\psi(2S))/\sigma(J/\psi)$  was measured as a function of  $W$  and compared to predictions of the perturbative QCD.

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**Session Classification:** WG2: Small-x and Diffraction

**Track Classification:** WG2: Low-x and Diffraction