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## Charmonium production at HERA

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The exclusive deep inelastic electroproduction of  $\psi(2S) \rightarrow \mu^+\mu^-$ ,  $\psi(2S) \rightarrow J/\psi\pi^+\pi^- \rightarrow \mu^+\mu^-\pi^+\pi^-$  and  $J/\psi \rightarrow \mu^+\mu^-$  have been studied with the ZEUS detector at HERA using an integrated luminosity of  $354 \text{ pb}^{-1}$ . The analysis was carried out in the kinematic range  $5 < Q^2 < 70 \text{ GeV}^2$ ,  $30 < W < 210 \text{ GeV}$  and  $|t| < 1 \text{ GeV}^2$ , where  $Q^2$  is the photon virtuality,  $W$  the photon-proton centre-of-mass energy and  $t$  the squared four-momentum transfer at the proton vertex. The cross-section ratio  $\sigma_{\psi(2S)}/\sigma_{J/\psi}$  has been measured as a function of  $Q^2$ ,  $W$  and  $t$ .

**Primary author:** WING, Matthew (UCL)

**Presenter:** KOVALCHUK, Nataliia (Deutsches Elektronen-Synchrotron (DESY))

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