Contribution ID: **42** Type: **Talk in Parallel Session at DIS2013**

Elastic and proton dissociative J/psi meson photoproduction at HERA

Wednesday 24 April 2013 09:10 (20 minutes)

Cross sections for elastic and proton dissociative photoproduction of J/ mesons are measured simultaneously in electron proton collisions at HERA using the H1 detector. Two data sets are analysed, one collected at the nominal ep centre-of-mass energy of
sqrt{s}\approx 320 GeV and having an integrated luminosity of 130 pb−1 and one recorded with a reduced proton beam energy resulting in sqrt{s}\approx 225 GeV and corresponding to an integrated luminosity of L = 10.8 pb−1. Differential cross sections d/dt, where t is the squared four momentum transfer at the proton vertex, are measured in the range |t| < 1.2 GeV2 for the elastic process and |t| < 8 GeV2 for proton dissociation. The cross sections are measured as functions of the photon-proton center-of-mass energy W_{\gamma p} in the ranges 40 − 110 GeV and 25−80 GeV. The results are compared to previous measurements, and the energy and t-dependences are determined using fits to the data.

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Session Classification: WG2: Low x and Diffraction

Track Classification: Small-x, Diffraction and Vector Mesons