

The Discussion of P_c states and the prediction of J/ψ Photo-production

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We will provide the theoretical description of P_c states within coupled channel model. To provide information for the search of nucleon resonances with hidden charm P_c for the on-going experiments at JLab, we make predictions by including the resonant amplitude of $\gamma p \rightarrow N_{c\bar{c}}^* \rightarrow J/\psi p$ calculated from all available theoretical models. The background is mainly from Pomeron-exchange model of the $\gamma p \rightarrow J/\psi p$ reaction. The parameters of the Pomeron-exchange amplitudes are determined by fitting the total cross section data of $\gamma p \rightarrow J/\psi p$ up to very high energy $W = 300$ GeV. We then demonstrate that the P_c can be most easily identified in the differential cross sections at large angles where the contribution of background becomes negligible.

Primary authors: WU, Jiajun (University of Chinese Academy of Sciences); Prof. LEE, T.-S. Harry (Argonne National Laboratory); ZOU, Bing-Song (Chinese Academy of Sciences)

Presenter: WU, Jiajun (University of Chinese Academy of Sciences)

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