

Studying the $P_c(4450)$ resonance in J/ψ photoproduction off protons

Content

The LHCb has reported the observation of a resonancelike structure, the $P_c(4450)$, in the $J/\psi p$ spectrum.

In our work, we discuss the feasibility of detecting this structure in J/ψ photoproduction, e.g. in the measurement that has recently been approved for the CLAS12 experiment at JLab.

We take into account the experimental resolution effects, and perform a global fit to world J/ψ photoproduction data, predicting that it will be possible to observe a sizable cross section close to the J/ψ production threshold. We present a first estimate of the upper limit for the branching ratio of the $P_c(4450)$ into the $J/\psi p$ channel, and we study the angular distributions of the differential cross sections. This will shed light on the nature and couplings of the $P_c(4450)$ structure in the future photoproduction experiments.

Summary

Primary author(s) : Dr. HILLER BLIM, Astrid Nathalie (Johannes Gutenberg University of Mainz)

Co-author(s) : Dr. MATHIEU, Vincent (Jefferson Lab); Dr. FERNANDEZ RAMIREZ, Cesar (ICN-UNAM); Mr. JACKURA, Andrew (Indiana University); Prof. SZCZEPANIAK, Adam (Indiana University); Dr. PILLONI, Alessandro (JLab); Dr. MOKEEV, Viktor (JLab)

Presenter(s) : Dr. HILLER BLIM, Astrid Nathalie (Johannes Gutenberg University of Mainz)