

New Baryon State $N'(1720)3/2^+$ from the CLAS $\pi^+\pi^-p$ Photo- and Electroproduction Data

Tuesday, 18 May 2021 17:15 (20 minutes)

Combined studies of exclusive meson photo- and electroproduction have extended the capabilities in the search for new excited states of the nucleon, the so called “missing” resonances. New excited state of the nucleon, $N'(1720)3/2^+$ has been observed in the combined studies of the $\pi^+\pi^-p$ photo- and electroproduction off protons data measured with the CLAS detector at Jlab. The results on the new baryon state observation will be presented and discussed in the talk. A successful description of the $\pi^+\pi^-p$ photo- and electroproduction data achieved with independent from photon virtualities (Q^2) mass, total and partial hadronic decay widths of $N'(1720)3/2^+$ state offers a strong evidence for the existence of this new resonance. Currently, $N'(1720)3/2^+$ resonance is the only observed new baryon state for which the results on Q^2 -evolution of the electroexcitation amplitudes have become available. They offer an insight into the “missing” resonance structure for the first time. Future analyses of the $N'(1720)3/2^+$ electroexcitation amplitudes will shed light on the particular structural features of “missing” resonances which made their observation so challenging for decades.

Collaboration

CLAS Collaboration

Primary author: MOKEEV, Victor (Thomas Jefferson National Accelerator Facility)

Presenter: MOKEEV, Victor (Thomas Jefferson National Accelerator Facility)

Session Classification: Parallel Session B2