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Search for the Θ^+ in high statistics photoproduction experiments with CLAS

STEPAN STEPANYAN¹, Jefferson Lab

In the past two years more than 10 experiments have reported observation of a narrow exotic $S=+1$ baryon state in the mass range from 1.525 to 1.55 GeV/ c^2 . The minimal quark content of this state, called the Θ^+ , is $uudd\bar{s}$. There have been a number of reports of non-observation of this state, mostly in high energy inclusive experiments. The main criticisms of the reported Θ^+ signals are insufficient statistics, and variation in mass. The CLAS Collaboration at Jefferson Laboratory has published two papers on the experimental evidence for the Θ^+ , based on the analysis of previously collected CLAS photoproduction data from hydrogen and deuterium. During the past year, the CLAS Collaboration has conducted two new dedicated high-statistics experiments to search for the Θ^+ . These data now represent the world's largest data sets for photoproduction on hydrogen and deuterium at energies up to 3.6 GeV. In this talk we present results in several reaction channels in a comprehensive search for the Θ^+ from these experiments.

¹for the CLAS Collaboration