

# Excited Nucleon Spectrum and Structure Studies with CLAS12

Daniel S. Carman, Jefferson Laboratory

The  $N^*$  program in Hall B at Jefferson Lab studies the spectrum and structure of excited nucleon states employing the electroproduction of exclusive reactions. This effort is an important avenue to explore strongly acting systems of QCD. The CLAS detector has provided the dominant part of the available world data on  $\pi N$ ,  $\eta N$ , and  $\pi\pi N$ , and  $K^+Y$  electroproduction in the nucleon resonance region for  $Q^2$  up to 5 GeV<sup>2</sup>. These data have provided the only results available on the  $Q^2$  evolution of the electrocoupling amplitudes for most  $N^*$  states in the mass range up to  $W=1.8$  GeV to explore their internal structure. Starting in early 2018, the  $N^*$  program using the new CLAS12 spectrometer commenced. These studies will probe  $N^*$  states in the mass range up to  $W$  of 3 GeV and  $Q^2$  from 0.1 GeV<sup>2</sup> to 12 GeV<sup>2</sup>, thus providing a means to access  $N^*$  structure information spanning a broad regime encompassing both low and high energy degrees of freedom. Quasi-real photoproduction studies are also planned to search for additional  $N^*$  states, the so-called hybrid baryons, for which the glue serves as an active structural component. In this talk the results of the ongoing analysis of the data collected from CLAS12 associated with the  $N^*$  program will be reviewed to highlight the current status and future plans.