

Hadron Spectroscopy at CLAS

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Abstract

The g12 experimental period (April - June 2008) at the CEBAF Large Angle Spectrometer (CLAS) at Jefferson Laboratory was a high-luminosity photon run at the highest CEBAF energies. A tagged bremsstrahlung beam was available between 1.2 and 5.7 GeV with a raw integrated luminosity of 68 pb^{-1} , 27 pb^{-1} in the high energy range greater than 4.4 GeV. The principle aims of the experiment was the study of exotic hadrons, that is mesons and baryons outside of the naive quark model, in particular hybrid mesons and pentaquark baryons. However, an open trigger has produced a rich dataset to examine a range of photo-produced phenomena.

Here we report on the current status of the analysis, which includes the study of meson and baryon spectroscopy including strangeonia in the meson sector, and cascade and Y^* resonances in the baryon sector. The high luminosity has also permitted the study of spectroscopy through rare channels. The superb electron/positron detection at CLAS has also permitted the study of vector mesons through the rare e^+e^- decay, as well as the study of the Dalitz decay mode of the π^0 , η , and η' .