

Hybrid Baryon Search at CLAS 12

Thursday, June 13, 2019 4:30 PM (30 minutes)

The study of baryonic excited states provides fundamental information on the internal structure of the nucleon and on the degrees of freedom that are relevant for QCD at low energies. *Nare composite states and are sensitive to details of the how quark are confined.*

A program has been approved at JLAB to search for new excited baryon states in the mass range from 1.8 GeV to 3 GeV with CLAS12. For the first time the behavior of resonance electro-couplings over the full spectrum of excited proton states will be studied at very low photon virtualities, approaching the photon point. The experiment will measure KY and $\pi^+\pi^- p$ exclusive final states using longitudinally polarized electron beams in the energy range between of 6.5 GeV and 8.8 GeV, to cover the range of invariant masses up to 3 GeV. By studying the Q^2 evolution of electroexcitation amplitudes it will be possible to distinguish between regular N states and possible additional hybrid baryon states, with the glue as an extra constituent component beyond the three constituent quarks. Very first results from 6.5 GeV and 7.5 GeV electron energy data are reported.

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Track Classification: Baryon spectrum through meson photoproduction