USC Summer Academy on Non-Perturbative Physics

The next workshop in our series "Nucleon Resonance Structure in Exclusive Electroproduction at High Photon Virtualities" will be held at the University of South Carolina on August 13-15, 2012. This three-day workshop will provide us extended opportunities to present and discuss in depth future developments and preliminary results on the continuous exploration of hadronic physics towards smaller distances. If you would like to participate please contact gothe@sc.edu or mokeev@jlab.org or visit www.jlab.org/conferences/EmNN2012/.

In the tradition of this workshop, we will focus on the extension of the γ_vNN* electrocoupling studies to high photon virtualities from 5.0 to 12.0 GeV^2. This is the kinematic area, where the N* structure is still almost unexplored, and which will be comprehensively covered by the approved experiment PR12-09-003 on N* studies in exclusive meson electroproduction off protons with the CLAS12 detector. The experiment will be carried out in the first five years after the completion of the Jefferson Lab 12-GeV Upgrade Project.

By that time ready-to-use methods for the extraction of the γ_vNN* electrocouplings at high photon virtualities are needed as well as general QCD-based frameworks for the theoretical interpretation of these fundamental N* parameters. Resonance electrocouplings will be measured for the first time at distance scales, where quark degrees of freedom are expected to dominate. These studies will focus on the exploration of quark interactions in the QCD running coupling regime, which are responsible for the baryon formation. They are vital in order to explore confinement in the baryon sector and to understand how the complexity of non-perturbative strong interactions emerges from QCD.

The scope of this three-day workshop focuses particularly on the development of future strategies, methods, and approaches to extract the γ_vNN* electrocouplings, where hard quark interactions become relevant, and on the interpretation of hadronic physics in this non-perturbative regime. The workshop aims to foster already initiated efforts and create opportunities to facilitate and stimulate further growth in this field.