

Abstract Submitted
for the DNP07 Meeting of
The American Physical Society

Sorting Category: 8. (T)

Roper transition form factor from Lattice QCD HUEY-WEN LIN, ROBERT EDWARDS, Jefferson Lab — Experiments at Jefferson Laboratory, MIT-Bates, LEGS, Mainz, Bonn, GRAAL, and Spring-8 offer new opportunities to understand in detail how nucleon resonance (N^*) properties emerge from the nonperturbative aspects of QCD. Preliminary data from CLAS collaboration, which cover a large range of photon virtuality Q^2 shows interesting behavior with respect to Q^2 dependence: in the region $Q^2 \leq 1.5 \text{ GeV}^2$, both the transverse amplitude, $A_{1/2}(Q^2)$, and the longitudinal amplitude, $S_{1/2}(Q^2)$, decrease rapidly. In this work, we attempt to use first-principles lattice QCD (for the first time) to provide a model-independent study of the Roper-nucleon transition form factor.

Prefer Oral Session
 Prefer Poster Session

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Date submitted: 02 Jul 2007

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