

Abstract Submitted  
for the DNP08 Meeting of  
The American Physical Society

**Coupled-channel analysis of hadronic and electromagnetic  $\pi$ ,  $\eta$ , two- $\pi$  production reactions**<sup>1</sup> H. KAMANO, EBAC@JLab, B. JULIA-DIAZ, EBAC@JLab, Univ. of Barcelona, T.-S. H. LEE, EBAC@JLab, Argonne National Lab, A. MATSUYAMA, EBAC@JLab, Shizuoka Univ., T. SATO, EBAC@JLab, Osaka Univ. — Recent high precision data of the electromagnetic meson production reactions off nucleons from Bonn, GRAAL, JLab, Mainz and Spring-8 make possible to extract  $Q^2$  dependence of the electromagnetic  $N$ - $N^*$  transition form factors. To extract such information on the quark-gluon structures of the  $N^*$  states, a comprehensive analysis of the hadronic and electromagnetic meson production reactions is ongoing in Excited Baryon Analysis Center (EBAC) at JLab. The analysis is based on the dynamical coupled-channel model which properly describes correlations among all relevant reaction channels required from unitarity and can treat non-resonant and resonant processes in a unified manner. In this talk, we will report current status on the analysis of  $\gamma N \rightarrow \pi N$ ,  $\gamma N \rightarrow \eta N$  and  $eN \rightarrow e'\pi N$  reactions. The main purpose is to determine parameters associated with the electromagnetic interactions by this combined analysis of the electromagnetic meson production reactions. We will also discuss the  $N$ - $N^*$  electromagnetic form factors extracted from the analysis of the  $eN \rightarrow e'\pi N$  reaction.

<sup>1</sup>Supported by DOE, Office of Nuclear Physics, under contract No. DE-AC02-06CH11357 and No. DE-AC05-06OR23177.

Hiroyuki Kamano  
EBAC@JLab

Date submitted: 27 Jun 2008

Electronic form version 1.4