

## Recent results of charged pion and kaon photoproduction on the proton at SPring-8/LEPS

*Tuesday 11 June 2019 17:30 (30 minutes)*

We have been carrying out photoproduction experiments by using linearly polarized tagged photon beams with energies of 1.5-2.9 GeV at SPring-8/LEPS. Charged pions and kaons were detected at forward angles. We studied the  $\gamma p \rightarrow \pi^- \Delta^{++}$ ,  $\pi^+ n$ , and  $K^+ \Lambda(\Sigma^0)$  reactions. In the final states of these reactions,  $u\bar{u}$ ,  $d\bar{d}$ , and  $s\bar{s}$  quark-antiquark pairs are produced, respectively. The differential cross sections and photon beam asymmetries were measured. It is interesting that only the  $\pi^- \Delta^{++}$  reaction is found to have negative asymmetries and the other reactions have positive asymmetries. In the  $\pi^- \Delta^{++}$  reaction, a d quark in the proton is replaced with a u quark. In the other reactions, a u quark is replaced with a d or an s quark. The difference in asymmetries might originate from different characteristics between the u and d quarks in the proton. We newly analyzed the data for the  $\gamma p \rightarrow \pi^+ \Delta^0$  reaction. The comparison between the  $\pi^- \Delta^{++}$  and  $\pi^+ \Delta^0$  reactions plays an important role for distinguishing  $N^*$  from  $\Delta^*$  in the s channel. We present preliminary results for the  $\pi^+ \Delta^0$  reaction in the NSTAR2019 workshop.

**Primary author:** KOHRI, Hideki (RCNP, Osaka University)

**Presenter:** KOHRI, Hideki (RCNP, Osaka University)

**Session Classification:** Parallel Session B

**Track Classification:** Baryon spectrum through meson photoproduction