Baryon spectroscopy at ELPH and LEPS2

TAKATSUGU ISHIKAWA, Research Center for Electron Photon Science (ELPH), Tohoku University

Baryon spectroscopy is an important testing ground for understanding low energy QCD. Meson photoproduction is complementary to \( \pi \) induced reactions for studying excited baryons. Among the meson photo-produced reactions, the neutron target, kaon photo-produced, and multi-meson photo-produced reactions are important to reveal the properties of baryon resonances. The photoproduction experiments at ELPH and the planned experiments at LEPS2 will be discussed. The nucleon and \( \Delta \) resonances are studied with an electromagnetic calorimeter FOREST at ELPH, Tohoku University by using various photoproduction reactions. A narrow resonance observed at \( W \approx 75 \) MeV in \( \eta \) photoproduction on the neutron is of great interest. It would be attributed to a member of anti-decuplet pentaquark baryons with hidden strangeness since no signature corresponding to this bump has been observed so far in the proton channel. Multi-meson/kaon photoproduction is a good tool to study highly excited baryons. The results obtained at ELPH and planned experiments at LEPS2 will be presented.