Hadron physics with meson photoproduction at LEPS/SPring-8

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At the Laser Electron Photon facility at SPring-8 (LEPS), highly polarized photon beams in the energy range from 1.5 to 3.0 GeV are used for studying hadron physics. The beams are produced by Compton scattering of laser photons from 8-GeV electrons in the SPring-8 storage ring synchrotron radiation source. The main detector setup has been a charged-particle spectrometer with a dipole magnet in the forward direction. We recently enlarged our kinematical acceptance by adding a time projection chamber (TPC) surrounding the target. With these detectors, various meson/baryon photoproduction reactions have been studied, including searching for the exotics such as Θ^+ pentaquark[1]. The nature of hyperon resonances, such as $\Lambda(1405)$ and $\Lambda(1520)$ has been studied[2,3] with K^+ detection. Meson photoproductions at the backward angles have been studied by detecting protons with the forward spectrometer[4]. In order to extend the kinematical coverage of the detector, and also to increase the beam intensity, we have just started the construction of the new laser-electron photon beam line (LEPS2) at SPring-8. In this talk, recent results from the LEPS experiment are overviewed and future prospects are discussed.

[1] T. Nakano *et al.* [LEPS Collaboration], Phys. Rev. C **79** (2009) 025210

[2] M. Niiyama *et al.*, Phys. Rev. C **78** (2008) 035202

[3] N. Muramatsu *et al.*, Phys. Rev. Lett. **103** (2009) 012001

[4] M. Sumihama *et al.* [LEPS Collaboration], Phys. Rev. C **80** (2009) 052201

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