

Recent polarization observables results in π^0 - and η -photoproduction off the proton

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A comparison of experimentally observed excited nucleon states to phenomenological quark model predictions or lattice QCD calculations reveal large differences, especially concerning the number of excited states. An important tool to probe the nucleon excitation spectrum is the study of meson photoproduction reactions. In order to extract the contributing resonances from the experimental data partial wave analyses need to be performed. For an unambiguous solution the measurement of single and double polarization observables is essential. Several experimental facilities have dedicated programs to measure polarization observables in different photoproduction reactions using a polarized photon beam and a polarized target, e.g. the CBELSA/TAPS experiment located at the electron stretcher accelerator ELSA in Bonn or the Crystal Ball experiment located at the accelerator facility MAMI in Mainz.

This talk will present recent results concerning the polarization observables Σ and E in the $\gamma p \rightarrow p\pi^0$ and $\gamma p \rightarrow p\eta$ reactions measured at the CBELSA/TAPS and the Crystal Ball experiment, respectively. This work is supported by the Deutsche Forschungsgemeinschaft (SFB/TR16 and SFB1044), Schweizerischer Nationalfonds and Hadron Physics 3 under the 7th Framework Program of the EU.

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