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Results of polarization observables in photoproduction reactions from the CBELSA/TAPS experiment

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The study of the nucleon excitation spectra allows to better understand the dynamics of the constituents inside the nucleons. Large discrepancies exist between experimentally observed states and predicted states from lattice QCD calculations or from phenomenological quark models. Experimentally, the nucleon excitation spectra can be investigated by studying different meson photoproduction reactions. Partial wave analyses are performed in order to extract the contributing resonances from experimental data. For an unambiguous solution it is not enough to only measure the unpolarized cross section, but several single and double polarization observables are needed in addition.

The CBELSA/TAPS experiment is located at the electron stretcher accelerator ELSA in Bonn, Germany. It offers the possibility to measure polarization observables with a linearly or circularly polarized photon beam and a longitudinally or transversely polarized target. The detection system consists mainly of two calorimeters: the Crystal Barrel and the MiniTAPS detector.

This talk will present recent results of several polarization observables from the CBELSA/TAPS collaboration. This work is supported by the Deutsche Forschungsgemeinschaft (SFB/TR16) and the Schweizerischer Nationalfonds.

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