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# Multi-meson photoproduction off the proton - recent results from the CBELSA/TAPS experiment

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One important step in understanding the baryon spectrum is a precise knowledge of the excited states and their decays. In order to extract the contributing resonances from experimental data a partial wave analysis needs to be performed. To resolve ambiguities, the measurement of polarization observables is indispensable. In the regime of high mass baryon resonances multi-meson final states are of particular importance. Here sequential decays of resonances are observed.
The Crystal Barrel/TAPS experiment is ideally suited to measure the photoproduction of neutral mesons decaying into photons due to its good energy resolution, high detection efficiency for photons, and the nearly complete solid angle coverage. In combination with a longitudinally or transversely polarized target and an energy tagged, linearly or circularly polarized photon beam the experiment allows the measurement of a large set of polarization observables.
This talk will focus on results on $\pi^0\pi^0$ and $\pi^0\eta$ photoproduction. Recent results of the Bonn-Gatchina partial wave analysis which include part of the presented data, revealed systematic differences in the branching ratios for decays of $N^*$ and $\Delta^*$ resonances. These are attributed to the internal structure of these excited nucleon states.

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