

## Measurement of the double polarization observables E and G at the Crystal Ball experiment at MAMI

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The understanding of the nucleon excitation spectra requires the measurement of several polarization observables in addition to the unpolarized cross section. The Crystal Ball experiment at MAMI has measured for the first time the double polarization observables E and G simultaneously within one beam time. The simultaneous production of linearly (needed for G) and circularly (needed for E) polarized bremsstrahlung photons was achieved by using a longitudinally polarized electron beam together with a thin diamond foil as a radiator. Additionally, the Mainz frozen-spin polarized target developed in cooperation with Dubna was utilized for the measurement. For the detection of the final state particles the Crystal Ball and the TAPS calorimeters were used. The obtained data was analyzed in respect to the  $\pi^0$  final state and the preliminary results for the double polarization observables E and G will be presented in comparison to already existing data.

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