

Spin Physics at the A2 Real Photon Facility at MAMI

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Abstract

The A2 Collaboration at the Mainz Microtron MAMI measures photon absorption cross sections using circularly and linearly polarized 'Bremsstrahlung' photons up to an energy of 1.5 GeV and a polarized Frozen Spin Target. We use a 4π detection system with the 'Crystal Ball' as central part.

One important experimental topic is the investigation of the baryons excitation spectrum. Measurements with both longitudinally and transversely polarized protons and deuterons are essential to disentangle the broad and overlapping resonances. Several recently published data for single and double polarization observables will be presented.

We have started a new program to measure double polarized Compton scattering in a wide kinematic range, which will allow for the determination of the 'Spin Polarizabilities'. As a technical highlight in this challenge we have used an active polarized proton target in our dilution refrigerator in June 2016 for the first time.