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Photoproduction of mesons and Compton scattering on the proton: Selected high-precision results from the A2 Collaboration at MAMI

Thursday, June 13, 2019 3:30 PM (30 minutes)

The A2 Collaboration performs a manifold research program using real photons in the Crystal Ball/TAPS experiment at the MAMI accelerator facility in Mainz. The experiments take advantage of high-intensity unpolarized, linearly or circularly polarized photon beams, and unpolarized or polarized targets. The detector setup provides almost complete coverage in solid angle and is well suited for the detection of multi-particle final states. In order to probe the internal structure of the nucleon, the spectrum of baryon resonances is studied via measurements of unpolarized cross-sections and various polarization observables in single and double meson photoproduction. The program aiming to determine the scalar and spin polarizabilities of the nucleons with high precision is performed with the Compton scattering experiments.

In 2018, the focal plane detector used in the tagging system of the Crystal Ball/TAPS experiment was completely renewed, allowing new measurements with unprecedentedly high precision. In this talk, recent results, the current status, and future plans for new experiments at MAMI will be presented.

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