

XVth Quark Confinement and the Hadron Spectrum



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Recent results on baryon spectroscopy at ELSA and MAMI

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Baryon spectroscopy gives insights into the dynamics between the constituents of baryons and study quantum chromodynamics (QCD) in the non-perturbative regime. Quark models and Lattice calculations predict a large number of baryons, but only a fraction of them have been found experimentally.

The baryon spectra can be probed with a real photon beam by studying various different photoproduction reactions. Partial-wave analyses need to be performed to extract the baryon resonance parameters from the experimental data. For an unambiguous solution, several single and carefully chosen double polarization observables are needed in addition to the unpolarized cross section.

Worldwide, various experimental facilities have dedicated programs to measure these polarization observables in different photoproduction reactions using polarized photon beams and polarized targets. Two of the leading experimental facilities are located in Germany, the CBELSA/TAPS experiment at the accelerator facility ELSA in Bonn and the Crystal Ball experiment at the accelerator facility MAMI in Mainz. Both experiments are excellent at measuring neutral mesons in the final states, using electromagnetic calorimeters covering almost the full angular range, while exploring complementary beam energy regions. This talk will give an overview about recent results in non-strange baryon spectroscopy at ELSA and MAMI.

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