Plenarvortrag PV II Di 8:45 RW 1

Baryon Spectroscopy using CBELSA/TAPS at ELSA and the CLAS Spectrometer at Jefferson Laboratory — •Volker Crede — Florida State University, Tallahassee, FL 32306 USA

Nucleons are complex systems of confined quarks and gluons and exhibit the characteristic spectra of excited states. In particular, highly-excited states are sensitive to the details of quark confinement, which is only poorly understood within QCD. This is the non-perturbative regime of QCD and it is one of the key issues in hadronic physics to identify the corresponding relevant degrees of freedom and the effective forces between them. In recent years, lattice-QCD has made significant progress toward understanding the spectra of hadrons. On the experimental side, high-energy electrons and photons are a remarkably clean probe of hadronic matter. Laboratories worldwide have accumulated data for such investigations, resulting in a number of surprising discoveries and contributing to our understanding of the nucleon, its underlying quark structure, and the dynamics of the strong interaction. Current experimental efforts utilize highly-polarized frozen-spin (butanol) targets and deuterium targets in combination with polarized photon beams. These are important steps toward so-called complete experiments that will allow us to unambiguously determine the scattering amplitudes in the underlying reactions and to identify resonance contributions. In my talk, I will give an overview of the excited baryon program at ELSA using the CBELSA/TAPS experiment and at Jefferson Laboratory using the CLAS spectrometer. In particular, I will discuss recent results from the (double-)polarization experiments.