

International Symposium

Lepton and Hadron Physics at Meson-Factories

Messina (Italy) - October 13-15, 2013

Current and Future Research with Real Photons at the MAMI 1.6 GeV electron accelerator

I J D MacGregor, University of Glasgow

For the A2-CB Collaboration

The A2-CB Collaboration at Mainz is studying the structure of hadrons by meson photoproduction using unpolarised, linearly polarised and circularly polarised photons with energies up to 1.6 GeV. Photons are energy tagged using the Glasgow tagged photon spectrometer and a new High-energy end point tagger which allows η' reactions to be studied. Reaction products are detected in a $\sim 4\pi$ detector consisting of the Crystal Ball detector and TAPS forward wall. Transverse or longitudinally polarised proton targets are available and new techniques have been developed to measure the polarisation of recoiling protons. These facilities have allowed an extensive programme of double-polarisation meson-photoproduction experiments to be carried out to search for so-called “missing baryon resonances” on proton and deuteron targets. Searches have also been carried out to investigate narrow resonances in the η -photoproduction channel at missing masses around 1680 MeV. New double-polarisation measurements will provide information on proton vector polarisabilities. In this talk I will present some highlights from the current A2-CB collaboration Hadron Physics research programme and present plans for future work to be carried out over the coming decade.