Plenarvortrag PV VIII Do 9:45 HZ 1+2

Revealing New Hadronic States and Properties of Mesons with COMPASS — •Stephan Paul — Technische Universität München

The COMPASS experiment at CERN studies hadron physics with incoming beams of μ, π and protons with energies between 160 and 200 GeV. The use of hadron beams in particular allows to study the spectrum of light and strange hadrons. With different reactions at hand we can isolate dedicated isospin-states and in addition study low energy dynamics and electromagnetically probe unstable mesons. In particular, a recent and novel analysis of diffractively produced 3π final state has lead to the discovery of new hadronic states. Among these is the observation of a new light (possibly exotic) axial vector meson around 1.4 GeV/c^2, the interpretation of which is still open. In addition, we analyze the structure of the underlying $\pi - \pi$ system appearing with different angular momenta in exclusive 3π-events which in turn allows new insights into the interpretation of resonance structures.

Last but not least we will present spectroscopic results on other final states and address photon induced reactions, which allow to determine the pion polarizability as well as radiative decays of excited mesons.