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Hadron spectroscopy with the GlueX experiment

The detailed understanding of how quantum chromodynamics (QCD) gives rise to the spectrum of hadrons is currently one of the biggest open questions in hadron physics. Most of the observed states are classified as quark-antiquark mesons or three-quark baryons. However, QCD allows for a much richer spectrum with more complex configurations. Experimental evidence exists for such non-conventional hadrons like hybrid mesons, in which an excited gluonic field is coupled to a quark-antiquark pair and contributes directly to the meson properties.
Worldwide, different experimental facilities have dedicated and complementary hadron spectroscopy programs. The GlueX experiment, which is located in Hall D at Jefferson Lab, USA, uses a linearly polarized photon beam with energies of up to 12 GeV incident on a liquid hydrogen target and consists of a high-acceptance spectrometer with excellent charged as well as neutral particle detection capabilities. This allows us to study the production mechanisms and decays of a wide range of hadronic resonances.
This talk gives an overview of experimental light hadron spectroscopy with an emphasis on results from the GlueX experiment.

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