

# Experiment GlueX: Early results and future plans

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## **Abstract**

The GlueX experiment in Hall D at Jefferson Lab has just finished the data taking for the first phase of the project. The main purpose of the experiment is the search for hybrid mesons in the light quark sector. The experiment studies interactions of a linearly polarized photon beam made by 11.7 GeV electrons with a hydrogen target, with the help of a nearly hermetic spectrometer for charged and neutral particles. About 25% of the data acquired have been analyzed. The first physics results include studies of photoproduction of light mesons by a linearly polarized beam, and a measurement of the  $J/\psi$  photoproduction close to threshold. The latter allows to search for the LHCb's pentaquarks in photoproduction. The first results on the search for hybrid mesons are expected after the whole data sample has been analyzed. The next stage of GlueX data taking will include a new detector for charged kaon identification, and will run at higher luminosity, in order to search for hybrid mesons decaying to strange particles, as well as to contribute to the spectroscopy of hyperons. I will also discuss a proposal to modify the Hall D facility in order to provide a K0L beam, which would allow to study strange baryons and mesons at a new level of precision.