HALL D
INTERVIEW SEMINAR

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Partial Wave Analysis studies of $\eta'\pi^0$ system in GlueX

The primary motivation of the GlueX experiment at Jefferson Lab is the search for light hybrid mesons that are quark-antiquark pairs coupled to a gluonic field excitation. There is strong evidence for π_1 hybrid meson with exotic $J^{PC} = 1^{-+}$ quantum numbers, reported from studies of $\eta^{(\prime)}\pi$ systems in COMPASS, VES and E852. All mentioned experiments used a charged pion beam as a probe. At GlueX we are studying contributions of resonances with different spins in the mass spectrum of the $\eta^{(\prime)}\pi$ system via partial wave analysis (PWA), where we use a newly developed model for photo-production via linearly polarized beam. There are parallel studies of $\eta^{(\prime)}\pi$ system, by considering various production and decay modes ($\gamma p \rightarrow p\eta\pi^0$, $\gamma p \rightarrow \Delta^{++}\eta\pi^-$, $\gamma p \rightarrow p\eta'\pi^0$, $\gamma p \rightarrow \Delta^{++}\eta'\pi^-$). This project is about the analysis of the $\eta'\pi^0$ system. We have studied and developed different methods and cuts for selecting true $\eta'\pi^0$ data sample and performing PWA analysis. We have then performed PWA analysis and have extracted the intensities of waves corresponding to different angular momentum components and have calculated moments of angular distribution.

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VIA ZOOM

https://jlab-org.zoomgov.com/j/1615383168?pwd=cE56LzF4UkZma0RQVTRhdnRjVUg0UT09&from=addon