Amplitude Analysis of $\omega\pi^0$ Photoproduction at GlueX

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Abstract

The GlueX experiment at Jefferson Laboratory seeks to map out the spectrum of light mesons produced from a linearly polarized photon beam. The production and decays of a light meson resonance X such as $\gamma p \to Xp' \to \omega\pi^0 p'$ can be modeled with polarized vector-pseudoscalar amplitudes, which can describe the contribution of individual amplitudes to the total measured intensity. The status of mass-independent fits to the $\omega\pi^0$ mass spectrum over a wide mass and t range will be presented, with a particular focus on the observed production process of the $b_1(1235)$ meson. Additionally, we will present a complementary polarized moment analysis using a defined framework for the vector-pseudoscalar processes. The results of these analyses will enhance our understanding of how the various states of light meson's are produced.