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**The Search for a $\pi_1(1400)$ Exotic Meson in the $\gamma p \to \Delta^{++}\eta\pi^-$ System** DIANE SCHOTT, The George Washington University, CLAS COLLABORATION — Over twenty years ago QCD-inspired models of hadronic states suggested the existence of mesons beyond the Naive Quark Model (NQM), which motivated a rigorous search for exotic mesons. The lightest of these states is the $\pi_1(1400)$ decaying to $\eta\pi^-$ observed by experiment E852 at Brookhaven and the VES collaboration at IHEP. Photoproduction is predicted to favor production of a $J^{PC} = 1^{-+}$ gluonic excitation resulting in the increase of the ratio of $\pi_1$ to $a_2$ mesons. A Partial Wave Analysis was conducted on the reaction $\gamma p \to \Delta^{++}X \to p\pi^+\pi^-(\eta)$, using the $\Delta^{++}$ to select the pion exchange. The analysis has shown the final spectra of the resonance decaying to $\eta\pi^-$ to be dominated by the quantum state of $J^{PC} = 2^{++}$ corresponding to the presence of the $a_2(1320)$. The $J^{PC} = 1^{-+}$ state, shows no structure in the intensity distribution. The phase difference between the $J^{PC} = 1^{-+}$ and $J^{PC} = 2^{++}$ amplitudes show the interference between the two states. This is the first spin-parity analysis of the $\eta\pi$ final state in photoproduction.

Diane Schott
The George Washington University

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