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Beam Spin Asymmetry in Exclusive ω Photoproduction off the Bound Proton[1] PHILIP COLE, OLGA CORTES, Idaho State University, CLAS COLLABORATION — In this talk, we present preliminary results for the polarization observable beam-spin asymmetry, Σ, of the $\vec{\gamma}d \to \omega p(n)$ reaction, where the ω meson was identified through its $\omega \to \pi^+\pi^-\pi^0$ decay. The data were taken during the E06-103 experiment with the CLAS detector in Hall B at Jefferson Laboratory. The experiment used the Hall-B Coherent Bremsstrahlung Facility to provide a high quality beam of linearly-polarized photons in the energy range from 1.1 to 2.3 GeV. We determined the beam-spin asymmetry of the ω's photoproduced off quasi-free protons in deuterium. We studied the evolution of Σ with photon energy and center-of-mass angle. This observable provides information on the underlying mechanisms responsible for s- and t-channel processes. Further, since the ω meson is an isoscalar ($I_\omega = 0$), the reaction of interest serves as an ideal isospin filter, as only N^* states may contribute to the production process. Our results, together with studies of other reaction channels, serve to constrain the missing resonances predicted by QCD-inspired models of the nucleon's internal structure.

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