Old Dominion University
Department of Physics

Nuclear Physics Seminar

Tuesday, July 1, 2014

"Kaon Photoproduction from the FROST Experiment in CLAS"

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Jefferson Lab continues to have a focus on experiments that are searching for undiscovered excited states of the nucleon. Present day LQCD calculations are consistent with the long standing quark model predictions of many more states than have been experimentally determined [1]. Polarization observables can help to disentangle overlapping resonant and non-resonant amplitudes, which can play a vital role in this effort. Recent coupled-channel analyses [2] have found a strong sensitivity of the $K^+\Lambda$ channel to several higher mass nucleon resonances. In 2010, single- and doublepolarization data were taken at JLab using either circularly or linearly polarized photons incident on a transversely polarized frozen spin butanol target (FROST) [3]. Photons were energy-marked using the Hall B photon tagging system and the reaction products were detected in CLAS. We will present preliminary data of the T, T_x and T_z asymmetries of the $K^+\Lambda$ and $K^+\Sigma^0$ final states with comparisons to predictions of recent multipole analyses. There are very few published measurements of the T asymmetry and none of the T_x and T_z asymmetries for the $K^+\Lambda$ channel. $K^+\Sigma^0$ has no published data for these asymmetries. This work is the first of its kind and will significantly broaden the world database for these reactions.

Presentation: PSB2 Room 2108 @ 3:00 pm

All interested persons are cordially invited to attend.