Abstract Submitted
for the APR13 Meeting of
The American Physical Society

Decay of the $\Lambda(1520)$ **to** $\Lambda\pi\pi$ **via** $\Sigma(1385)\pi$ DAO HO, R.A. SCHUMACHER, Carnegie Mellon University, K. MORIYA, Indiana University, CLAS COLLABORATION — The $\Lambda(1520)$ $J^P = 3/2^-$ hyperon may have a $\Sigma(1385)\pi$ substructure, as proposed in recent unitarized coupled-channel calculations [1]. While the branching fraction of the $\Lambda(1520) \to \Lambda\pi\pi$ is well known to be 0.10 ± 0.01, less well established is the relative branching fraction of the intermediate quasi-two-body mode $\Lambda(1520) \to \Sigma(1385)\pi \to \Lambda\pi\pi$ compared to the direct $\Lambda\pi\pi$ mode. Previous measurements range from an upper limit of 0.44 to a value of 0.82. At CLAS a tagged real photon beam with highest energy at 3.8 GeV impinged upon a 40 cm LH2 target to reconstruct the parent hyperon using $\gamma p \to K^+\Lambda(1520)$ from the detected kaon. Detection of both π^+ and π^-, with a ground state Λ in the overall missing mass, allowed complete reconstruction of the event kinematics. An incoherent Dalitz-type analysis of the $\Lambda\pi\pi$ final state was used to determine the relative proportion. Simulation of the direct and two-step decay processes was used to match the data, with the branching fraction as a fitting parameter. Backgrounds were also modeled and included in the fits for the $\Lambda(1520)$ mass from 1.48 to 1.59 GeV.

[1] L. Roca et al., Phys. Rev. C73, 045208 (2006).

Reinhard Schumacher
Carnegie Mellon University

Date submitted: 11 Jan 2013 Electronic form version 1.4