Abstract Submitted
for the APR08 Meeting of
The American Physical Society

Parity Determination of the $\Lambda(1405)$ KEI MORIYA, REINHARD SCHUMACHER, Carnegie Mellon University, CLAS COLLABORATION — The $\Lambda(1405)$ is a well-established hyperon state just below N $\bar{\mathrm{K}}$ threshold. Previous studies of its spin and parity have been inconclusive, but consistent with $J = 1/2$. Using the CLAS system at Jefferson Lab, we collected an event sample of $\sim 1.8 \times 10^5$ reconstructed $\Lambda(1405)$ hyperons photoproduced off the proton, with photon energies between 1.5 and 3.9 GeV. We present preliminary results of the first definitive measurement of the parity of the $\Lambda(1405)$ using the method of Byers and Fenster. The method relies on our observation that the $\Lambda(1405)$ is produced polarized in this reaction. Determination of the polarization axis of the Σ^+ hyperon from the decay of a $J = 1/2$ $\Lambda(1405)$ to $\Sigma^+\pi^-$ then reveals the parity of the parent state.

Kei Moriya
Carnegie Mellon University

Date submitted: 11 Jan 2008 Electronic form version 1.4