Abstract Submitted
for the DNP13 Meeting of
The American Physical Society

Measuring the Charged Pion Polarizability in the $\gamma\gamma \to \pi^+\pi^-$ Reaction DAVID LAWRENCE, Jefferson Lab, RORY MISKIMEN, University of Massachusetts, Amherst, ELTON SMITH, Jefferson Lab, ALEXANDER MUSHKARENKOV, University of Massachusetts, Amherst, LUBOMIR PENTCHEV, Jefferson Lab, GLUEX COLLABORATION — A new measurement of the charged pion polarizability $\alpha_\pi - \beta_\pi$ has been recently approved to run at Jefferson Lab using the GlueX detector in experimental Hall-D. This will be done via the $\gamma\gamma \to \pi^+\pi^-$ cross section accessed via the Primakoff mechanism on a Sn^{116} target. The linearly polarized photon source in Hall-D will be used to separate the Primakoff cross-section from coherent ρ°. An additional detector will also need to be constructed to help distinguish pion and muon events. The charged pion polarizability ranks among the most important tests of low-energy QCD presently unresolved by experiment. Analogous to precision measurements of $\pi^\circ \to \gamma\gamma$ that test the intrinsic odd-parity (anomalous) sector of QCD, the pion polarizability tests the intrinsic even-parity sector of QCD.

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Date submitted: 28 Jun 2013 Electronic form version 1.4