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Abstract for an Invited Paper
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Measuring the Charged Pion Polarizability in the $\gamma\gamma \rightarrow \pi^+\pi^-$ Reaction¹

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A new measurement of the charged pion polarizability $\alpha_\pi - \beta_\pi$ is approved to run at Jefferson Lab using the GlueX detector in experimental Hall D. The charged pion polarizability ranks among the most important tests of low-energy QCD presently unresolved by experiment. Analogous to precision measurements of $\pi^0 \rightarrow \gamma\gamma$ that test the intrinsic odd-parity (anomalous) sector of QCD, the pion polarizability tests the intrinsic even-parity sector of QCD. The $\gamma\gamma \rightarrow \pi^+\pi^-$ cross section will be accessed via the Primakoff mechanism on a nuclear target. The linearly polarized photon source in Hall D will allow the separation of the Primakoff cross section from coherent $\rho^0(770)$ production. An additional detector will also need to be constructed to help distinguish $\pi^+\pi^-$ and $\mu^+\mu^-$ events. An update on the status of the experiment will be given.

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