

Abstract Submitted
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A Precision Measurement of the Pair Production Cross Section in the Jefferson Lab PrimEx Experiment ARAM TEYMURAZYAN, University of Kentucky, PRIMEX COLLABORATION — The Jefferson Lab Hall B PrimEx Collaboration, is performing a 1.4% level measurement of the absolute cross section for the photo-production of neutral pions in the Coulomb field of a nucleus. Two key elements of the PrimEx experimental setup are the Jefferson Lab Hall B photon tagger, and the new 1728 channel hybrid calorimeter (HyCal) for detecting the two decay photons from the neutral pions. In the view of the stringent requirements on the required precision of the photon flux for this experiment, periodic measurements of the pair production cross section were performed throughout the run. In these measurements, both the photon energy and flux were determined by the tagger, and the electron-positron pairs were swept by a magnetic field and detected in the calorimeter. The experimental setup and the analysis of these measurements will be described. In addition, the pair production cross sections so obtained will be compared to those expected by theory.

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