

Abstract Submitted
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Gain Calibration of the Barrel Calorimeter in the GlueX Experiment¹ WILLIAM MCGINLEY, Carnegie Mellon University, GLUEX COLLABORATION — The GlueX experiment was built to produce and observe the spectrum of exotic hybrid meson states using a 9 GeV linearly polarized photon beam incident on a proton target. In order to achieve this goal GlueX uses electromagnetic calorimeters to detect neutral particles. There are two calorimeters, a barrel electromagnetic calorimeter and a forward electromagnetic calorimeter that offer a polar angular coverage from 11° to 126° and 2° to 11° , respectively. Gain calibration of the calorimeters is important to improve the reconstructed energy resolution of neutral particles and allows for better detection of physics signals. To do the calibration we reconstruct a sample of π^0 events by detecting their decay photons in the calorimeters and minimize the width of the π^0 sample by adjusting the gains on each of the readout channels. The energy resolution for both calorimeters improved significantly as a result, and the gain calibration allowed preliminary studies of several physics channels from beam-commissioning data. The calorimeters calibration techniques and early physics results are presented and discussed.

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