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Calibrations for Charged Particle Tracking with the GlueX Detector[1] MICHAEL STAIB, Carnegie Mellon University, GLUEX COLLABORATION — Two gas detectors comprise the tracking system for the GlueX experiment, the Central Drift Chamber (CDC) and the Forward Drift Chamber (FDC). The CDC is a cylindrical straw-tube detector covering polar angles between 6° and 168°, delivering spatial resolution of ∼150 μm. The FDC is a Cathode Strip Chamber consisting of four packages, each with six alternating layers of anode wires and cathode strips. The FDC is designed to track forward-going charged particles with polar angles between 1° and 20° with a spatial resolution of ∼200 μm. Both tracking detectors record timing information and energy loss measurements useful for particle identification. During Fall 2014 and Spring 2015, the first photon beam was delivered on target for commissioning of the GlueX detector in Hall-D at Jefferson Lab. These data are currently being used in a large effort to calibrate the individual detector subsystems to achieve design performance. Methods and results for calibrations of each of the tracking detectors are presented. Techniques for alignment of the tracking system using a combination of cosmic rays and beam data is discussed. Finally, some early results of physics measurements including charged final-state particles are presented.

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