

Characterization of triple-GEM readout structures operated in a test beam at Fermilab National Accelerator Laboratory. J. TWIGGER, M. HOHLMANN, V. BHOPATKAR, M. PHIPPS, A. ZHANG. Florida Institute of Technology, Department of Physics and Space Sciences, 150 West University Blvd, Melbourne, FL 32901. We describe the design, construction, and commissioning of triple-GEM detectors of varying dimension. We have developed replicable quality control methods for large-scale construction and characterization of detectors equipped with both traditional cartesian and novel zigzag readout patterns. The results of these initial inspections and detector uniformity studies are presented. In order to simulate the high-luminosity environments present in experiments such as an Electron Ion Collider our readout boards were irradiated in the hadron beam at FNAL test beam facility. Various detector signal characteristics and results with high-precision tracks such as spatial resolutions are presented.