

Abstract Submitted
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Construction and Performance of 64-channel Gas Electron Multiplier (GEM) Prototype Using KPiX Analog Readout Chip¹ SEONGTAE PARK, JACOB SMITH, EDWIN BALDELOMAR, CLAYTON WILLS, MARK SOSEBEE, ANDY WHITE, JAEHOON YU, University of Texas at Arlington, KWANGJUNE PARK, KAERI — Since 1997, Gas Electron Multiplier (GEM) has attracted much attention in high energy particle detector development. The University of Texas at Arlington has been developing GEM detectors to use them as the sensitive gap detector for a Digital Hadron CALorimeter (DHCAL) which is going to be used in future experiments, such as those at the International Linear Collider (ILC). The detector structure and construction details are presented. A hybrid multichannel analog ASIC, KPiX, being developed by the Stanford Linear Accelerator Center team is used as the readout electronics for GEM detectors. Prototype detectors of 30cmx30cm have been tested with various radioactive sources, such as a Ru106 and Fe55, as well as cosmic rays. Results from analog signal testing and the radioactive source and cosmic ray data taking are presented. Finally the plans for 1x1 m² large GEM DHCAL planes will be presented.

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