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**10 MeV Electron Beam Test Using Gas Electron Multiplier (GEM) Detectors** C.H. HAHN, I.G. KIM, S.T. PARK, W.J. KIM, D.S. YOO, B.S. MOON, S.Y. HA, B.J. AHN, Y.J. HA, C.Y. JUNG, S.H. JUNG, B.H. CHO, Changwon National Univ., Korea, B.C. LEE, Y.H. HAN, C.E. CHUNG, KAERI Korea, J. LI, A.P. WHITE, J. YU, Univ. of Texas, Arlington, USA — 10 MeV electron beam has been tested using a single channel double gas electron multiplier (GEM) detector constructed by Changwon National University and a multi-channel double GEM chamber by the University of Texas at Arlington. It has been demonstrated that both detectors are able to detect signals generated by high energy electrons as well as x-rays. By analyzing the chamber output signals captured by oscilloscope, it is believed that the x-ray was produced by bremsstrahlung while electrons were decelerating in a 2 mm lead plate. The time profile of the KAERI's 10 MeV electron beam bunches was determined based on the calculated angular distribution of electrons by multiple scattering in the lead plate. Furthermore, the spatial electron density distribution has been extrapolated by using the time profile. The effective gain of the GEM chamber has been estimated by analyzing the measured output currents of the chamber. It is important that the time and spatial profiles of the high energy electron beam could be determined using GEM detectors, which suggests that GEM might have an application as a calorimeter for a large scale accelerator. Details of experimental procedure will be discussed.

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