

Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Development of 2D Ionization Chamber for Particle Therapy CHI-LI HO, National Central University, Taiwan — Recently rapid growth in particle therapy has imposed new detector developments for quality assurance (QA) purposes. Relatively high dose deposition from proton or carbon ion beam requires stringent performance from detectors. Cyclotron, synchrotron, or future laser driven accelerators represent DC and pulse sources which need different timing designs in electronics. Dose and position measurements of particle beams can serve clinical, beam diagnosis and QA purposes. We categorize the parameters of detectors - electronics, DAQ, and simulation—to serve for later optimizations. Gaseous detector is preferred because of its radiation hardness, and operation at ionization mode provides stable condition. We present our progresses in 2D ionization chamber development. Basic studies are carried out on 1D ionization chamber, which consists of 16 6-mm-wide strips. Results of measuring electron and proton beams are compared with MC simulations. 2D array ionization chamber design is optimized and based on 1D prototype measurements.

Chi-Li Ho
National Central University, Taiwan

Date submitted: 16 Jul 2010

Electronic form version 1.4