## Abstract Submitted for the HAW09 Meeting of The American Physical Society

Development of ionization chamber for super-heavy elements KAZUTAKA OZEKI, RIKEN Nishina Center for Accelerator-Based Science, TAKAYUKI SUMITA, Faculty of Science and Technology, Tokyo University of Science, KOUJI MORIMOTO, AKIRA YONEDA, KOSUKE MORITA, RIKEN Nishina Center for Accelerator-Based Science — In the field of super-heavy elements, the direct measurements of atomic number Z and mass number A of produced nucleus is the most challenging tasks. One of the way to identify Z and A is to measure the energy loss per unit length dE/dx, and to measure total energy by stopping incident nucleus in a detector, respectively. A is derived from the combination of total energy and velocity of the nucleus. In the region of our interest (Z > 100, A > 250), the density of electron-hole pairs or primary electrons is too high in semiconductor detector or even in normal gas detector, because of large dE/dx. Too high density of electron-hole pairs provokes the recombination of electrons and holes. As a result, the precise measurement of energy loss becomes almost impossible. In this work, we operate ionization chamber with low pressure to reduce the density of primary electrons. By this means, we try to measure the energy with a high degree of accuracy. Our first priority is to identify A of super-heavy elements by measuring the total energy. In addition, Identifying Z by measuring dE/dx is also tried. At present, we engage a operation test using  $\alpha$ -source, and have a plan to examine operating characteristics for heavy ions. These results will be reported.

Kazutaka Ozeki RIKEN Nishina Center for Accelerator-Based Science

Date submitted: 01 Jul 2009 Electronic form version 1.4