

Abstract Submitted  
for the DPP13 Meeting of  
The American Physical Society

**High-voltage Sheath Dynamics of Grid Electrodes**<sup>1</sup> CHANGHO YI, Dept. of Physics, Pohang University of Science and Technology, WON NAMKUNG, Pohang Accelerator Laboratory, MOO-HYUN CHO, Dept. of Physics, Pohang University of Science and Technology — The Plasma-immersed ion implantation (PIII) is a well-known technology to modify properties of material surfaces. The Pseudo-wave assisted PIII is one kind of PIII, which uses ions in pseudo-wave generated by high-voltage pulses applied to the grid electrodes. Since high-voltage electrodes do not contact film directly, the pseudo-wave PIII takes advantage in preventing arcing problems between electrodes and film. In the pseudo-wave assisted PIII, quantity and energy of implanted ions depend on characteristics of high-voltage sheath around the grid electrodes. Thus, to characterize the implanted ions in the pseudo-wave assisted PIII, we have to understand the dynamics of high-voltage sheath of grid electrodes. In this paper, we present the PIC simulation and experimental results about high-voltage sheath dynamics of grid electrodes. In addition, we present the simple model about high-voltage sheath dynamics of grid electrodes and compare with simulation and experimental results.

<sup>1</sup>This work supported by the National Research Foundation of Korea (NRF) under contract NRF-2013-0035946.

Changho Yi  
Dept. of Physics, Pohang University of Science and Technology

Date submitted: 11 Jul 2013

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