Abstract Submitted
for the GEC13 Meeting of
The American Physical Society

Measurement of Ion Energy Distribution in Magnetized ICP using Multi-channel Ion Energy Analyzer[1] WOOHYUN LEE, HYUK KIM, JI-WON KIM, HEE WOON CHEONG, Department of Electrical and Computer Engineering, Seoul National University, South Korea, IL GYO KOO, SOOJIN LEE, HYO-SEONG SEONG, Research center, SEMES, #278 Mosi-ri, Cheonan 331-814, South Korea, KI-WOONG WHANG, Department of Electrical and Computer Engineering, Seoul National University, South Korea — In plasma etch processes, the flux and energy of ions incident on the substrate are the important parameters that control the etch profile and the etch rate. In this regard, retarding field Ion Energy Analyzer(IEA) has been developed and applied to plasma etch. As the size of wafer and etch chamber increase, simultaneous measurement at multi points in radial and poloidal direction becomes important. For this purpose, Plasma lab in Seoul National University and SEMES jointly developed an IEA that can measure the ion energy distributions at five positions in 6-inch wafer at the same time. The IEA is composed of 4 mesh grids(floating, electron repelling, discriminator, secondary electron retarding) and one metal layer(Ion collector). We used a remote controllable voltage source and DAC to supply the stepwise wave form to discriminator voltage source. We used the developed IEA to measure the radial and polodial uniformity of energy distribution of ions incident on the substrate with the change of bias power, gas pressure and bias power frequency.

[1]This was supported by SEMES cooperative research project.

WooHyun Lee
Department of Electrical and Computer Engineering,
Seoul National University, South Korea

Date submitted: 15 Jun 2013 Electronic form version 1.4