

Abstract Submitted
for the GEC11 Meeting of
The American Physical Society

Measurement of the plasma density and electron temperature uniformities in inductively coupled plasmas using 2D real time measurement method YOUNG-CHEOL KIM, YU-SIN KIM, SE-JIN OH, HYO-CHANG LEE, CHIN-WOOK CHUNG, Hanyang University — Recently, two-dimensional (2D) wafer-type probe sensor for the measurement of spatial distribution of plasma parameters was developed based on the floating harmonic method by Chung and co-workers [1, 2]. In this study, the 2D plasma density profile and electron temperature were measured in inductively coupled plasma (ICP) with various external parameters such as RF power, gas pressure, gas mixing ratio. It was found that the plasma uniformity was significantly changed with external parameters, such as gas pressure, He gas mixing, and ICP power. These results are closely related to the electron kinetics, plasma diffusion neutral depletion and ionization process and give guide lines for plasma uniformity control method by changes in the external parameters.

- [1] M. H. Lee, S. H. Jang, and C. W. Chung, J. Appl. Phys. 101, 033305 (2007).
- [2] Y. C. Kim, S.H. Jang, G.H. Kim, and C. W. Chung, “Real time two-dimensional spatial distribution measurement method of electron temperature and plasma density,” 62nd Gaseous Electronic Conference, 2009

Young-Cheol Kim
Hanyang University

Date submitted: 20 Jul 2011

Electronic form version 1.4