

Abstract Submitted  
for the GEC07 Meeting of  
The American Physical Society

**Electrostatic probe measurement and estimation of the electronegativity for low-pressure inductively coupled SF<sub>6</sub> and O<sub>2</sub> plasmas**

TAE HUN CHUNG, SUN YOUNG KANG, EUN YOUNG KIM, Dong-A University — Electrostatic probe measurements for low-pressure inductively coupled SF<sub>6</sub> and O<sub>2</sub> plasmas are performed. From the probe I-V curves, we measure the electron saturation current, the positive ion saturation current, and the electron temperature. By using the ratios of these parameters at three adjacent pressure points, we calculate the electronegativity of the discharges at those pressures. By using the electronegativity and the electron density measured from probe I-V curve, we estimate the negative ion density. The positive ion density is calculated either by the Laframboise OML theory or by the sum of the electron density and the negative ion density. The validity of this approach is discussed and compared to other methods in estimating the negative ion density. The variations of the charged species density with pressure and power are investigated. In addition, mass spectra of SF<sub>6</sub> and O<sub>2</sub> plasmas are obtained to determine the various species in the discharge and the effective mass of the positive ions.

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Date submitted: 15 Jun 2007

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