

Abstract Submitted  
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**Study on self-bias effect in floating probe using dual frequency**

IL-SEO PARK, HYO-CHANG LEE, YU-SIN KIM, Department of Electrical Engineering, Hanyang University, Seoul, 133-791, Republic of Korea, DONG-HWAN KIM, Department of Nanoscale Semiconductor Engineering, Hanyang University, Seoul, 133-791, Republic of Korea, CHIN-WOOK CHUNG, Department of Electrical Engineering, Hanyang University, Seoul, 133-791, Republic of Korea — A floating probe is one of the promising electrical probe for plasma diagnostics, which is using small sinusoidal signal to perturb the plasma for obtaining plasma parameters such as ion flux and electron temperature. The ac signal could be selected for the purpose of the plasma condition and its advantages, and single or dual frequency is usually used for diagnostics. When one or dual frequency is applied to the probe, a self-bias effect is observed in the capacitor in series to the floating probe. Due to the mobility difference of the ions and electrons, the self-bias effect is presented at the capacitor. In this paper, two consecutive frequencies are applied to the probe with phase differences. The result of the self-bias effect agrees with the floating probe theory, which gives a relation among electron temperature, phase difference and amplitude of the each frequency. The electron temperatures by using the relation can be obtained, and it agree with those of a Langmuir probe.

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