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**A study on floating harmonic method in non-Maxwellian plasmas**

KYOUNG YOO, Department of Nanoscale Semiconductor Engineering, Hanyang University, JIN-YOUNG BANG, YU-SIN KIM, CHIN-WOOK CHUNG, Department of Electrical Engineering, Hanyang University — Electron energy distribution function (EEDF) is an important parameter to understand electron kinetics. Floating harmonic method provides the real-time measurement of plasma density and electron temperature at a floating potential with little perturbation to plasma. However, this method assumes a Maxwellian electron distribution and cannot measure the EEDF. In this study, we suggest a estimation method for the EEDF using the floating harmonic method without scanning an entire electron energy region. A theoretical study was also performed to calculate harmonic currents flowing through the probe in various EEDFs. According to theoretical results, the type of the EEDF was able to estimate by the ratio of the harmonic currents. Experiment results were in good agreement with the theoretical results in the various EEDFs. In conclusion, this method is expected to complement the conventional floating harmonic method in non-Maxwellian electron distributions.

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