

Abstract Submitted
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Investigation of power dependence of electron density for various pressures JUNE YOUNG KIM, DONG-HWAN KIM, Department of Nanoscale Semiconductor Engineering, Hanyang University, Seoul 133-791, South Korea, JU HO KIM, SANG-BUM JEON, CHIN-WOOK CHUNG, Department of Electrical Engineering, Hanyang University, Seoul 133-791, South Korea — Experimental observation of the electron density variation in inductively coupled plasmas with the electron energy probability function was performed at various gas pressures at two RF input powers (25 W, 200 W). The measured electron energy probability functions (EEPFs) at high power discharges (200 W) showed a Maxwellian distribution, while evolution of the EEPFs from a bi-Maxwellian distribution to a Druyvesteyn-like distribution was observed at low RF powers (25 W) with increasing pressure. A discrepancy of the electron density variation between the two RF input powers was observed, and it was explained by the modified collisional loss and the Bohm velocity from the electron energy probability functions of the bi-Maxwellian distribution and the Druyvesteyn-like distribution.

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