

Abstract Submitted
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Electrical characteristics and mode transition of power dissipation in an asymmetric capacitively coupled plasma SOO-JIN LEE, Department of Information Display Engineering, Hanyang University, Republic of Korea, HYO-CHANG LEE, CHIN-WOOK CHUNG, Department of Electrical Engineering, Hanyang University, Republic of Korea — Electrical characteristics and plasma parameters were experimentally studied in an asymmetric capacitively coupled plasma with various argon gas pressures. At low discharge current region, the transferred power to the plasma was proportional to the current, while the transferred power increased proportionally to square of the current at high discharge current region. The transition of discharge resistance was also observed when the mode transition of power dissipation occurred. At low discharge current or low power, the plasma density linearly increased with the gas pressure, while at high discharge currents or high powers, the increase rate of the plasma density depended on the gas pressure. These changes in the electrical characteristics and the plasma parameters were mainly caused by the power dissipation mode transition in asymmetric capacitive discharge, which has extremely high self-bias voltage at the electrode.

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