

Frequency dependence of electron energy distribution function and plasma parameters in capacitively coupled argon discharge

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In a capacitively coupled argon discharge, the electron energy distribution function have been measured by using rf-compensation Langmuir probe at the same discharge power and pressure of three different driving frequencies 9 MHz, 13.56 MHz and 27 MHz. The measurement was achieved various discharge power and pressure conditions such as 50 W, 100 W, 200 W, 300 W of discharge power and 50 mtorr, 100 mtorr, 200 mtorr, 400 mtorr of discharge pressure. It was found that as the driving frequency increase, plasma density decrease, and effective electron temperature increase over a wide range of discharge power and pressure condition. This result indicates that the higher driving frequency is less efficient in increasing plasma density in a capacitively coupled plasma.