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Effect of driving frequency on electron heating mechanism and plasma parameters in a symmetric capacitive discharge under constant power density condition NISHANT SIRSE, Dublin City University, Ireland, SARVESHWAR SHARMA, Institute for Plasma Research, Gandhinagar, India, MILES TURNER, Dublin City University, Ireland — Using particle-in-cell simulation technique, the effect of driving frequency on electron heating mechanism and plasma parameters is studied in a symmetric capacitively coupled argon plasma under constant power density conditions. It is observed that the plasma density first decreases and then increases with an increase in driving frequency suggesting a change in the heating mode transition. The time-averaged electron heating near to the sheath edge continue to increase with driving frequency, however, after the transition frequency, the negative and positive heating is observed near to the sheath edge and bulk plasma respectively. At higher driving frequencies, high frequency modulation in the instantaneous sheath edge position is observed, which trigger the multiple beams of electrons into the plasma. The electron sheath interaction and triggering of multiple beams of electrons is further studied for constant electron response time. Finally, the variation in the electron and ion energy distribution function is discussed.

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