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Simulation study of collisionless heating in capacitively coupled discharges SARVESHWAR SHARMA, MILES M. TURNER, Dublin City University, Ireland — Collisionless heating is important in low-pressure radio-frequency discharges, such as capacitive discharges. Recent theoretical work on this problem using several different approaches has produced results that are broadly in agreement insofar as scaling with the discharge parameters is concerned, but there remains some disagreement in detail concerning the absolute size of the effect. In this paper we report a simulation study that has two main aims. One is to investigate the limitations of the scaling law, especially in the case of high frequency where resonant circuit effects occur, and where plasma wave emission may be observed at the sheath edge in simulations. The second aim is to produce a relatively extensive set of simulation data that may be used to validate theories over a wide range of parameters.

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