

Abstract Submitted
for the GEC06 Meeting of
The American Physical Society

Electron heating mechanisms in dual frequency capacitive discharges M.M. TURNER, Dublin City University, Ireland, P. CHABERT, Ecole Polytechnique, France — We discuss electron heating mechanisms in the sheath regions of dual-frequency capacitive discharges, with the twin aims of identifying the dominant mechanisms and supplying closed-form expressions from which the heating power can be estimated. We show that the heating effect produced by either Ohmic or collisionless heating is much larger when the discharge is excited by a superposition of currents at two frequencies than if either current had acted alone. This coupling effect occurs because the lower frequency current, while not directly heating the electrons to any great extent, strongly affects the spatial structure of the discharge in the sheath regions.

Miles Turner
Dublin City University, Ireland

Date submitted: 16 Jun 2006

Electronic form version 1.4