Abstract Submitted
for the GEC12 Meeting of
The American Physical Society

Multi-Peaked and Stepped Electron Velocity Distributions in RF-DC Discharges with Secondary Emission A.V. KHRABROV, I.D. KAGANOVICH, Princeton Plasma Physics Laboratory, D. SYDORENKO, University of Alberta, E.A. STARTSEV, Princeton Plasma Physics Laboratory, L. CHEN, P. VENTZEK, R. SUNDARARAJAN, Tokyo Electron America, A. RANJAN, K. KUMAR, Tokyo Electron Technology Center America, E. TOKLUOGLU, Princeton Plasma Physics Laboratory — In RF-DC (hybrid) capacitive-coupled discharges, secondary electrons emitted from the electrodes undergo a complicated motion defined by acceleration in, and bouncing between a steady and an oscillating sheath. For the electrons that return to the RF electrode, the arrival phase is a multi-valued function of the phase in which they were emitted. This basic property leads to a velocity distribution with multiple peaks. The phase of arrival can also be discontinuous, which corresponds to a distribution containing steps. We have observed such distributions in numerical test-particle simulations, and analyzed the observed structure of the electron distributions.

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Date submitted: 15 Jun 2012 Electronic form version 1.4