

Abstract Submitted
for the GEC11 Meeting of
The American Physical Society

Particle-in-Cell Simulations of Collisional RF Sheaths¹ YING WANG, M.A. LIEBERMAN, UC Berkeley, Berkeley, CA 94720, J.P. VERBONCOEUR, Michigan State University, East Lansing, MI 48824 — Simulations of a high voltage argon rf capacitive discharge have been performed in the collisional sheath regime, with sheath width about eight ion mean free paths. Ion and neutral energy and angular distributions are determined, both within the sheath and at the electrode. The ion energy spread at a position within the sheath is proportional to the distance from the position to the electrode. Multiple low energy peaks due to charge transfer collisions, combined with the sheath oscillations, are seen to form. The ion angular distribution remains highly directed. The neutral energy distribution is relatively constant within the sheath. The neutral angular distribution has both isotropic and highly directed components. Comparisons are made to experimental results. A collisional sheath model is being developed.

¹Research supported by California industries and University of California Discovery Grant ele07-10283 under the IMPACT program, and by the Department of Energy Office of Fusion Energy Science under Contract No. DE-SC0001939.

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Date submitted: 12 Jul 2011

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