Abstract Submitted
for the GEC07 Meeting of
The American Physical Society

Computational Study of the Dual Frequency Capacitive Discharge[1] SELMA CETINER, SETH VEITZER, PETER STOLTZ, Tech-X Corporation — Capacitively coupled radio frequency discharges have many applications including the plasma processing of microelectronic devices, where sputtering, plasma deposition, etching and other surface treatments are utilized. The primary factors that influence many of these processes are the ion energy and flux impinging the target material. Dual frequency discharges generate much interest due to their ability to control these elements independently. The high frequency voltage controls the ion flux through its influence on the electron energy which determines the plasma generation rate by electron impact ionization while the low frequency component determines the average ion impact energy. An investigation of the discharge using kinetic particle-in-cell simulations generated by VORPAL is presented. VORPAL is a plasma simulation framework developed at the University of Colorado at Boulder and Tech-X corporation. Its capabilities include one, two or three dimensions, a choice of kinetic, fluid of hybrid models and the ability to run in serial or parallel.

[1]This work supported by the Department of Energy, grant #DE-FG02-03ER83797.

Selma Cetiner
Tech-X Corporation

Date submitted: 15 Jun 2007 Electronic form version 1.4