

Abstract Submitted
for the DPP12 Meeting of
The American Physical Society

Hybrid drift-kinetic electron/full kinetic ion PIC simulation of RF plasma discharge in magnetic mirror machine¹ EVSTATI EVSTATIEV, FAR-TECH, Inc. — We present numerical simulations of a radio-frequency- (RF-) induced plasma discharge in magnetic mirror machines, with relevance to Electron Cyclotron Ion Source (ECRIS) devices. The simulations are done in 2D cylindrically symmetric geometry. The code **SIMPL** is a PIC code, which uses drift-kinetic electron and full kinetic ion description. The RF wave heating is implemented as a “kick” model, i.e., electrons get an increment in their perpendicular velocity when they cross the magnetic resonance surface. Atomic physics is for Argon and includes the following basic reactions: single ionization by electron impact, excitation, elastic scattering, and charge exchange. We will discuss the steady-state spatial structure of the discharge.

¹Work supported by DOE Office of Nuclear Physics

Evstati Evstatiev
FAR-TECH, Inc.

Date submitted: 11 Oct 2012

Electronic form version 1.4