

Abstract Submitted
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The Effects of a Highly Secondary Electron Emissive Boundary on the Plasma Potential and Electron Energy Distribution¹ J.P. SHEEHAN, NOAH HERSHKOWITZ, University of Wisconsin - Madison — In a multi-dipole chamber with a thin layer of dielectric coating the wall, the plasma potential is observed to be negative with respect to the grounded wall in the tens of volts. The dielectric affects the plasma potential in two ways: by charging negative on the surface in contact with the plasma and by emitting significant numbers of secondary electrons. The secondary electron emission coefficient due to electrons (the ratio of secondary electron current to incident electron current) is larger than 1 and at low enough densities a virtual cathode can be observed near the wall. The potential structure of the virtual cathode is affected primarily by the electron temperature and the energy of the ionizing electrons (tens of eV). The secondary electrons enter the bulk plasma and enhance the high energy tail of the electron energy distribution function.

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