

Abstract Submitted  
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**The effect of dirty walls on the plasma potential in a multi-dipole chamber**<sup>1</sup> NOAH HERSHKOWITZ, J.P. SHEEHAN, University of Wisconsin - Madison — In a multi-dipole chamber with dirty walls, the plasma potential is observed to be negative with respect to the grounded wall in the tens of volts. The plasma is generated by hot filaments releasing monoenergetic ionizing electrons that can be chosen to be from 35 to 60eV. Measurements with a collecting Langmuir probe suggest that the electron energy distribution is bi-Maxwellian e.g.  $T_e = 2$  and 4 eV. It is observed that the bulk plasma potential becomes more negative with increasing relative concentrations of hotter electrons. The potential profile next to the wall was measured using an emissive probe in the limit of zero emission. A virtual cathode forms approximately 8mm from the wall under a wide range of discharge parameters to confine secondary electrons caused by the ionizing electrons hitting the dirt.

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