

Abstract Submitted
for the GEC11 Meeting of
The American Physical Society

The potential distribution in the Radial Plasma Source¹ AMNON FRUCHTMAN, GENNADY MAKRINICH, H.I.T. - Holon Institute of Technology — The Radial Plasma Source (RPS) is based on plasma acceleration by an applied voltage across a magnetic field. Here we report the recent progress in understanding the mechanism of plasma acceleration in the RPS. The RPS has a cylindrical symmetry. The accelerating electric field is radial and the magnetic field is axial. Most of the potential drop between the inner anode and the outer cathode is expected to be located where the magnetic field intensity is large. We employ an emissive probe and a Langmuir probe in order to evaluate the radial dependence of the potential. For inferring the plasma potential from the measured emissive probe potential, we employ our recently developed theory for a cylindrical emissive probe. Using the theory and the probe measurements, we plot the radial profiles in the RPS of the plasma potential as well as of the electron density and temperature. The possible modification of the geometry for propulsion applications will be discussed.

¹Partially supported by the Israel Science Foundation, Grant 864/07.

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Date submitted: 18 Jul 2011

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