

Abstract Submitted
for the DPP08 Meeting of
The American Physical Society

An experimental study of ion generation and acceleration in a Cylindrical Hall Thruster¹ MARTIN GRISWOLD, YEVGENY RAITSES, NATHANIEL FISCH, PPPL — Several interesting effects that were measured in the plume of cylindrical Hall thrusters with mirror and cusp magnetic field topologies [1] such as unusually high ionization efficiency [2] and focusing of high energy ions with the enhancement of the cathode electron emission [3] are thought to be related to the potential structure and ambipolar trapping inside the thruster. A narrow field of view electrostatic energy analyzer and a time of flight tube are used to measure the angular distribution, energy distribution function and charge state of ions in the plasma plume from the thruster in order to determine the location where single and multiply charged ions of different energies are formed.

[1] Raitses and Fisch, Physics of Plasmas 8 (2001) 2579

[2] Smirnov, Raitses and Fisch, J. Appl. Phys., 94 (2), 852 (2003)

[3] Granstedt, Raitses and Fisch, to appear in J. Appl. Phys.

¹This work was supported by the US DOE under contract No. DE-AC02-76CH03073

Martin Griswold
PPPL

Date submitted: 17 Jul 2008

Electronic form version 1.4