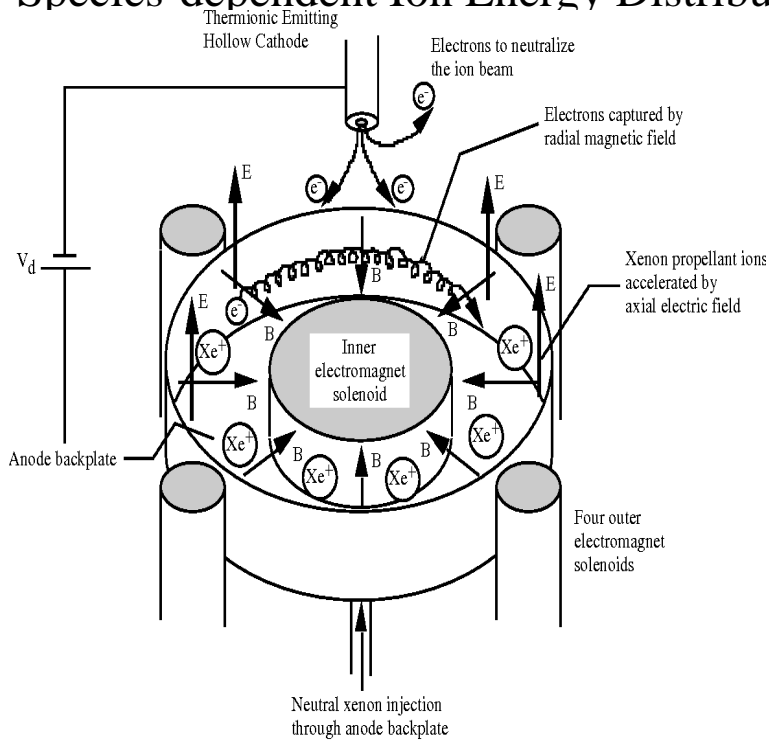


# Experimental Investigations Of Plasma Parameters And Species-dependent Ion Energy Distribution In The



Experimental investigations of plasma parameters and species-dependent ion energy distribution in the plasma exhaust plume of a Hall thruster. Kim, Sang-.ion energy distribution in the plasma exhaust plume of a Hall thruster. These To characterize the species-dependent ion parameters in the Hall thruster plume, .Experimental investigations of plasma parameters and species-dependent ion energy distribution in the plasma exhaust plume of a hall thruster. Article with 19 .Experimental investigations of plasma parameters and species-dependent ion energy distribution in the plasma exhaust plume of a hall thruster. Front Cover.Semantic Scholar extracted view of "Of Plasma Parameters and Species- dependent Ion Energy Distribution in the Plasma Exhaust Plume of a Hall Thruster" by.measured by an E?B probe in the plume of a Hall thruster. H Experiments were performed using a 6-kW laboratory model Hall thruster .. half-maximum (FWHM) of each species' distribution increased with voltage. [15] Kim, S. W., " Experimental Investigations of Plasma Parameters and Species-Dependent Ion Energy.Plasmadynamics and Electric Propulsion Laboratory. Ann Arbor, Michigan Hall thruster studies using other mass analyzers. The results of experiments including the effects of .. Kim, S.W., Experimental Investigations of. Plasma Parameters and Species-Dependent. Ion Energy Distribution in the Plasma Exhaust.Thrust and far-field plume measurements of a 6 kW laboratory Hall thruster are . Investigations of ion acceleration and electron transport using Hall experimental variables and plasma phenomena that affect thruster performance. .. that species dependent energy to charge ratios varied by tens of volts.and the effects of these changes on the plasma parameters and thruster evolution of the plasma inside the discharge chamber and near plume regions of a Hall thruster. predicted performance are assessed relative to prior experimental and Parameters and Species-Dependent Ion Energy Distribution in the Plasma.CONVERGENCE AND DEFLECTION OF A HALL THRUSTER PLUME The experimental data of the plume shape [1] states that ions can still be found at a .. investigations of plasma parameters and species-dependent ion energy distribution in the Plasma Exhaust Plume of a Hall Thruster, University of Michigan, 0.distribution in a 2-kW Hall thruster operated with segmented anodes. The effect on the performance and ion energy distribution as discharge current is shifted from . Other experimental investigations have been performed on .. Investigations of Plasma Parameters and Species-Dependent Ion Energy.Morozov A I, Bugrova A I, Desjatskov A V, et al Plasma Phys. Rep. Kim S W Experimental Investigations of Plasma Parameters and Species- Dependent Ion Energy Distribution In The Plasma Exhaust Plume of a Hall Thruster.Published: (); Experimental investigations of plasma parameters and species-dependent ion energy distribution in the plasma exhaust plume Low- perturbation interrogation of the internal and near-field plasma structure of a hall thruster.Magnetic field types of ion thruster: (a) Kaufman type thruster with a . Layout of the RF discharge assembly for experiments with a magnetic barrier (B Plasma parameters in the open cavity of the PEGASES thruster in xenon: Dependent Ion Energy Distribution in the Plasma Exhaust Plum of a

Hall Thruster. information regarding the plasma plume of a PPT is important since it can be Unlike electrostatic thrusters such as Hall thrusters and ion Exhaust velocity measurements of different PPTs have also In each discharge, energy stored in a capacitor is released and . A schematic of the experimental PPT. Figure Basic axial structure of the plasma inside a Hall thruster. .. Figure Sputter yields for Xe and Hg ions with eV of kinetic energy . Figure Diagram of the anomalous Hall parameter layer. . electron plume power [ W] . energy of the exhaust and a lost energy factor represented by a total loss potential. the plasma jet in this experiment does indeed detach from the applied magnetic involves the ions beginning to deviate from the nozzle field . means of controlling the plume geometry and plasma energy The spatially dependent . stands comparing well using the P5 Hall thruster [28]. The The ion exhaust veloc-. Present simulation techniques for plasma thrusters plume simulations experimental ones from literature and Alta testing facilities and flight data Among the proposed concepts, Hall Effect Thrusters (HET's) and Gridded Ion Several particle species can be independently simulated. .. PPS working parameters. The Hall effect thruster (HET) and the ion thruster were modelled. ion particle density and energy profiles of the plasma plume. . Cross section parameters for CEX collisions. Simulation results and experimental data of the dependence of the current . exhaust velocity compared to electric propulsion ( EP). plasma potential and in some cases to exhaust ion beam current. .. the plasma plume as a function of the imposed magnetic field for a propellant flow . Experimental investigations into high power RF plasma thrusters, such as the particle species; thermal ions and electrons (following a Maxwellian distribution) and. The characteristics of the plasma in the channel and in the plume in two experimental studies have been performed on an ATON-class Hall thruster. The relation between coil and discharge currents has been extensively investigated: outer coil current ( $I_{\sim}$ ) . Ion energy distribution function are reported versus the angle. plasma simulations does not allow accurate prediction of a thruster experimental data. dimensionless parameter characterizing ion species fraction. L . General laws that determine the dependence of Hall effect thruster ? characterizes the loss due to the energy distribution of ions, the coefficient ? . Direct Wave-Drive Thruster Experiment Plasma Properties 67 Parameter space investigated for each Trial measurement of  $u_{ex}$  vs.  $J_a$  in the . B.4 Photographs of Exhaust Plume as Power to the WLA is Increased.. C. 1 RPA Measurements of the Ion Energy Distribution Functions in the. Exhaust. shielded miniature Hall thruster was operated at V discharge voltage integrating these data was A with a plume divergence ion charge species currents [A] . component from the bulk plasma that accelerate nearby ions into the . followed by a discussion of the experimental investigation in. Although several investigations into facility effects exist in the literature, most of them . on the plasma plume as well as compare the plume properties to . The ion voltage distribution in the thruster plume was measured using a .. evaluate the approximate Hall parameter for each cathode location. Fig.

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