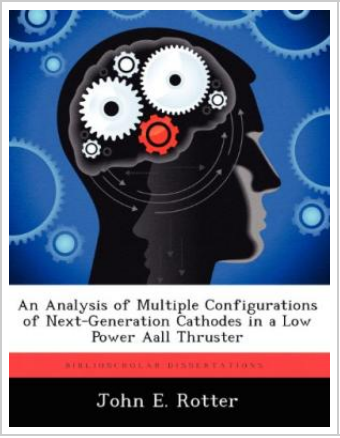

An Analysis of Multiple Configurations of Next-Generation Cathodes in a Low Power Aall Thruster (Paperback)

By John E Rotter

Bibliioscholar, United States, 2012. Paperback. Condition: New. Language: English . Brand New Book ***** Print on Demand *****.The research presented here is an effort to integrate an existing hollow cathode design with a low power production Hall thruster in multiple geometries. Both externally- and internally-mounted cathodes were fabricated and operated in conjunction with a Busek BHT-1500 Hall thruster. Three insert materials were evaluated; Cerium Hexaboride (CeB6), Lanthanum Hexaboride (LaB6), and impregnated tungsten. The thruster was operated at a single operating condition for all testing. The operating specifications for the discharge were 300 V and 2.25 A, giving a total power of 675 W. The boride-based cathodes were tested in both geometries while the tungsten-based cathode was only tested in an external configuration. A Faraday probe was used to measure current density in the plume and a single Langmuir probe was used to characterize the plasma. The charge state of the ions was measured with an ExB probe. All assembly and testing occurred at the Air Force Institute of Technology s (AFIT) Space Propulsion Analysis and System Simulation (SPASS) lab facility. The thruster s performance with the externally-mounted boride-based cathodes installed demonstrated the highest levels of efficiency and performance. The thruster...

Reviews

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