

Experimental Properties of Low-Power Micro-Hall Thrusters

by

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Abstract

Two types of low power micro-Hall thrusters, i.e., End-Hall type and TAL (Thruster with Anode Layer) type thrusters are designed and installed in our laboratory and their performance properties are studied by using typical two kinds of propellant, Ar and Xe. Experimental results are as follows; 1) Electrical power covers a range of 12 – 65 W and 12 – 85 W for End-Hall thruster and TAL thruster, respectively. 2) Discharge currents are proportional to discharge voltages. 3) By using ion-beam current measurements almost same results are obtained for thrust and thrust efficiency for both thrusters. 4) A comparison of propellants, Ar and Xe reveals that Xe is superior to Ar in all performance characteristics except for acceleration efficiency, which is due to the superiority of Xe in its ionization efficiency.

Keywords: Micro-Hall Thruster, End-Hall Thruster, TAL Thruster, Thrust, Propellants,

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