

SPACE PROPULSION SYMPOSIUM (C4)
Poster Session (P)

Author: Mr. Hua Zhang

College of Aerospace Science and Engineering, National University of Defense Technology, China

Dr. Rui Zhang

College of Aerospace and Materials Engineering, National University of Defense Technology, China

Mr. Daixian Zhang

College of Aerospace Science and Engineering, National University of Defense Technology, China

Dr. Jianjun Wu

National University of Defense Technology, China

Dr. Zhen He

College of Aerospace and Materials Engineering, National University of Defense Technology, China

EFFECTS OF ELECTRODE CONFIGURATION ON ABLATIVE PULSED PLASMA THRUSTER
PERFORMANCE

Abstract

Pulsed plasma thrusters (PPTs) have been used widely in space flight mission due to their high specific impulses, low power requirements, and simple propellant management. Obviously, electrodes configuration has great influence on thruster performance. Previous researches have shown that flared electrodes produce impulse bits considerably higher than parallel geometries under the same operating conditions. However, the mechanism how electrodes configuration influences thruster performance is not very clear. In order to explore the effects of electrode configuration on thruster performance, an experimental prototype has been designed and built. The thrust and operating performances of thrusters with different electrode configurations which have the same length and different flared angle and tongue angle are measured. From the experimental results, the effects of electrode geometry on thruster performance are obtained.