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EFFECTS OF ELECTRODE GEOMETRY ON MAGNETIC FIELD DISTRIBUTION IN A PULSED PLASMA THRUSTER

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. The magnetic field distribution between electrodes has great influence on the performance of the pulsed plasma thruster. To better understand the acceleration process, an experimental prototype has been developed. And the magnetic field between the electrodes at different positions in the thruster with different electrode configurations which have the same length and different flared angle and tongue angle are measured using an induction probe. To calibrate the probe, a Helmholtz coil is built. From the experimental results, the effects of electrode geometry on magnetic field distribution between electrodes are obtained.