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MAGNETIC OCTUPOLE PLASMA THRUSTER WITH A CENTER-MOUNTED HOLLOW CATHODE

Abstract

In this research, a Magnetic Octupole Plasma Thruster (MOPT) has been developed to provide orbital maneuver capability for a future satellite mission. Aiming to reduce the complex magnetic structural design of Hall thruster, Magnetic Octupole Plasma Thruster is a new concept of electric propulsion to increase the electron resistivity along the discharge channel through the octupole magnetic field compared with Hall thruster. As a result, the central magnetic core of Hall thruster is able to be replaced by a hollow cathode in MOPT, which is rarely realized in a low-power plasma thruster. To investigate the performance of MOPT, the discharge and plume characteristics will be measured and analyzed in a series of experiments.