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PROPELLANT-LESS PROPULSION SYSTEM USING MICROWAVES

Abstract

This paper aims to provide a new propellant less propulsion system for use in space propulsion. Applying classical electromagnetic theory, this paper introduces a new kind of propellant less microwave thruster device for use in space propulsion. This device is able to directly convert microwave radiation into thrust without the need for any propulsion medium. The difference with traditional space propulsion devices is that this system is that there is no need to carry a large propellant tank, and the problems of plume emissions polluting the space craft can be eliminated. The system comprises a microwave resonator, microwave source, and load. The microwave source produces microwave radiation which can be input into the microwave resonator and form electromagnetic pressure gradient or radiation pressure. Thus, along the axial direction of the microwave resonator, net thrust is formed. It is based on the indifferent equilibrium principle, overcomes the weight and rigidity resistance of the thruster itself, and successfully measures the net thrust produced by the propellant less microwave thruster.