World Academy of Science, Engineering and Technology
International Journal of Geotechnical and Geological Engineering
Vol:9, No:02, 2015

Propellant Less Propulsion System Using Microwave Thrusters

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Abstract : Looking to the word propellant-less system it makes us to believe that it is an impossible one, but this paper demonstrates the use of microwaves to create a system which makes impossible to be possible, it means a propellant-less propulsion system using microwaves. In these thrusters, microwaves are radiated into a sealed parabolic cavity through a waveguide, which act on the surface of the cavity and follow the axis of the thrusters to produce thrust. The advantages of these thrusters are: (1) Producing thrust without propellant; without erosion, wear, and thermal stress from the hot exhaust gas; and at the same time increasing quality. (2) If the microwave output power is stable, the performance of thrusters is not affected by its working environment. This paper is demonstrated from general maxwell equations. These equations are used to create the mathematical model of the thrusters. These mathematical model helps us to calculate the Q factor and calculate the approximate thrust which would be generated in the system.

Keywords : propellant less, microwaves, parabolic wave guide, propulsion system
Conference Title : ICUST 2015 : International Conference on Underground Space Technology
Conference Location : Kuala Lumpur, Malaysia
Conference Dates : February 12-13, 2015