Paper ID: 74415
student

IAF SPACE PROPULSION SYMPOSIUM (C4)
Late breaking abstracts (LBA)

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MICROWAVE ELECTROTHERMAL THRUSTER (MET) WITH CARBON DIOXIDE (CO2)

Abstract

The project developed and optimised an existing (Microwave Electrothermal Thruster) MET for CO2 to be in use with it. The MET was predominantly used with Argon and Xenon previously. The introduction of CO2 as propellant can produce a higher Isp at the same power and is able to expel waste by using it as a form of energy. This is especially crucial for future developments of exploration upon Mars (with high CO2 content in its atmosphere). The project is expected to: Optimise the injectors design (Number of injectors and tangential angle) and running on the propellant of CO2, and possibly with co-reactants (E.g. Argon). Having an optimised injector and running the MET on CO2 is expected to increase the performance and efficiency of the MET. The work is a collaboration between University of Southampton and AVS UK. The project will be due for completion in August.