



## Breakthrough in Voltage-to-Thrust Technology

NASA scientists have discovered a method for generating thrust from two dimensional asymmetrical capacitor modules.

The results are potentially greater efficiencies and improved reliability over currently available electric thrusters.

### TECHNOLOGY

Apparatus and Method for Generating Thrust Using a Two Dimensional Asymmetrical Capacitor Module (MFS-31419)

### NASA FIELD CENTER

Marshall Space Flight Center (MSFC)

### TECHNOLOGY SYNOPSIS

In the past, inductive technology has been needed to create thrust, rotational motion, or step an actuator using electricity. This new technology accomplishes these tasks and more by using high potential, low current asymmetrical capacitor modules. The dielectric material of a capacitor under high voltage experiences a force. Based on the geometry of the capacitor, its material properties, and ambient conditions, the force can be predicted and utilized to move the entire capacitor and its mounting in a predictable direction. It had been theorized that thrust generation from this phenomenon was feasible, but no working prototypes had been developed, until now.

This MSFC invention, the Two Dimensional Asymmetrical Thrust Capacitor, has been demonstrated in with a proof-of-concept model. Although additional experimental optimization is indicated, this technology will provide improved reliability due to the use of no moving parts to create thrust in a gaseous environment. Thrust is expected in aqueous environments as well.



### BENEFITS

- Improved reliability
- Potential use of atmosphere as propulsive medium
- Reduced cost of orbit
- Low current draw

### COMMERCIAL APPLICATIONS

- Linear accelerator to launch payloads
- Rotate a propeller or other shaft driven application
- Stepping actuator
- Near-earth orbital maneuvering

National  
Aeronautics and  
Space  
Administration



## Electro-Kinetic Thrust Technology – *continued*

### **LICENSING FACTS**

*Protection:* Patent #6,317,310.

*Prototype:* A proof-of-principal model is available.

*Licensing:* Licenses are available for all fields of use.

*Knowledge Transfer:* Inventor is available for assistance to licensee.

### **ABOUT THE INVENTOR**

Presently with the NASA Advanced Projects Group in the National Space Science Technology Center in Huntsville, Alabama. Has 5 years experience in this field.

### **CONTACT US**

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