



# Vapor-Pressure Driven Pump as Propellant Supply Tank in Space/Vacuum Environments

**Purdue University researchers have developed a gravity-free pump with self-regulated, low head pressure for reliably supplying propellant in micropropulsion systems used in space and vacuum environments.**

The manipulation of liquid in space and other vacuum environments has been a challenge. Any advancement in this field would be a breakthrough that could lead to further discovery in spacecraft propulsion.

Researchers at Purdue University have developed a method of manipulating liquid fluids in low pressure, gravity-free environments. This technology is a gravity-free pump with a self-regulated, low head pressure that can be used as a propellant supply tank for micropropulsion systems operating in space or other vacuum environments. It has been tested in a vacuum chamber to replicate the nominal operating procedure.

## Advantages:

- Manipulates fluids in low pressure, gravity-free environments
- Self-regulated, low head pressure

## Potential Applications:

- Micropropulsion systems
- Space or other vacuum environment

**TRL:** 3

## Intellectual Property:

Provisional-Patent, 2018-10-04, United States | Utility Patent, 2019-10-04, United States

## Technology ID

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## Category

Aerospace & National  
Security/Space Technologies  
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## Authors

Alina Alexeenko-Peroulis  
Anthony George Cofer  
Steven Collicott  
Katherine Fowee  
Steven M Pugia

## Further information

Abhijit Karve  
[AAKarve@prf.org](mailto:AAKarve@prf.org)

## View online

