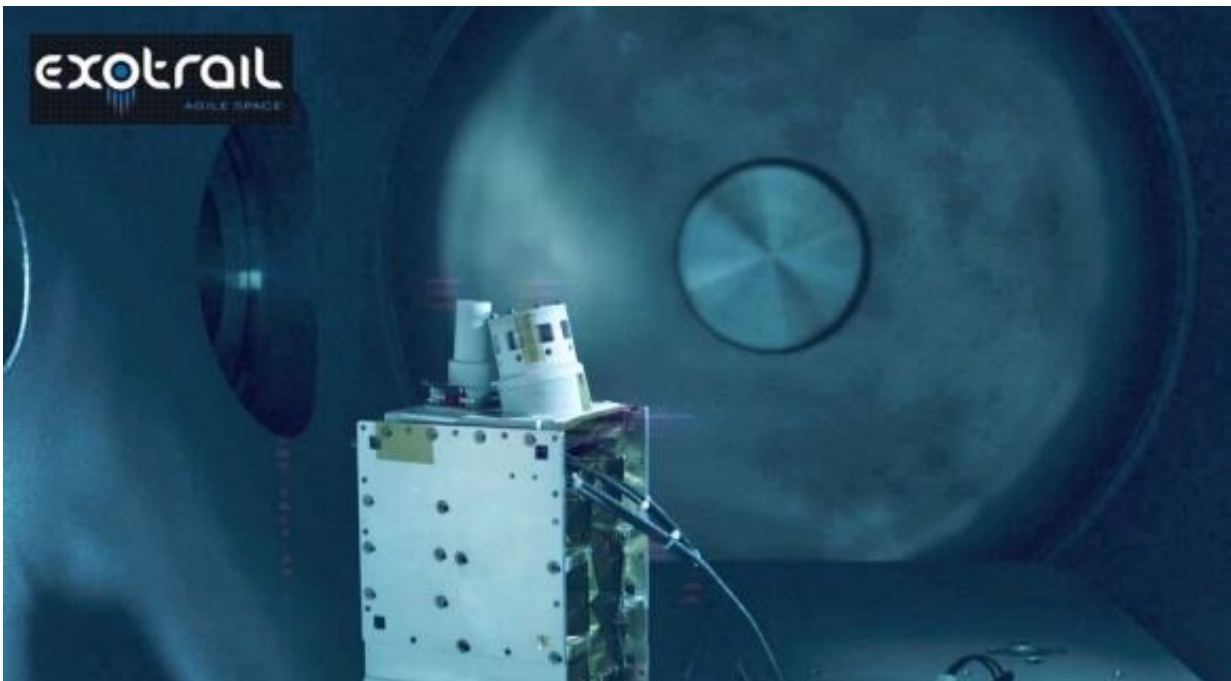


The first CubeSat with a Hall-effect thruster has gone to space

January 19 2021, by Andy Tomaswick



Satellite using Exotrail technology undergoing testing. Credit: Exotrail

Student-led teams aren't the only ones testing out novel electric propulsion techniques recently. Back in November, a company called Exotrail successfully tested a completely new kind of electric propulsion system in space—a small Hall-effect thruster.

Hall effect thrusters themselves have been around for awhile. However,

they have been limited in their practicality, primarily because of their size. Normally they are about the size of a refrigerator and require kilowatts of power, making them impractical for any small satellites.

That's where Exotrail's novel system shines. It is about the size of a 2 liter bottle of soda (or pop if you're from that part of the world), and only requires around 50 watts of power. This makes the propulsion system ideal for satellites ranging from 10 to 250 kg.

The demonstration system launched aboard a PSLV rocket on November 7th, and completed its first in flight maneuvers using the Hall effect thruster in December. With those tests successfully completed the team plans further testing to prove how useful these thrusters can be for [collision avoidance](#), orbital maintenance, and intentional deorbiting.

But no novel space technology is complete without software, and the Exotrail Hall effect thrusters are no exception. ExoOPS, the operational software required to run the [thruster](#), has the added benefit of being able to control constellations of satellites. This operation would be similar to the coordinate drone flights seen in modern day lighting shows.

With a combination of significantly improved small power and novel control software, the platform could be used in many new CubeSat platforms, and indeed many parties have already expressed an interest in it. If testing all goes well, seeing electrically driven propellant shooting out the back of thousands of small satellites is a distinct possibility.

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