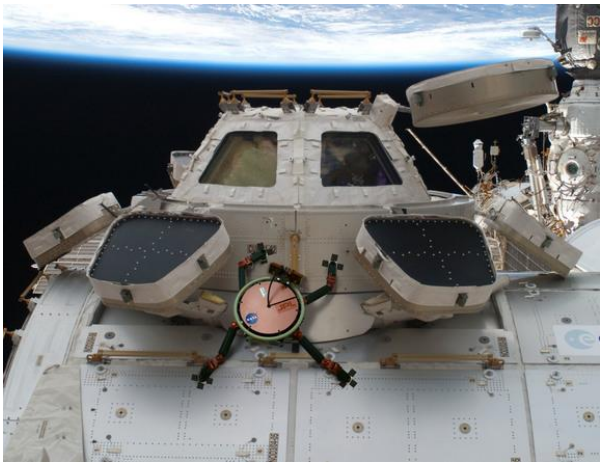
Gecko Feet Inspire Climbing Space Robots



stick	molecule	satellites
limitations	gravity	applications
adhesive	synthetic	surface

How do you make things 1_____in space? Since Apollo mission we've been using velcro. But it has its 2_____. Can we improve that?

NASA engineers have been inspired by geckos, nature's most amazing climbers. Gecko feet aren't sticky in the same way that tape is. Rather, the lizards rely on millions of tiny hairlike protrusions that become powerfully 3_____ when bent due to a phenomenon called **van der Waals forces.**

Because the electrons orbiting a molecule's nucleus aren't evenly spaced, they create a polarity: even a neutral (uncharged) 4_____ has a positive side and a negative side. The positive side of one molecule attracts the negative side of neighboring molecules, and vice versa, generating the adhesive force that allows geckoes to scuttle up walls and across ceilings with ease.

Scientist use 5_____ gecko adhesives to make gecko grippers. Parness and the team have already started testing the material in NASA's zero 6_____ aircraft manipulating a 10 kilogram object and a hundred kilogram object (actually one of the operators)

Some possible 7_____ in space is grabbing 8_____, to repair them or service them. Another is grabbing space garbage to clear it out of the way. Also they may make robots that will be able to crawl around the outside 9_____ of a space station.

http://www.space.com/30258-nasa-gecko-space-robot-sticky-feet.html

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