

# Einstein's theory of relativity faces satellite test

April 26 2016

---



An artist's impression of the French National Centre for Space Studies satellite Microscope, which scientists hope will help find a gap in the general relativity theory developed by Albert Einstein

Einstein's theory of general relativity is to be put to the test by a newly launched satellite in an experiment that could upend our understanding

of physics.

The French "Microscope" orbiter will try to poke a hole in one of Einstein's most famous theories, which provides the basis for our modern understanding of gravity.

Scientists will use the kit to measure how two different pieces of metal—one titanium and the other a platinum-rhodium alloy—behave in orbit.

"In space, it is possible to study the relative motion of two bodies in almost perfect and permanent free fall aboard an orbiting satellite, shielded from perturbations encountered on Earth," said Arianespace, which put the satellite into orbit on Monday.

Einstein's theory suggests that in perfect free-fall, the two objects should move in exactly the same way. But if they are shown to behave differently "the principle will be violated: an event that would shake the foundations of physics", Arianespace added.

Also aboard the Russian Soyuz rocket launched from French Guiana was an Earth-observation satellite equipped with radar to monitor the planet's surface to track climate and environmental change and help in disaster relief operations.

That satellite, along with another launched two years ago, is part of the 3.8-billion-euro (\$4.3-billion) Copernicus project, which will ultimately boast six orbiters in all.

Three previous launches from Arianespace's Spaceport in French Guiana, an overseas territory that borders Brazil, were delayed by poor weather and technical issues.

A countdown on Sunday was halted after scientists observed an "anomaly", the agency said in an earlier statement, while adverse weather conditions had thwarted other attempts.

© 2016 AFP

Citation: Einstein's theory of relativity faces satellite test (2016, April 26) retrieved 10 April 2024 from <https://phys.org/news/2016-04-einstein-theory-relativity-satellite.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.