



## Scientists attempt to measure speed of gravity

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According to <http://www.spaceflightnow.com/news/>

Ever since Albert Einstein proposed the general theory of relativity in 1916, physicists worldwide have tested the theory's underlying principles. While some principles - such as the speed of light is a constant - have been proven, others have not. Now, through a combination of modern technology, the alignment of a unique group of celestial bodies on Sept. 8, and an experiment conceived by a University of Missouri-Columbia physicist, one more of those principles might soon be proven.

"According to Einstein's theory, the speed of gravity is assumed to be equal to the speed of light," said Sergei Kopeikin, MU associate professor of physics and astronomy. "While there is indirect evidence this is true, the speed has never been measured directly, and that's what we're attempting to do in an experiment that will not be possible again for another decade".

The experiment will involve precisely measuring the angular distances between several quasars, celestial objects in distant galaxies that resemble stars. On Sept. 8, Jupiter will pass very close to the primary quasar. When it does, its gravity will cause the quasar's position in the sky to shift by a distance that depends on the speed of gravity. Kopeikin and Ed Fomalont, a radio astronomer with the National Science Foundation's National Radio Astronomy Observatory (NRAO), will use an observational technique they developed to compare the position of the primary quasar to the position

of other quasars unaffected by Jupiter. Using their data, they hope to confirm the accuracy of Einstein's theory further.

Measurements will be made using the NRAO's Very Long Baseline Array (VLBA), a series of 10, 25-meter radio telescopes located from the Virgin Islands to Hawaii, and the 100-meter radio telescope in Effelsberg, Germany, which is operated by the Max Planck Institute for Radio Astronomy. "Results from recent VLBA test observations indicate we can reach the accuracy necessary to determine the speed of gravity if the experiment goes well," Fomalont said.

"Japanese and NASA scientists also will conduct the experiment independently using other telescopes around the world, so we'll be able to compare our findings," Kopeikin said. "We believe the general theory of relativity is correct and that the speed of gravity is equal to the speed of light."

"The techniques we've employed for this experiment can also be used to more precisely determine the position of other objects in space," Fomalont said. "With more exact positioning of satellites, we could improve telecommunications. Unmanned space navigation could also be improved, allowing us to explore the solar system more deliberately".

The scientists said final results from the experiment should be available in mid-November.



## First Running on Air Car is created in Great Britain

According to the information of Ross Business Consulting  
<http://www.cnews.ru/topnews/2002/09/06/content5.shtml>

The first in the world car, which runs on air, was represented in London. The car of the future was designed by **Gay Negre**, an engineer of French company "Moteur Development International" (MDI).

The innovation is set in motion by power air. The creators say that the car can make 102 km/h maximal speed and after total refueling run a distance of 186 kilometers.

The principle of the car operation is following: power air is injected into airproof reservoirs, and its pressure sets in motion the pistons of the engine. The only by-product of the engine work is air, which comes to the air-conditioning system of the car.

Development International Company is going to produce three test models: minivan, five-seat taxi, and pick-up. The producer affirms, that they have signed an agreement about pollution-free cars producing with 50 factories located in

Europe, America and Asia. The price of the car is considered to come to 5500 pounds sterling.

