

A Study on Antigravity

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Abstract

Antigravity means that Reducing, canceling, or protecting against the effect of gravity. Many people seem to think NASA has secret training rooms in which gravity can be turned off. Aside from the long-running Anti Gravity column in Scientific American, however, there is no such thing as antigravity. Gravity is a force arising among any two masses in the universe. In this work you can discover 4 synonyms, antonyms, idiomatic expressions, and related words for anti-gravity, like: antigravity, gyroscope, remote-controlled and propulsion. The antigravity device is not a large object, maybe three square feet, and easily fits on a tabletop. They took their oxygen suits off and walked over to their antigravity beds.

Keywords: Gyroscope, remote-controlled and propulsion, antigravity, antigravity beds, Dark energy, Zero gravity

I. Introduction

Some researchers patented nanotechnology, antigravity devices, and genetic techniques of all sorts by my teenage years. Physically, Sir Isaac Newton was not a large man. However, he had a large intellect, as shown by his discoveries on gravity, light, motion, mathematics, and more. Legend has it that Isaac Newton came up with gravitational theory in 1665, or 1666, after watching an apple fall. Dark energy is the name given to an unexplained force that is drawing galaxies away from each other, against the pull of gravity, at an accelerated pace. Dark energy is a bit like anti-gravity. Where gravity pulls things together at the more local level, dark energy tugs them apart on the grander scale. Dark energy is the name given to an unexplained force that is drawing galaxies away from each other, against the pull of gravity, at an accelerated pace.

Dark energy is a bit like anti-gravity. Where gravity pulls things together at the more local level, dark energy tugs them apart on the grander scale. Its existence isn't proven, but dark energy is many scientists' best guess to explain the confusing observation that the universe's expansion is speeding up. Experts still don't know what's driving this force, but the quest to learn more about dark energy is one of cosmologists' top priorities.

II. Methods and Materials

The methods and materials have been discussed below:

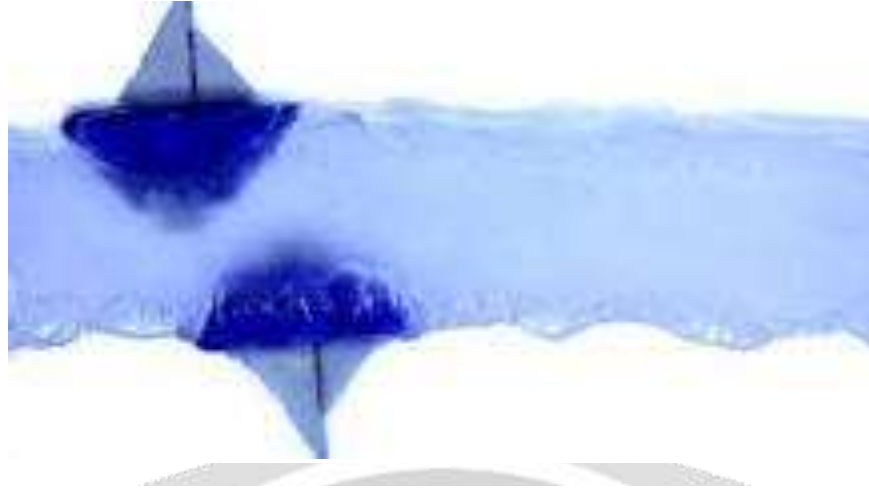


Fig.1 Antigravity seen by practically

Creation of Antigravity

In a new study, published in the journal Nature, researchers discovered they can create a similar anti-gravity effect for buoyant objects by vibrating and levitating dense liquids in an enclosed glass chamber.

No Zero Gravity

Contrary to popular belief, there's no such thing as zero gravity. When astronauts orbit the earth, they're still subject to gravity, but they're moving sideways so quickly that even though they're being pulled toward the earth, they're not getting any closer to the planet's center.

Which country has no gravity?



Fig.2 The Faroe Islands

Well, there is one on the Faroe Islands, where the water seems to move upward, i.e., defying the law of gravity. In fact, the waterfall, rather than defying gravity as the name suggests, goes upside down when strong gusts of wind blows against the flow of the waterfall.

What would happen if Earth lost gravity?

If the Earth's gravity is lost, all items held to the Earth's surface by gravity would float away. That includes the atmosphere, water, people, cars and animals. If you were lucky enough to be in a large building when gravity disappeared, you would not drift away, but you also would not have air to breathe.

What will be happened if Earth stopped spinning?

If the Earth stopped spinning suddenly, the atmosphere would still be in motion with the Earth's original 1100 mile per hour rotation speed at the equator. This means rocks, topsoil, trees, buildings, your pet dog, and so on, would be swept away into the atmosphere.

What would happen if gravity stopped for 1 second?

Fig.3 Massive Explosions of stopped of gravity for 1 second

When gravity disappears for 1 second the outwards force balanced by the gravity would be released causing a massive explosion. In other star systems with more immense stars and natural phenomena such as pulsars and and especially black holes the explosions and expansions would be greater.

What would happen if we lost gravity for five seconds?

Fig.4 Effect of lost of gravity for 5 seconds

If our planet were to lose gravity for even five seconds, it would spell the end of life on Earth as we know it. Gravity pulls objects toward one another. The more massive an object is, the stronger its gravitational pull. Without gravity, humans and other objects would become weightless.

Do anti-gravity chambers exist?



Fig.5 Creation of anti-gravity chambers

Contrary to popular belief, NASA does not have "anti-gravity chambers" where people can float around like astronauts on the space station. But we do use several facilities to recreate the weightless, or microgravity, conditions of orbit.

Is gravity a wave or a particle?

If your question is about the force of gravity in relation to rest mass, the intermediating mechanism is not a wave and not a particle. It is vector space and the velocity is instantaneously. If your question is in relation to mass (like Dark matter), gravitation has wave properties and is bound to the speed of light.

What is gravity waves made of?





Fig.5 Creation of Gravity waves

Compact binary inspiral gravitational waves are produced by orbiting pairs of massive and dense ("compact") objects like white dwarf stars, black holes, and neutron stars.

How fast is gravity?



Fig.5 Measurement of speed of gravity

The best results, at the present time, tell us that the speed of gravity is between 2.993×10^8 and 3.003×10^8 meters per second, which is an amazing confirmation of General Relativity and a terrible difficulty for alternative theories of gravity that don't reduce to General Relativity!

Is artificial gravity real?

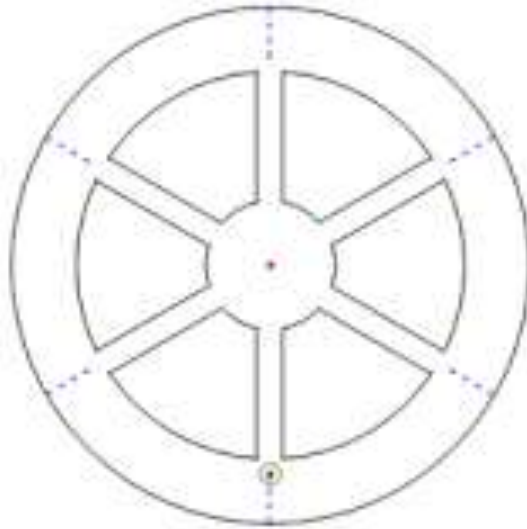


Fig.6 Creation of Artificial Gravity

Speculative or fictional mechanisms. In science fiction, artificial gravity (or cancellation of gravity) or "paragravity" is sometimes present in spacecraft that are neither rotating nor accelerating. At present, there is no confirmed technique that can simulate gravity other than actual mass or acceleration.

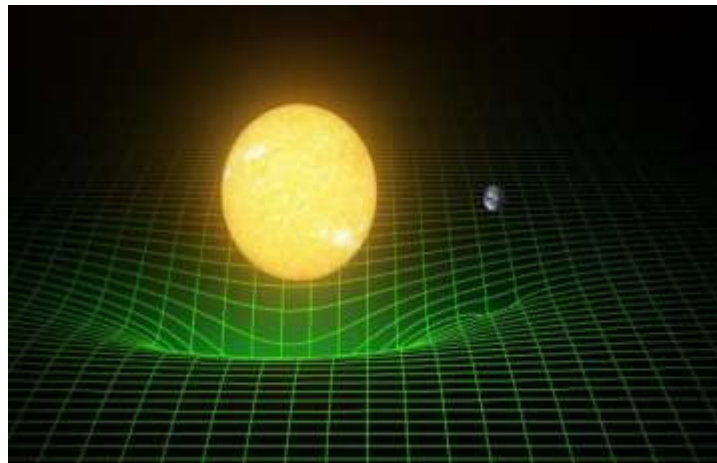


Fig.7 Real antigravity

The warping of spacetime, in the General Relativistic picture, by gravitational masses is what causes the gravitational force. It is assumed, but not experimentally verified, that antimatter masses will behave the same as matter masses in a gravitational field. LIGO/T. PYLE

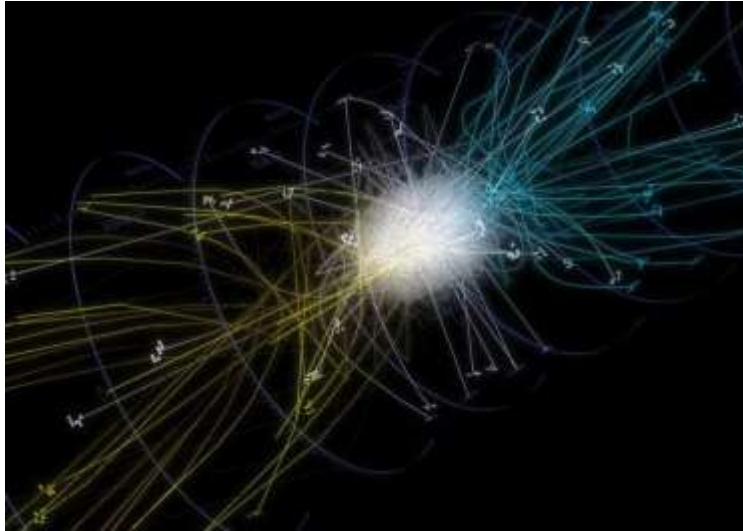


Fig.8 Trajectories of antihydrogen atoms from the ALPHA experiment.

What is the anti-gravity element?

The hypothetical element with $Z = 145$ is the unique among all elements whose nucleus has only anti-gravity property. It is proposed that this element be named Hawking, in honour of Stephen W. Hawking.

Can gravity be reversed?

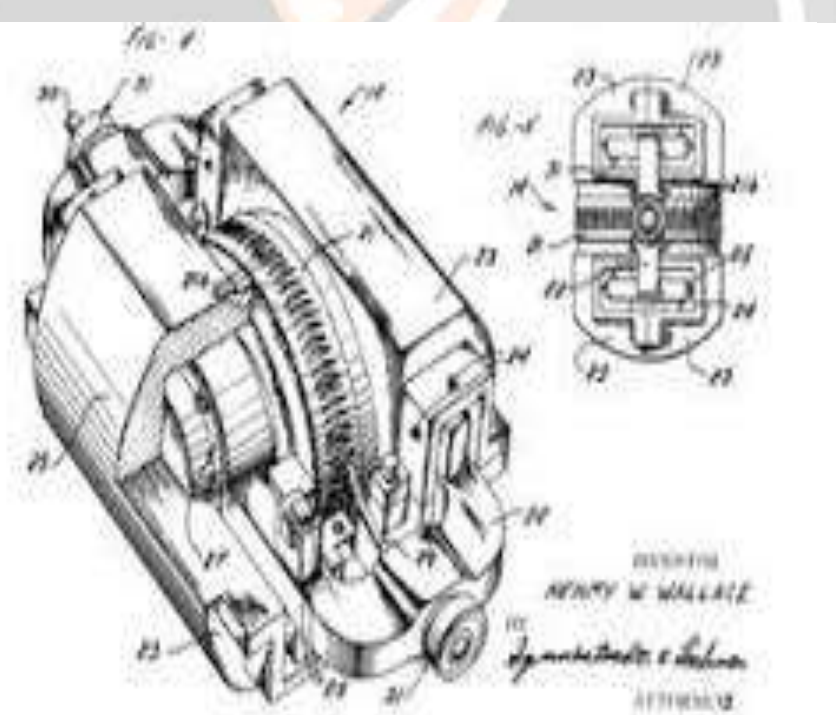


Fig.9 Impossibility of anti-gravity

Under general relativity, anti-gravity is impossible except under contrived circumstances.

Does light cause gravity?

Light has energy, energy is equivalent to mass, and mass exerts gravitational force. Thus, light creates gravity, i.e. the bending of space-time. Thus, in order for light to generate a gravitational field like that of the Earth, it would need to have the mass (energy) of the Earth.

Can gravity bend sound?

Sound waves are pressure waves and depend on density so gravity which stratifies the atmospheric density affects sound waves through that. In solids and liquids to the extent that gravity stratifies them it will change the behaviour of sound waves.

How can we oppose gravity?

"One can imagine three ways of countering gravity. First, something can provide a force opposing that of gravity. Such forces are known for instance, objects can be levitated using magnetic or electrostatic repulsion.

Does a paperclip have gravity?

The paperclips are being pulled toward the Earth by gravity, but they can't fall because the string is holding them in the air. No matter which way we tilted the dowel rod, the paperclips were still being pulled straight toward the Earth by gravity

Can a magnet defy gravity?

Magnetism can pass through the air! The iron in the paperclip is attracted to the magnet and when held at the right distance, the magnet appears to "magically" defy the gravity of the paperclip.

Why is gravity so weird?

Why is gravity so weird? No force is more familiar than gravity- it's what keeps our feet on the ground, after all. If these extra dimensions exist and if gravity is able to "leak" into them it could explain why gravity seems so weak to us.

Is gravity affected by relativity?



Fig.10 gravity affected by relativity

GETTING A GRIP ON GRAVITY Einstein's general theory of relativity explains gravity as a distortion of space (or more precisely, spacetime) caused by the presence of matter or energy. A massive object generates a gravitational field by warping the geometry of the surrounding spacetime.

Did Einstein believe in gravity?

Einstein argued that gravity isn't a force at all. He described it as a curvature of time and space caused by mass and energy. Their math, laid down in 10 equations, explained how gravity could move around objects via a warped reality, accelerating without ever feeling any mysterious Newtonian forces.

Does anti matter have anti gravity?

The gravitational interaction of antimatter with matter or antimatter has not been conclusively observed by physicists. Most methods for the creation of antimatter (specifically antihydrogen) result in high-energy particles and atoms of high kinetic energy, which are unsuitable for gravity related study.

Why is gravity not a force?

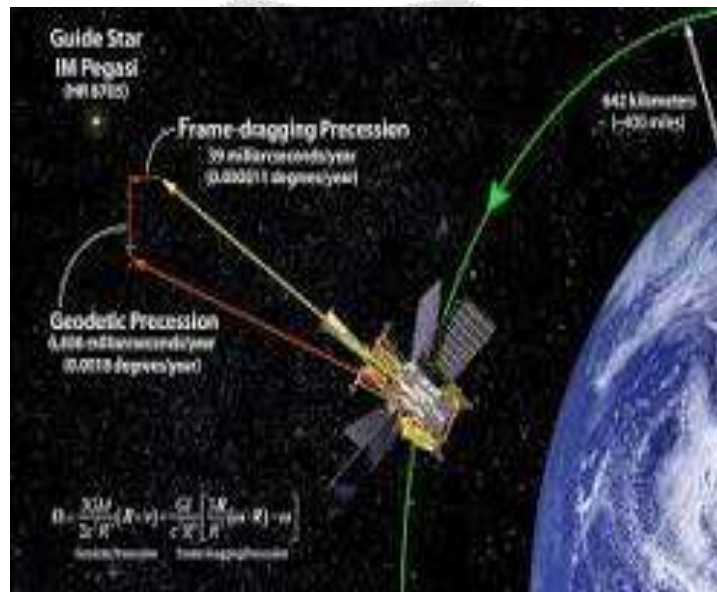


Fig.11 Reason for why is gravity not a force

In general relativity, gravity is not a force between masses. Instead gravity is an effect of the warping of space and time in the presence of mass. Without a force acting upon it, an object will move in a straight line. This explains why all objects fall at the same rate.

III. Results and Discussion

One of the most astonishing facts about science is how universally applicable the laws of nature are. Every particle obeys the same rules, experiences the same forces, and sees the same fundamental constants, no matter where or when they exist. Gravitationally, every single entity in the Universe experiences, depending on how you look at it, either the same gravitational acceleration or the same curvature of spacetime, no matter what properties it possesses.

At least, that's what things are like in theory. In practice, some things are notoriously difficult to measure. Photons and normal, stable particles both fall as expected in a gravitational field, with Earth causing any massive particle to accelerate towards its center at 9.8 m/s^2 . Despite our best efforts, though, we have never measured the gravitational acceleration of antimatter. It ought to accelerate the exact same way, but until we measure it, we can't know. One experiment is attempting to decide the matter, once-and-for-all. Depending on what it finds, it just might be the key to a scientific and technological revolution.

IV. Conclusions

Many people seem to think NASA has secret training rooms in which gravity can be turned off. Aside from the long-running Anti Gravity column in Scientific American, however, there is no such thing as antigravity. Gravity is a force arising among any two masses in the universe

References

1. Thompson, Clive (August 2003). "The Antigravity Underground". *Wired*. Archived from the original on 18 August 2010. Retrieved 23 July 2010.
2. "On the Verge of Antigravity". *About.com*. Retrieved 23 July 2010.
3. Department of Physics A Brief History of Isaac Newton's Apple Tree, University of York, Retrieved 2019-07-20
4. Costas J. Papachristou (2 Mar 2016) - *Electromagnetic waves, gravitational waves and the prophets who predicted them*, p.4, Department of Physical Sciences, Naval Academy of Greece, <https://arxiv.org/abs/1603.00871> Retrieved 2019-06-16
5. Albert Einstein Grundgedanken der allgemeinen Relativitätstheorie und Anwendung dieser Theorie in der Astronomie (Preussische Akademie der Wissenschaften, Sitzungsberichte, 1915 (teil 1), 31), Zur allgemeinen Relativitätstheorie (Preussische Akademie der Wissenschaften, Sitzungsberichte, 1915 (teil 2), 778–786, 799–80) Retrieved 2019-06-16
6. Charles W. Misner, Kip S. Thorne, John Archibald Wheeler *Gravitation*, p. 1231, Princeton University Press, 24 October 2017 ISBN 0691177791, ISBN 9780691177793, Retrieved 2019-06-16
7. Kaluza, Theodor (1921). "Zum Unitätsproblem in der Physik". *Sitzungsber. Preuss. Akad. Wiss. Berlin. (Math. Phys.)*: 966–972. Bibcode:1921SPAW.....966K. <https://archive.org/details/sitzungsberichte1921preussi>
8. Einstein, Albert (1879-1955). Autograph manuscript, comprising calculations and arguments from the *Einheitliche theorie von Gravitation un Elektrizitt* Christie's Retrieved 2019-06-16
9. Peskin, M and Schroeder, D.; *An Introduction to Quantum Field Theory* (Westview Press, 1995) ISBN 0-201-50397-2
10. Wald, Robert M. (1984). *General Relativity*. Chicago: University of Chicago Press. ISBN 978-0-226-87033-5.
11. Polchinski, Joseph (1998). *String Theory*, Cambridge University Press. A modern textbook
12. Mooallem, J. (October 2007). "A curious attraction". *Harper's Magazine*. **315** (1889): 84–91.
13. List of winners Archived 28 December 2012 at the Wayback Machine
14. <https://www.nobelprize.org/prizes/physics/1999/summary/>
15. Goldberg, J. M. (1992). US air force support of general relativity: 1956–1972. In, J. Eisenstaedt & A. J. Kox (Ed.), *Studies in the History of General Relativity, Volume 3* Boston, Massachusetts: Center for Einstein Studies. ISBN 0-8176-3479-7
16. Mallan, L. (1958). *Space satellites* (How to book 364). Greenwich, CT: Fawcett Publications, pp. 9–10, 137, 139. LCCN 58-001060
17. Clarke, A. C. (1957). "The conquest of gravity". *Holiday*. **22** (6): 62.
18. Jump up to:^a Bondi, H. (1957). "Negative mass in general relativity". *Reviews of Modern Physics*. **29**(3): 423–428. Bibcode:1957RvMP...29..423B. doi:10.1103/revmodphys.29.423.
19. Jump up to:^a Forward, R. L. (1990). "Negative matter propulsion". *Journal of Propulsion and Power*. **6** (1): 28–37. doi:10.2514/3.23219.; see also commentary Landis, G.A. (1991). "Comments on Negative Mass Propulsion". *Journal of Propulsion and Power*. **7** (2): 304. doi:10.2514/3.23327.
20. *Supergravity and the Unification of the Laws of Physics*, by Daniel Z. Freedman and Peter van Nieuwenhuizen, Scientific American, February 1978
21. Jason Palmer, Antigravity gets first test at Cern's Alpha experiment, bbc.co.uk, 30 April 2013
22. Antigravity Batteries(<https://antigravitybatteries.com>)