

The True Direction of Gravitational Force

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The fundamental determination to be made at the foundation of any theory of gravity is the choice that must be made for the direction of the gravitational force. Galileo, Newton, Le Sage and Einstein all chose to believe that the direction of the gravitational force pointed down. Here they just followed the conventional wisdom shared by almost everyone at the time. Galileo was the first to experiment with gravitational force. Newton discovered that force produces acceleration, Le Sage proposed that gravitational force came from otherwise invisible particles raining down from outer space and Einstein offered the Equivalence Principle as the reason to believe that the gravitational force pointed down. There does not even appear to be any evidence that these gravity theorists ever considered that the true direction gravitational force might be just what we measure it to be. The problem is, no one has ever been able to devise a physical measurement that could show the direction of gravitational force to be down. It can be shown with any simple accelerometer that the only possible direction of the gravitational force is up and not down. If we look at gravity in terms of its true direction of force as being up instead of down, then a whole new picture of gravity emerges as just a simple mechanical phenomenon instead of a magical and infinite force field.

1. Introduction

The first assumption for any theory of gravity is the choice that must be made for the direction of the gravitational force. Galileo, Newton, Le Sage and Einstein all chose to believe that the direction of the gravitational force pointed down. None of these gravity theorists seems ever to have considered the opposite direction for the force of gravity even though none was ever able to identify a physical measurement that could show the direction of gravitational force to be pointing down. If we look at gravity in terms of its true direction of force shown by accelerometer readings, we see that the force of gravity points up instead of down. Gravity now emerges as just a simple, mechanical and local event for each individual atom instead of a miraculous and infinite force field that connects all the atoms in the universe.

Gravity can only be measured as a constant upward acceleration. Therefore, before we give it any metaphysical attributes, we must first at least consider that gravity might just be nothing more than what we measure it to be. Upward acceleration could only result from the linear expansion of the matter comprising the earth. We must consider that it is this universal expansion of matter that is the simple and local cause of gravity.

2. Principle of Absolute Motion

An accelerometer measures the true direction and magnitude of a force $F = Ma$. The acceleration produced is always the result of real change in motion, either acceleration or deceleration, relative to a position of absolute rest that all photons move relative to at c . All change in motion relative to the absolute space of photon rest, is registered by an accelerometer. Deceleration is distinguished from acceleration by the increasing rate of an atomic clock undergoing deceleration and the slowing rate of a clock undergoing acceleration. Centripetal acceleration does not cause clock rate change because it is an equal combination of both acceleration and deceleration.

3. Principle of Absolute Gravitation Motion

The cause of gravitational acceleration is the constant outward motion of the surface of a body of mass away from its center. This outward three dimensional motion is measured as an acceleration but is actually an absolute inertial velocity. To balance the measured acceleration of gravity there is an equal immeasurable deceleration caused by the constantly expanding dimensions of matter. This expansion changes the absolute values of space and time to produce an absolute unmeasured deceleration. For this gravitational acceleration to be constant, relative to the increasing scale of the earth's dimensions, it must in fact be a deceleration that translates into a constant velocity relative to inertial space.

4. The Gravitational Expansion of Matter

It is this universal expansion of matter that is the simple and local cause of gravity. This takes gravity from being a magical, infinitely complex and incomprehensible wonder of nature to being just a very slow and local expansion of atoms occurring at the very core of matter. The only thing non-local, infinite or metaphysical about gravitational expansion is the great synchronicity by which all bodies of matter expand at exactly the same rate of time throughout the whole universe.

5. New Gravitational Velocity Constant

The true nature of gravity is not an acceleration or even a force. Gravity is a constant upward velocity of the earth's surface. A new parameter called Masslength (ML) is needed to calculate this velocity. ($ML = MH/ao = 1$) that is the mass of a hydrogen atom (MH) divided by the Bohr radius (ao). The masslength of the earth at sea level is ($ML = 1.005286 = MH/ao$)

The universal constant for gravity (G_0) is calculated to be the outward velocity (esV) of 9.2116×10^{-14} m/s at the Bohr Radius of the hydrogen atom. ($esV = \sqrt{2gR}$). The Earth's upward surface

8. Surface Velocity

Besides just measuring the earth's upward acceleration of gravity, there are other more direct ways of measuring the earth's upward surface velocity. These involve the effect that this velocity has on the internal dynamics of matter. When a body is accelerated from rest, the Lorentz Transformation increases its mass by the gamma factor $\gamma = 1/\sqrt{1-v^2/c^2}$. This increased mass within the atoms of an atomic clock causes the rate of the clock to slow by a proportionate rate. The value of the earth's surface escape velocity decreases with increased altitude. The ticking rate of clocks thus speeds up as they are brought to higher altitudes. This is true whether the measurements are made in the mountains or on orbiting satellites. This effect has been studied very carefully using Cesium clocks aboard GPS satellites and it can be accurately verified that the earth's upward surface escape velocity is indeed a real velocity with a value of about $V_{E/e} = \sqrt{2g_E R_E} = 11,179$ m/s. Both the earth's surface escape velocity and a satellite's orbital velocity decrease with increased altitude and this causes the ticking rate of clocks to speed up as they are decelerated into larger orbits.

9. GPS Clock Rates

These GPS clock experiments provide proof that gravitational surface escape velocity is true absolute motion. The difference in velocity between 11,179 m/s and 5,471 m/s is 5,708 m/s. The Lorentz Transformation mass increase and clock slowing for this velocity is the same as the amount of clock slowing measured in GPS experiments. The only place where the GPS value can be derived from a velocity of 5708 m/s is between the two velocities of 5471 m/s and 11,179 m/s. The amount of clock slowing for 5708 m/s between any other two values produces a different value.

GPS satellites are placed in orbits of 4.175 earth radii, so that they will circle the earth exactly twice each day. In order to synchronize the clocks in the GPS constellation, technicians must first calibrate the clocks that will be put in orbit to run slower than identical clocks on the ground. In this way, they will run faster when put into orbit and thus run at the same speed as the clocks on the ground.

10. Orbital Revolution

The orbits of the planets are caused by two velocities moving at right angles to one another. Their orbital velocities are at right angles to the sun, and they are also moving away from it at the sun's surface velocity for that point on the planets' orbits. To the observer, these two velocities give the appearance that the planets remain the same distance from the sun. Their combined gravitational expansions brings their surfaces closer together at the same rate that they are moving apart. The result is that each appears to remain at a constant average distance from the sun. As the combined gravitational expansions of the sun and planets brings their surfaces closer together, the planet's orbital velocity moves it away from the sun at the same rate. The result is that each appears to remain at a constant average distance from the sun and but also appears to travel around the sun in an elliptical

orbit that is actually a spiral in inertial space. There is no gravitational attraction between the sun and the planets. They remain in their "orbits" through a balance between their gravitational surface velocities and their orbital velocities.

11. Pound-Rebka Experiment

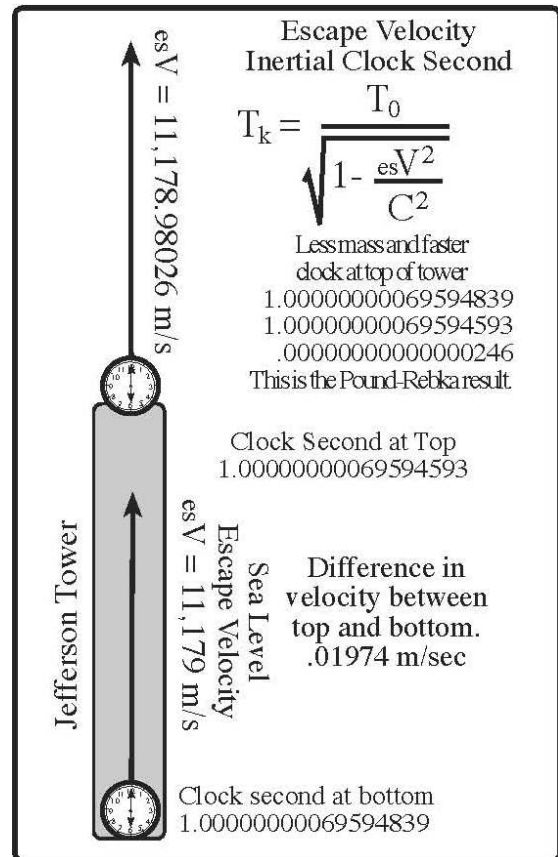


Fig. 2. Pound-Rebka absolute motion. Lorentz Mass Transformation for absolute velocity .01974 m/sec 1.0000000000000000000043 Lorentz Mass Transformation for absolute velocity .01974 m/sec slower at top of Tower 1.000000000000000024600000. Mass increase at tower is 572,093 times greater than mass increase of the absolute velocity of .01974 m/sec.

The Pound-Rebka Experiment is quite complex in its technical details but in principle it is very simple. Technically the experiment uses the Mossbauer Effect to detect extremely small differences in photon wavelengths. Photons of a precisely determined wavelength were emitted at the top and bottom of the 22.5 meter high Jefferson Tower on the Harvard campus. When the photons from the top of the tower were measured at the bottom, their wavelengths were decreased (blue-shifted) by a small amount; and when photons from the bottom were measured at the top, their wavelengths were increased (red-shifted) by the same amount.

In this explanation of the Pound-Rebka experiment, it is proposed that gravity causes clocks (as well as all other physical processes) at the bottom of the tower to run slower than clocks at the top. This causes the emitter at the bottom to take more time to produce a photon and thus increase its wavelength by 2.5×10^{-15} . The faster clock at the top of the tower makes the emitter pro-

duce its photons in shorter time intervals and with shorter wavelengths.

Both General Relativity Theory and the Principle of Gravitational Expansion predict that atomic clocks tick faster at high altitudes than they do at sea level by the same amount. The difference in the two theories is that the Principle of Gravitational Expansion shows the difference in clock rates to be a simple Lorentz Transformation time dilation. The mechanism by which clocks run slower at the bottom of the tower is the increased mass caused by the higher escape velocity ($V = 11,179$ m/s). The lower escape velocity ($V = 11,178.98026$ m/s) at the top of the tower makes the internal parts of the clock have less mass and the clock runs faster by a proportionate amount. The amounts that the clock rates change can be calculated from the standard time dilation Lorentz formula $t = \gamma t_0 = t_0 / \sqrt{1 - v^2/c^2}$.

When a photon that is measured to have a wavelength $\lambda = 1$ is produced at the bottom of the tower it will still have a wavelength $\lambda = 1$ when it reaches the top. However, because the observer's clock at the top of the tower runs slightly faster, he will measure the photon's wavelength to be increased by 2.5×10^{-15} . Also the faster clock at the top of the tower makes the emitter produce its photons with shorter wavelengths but the observer at the top measures them to have wavelengths $\lambda = 1$ because of his faster clock. The observer at the bottom measures the shorter wavelength photons from the top at their correct shortened wavelength. The photons do not change their intrinsic wavelength as they travel between the tower's clocks.

The conclusion that must be reached here is that the results of the Pound-Rebka experiment are caused by the effects of absolute motion and not by relative motion. The difference in relative velocity between the top and the bottom of the tower is .01974 m/s. This velocity is not nearly enough to cause the changes in mass needed for the experiment's results. However, this same velocity difference is the precise amount needed for the Pound-Rebka measurements when it is the difference between 11,179 m/s and 11,178.98026 m/s. A velocity difference of .01974 m/s between any two other velocities would not produce the Pound-Rebka results.

12. Equivalence Principle

The equivalence principle is merely an ad hoc metaphysical concept designed to allow one to imagine that gravity has magical non-local powers of infinite reach. The appeal to believe in such a miraculous form of gravity is very strong. Virtually everyone, and especially physicists, accept Equivalence as an article of faith even though it has never been positively verified by either experimental or observational physics.

Within the principle of gravitational expansion, gravity and inertia can absolutely not be equal or equivalent simply because they are exactly the same thing. There is only inertia and gravitational attraction simply does not exist! Unlike the omnipresent and infinite effects of the mythical gravitational field, the inertial effects of each body of matter in the universe extend only to the outer extremities of the body's physical structure. For one body to exert gravitational forces on another body, they must be in physical contact. A falling body perceives no inertial forces until struck by the upwardly moving ground. Measurements show

that Chicken Little, Newton and Einstein were all wrong. The sky is not falling down, the earth is falling up!

13. The Curvature of Mass and Time

Once we realize that gravity is the result of expanding matter, we must also conclude that the absolute dimensions of our measuring rods as well as our own bodies are also gradually increasing in size. This, in turn, leads us to conclude that the duration of the absolute intervals of time, as we measure them, must also increase in direct proportion to the expansion of matter. To understand how this is so, consider a bullet or a photon traveling through space on an inertial path. After a certain length of time, the bullet and the photon, as well as all measuring rods, will have doubled in length. Since they cannot change their inertial velocity through space, each will take twice as long to traverse the same distance as measured by the increased measuring rods. The increase in the dimensions of matter and the complimentary slowing of time remain completely hidden from our senses but they are easily detected with our measuring instruments when we measure the upward acceleration of gravity and the outward expansion of the earth.

14. The Mystery of Gravity Solved

The principle of gravitational expansion is simple, straight forward and can be easily understood without the need of any complicated mathematical calculations. Anyone taught this principle can easily attain a far better understanding of the workings of gravity than even Einstein himself had with his imaginary multi-dimensional curved space.

If we place two bodies to float in space that are at rest with one another, we will see that gravity causes them to begin moving toward one another with increasing velocity until they collide. While seeing may be good for believing, it is measurements that reveal the truth. Measurements show that the surfaces of the bodies accelerate in all directions until their surfaces meet. The centers of the bodies do not move. By seeing expansion instead of the motion, anyone can understand that what really happens is just the opposite of what we might think we see. Whether the two bodies slowly expand into one another or are attracted to one another, the physical event of them colliding would appear identical. Measurements reveal that gravity is the moving together of the surfaces of two bodies, and not the moving together of their centers.

15. A Child's View of Gravity

The philosophical implications of whether the force of gravity points up or points down are enormous. If it points down, then gravity is a non-intuitive, virtually infinite, space-like force field with miraculous if not magical properties. Both Newton and Einstein invented mathematical ideas that required gravity to point down, but neither was able to offer any kind actual, rational mechanism that could make gravity work.

If gravity points up, just like we measure it to do, then there is no magical gravitational field to deal with and gravity just becomes a simple local expansion process that occurs to all atoms simultaneously. The principle of gravitational expansion is a simple and straight-forward mechanical description of gravity

that can be easily understood without the need of any complicated mathematical equations. The actual mechanism of gravity becomes so simple that it can be easily explained to a small child. A child taught this principle could easily attain a far better understanding of the actual workings of gravity than even Newton or Einstein was ever able to do with their non-intuitive, purely mathematical theories.

When the child falls down, he can be taught to feel the upwardly expanding surface of the earth strike him. The child will see no mystery in gravity. Gravity is simply caused by the expanding surfaces of atoms. Gravity has no hidden and magical mechanism extending its reach throughout the infinity of space.

While seeing may be good for believing, it is measurements that reveal the truth. Children might see their baseballs fall to the ground but they can be taught to feel the ground pushing them up toward their stationary baseballs. They can fully understand that gravity is simply caused by the upwardly expanding surfaces of the atoms within the earth.

16. Cloud Formation

One of the most common and dramatic examples of gravitational expansion phenomena is the long unexplained segmenting of atmospheric clouds. Perhaps the reason that this effect has escaped scientific notice is because clouds are too close to interest astronomers and too far away for particle physicists. The primary reason for this neglect is that there is no known physical force in the standard model of physics to make clouds behave in this way. Cosmologists are very aware of this same problem as it pertains to the difficulty of explaining how diffuse clouds of hydrogen gas could quickly segment into individual clouds that could then condense into galaxies and then individual stars and solar systems. The photos below compare cloud segmenting with a painted balloon that has been inflated to break the cured paint into individual segments.

17. Conclusion

The most important thing to be determined about gravity is the actual direction of its force. If we accept the results of our measuring instruments at face value, then we must conclude that the direction of gravitational force is up. The widespread belief that gravity points down is simply not supported by any experimental evidence. Gravity is just what we measure it to be: a

phenomenon of constant upward acceleration that produces real motion through absolute space. Furthermore, if the earth's surface is constantly moving away from its center, we must conclude that the earth, as well as all the matter and photons in the universe, are constantly expanding in size at a uniform rate. It is this gravitational expansion of matter that causes the phenomenon we know as gravity. The principle of gravitational expansion provides a simple, mechanical and non-field mechanism for gravity that is derived completely from the results of experimental measurements and is not based on any metaphysical assumptions such as action at a distance, curved space-time or the principle of equivalence.



Fig. 3. Texas clouds

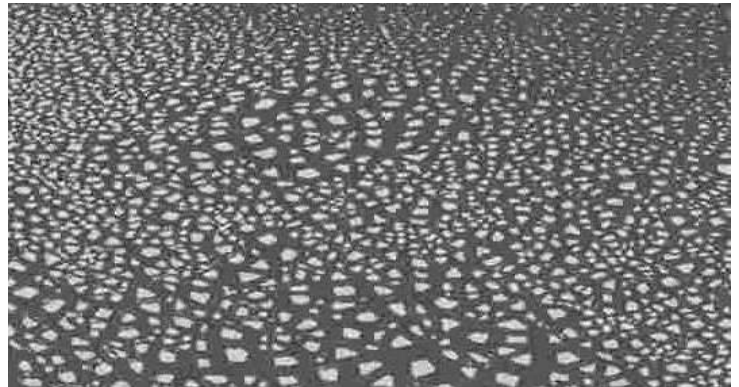


Fig. 4. Painted balloon