

AETHER DRIVEN QUANTUM GRAVITY

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June 16, 2025

Abstract

This paper speculates that an aether exists that flows directly and vertically into all matter including the earth. An aether that was not detected by the Michelson-Morley experiment because their interferometer was oriented to detect an aether that flowed horizontally passed the earth rather than vertically into the earth. To clarify, if an aether flows vertically into the earth and the interferometer is leveled with respect to gravity, both arms of the interferometer will be affected identically. My speculation is that an aether exists that flows vertically downward into all matter from all spherical directions, carrying vacuum energy along with it, where the aether within matter converts into thermal photons, that in turn, dissipates back out into free space. As the aether converges towards a spherical center, it must accelerate and I speculate that this acceleration is the cause of the gravitational time dilation, which in turn, results in the gravitational drag force. The thermal photons radiating into space would gradually give up energy to the aether of space until the photons dissolve back into aether components and vacuum energy.

1.0 Introduction

The experimentally determined wave behavior of light strongly suggested that light travels through a medium referred to as the aether [1]. The existence of an aether was experimentally discredited due to the null test results of the Michelson-Morley experiment [2] that assumed the earth traveled through the aether and used an interferometer [3] designed to detect an aether flowing at the velocity of the earth in orbit around the sun. Since the earth moves around the sun and rotates on axis, it made sense to the experimenters that the aether flowed around the earth and that a leveled rotating interferometer would detect this aether. The resulting null test result, resulted, in the conclusion that there was no aether, and that conclusion remains today. With the aether flowing directly and vertically into the earth, the Michelson-Morley experiment would yield a null result. To clarify, if an aether flows vertically into the earth and the interferometer is leveled with respect to gravity, both arms of the interferometer will be affected identically. Their assumption overlooked the possibility that an aether exists that flows directly and vertically into all matter including the earth from all spherical directions. Their interferometer might have

worked better had it been stood on its side. A concept for the composition of an aether is now described followed by ideas for how such as aether could cause gravitational time dilation, gravity, its relationship to mass and energy, and experimental prospects.

2.0 Aether Composition

Consider that space is not empty; rather it is filled with a multi-component fluid consisting of very small particles; loosely referred to as an aether. For visualization purposes, consider aether as a fluid that flows in a manner like a three-dimensional compressible gas flow with density gradients and flow velocity vectors. The flow complexity is driven by aether flowing into all masses, such as, the sun and the planets, whereby, these masses are moving through space and rotating. As such, for example, the aether flow into the earth would be influenced by the motion of the moon.

For an aether to continuously flow into a mass, it must convert into something else that can flow back out again and therefore it must contain at least two components. Perhaps, one component would flow into matter where it is altered so that the altered component can flow back out again. Possibly a larger component flows inwards and the decomposed smaller pieces flow outward. Or, perhaps two or more aether components flow into matter, including vacuum energy, where these components somehow combine to form something else, such as thermal photons, which flow back out of matter. The inward flowing components cause a drag force while passing through matter but the outward flowing components do not. This drag force would be gravity.

Planets radiate more energy into space than the energy received from the sun with the difference attributed to the leftover heat of planet formation and radioactive decay. For example, Jupiter radiates more than twice the energy it receives from the sun [4] but being a convective gas planet where warmer gases buoyantly rise within the atmosphere, it is difficult to justify substantial heat of formation remaining after four billion years and a gas planet should not have excessive radioactive material. This quantum gravity aether theory could explain the extra heat radiating from planets. The thermal photons radiating into space would gradually give up energy to the space filled aether until the photons dissolve back into aether components and vacuum energy.

3.0 Gravitational Time Dilation

The strength of gravity affects the rate at which time passes [5]. It is an experimentally established fact that time passes faster at a higher elevation here on earth than at a lower elevation. The concept of an aether flowing directly into matter could help explain this phenomenon. For aether to flow spherically into matter, it must converge. This converging flow must accelerate as it is continually flowing through a smaller and smaller spherical area; decreasing with the radius squared. Consider two identical synchronized clocks where one clock is placed on a lower floor of a tall building and the second clock is moved up to a higher floor. Then after a time, the upper clock rejoins the lower clock. A comparison of time readings will

demonstrate that the upper clock ran faster than the lower clock. Due to the spherical convergence, the aether flow through the lower clock would be moving faster than the corresponding aether flow through the upper clock. Apparently, the velocity of the aether flow through matter affects time, or put in another way, the rates of all physical processes used by the clocks slowed down as the velocity of the aether flow increased.

Now consider the relativistic twin paradox [6] where one twin travels aboard a spaceship at relativistic speeds while the other twin remains on earth. When rejoined, the earth-bound twin was an old man while the relativistic twin remained young. The earth-bound twin saw his twin fly away at relativistic speeds, while for the relativistic twin, it appeared that the earth was receding away at relativistic speeds. The answer to this paradox is that the aether was flowing into the earth while the spaceship was moving through the aether. Viewed from within the spaceship, the aether was flowing through the spaceship at relativistic speeds, thereby, slowing all physical processes in a manner like the two clocks experiment.

4.0 Gravitational Force

The flow of aether through matter causes a gravitational force; possibly because the aether is accelerating as it converges towards the spherical center. As the accelerating aether flows through a material object, there is a gravitational time differential across the depth of the object; in a manner like the two-clock experiment. Therefore, the physical processes on the upper elements of the object move more rapidly than the corresponding processes on the lower elements, including those associated with the orbiting electrons. Perhaps the converging aether flow drags the orbiting electrons along with it, which in turn drags the nuclei as well. Or, perhaps, the faster moving electrons of the upper elements of the object put a pressure on the slower moving electrons of the lower elements. This downward dragging or pressure is the force of gravity.

Aether consistently flows towards gravity wells with gradients of decreasing density along the way as the spherical convergence speeds the aether. Once aether has penetrated large matter, such as the earth, the spherical convergence speedup will be gradually compensated by the reduction in aether particles used to form thermal photons; such that the aether flow ceases at the gravitational center of the earth.

5.0 Mass

When an object moves through a uniform non-accelerating aether at a constant velocity where there is no acceleration of aether particles through the object, there is no resulting force applied to the object. Hence, the object continues to move with constant velocity, unless some other force is applied to the object. If another force is applied, the acceleration of the object results, relative speaking, in an acceleration of the aether through the object. This acceleration of aether through the object results in a slowdown of all time-related physical processes, resulting in an

internal energy transfer from the object to the aether or to the source of the acceleration. The amount of internal energy transferred is essentially the property of mass. The denser the material, the greater the amount of internal energy transferred, that is, the greater the mass. This process is basically the same as the gravitational driven aether acceleration through matter. This is why the inertial mass of an accelerating object ($f=ma$) is the same as the mass associated with gravitational acceleration.

6.0 Energy

In addition to the wave behavior of light, there are many other physics observations that support the existence of a fluidic medium of some type; an aether that fills the universe. These observations include: the wave behavior of electrons, the success of the Schrodinger wave equation, virtual particles that pop into and out of existence, or vacuum energy, or vacuum friction. Gravitational waves carry away energy. Again, wave behavior suggests a medium. According to Einstein, two objects orbiting each other, such as observed binary rotating neutron stars, will release gravity waves [7], thereby losing energy and will gradually approach each other to eventually combine. The associated energy goes someplace; perhaps vacuum energy, or many a better term would be aether energy, that subsequently flows into matter, and subsequently becomes thermal energy.

Another important aspect of gravity is the effect of gravity on photons of light. Light loses energy [8], thereby, becoming redder when going from higher gravity to lower gravity and, conversely, light gains energy becoming bluer when moving from lower gravity to higher gravity. Somewhat like matter gaining and losing kinetic energy when in motion within a gravitational field. As photons of light travel through space, these photons are affected by the maze of increasing and decreasing gravitational forces that light traverses, with light bending around or passing through galaxies and all the variety of masses out there. Thus, the energy of light is continually being transferred into and out of the aether, as light travels through space. It stands to reason that this continual transference of photon energy, back and forth, is not one hundred percent efficient, that is, photons moving long distances through space slowly but continually lose energy to the aether medium.

As a spherically converging aether accelerates through matter, it either draws energy from matter or causes matter to move along with the converging aether flow, thereby, gaining kinetic energy, or some of both. Matter moving upward or downward in a gravity field, correspondingly loses and gains kinetic energy. At the same time, the speed of time measurement increases and decreases. It is reasonable that the kinetic energy translates into or out of matter internal energy. That is, as matter rises in a gravity field, time speeds up and the reduction in kinetic energy goes into speeding up the quantum processes of matter, such as electron orbiting velocities. Conversely, when matter drops in a gravity field, time slows and the internal energy of the matter becomes kinetic energy. Thus, potential energy is essentially the internal energy. This process of transferring the internal energy of matter, into and out of matter, is essentially the property of mass.

7.0 Experimental Prospects

The Michelson-Morley experiment can be performed again with the interferometer oriented vertically so that it is in line with the downward flowing gravity vector; and able to rotate on an axis. If the aether flows into the earth and light is affected by the aether, the experiment may detect the aether as was the initial expectation of the Michelson-Morley experiment, whereas laying the interferometer flat with respect to gravity, it did not. A positive result would verify the idea that aether flows into matter.

However, the interferometer needs to be designed for the velocity of the aether. The Michelson-Morley experiment was designed to detect an aether flowing at the velocity of the earth rotating around the sun. If an aether exists that flows vertically downward into the earth, its velocity is an unknown.

8.0 Final Note

This paper presents another concept for quantum gravity; that is, aether flowing into matter; one that has a reasonable chance of being correct. If correct, there is a good chance of developing an understanding of quantum gravity that makes sense. All well understood physics should make sense. Further, if an aether does exist that flows into matter, many subsequent developments in physics based on there being no aether would need reevaluation. I came up with the idea of an aether flowing directly and vertically into matter and then proceeded to extend the concept into other areas of physics [9], which I am willing to freely share.

8.0 References

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