

Trilateral spacetime effect

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Introduction

The theory for gravity as an induced effect that exists due to other forces of Nature is developed mainly for the quantum level. This approach uses term, "zero-point fluctuation" as a description of the process of virtual electron-positron pair creation and annihilation [1]. But what is the reason for the existence of gravity without quantum mechanics? Gravity displays itself mainly for macro systems level, e.g.: as gravitational field of planet.

A conclusion can be that Conservation of Energy, in the general sense, is the conservation of zero-point or energy level or conservation of rest.

Compensation of Gravity

The gravitational field can not be screened by means of shield - as it is for the electrical field (the anti-matter version is not discussed here). However, the technology for the compensation of gravitation exists. It is the method of the inertial propulsion [2].

When a mass-object is moving along a circumference, centrifugal force is created in all radial directions. In this case. there is no propulsion force in some radial directions. However, if the trajectory of movement is asymmetrical, acceleration in a vector differs from acceleration in others.

The well-known formula: $F=Ma$, where F is force; M is mass; a is acceleration, is the description of the process that provides Newton's Second Law: Action equals to Reaction. When an action leads to acceleration, a reaction force is created. Note that this case is connected with the acceleration of curved-line motion. However, in general case, we can find the demonstration of this Law in any area, including that for linear movement.

From whence inertia, induction?

As the Velocity of a mass-object increases, the force against it is being created. We call it "inertia". Did the "inertia" exist "inside" the body while it was at rest? In other words, is inertia the inner property of mass-object or is it being created when the energy of the body increases or decreases? The same line of questioning can be formulated for the electromagnetic induction. As action is created due to a change in the magnetic field, reaction emerges in the form of an induced secondary field in order to compensate for that primary change. Thus, electromagnetic induction can be considered to be an analogy to inertia.

Spacetime properties

So the question about inertia as an innate property of mass-objects has a solution; the same applies for the electromagnetic law of the induction version. Since induced secondary fields do not exist prior to changes in primary fields, so inertia cannot exist as an innate property of mass-objects. In both cases this "secondary effect" is a property of spacetime, and not that of masses or coils of wire. In certain cases, the demonstration of this effect is defined by the value of mass or parameters of the electromagnetic system. There is rest-mass only: inertial mass is either created or remains transparent and therefore, the question of two sets of masses does not exist.

G-mass can be compensated by inertial mass. This special case was discussed in old physics textbooks: as a mass rotates horizontally around its axis, due to the centrifugal force, there results no weight-effect upon the axis. It is the "same old news" when modern scientists observe a decrease in weight for rotating masses. Weight (G-force is the attraction of the mass-object to the planet) is compensated by means of a simple motion. Without it, gravity exists as result of another motion, another process.

Electrogravitics

The relationship between electricity and gravity, the transformation of electrical power into gravity and the possibility of a reverse transformation are developed as "electrogravitics". An analogy lies in the asymmetry of electrical potential fields designed to obtain propulsive force [3] or power [4].

However, there is no motion in these electrostatic technologies; an explanation for this is given by E. Whittaker [5] wherein the electrical potential field has a bi-directional energy flow. Based on this concept, the inner structure of electric potentials results from 2 opposite, balanced parts: photons (direct-time) radiated from charged mass and anti-photons that exist in reverse-time

From the future, in past time

In our viewpoint, this oncoming flow of anti-photons derives from the future, in past time. We are unable to observe the ordinary flow of photons in electrical potential fields since they are in equilibrium with anti-photons in the time-axis. For Whittaker, both exist in the structure of potentials. If half of the inner structure of an electric potential is changed when a potential is applied to do work and to initiate the power process, the other half (the reverse-time energy flow) must react. Thus, a compensation of time - in the form of the deceleration of time's rate - can take place.

Time: radius of 3-D curvature

We can visualize the notion, "time" as being the "other side" of gravity: A mass-object moves along a curved trajectory and $\mathbf{F}=\mathbf{M}\mathbf{a}$ is created in radial directions, non-equally. In some radial directions, the trajectory is more curved than in others. Acceleration and Force are then asymmetrical. Some linear force emerges in such directions, where a curvature gradients exist. A new question arises: do inertial propulsion systems drive for non-reactive motion only (permitting a novel technology of supportless, non-reactive crafts) or is something else created which is already here?

It should be impossible to generate propulsion force as a motion in space alone by means of inertia. This propulsion force also has a time-direction component. Indeed, inertial propulsion systems should demonstrate some chronal effects.

As the asymmetrical curved trajectory for mass-object was considered as the unique method for generating a non-reactive propulsion force, let's consider the nature of time as a spatial curvature.

Therefore, for linear curvatures the formula is: $\mathbf{p}=1/\mathbf{R}$, where \mathbf{p} is curvature [1/m]; \mathbf{R} is radius [m]. On evenly-curved surfaces, curvature is defined as: $\mathbf{p}= 1/\mathbf{R} + 1/\mathbf{R}$ and so, $\mathbf{p} =2/\mathbf{R}$ [1/m].

These formulae appear in any mathematical reference.

The curved, 3-dimensional space case is not considered. By analogy, it should be: $p = 3/R$ [1/m].

So, the curvature of space can be described by the linear radius value and by the factor 3.

Now, another analogy: for light as an electromagnetic wave, there exists the relationship: $\lambda = c/f$ [m], where λ is the wavelength [m]; c is the velocity of light [m/s]; f is frequency [1/s].

Let us assume that we may replace the factor " c " for "3" and that the 2 formulae describe the same process: that of the creation of spacetime whereby time is a 3-D curvature. It is the "other side" of the same coin: radius and curvature. But, based on the definition of curvature, 3-dimensional curvature cannot be observed in 3-space.

Yet note: we can observe and create the process of curving a line in a circumference, or of a surface on a sphere. And we can observe time. So the nature of time must be the same for line, surface or 3-space. It is the process or change-of-space in any direction that does not exist in this space. Such direction can be created only in a new dimension, which for a line is flat and for a surface is 3-space. For 3-space, time is the new dimension.

"Action is the curvature of the world," wrote Pavel D. Ouspensky [6], signifying that as one tries to understand the 3-curvature geometrically, one errs. For time, action (or process) is 3-curvature. In physics, new properties are commonly acquired as the result of change in some property: charge, current, induced magnetic field, etc.. Here, the new property becomes a new dimension.

So, for the frequency of oscillations, the formula is $f = 3/\lambda$ [1/s], where λ is wavelength in [m]. Here, the velocity of light is equal to 3 (10^8 mathematical degree is omitted since it is a question of scale of measurement only).

Therefore, the analogy between 3-curvature and frequency: $p = 3/R$ [1/m] and $f = 3/\lambda$ [1/s]. The 3-dimensional radius is represented by $R = \lambda/p = R/3$ [m] and time as a period of oscillation has the relationship: $T = \lambda/f = \lambda/3$ [s]. Time can be considered to be equivalent to R if the linear radius r and the wavelength h are the same. This is a condition for the spatial resonance effect. Note: "m" and "s" are unlike when length is measured in meters in 3-space. However, for a new dimension it is possible to use equal units for "m" of 4th dimension and conventional "second". Furthermore, light (photons) is possible in 3-space only as a process in such a spatial resonator.

Time and electric charge

Time is an effect of 3-dimensional (spatial) curvature for mass-objects. There is no absolute time without mass. There exists a concept which states that, "mass is time". In electricity, the mass-analogy is charge. Whittaker's bi-directional structure of the potential explains the charge-time analogy.

The time-mass-charge analogy becomes clear through the comparison of two formulae: Energy in a charged condenser is described as:

$$E = 1/2(CU^2)$$

where E is the energy of the condenser; C is capacity; U is pressure (voltage), while the formulation for kinetic energy is: $E = 1/2(MV^2)$ where E is the energy of a mass-object; M is mass and V is velocity.

"Own-space frequency" - OSF

Time in our system results from the motion of planetary mass; certain calculations can demonstrate this. It is feasible to determine correlation between parameters of the motion of our planet and the framework of the periodic law for chemical elements (which is not the purpose of this paper).

The term, "curved space" describes a process, related to mass. We observe it as a result of our Earth's mass-process. There exists a theory of own space frequency" (OSF) that defines all mass-processes for any specific planet. The concept is developed in articles written by the Russian, Michael S. Eltsin. It leads to a logical question: can we observe a mass-object only if it has the same parameters (i.e.. frequency) as we ? What if there is a difference ? Can we design a "chronal heterodyne" to allow us to observe other realities in other OSFs?

This matter is related to numerous anomalies. Deviations in the speed of light from factor 3 in our reality may account for non-discrete yet uninterrupted nature of dimensionality. Research could lead to engineering gradual changes in spacetime dimensionality. Inertial propulsion systems probably modulate spacetime: surely non-reactive movement involves motion in both space and time.

Over-unity - time modification effect

The use of non-reactive forces in power systems should generate excess power without reacting to initial inputs. This is a well-known "perpetual motion" concept. Over-unity should be feasible if output power derives from a non-reactive force, including electromagnetics or electrostatics, as the trilateral effect theory accounts for the process of time generation in 3-dimensional spatial curvature. Over-unity power can be obtained only jointly with a gravity/time effect.

Gravitational transform spacecraft

This approach enables the design of a new mode of spacecraft. Previously, anti-gravity drives were assumed to require tremendous power (e.g.: from on-board nuclear plants). With this "three-sided effect," spacecraft could generate a bonus of over-unity power while transforming the gravitational field. This power would also act as a gravity propulsion system. In such spacecraft it is not necessary to expend power; but there would be a difficulty in transforming it into heat and in its use.

It is a trilateral, a "three-sided effect" [7]. In a general sense, power can be considered to result from changes in energy form. In over-unity cases output power may be considered to result from changes in spacetime parameters (space curvature, rate of time). The source of energy is the gravitational field or the flow of time.

3-dimensional Law of Conservation

The Law of Conservation remains true. However, it is necessary to generalize it for multidimensional cases. As now stated, the Law is valid for 3 dimensions only - changes in gravity and time were not considered.

Another version can now be offered: *The total energy of a system is the sum of the energy of spacetime processes plus the processes of reverse space-time. This sum is constant and is equal to zero [8].*

Reverse-time compensation

From this viewpoint, all we observe in the material world is only half of the Universe. Any power process is compensated by its equal anti-process in reverse-time. This is Newton's Second Law for Action and Reaction in a multidimensional version. Systems try to remain at rest, by balancing sums of equal, opposite processes. Power can be created from "zero", only with an opposite process at same level, as it is for the positron-electron pair.

Trilateral processes are also possible; conjointly, they attain a zero-sum energy level. They are also effective and may be the basis of a new science that would no longer be dualistic (negative-positive, 1/0, etc.) [9]. In tri-polar "electricity" A, B and C types of charges are composed of positive and negative elements. The sum of A, B, C equals to zero, just as positive and negative charges do.

Zero-sum energetics approach could be applied in "uninterrupted" logic continuum, avoiding the 'yes-no' discrete solutions for problems and questions.

N.A.Kozyrev [10] created "cause-effect" mechanics, demonstrating experimentally time-density changes (as cohesion of cause-effect connection). With his theory, time can be a free energy resource. Living systems consume the flow of time as for their life-energy. Likewise, the energetics of stars involve a transformation of time's flow into the energy of light radiation. But it is critical to acquire control of cohesion and stability of cause-effect connections for any process. Since time is rate of transformation of cause into effect, according to Kozyrev, gravity-propulsion systems would alter causality in the material world within operational range. Quantum-world laws would act at the macrosystem level with regard to local gravity and time parameters.

References and notes

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Commentary to the article by Dr. Puthoff

There is experimental evidence that vacuum fluctuations can be altered by technological means. This leads to the corollary that, in principle, gravitational and inertial masses can also be altered. This leads us to one of the most speculative, but nonetheless scientifically grounded, proposals: the Alcubierre Warp Drive. Miguel Alcubierre of the University of Wales set himself the task of determining whether faster-than-light travel was possible within the constraints of standard theory. Although this clearly could not be the case in the flat space of special relativity, general relativity permits consideration of altered spacetime metrics where such a possibility is not a priori ruled out. Alcubierre's further self-imposed constraints on an acceptable solution included the requirements that no net time distortion should occur (breakfast on Earth, lunch on Alpha Centauri, and home for dinner with your wife and children, not to mention your great-great-great grandchildren), and that the occupants of the spaceship were not to be flattened against the bulkhead by unconscionable accelerations).

A solution meeting all of the above requirements was found and published by Alcubierre in *Classical and quantum gravity* in 1994. It involved the creation of a local distortion of spacetime such that spacetime is expanded behind the spaceship, contracted ahead of it, and yields a hypersurfer-like motion faster than the speed of light as seen in by observers outside the disturbed region. In essence, on the outgoing leg of its journey the space-ship is pushed away from Earth and pulled towards its distant destination by the engineered local expansion of spacetime itself. (For follow-up on the broader aspects of "metric engineering" concepts, one can refer to a paper published by myself in *Physics Essays* in 1996). Interestingly enough, the engineering requirements rely on the generation of macroscopic, negative-energy density, Casimir-like states in the quantum vacuum.

Unfortunately, meeting such requirements is presently beyond our technological reach.

It has been known for some time that general relativity permits the possibility of wormholes, topological tunnels which in principle could connect distant parts of the universe, a cosmic subway so to speak. Publishing in the *American Journal of Physics* in 1988, theorists Morris and Thorne have outlined the requirements for traversable wormholes, and have found that, in principle, the possibility exists provided one has access to engineerable, Casimir-like negative-energy-density vacuum states.

In the wings of our deepening understanding of the quantum universe in which we live, it is only a matter of time before such "magic" will become the handmaiden of mankind's drive to explore the beckoning highways and byways of interstellar space.

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