The Timeless Universe

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Abstract. In the unified theory of dynamic space the phenomenon of motion has been described as a form of space deformation, that is identical to time. The motion force is deducted from the dynamic space and is accumulated on the spherical zone of the particle, due to the difference of cohesive pressure in front of and behind it. Cosmic journey of galaxies becomes at a Universal constant timeless speed $u_a = 0,6$. Also, timeless speed $u_a = 1$ of light is a Universal constant, while light speed $C_0 = 3 \cdot 10^8$m/sec is a local constant. The gravity tail of galactic systems is one of moreover causes for their chaotic motion. So, the search for an unknown form of dark matter and energy is no longer necessary.

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1. Timeless speeds of light and galaxies are two Universal constants

In the unified theory of dynamic space[1,2] the accumulation of motion force F takes place in the dipole bonds of the particle spherical zone[3] per $\tau_0 = L_0/C_0 \approx 10^{-62}$sec[4] with κ click-shifts from unit to unit[5] at light speed.[6] If S_p[7] is the interval traveled by force F at light speed with κ click-shifts per L_0,[8] then

$$S_p = \kappa L_0 \Rightarrow \kappa = \frac{S_p}{L_0} \tag{1}$$

and, respectively, the accumulated force upon the particle, due to Eq. 1, is

$$F_s = \kappa F \Rightarrow F_s = \frac{FS_p}{L_0} \Rightarrow F_s L_0 = FS_p. \tag{2}$$

Also, if we consider that the gravity force F_0[9] is concentrated on one meridian (Fig. 1), then

$$F_0 = \kappa f_0, \tag{3}$$

where f_0 is the elementary gravity force, which corresponds to a click-shift of force F at light speed. Therefore, the elementary force f_0 and the motion force F (Fig. 1) have an elementary resultant (on each dipole bond of the particle spherical zone)

$$f' = \sqrt{F^2 + f_0^2} \tag{4}$$

and a final force

$$F_f = \kappa f'. \tag{5}$$

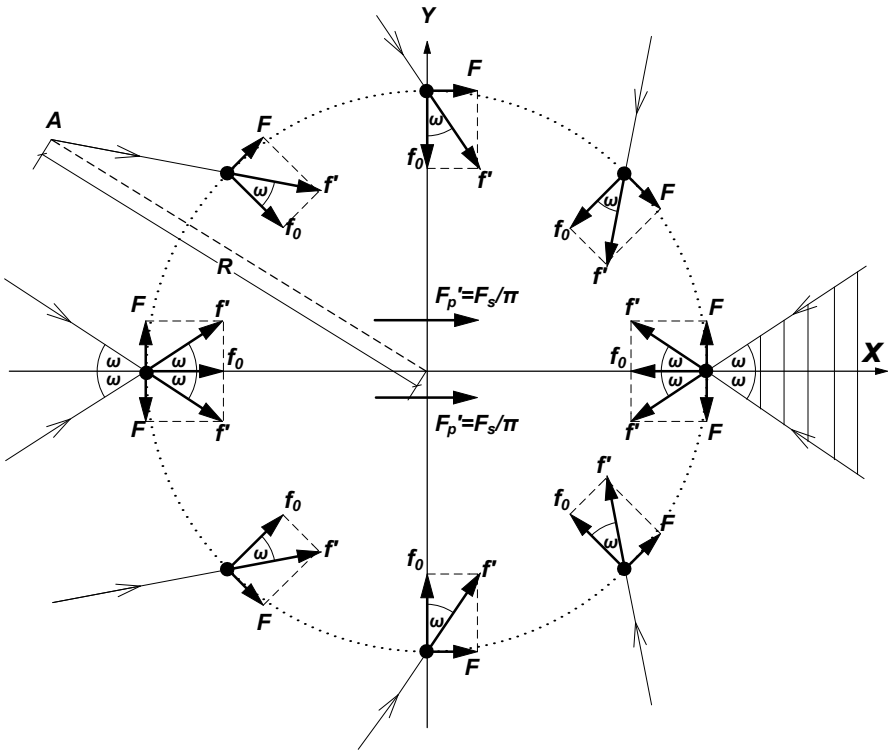

Figure 1. Gravitational field of moving particle ($sin\omega = F/f' = F_s/F_f$)

Hence, due to Eqs 4, 3 and 2, the Eq. 5 becomes

$$F_f = \kappa\sqrt{F^2 + f_0^2} = \sqrt{\kappa^2 F^2 + \kappa^2 f_0^2} = \sqrt{F_s^2 + F_0^2}, \tag{6}$$

namely the

$$F_f = \sqrt{F_s^2 + F_0^2} \tag{7}$$

is the final force of gravity and motion of the particle, which creates a new structure of the proximal area (new dynamics). So, Pythagorean relationship $F_f = \sqrt{F_s^2 + F_0^2}$ (Eq. 7) expresses the Nature's Mathematics.

If S is the interval, at which a body travels at time t and S_p the equivalent interval of the light at the same time t, corresponding to the duration of accumulation of the force F_s, then

$$u = \frac{S}{t} \tag{8}$$

is the body speed and

$$C_0 = \frac{S_p}{t} \tag{9}$$

is the light speed, by which the motion force travels the interval S_p. Dividing Eqs 8 and 9 by members, it is

$$u_a = \frac{u}{C_0} = \frac{S}{S_p}, \tag{10}$$

where $u_a < 1$ the timeless speed of the body is defined, since it is equal to the dimensionless sizes S/S_p and u/C_0. Moreover, since the intervals S and S_p refer to the absolute dynamic space,[2] motion must be absolute (see and section 2).

The kinetic force F_k of the particle (Fig. 2), due to Eq. 7, is

$$F_k = F_f - F_0 = \sqrt{F_0^2 + F_s^2} - F_0 \Rightarrow F_k = \sqrt{F_0^2 + F_s^2} - F_0, \tag{11}$$

whereby the kinetic energy

$$E_k = F_k L_0 \tag{12}$$

is equal to Work

$$W = FS, \tag{13}$$

that is produced by the external force F, moving at an interval S equal to the shift of the particle.

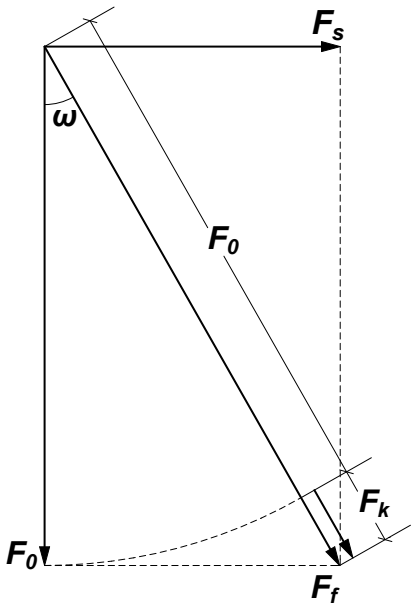

Figure 2. Kinetic force $F_k = F_f - F_0$, Pythagorean relationship $F_f^2 = F_0^2 + F_s^2$ and timeless speed $u_a = u/C_0 = F_s/F_f = sin\omega$

Accordingly,

$$W = E_k \Rightarrow FS = F_k L_0 \tag{14}$$

and substituting $F_k = \sqrt{F_0^2 + F_s^2} - F_0$ (Eq. 11) in Eq. 14, we have

$$FS = (\sqrt{F_0^2 + F_s^2} - F_0)L_0 \Rightarrow S = \frac{\sqrt{F_0^2 L_0^2 + F_s^2 L_0^2} - F_0 L_0}{F}, \tag{15}$$

where $F_s = \kappa F$ (Eq. 2) is the accumulated force on the particle, so $F_s L_0 = F S_p$ (Eq. 2), wherein S_p is the interval, at which the force F travels at light speed, when accumulated on the particle spherical zone,[3] as the particle travels at an interval S. Then, the Eq. 15, due to Eq. 2, is written

$$S = \frac{\sqrt{F_0^2 L_0^2 + F^2 S_p^2} - F_0 L_0}{F}. \tag{16}$$

Timeless speed is defined as $u_a = dS/dS_p$ (Eq. 10), so the derivative of S (Eq. 16) as of S_p (F_0, L_0 are local constants and F the constant motion force) is

$$u_a = \frac{dS}{dS_p} = \frac{FS_p}{\sqrt{F_0^2 L_0^2 + F^2 S_p^2}} \Rightarrow u_a = \frac{FS_p/L_0}{\sqrt{F_0^2 + F^2 (S_p/L_0)^2}} \tag{17}$$

and due to $F_s = FS_p/L_0$ (Eq. 2) and Eqs 7 and 32 (section 2), it is

$$u_a = \frac{F_s}{\sqrt{F_0^2 + F_s^2}} = \frac{F_s}{F_f} = sin\omega \Rightarrow u_a = sin\omega = \frac{F_s}{F_f}. \tag{18}$$

However, the pressure difference[3]

$$\Delta P = (P_0 + \frac{\Delta P}{2}) - (P_0 - \frac{\Delta P}{2}), \tag{19}$$

fluctuates from $+\Delta P/2$ in front of and at $-\Delta P/2$ behind the particle, that causes a change of volume V in proximal area and produces the dynamic energy $V\Delta P/2$, which is converted into kinetic energy $mu^2/2$ of the particle. Therefore, it is

$$\frac{V\Delta P}{2} = \frac{mu^2}{2} \tag{20}$$

and for

$$d_m = \frac{m}{V} \tag{21}$$

the constant mass density[10] of space, then the particle speed u, due to Eq. 20 and 21, becomes

$$u = \sqrt{\frac{\Delta P}{d_m}}. \tag{22}$$

The timeless speed u_a of the particle will be $u_a = u/C_0$ (Eq. 10), where

$$C_0 = \sqrt{\frac{P_0}{d_m}} \tag{23}$$

is the speed of light,[6] so, due to Eqs 23 and 22, the Eq. 10 becomes

$$u_a = \frac{u}{C_0} = \sqrt{\frac{\Delta P}{P_0}} \Rightarrow u_a = \sqrt{\frac{\Delta P}{P_0}}. \tag{24}$$

Therefore, the timeless speed u_a (due to Eqs 7, 10, 18 and 24) of the particle is completed as follows

$$u_a = \frac{u}{C_0} = \sqrt{\frac{\Delta P}{P_0}} = \frac{F_s}{F_f} = \frac{F_s}{\sqrt{F_0^2 + F_s^2}} = sin\omega. \tag{25}$$

As ΔP and P_0 change proportionally in the Universal space, it is expected that the Cosmic journey of galaxies becomes at constant timeless speed, irrespective of the fluctuations of cohesive pressure. We, therefore, calculated[11] that all galaxies have a constant timeless speed

$$u_a = \frac{F_s}{F_f} = 0,6 \Rightarrow u_a = 0,6 \tag{26}$$

in their Universal centrifugal motion. The speed of our galaxy is then $u = u_a C_0$ (Eq. 10) and so

$$u = 0,6C_0, \tag{27}$$

namely the speeds u and C_0 are uniformly increased at the accelerated centrifugal motion of our galaxy towards the Universe periphery.

The Universal antigravity force[12] is very weak, as it is exerted on the small volume of the particle core vacuum[13] (vacuum bubble) by a very small difference ΔP of cohesive pressure. However, the results of the antigravity force, although they evolve at a slow pace, are grand in the Universe. Indeed, our galaxy is moving towards the Universe periphery at the inconceivable speed (Eq. 10)

$$u = u_a C_0 = 0,6 \cdot 3 \cdot 10^8 m/sec \Rightarrow u = 180.000 km/sec, \tag{28}$$

resulting from the constant timeless speed $u_a = 0,6$ (Eq. 26), with which the Cosmic journey of galaxies takes place, at the centrifugal motion of antigravity. It is reminded that the light speed shall be considered as a local constant[6] ($C_0 = 3 \cdot 10^8$m/sec).

Also, we calculate the timeless speed of light from $u_a = F_s/\sqrt{F_0^2 + F_s^2}$ (Eq. 25), where there is no gravity force F_0 of the particle in the E/M wave[14] ($F_0 = 0$), hence

$$u_a = \frac{F_s}{F_s} = 1 \Rightarrow u_a = 1 \tag{29}$$

and it is a Universal constant.

Actually, the E/M wave moves at light speed,[6] which is achieved by using the whole chaotic cohesive pressure of space, as a pressure difference (Eq. 19)

$$\Delta P = (P_0 + \frac{P_0}{2}) - (P_0 - \frac{P_0}{2}) = P_0 \Rightarrow \Delta P = P_0 \approx 10^{151} N/m^2 \tag{30}$$

in front of and behind the E/M wave.[14] Substituting $\Delta P = P_0$ (Eq. 30) in $u_a = \sqrt{\Delta P/P_0}$ (Eq. 25) we also find $u_a = 1$ (Eq. 29).

2. Dynamics of gravitational field of moving particle
Tail of gravity - Absolute motion

The gravitational field of the moving particle is exercised in the directions of the elementary resultants f' (Fig. 1), forming an angle ω with gravitational elementary forces f_0 of the theoretically stationary particle (Fig. 3). The sine of that angle is

$$sin\omega = \frac{F}{f'} \tag{31}$$

and by putting $F = F_s/\kappa$ (Eq. 2) and $f' = F_f/\kappa$ (Eq. 5), it is (Fig. 2)

$$sin\omega = \frac{F_s}{F_f}. \tag{32}$$

So, angle ω is between the final force F_f and the gravity force F_0 of the particle (Fig. 2). This sine is a very important element for the dynamics of the moving particle, since it gives the timeless speed $u_a = sin\omega = F_s/F_f$ (Eqs 18 and 25).

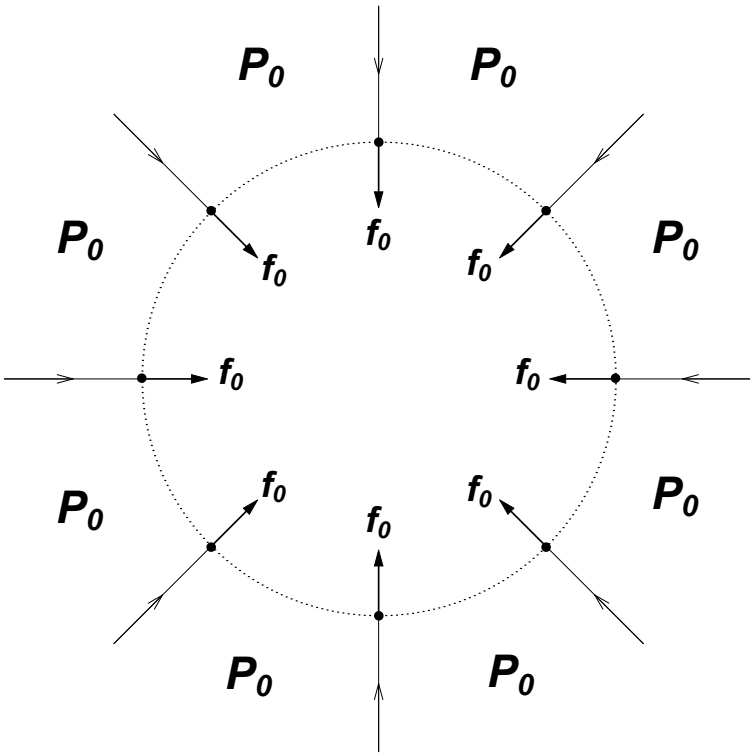

Figure 3. Gravitational field of theoretically stationary particle (P_0 is the local cohesive pressure of space and f_0 is the gravitational elementary force of the particle)

The pressure difference[3] $\Delta P = (P_0 + \Delta P/2) - (P_0 - \Delta P/2)$ (Eq. 19) causes the geometric deformation on the particle spherical zone, the accumulation of forces and, hence, the motion of particle.

The fluctuation of ΔP begins by the dilution of gravitational tensions in front of the particle (namely decreases the gravity pressure P_g[15] and increases of cohesive pressure P_0), given that gravity is created by forces of the dynamic space.[2] The opposite happens

behind the particle, where the thickening of gravitational tensions increases the gravity pressure P_g and decreases the cohesive pressure P_0. In Fig. 1, we can observe the dilution of gravitational tensions in front of and the thickening of them behind the particle, with a corresponding reduction and an increase of gravity pressure P_g.[15] The extensions of elementary resultants f' create an increased gravity cone behind (left in Fig. 1), while in the shaded cone in front of the particle there is no gravity pressure (right in Fig. 1). The cone behind the particle, where there is gravity from both hemispheres, is called tail of gravity, whose width is the cone angle 2ω, where, of course, $sin\omega = u_a$ (Eq. 18) is the timeless speed of the particle. Once more, the opposition (principle of antithesis) of space structures, caused by the opposition of the two hemispheres (Fig. 1), is showed in the two cones.

In Fig. 1 it is noted angle ω of timeless speed $u_a = sin\omega$ (Eq. 18). So, for $\omega = 0$, it is $u_a = 0$, i.e. in the theoretically stationary particle (Fig. 3), of course, there are no cones. For $u_a = 1$ (Eq. 29), namely the timeless speed of light, it is

$$u_a = 1 = sin\omega = sin90^0 \Rightarrow \omega = 90^0. \tag{33}$$

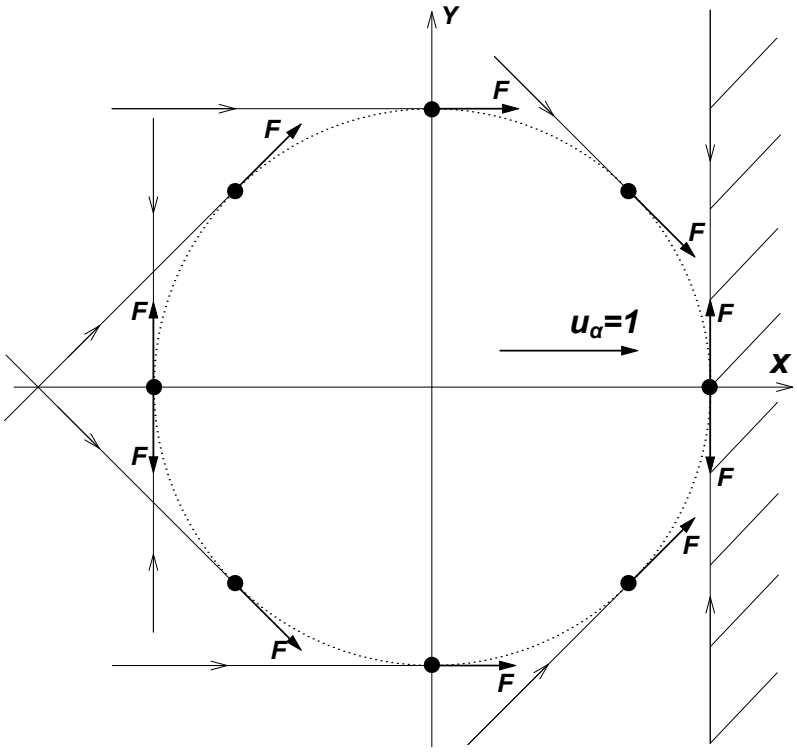

Figure 4. Gravity field of autonomous motion of E/M spindle-formation ($u_a = 1$ is the timeless speed of light)

The formation is now the autonomous motion of the E/M wave,[14] whereby the cone in front is the entire half-space without gravity, while the cone behind is widened with enhanced gravity (Fig. 4). Therefore, light has gravity only in the behind half-space and proof of this is the gravitational redshift of the stars spectrum, while gravitational

blueshift cannot happen, since there is no gravity in front of the half-space of the E/M wave.

The gravity pressure P_g[15] at the point A (Fig. 1), in a maximum approach, is

$$P_g = \frac{F_f}{4\pi R^2}, \tag{34}$$

wherein $F_f = \kappa f'$ (Eq. 5) and R the distance from the particle. If this point is within the gravity cone (tail of gravity), then it is attracted by both hemispheres at a double final force F_f and, therefore, the gravity pressure P'_g (within the cone behind) is

$$P'_g = 2P_g = \frac{2F_f}{4\pi R^2} \Rightarrow P'_g = \frac{F_f}{2\pi R^2}, \tag{35}$$

namely double than the outside space.

It is noted that, the gravity tail of galactic systems is one of moreover causes for their chaotic motion.[15] Therefore, the search for an unknown form of dark matter and energy is no longer necessary.

The gravity deviation to behind of the moving bodies (with the formation of gravitational tail) is a criterion to finding the absolute motion. Therefore, the inability of detection of the uniform motion in inertial systems has been lifted.

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