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Exploration

Alpha & Omega in the Algebraic Model of the Unified World

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Abstract

Alpha and omega are numerical values which have physical sense and fit, at least in terms of algebra, to ensure self-regulation of the universe according to a fundamental equation described in this paper. The product of alpha and omega is considered to be a dimensionless analog of the Plank's constant which sets analytical relation between time and mass to ensure integrity of space.

Key Words: time, space, alpha, omega, cosmological constants, fundamental equation.

1. Introduction

In the beginning the author did not intend to deal with physics ― it just came out by itself as the author's model of *unified world* [1] was unfolding. In this model, the unified world is considered to be a nine-dimensional entity consisting of three three-dimensional *spaces.* These are space of matter objects having masses at rest, space of time objects have masses only in motion and space of consciousness objects having no mass at all. All objects of the unified world have, at least, one quality in common that is color. This is a world of ancient archetype and a human psychological characteristic as well as a frequency and a wavelength of a light ray. Thanks to 'intelligent eye' ― ability to self-consciously distinguish colors ― a human being turns out to be the nearest physical object whose state can be directly measured, predicted and verified in chromatic terms. Since any color can be presented as a real number, interaction of objects in the unified world can be described in terms of algebra. Among other things, this yields system of universal units, law of conservation of fundamental forces and algebraic equation describing time-matter relation.

In this paper only physics-related major results of the research are presented. It is the author's deep conviction that nature in its basics is simply organized and the author's position is that fundamentals can and should be described in plain terms.

The author considers three states of the universe: stationary, instant of dynamical equilibrium and non-stationary. Firstly, interaction of fundamental forces is presented in matrix form, diagonal elements of it define stationary state (vector mode) while non-diagonal elements define non-stationary state of the universe (scalar mode). Secondly, instant of dynamical equilibrium is described analytically. Left hand side of appropriate equation presents a product of 'constants' of nuclear, gravitational and electric forces, they base on alpha-constant; right hand side is a 'large number' based on omega-constant and interpreted as the age of the universe in the instant of

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dynamical equilibrium. Thirdly, it is shown that this equation leads to system of dimensionless elementary units (time, mass and length) and to dimensionless form of the Plank's constant presented as product of alpha, the fine structure constant, and omega, the Lambert's constant. Dimensionless Plank's constant leads to algebraic equation from which it follows that each elementary participle has its own time-rate; time-rates and masses of elementary participles are correlated to ensure integrity of material space. It is fourth key point of this letter.

2. Fundamental Matrix

Fundamental matrix defines stationary and non-stationary states of the universe. Stationary state presents vector mode of interactions; it defines directions of gravitational (G), electric (E) and nuclear forces (N) and bases on diagonal elements of the matrix. In non-stationary state nuclear forces are considered to be separated into strong (S) and weak (W) nuclear forces; it is a scalar mode of interactions based on non-diagonal elements of the matrix. The matrix itself is defined as following

Forces	N	G	E
N	NN	NG	NE
G	GN	GG	GE
E	EN	EG	EE

Fig.1 Fundamental Matrix

Formally, it coincides with the standard matrix of quantum chromo-dynamics model but there is, at least, one distinction. The main diagonal in quantum chromo-dynamics containing only 'colorless' states is considered to be non-functional. The author believes that nature is reasonably organized and the science about it should be organized in the same way; if so, this diagonal should be functional. Functionality unveils itself if one imagines that aim of nature is to transform disorder into order; in physical terms it means that the aim of interaction of fundamental forces is maximum polarization.

According to the Brewster's law the perfect polarization occurs when reflected and refracted rays are set orthogonally to each other. The rays can be put in correspondence to fundamental forces. Incident non-polarized ray relates to gravitational force: chaos corresponds to chaos. Reflected ray relates to electric force: polarization itself is a definition of direction of electric charge in electromagnetic flow (below term 'electromagnetic' will be used as consisted with classification of fundamental forces generally accepted in present-day physics). Refracted ray relates to nuclear forces: its force goes on inter-atomic interaction. All three rays present a triplet of force-vectors in which one vector is considered to be definable, i.e. the direction of which is to be defined, while two others are considered to be defining, i.e. they define direction of the definable vector. As soon as two defining vectors become orthogonal it is considered that the optimal angle is achieved and the result of interaction of three fundamental forces is considered to be perfect. If it is achieved change of vectors takes place, the definable force becomes defining one and one of

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the defining forces becomes definable one and so on.

Described scheme remains to be a physical-geometrical metaphor — in order to be measured and properly applied this '*epistemological sum of geometry and physics'* [Poincaré] asks for algebra, otherwise geometry forces physics into extended gambling known as 'geometrization of physics'. So, full cycle of force-vectors interaction ensures conservation of fundamental forces and results in three 'axes' for appropriate non-diagonal elements of the matrix: 'gravitational' for N<u>G</u>, G<u>N</u>, G<u>E</u>, E<u>G</u>, 'nuclear' for N<u>G</u>, N<u>E</u>, E<u>N</u>, G<u>N</u> and 'electromagnetic' for N<u>E</u>, G<u>E</u>, E<u>N</u>, E<u>G</u>. Each non-diagonal element is defined in relation to one force-vector but in distinction from the diagonal elements each non-diagonal element includes one uncertainty. It is reasonable to assume that order of fundamental interactions in the universe can't be accident and organizing principle compensating each of six uncertainties is to exist. Here one condition is to be taken into account: constant characterizing intensity of electromagnetic flow is the light speed. If it is not reached it should be reached, if it has been reached it should be conserved; alpha, the fine structure constant, perfectly meets this scalar condition.

Consider non-diagonal elements. In group 'E' electromagnetic force is definable, gravitational and one of nuclear forces are defining ones. If ratio of electron's speed (on the first orbit of hydrogen atom in Bohr's model) to speed of electromagnetic flow equals alpha then it is strong nuclear forces: they conserve atom's integrity, weaken intensity of electromagnetic flow and thus induce gain in gravity (E<u>N</u>). If the ratio does not equal alpha then it is weak nuclear forces, they induce inter-atomic interactions, ensure gain in electromagnetic forces and thus compensate gain in gravity (E<u>G</u>). In group 'N' nuclear forces are definable. If the ratio equals alpha then it is strong nuclear forces (N<u>G</u>), if the ratio does not equal alpha then it is weak nuclear forces (N<u>E</u>). In both cases gravitational and electromagnetic forces are defining ones. In group 'G' gravitational force is definable, electromagnetic force and one of nuclear forces are defining. If the ratio equals alpha then it is strong nuclear forces (G<u>E</u>), if it does not equal alpha then it is weak nuclear forces (G<u>N</u>). It is convenient to present the above in the table 1

Table 1 Organizing principle of fundamental interactions

Elements	Diagonal			Non-diagonal					
Physical Force	Gravity	Nuclear	Electric	Gravitational		Nuclear		Electromagnetic	
Element	G<u>G</u>	N<u>N</u>	E<u>E</u>	G<u>N</u>	G<u>E</u>	N<u>G</u>	N<u>E</u>	E<u>G</u>	E<u>N</u>
Definable force	G	N	E	G		S ratio=α	W ratio≠α	E	
Uncertainty	No uncertain force-vectors			S or W?					
Defining forces	E,N	E,G	G,N	E		E and G		G	
				W ratio≠α	S ratio=α			W ratio≠α	S ratio=α
Continuality and reversibility of time	Temporal homogeneity, pre-time is considered to be continuous and reversible			Discontinuous Irreversible		Continuous Irreversible		Continuous Reversible	

Symmetry group	Rotation	Deformation	Shift		Rotation without deformation	Rotation without shift	Deformation without Shift	Deformation without rotation	Shift without rotation	Shift without deformation
Principle, notion, algebraic structure	Principles of casualty, least time and least action are considered to be in inseparable state but clearly identified as generic principles of gravitational, nuclear and electric forces, respectively.				Principle of casualty, freedom of choice, logic structure		Principle of least time, duration, binary structure		Principle of least action, force and length, ternary structure	

Left and right parts of the table correspond to stationary and non-stationary states, respectively. Both states can be described as a whole in terms of octonion algebra [1]. The instant of dynamical equilibrium between them is described below analytically in terms of real numbers algebra.

It is increasingly clear that the author considers unified world as non-homogenous entity; linear time which is available for direct measurements is considered to be one of three temporal dimensions of the unified world — 'fourth dimension'. This idea of time differs from the same idea in present-day physics which steadily moves in line of isotropic homogenous continuous time since mathematician Euler graced physicists with two 'Trojan horses': 'infinity' and 'timelessness'. Alas, as any conventional simplification it demands payment.

3. Fundamental Equation

It is possible to extract only two dimensionless meaningful values out of the five major physical dimensional constants: light speed, Plank's constant, mass of electron, charge of electron and Newton's constant. One is the fine structure constant

$$\alpha = e^2/\hbar \cdot c \tag{1}$$

The other is a typical 'large number'

$$\xi = \hbar \cdot c / G \cdot m^2 \tag{2}$$

Arkadiy Migdal suggested [2] the following condition of equilibrium of the universe: $\alpha \cdot \ln\xi \sim 1$. The author considers $\alpha \cdot \ln\xi = 1$ to be a strict condition of the instant of dynamical equilibrium of the universe, then strength of gravity in this instant is to be defined as $e^{1/\alpha}$. The 'inversion-exponentiation-recursion' principle — the only known to the author way to research basic relations of the unified world — results in the following equation

$$(\alpha) \cdot (e^{1/\alpha}) \cdot (\alpha \cdot e^{1/\alpha}) = \alpha^2 \cdot e^{2/\alpha} \tag{3}$$

In terms of algebra right hand side of Eq.3 presents the only ultimate synthesis which can ever be reached via sequential recursion of its elements: next step leads to infinite iterations. Basic

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element of Eq.3 is the fine structure constant, here it is defined as absolute time constant T $\approx 7.297\ldots\cdot10^{-3}$. So, time is considered to be a rate of interaction between entity as a whole and its single element, i.e. between electromagnetic flow and electron in case of physics. Value $e^{1/\alpha}$ is defined relative to inversed absolute time constant and considered to be absolute gravitational constant G $\approx 3.263\ldots\cdot10^{59}$. So, Paul Dirac was right in his belief that strength of gravity must vary with time (if time is considered to be based on time-rate of electron). Value $\alpha\cdot e^{1/\alpha}$ is defined relative both to time and gravity constants and considered to be absolute force constant F$\approx 2.381\ldots\cdot10^{57}$. Taking into account product of these values one can re-write Eq.3 as following

$$\text{T}\cdot \text{G}\cdot \text{F} = \omega\cdot10^{115} \qquad (4)$$

where $\omega = W(1)$ is the Lambert's 'golden ratio' $\approx 0.567\ldots$

Assuming α as a variable (x) one can find roots of Eq.4

$x_{1,2} = \pm\exp(W(-1/F))\cdot F$ and $x_3 = \exp(W_{-1}(-1/F))\cdot F$, where $F = (10\cdot\omega)^{1/2}\cdot10^{57}$

Two roots mark 'positive' and 'negative' poles characterizing absolute force in the instant of dynamical equilibrium of the universe $\pm 2.381\ldots\cdot10^{57}$; the third root ($x_3 \approx 7.29739\ldots\cdot10^{-3}$) is considered to be the fine structure constant in the instant of dynamical equilibrium analytically expressed in terms of the Lambert's function. Thus four cosmological 'constants' are defined. One 'constant' is a 'large number' based on omega; second number characterizes absolute force which depends on time and gravity; third number characterizes gravity which depends on time; fourth is time or alpha itself (which depends on omega being one of the roots of Eq.4). It is a typical nestling scheme with feedback and four parameters which are algebraically free to be mutually adjustable similar to parameters in classical laws of conservation.

4. Fundamental Units

Absolute constants corresponding to special state of the universe are universal by nature: they are same for all times and for all observers in the universe, they also do not depend on relative positions or speed of observers. In microcosm these values may correspond to units of time, mass and length. Assumption regarding mass-gravity and length-force are more or less evident; time analogy bases on the assumption that product of these three absolute constants corresponds to the age of the universe in the instant of dynamical equilibrium (Ω); at least, it meets 'common sense' as well as popular Dirac's idea that electric and gravitational forces are to be proportional to the age of the universe. In order to avoid 'large numbers' absolute constants are to be recorded in the scale of natural logarithm and inversed: it meets requirement of operability in microcosm as well as 'inversion-exponentiation-recursion' principle on which Eq.3 and the author's approach base. Thus the system of elementary units is defined as following

$m = \ln^{-1}G \approx 7.297\ldots\cdot10^{-3}$
$l = \ln^{-1}F \approx 7.569\ldots\cdot10^{-3}$
$t = \ln^{-1}\Omega \approx 3.784...\cdot10^{-3}$ $\qquad (5)$

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Unit of length (l) is considered to be an elementary measure of curvature of the universe in the instant of dynamical equilibrium; it removes parameter 'infinity' — this attribute of despair of the finite world — from mathematical physics. Unit of time (t) is considered to be an elementary measure of age of the universe in the instant of dynamical equilibrium, it is close to 'coupling constant' ($3.745...\cdot10^{-3}$) which Werner Heisenberg introduced in an attempt to create a natural system of fundamental units; the author is not aware of physical sense of this value but in terms of the system of units considered in this letter it is very close to elementary unit of surface, i.e. $\ln^{-1}(4\cdot\pi\cdot r^2) \approx 3.748...\cdot10^{-3}$, where r is radius of sphere (F) which is considered to correspond to the state of dynamical equilibrium of the universe. Unit of mass (m) is considered to be an elementary measure of gravity of the universe in the instant of dynamical equilibrium. In terms of algebra elementary mass and absolute time are indistinguishable from each other thus presenting two physically meaningful equivalents: space-like and time-like values, respectively.

Thus, two measurement scales are considered: absolute one corresponding to the instant of dynamical equilibrium of the universe and elementary one corresponding to microcosmic scale. In order to proceed dimensionless analogs of the Planck's constant on both scales are to be estimated. First, consider absolute case. Assuming $\alpha\cdot\ln\xi=1$ and plugging in Eq.2 c = F yields H = F, where H is dimensionless analog of the reduced Plank's constant on absolute scale. Here the choice of velocity parameter is to be explained. In microcosm it is a 'classical' ratio of length to time (l/t $\approx$ 2.000264… below rough approximation '2' will be used). On absolute scale an appropriate dimensionless equivalent for the light speed (maximum group velocity of electromagnetic flow) is the value of absolute force characterizing maximum intensity of electromagnetic force in the instant of dynamical equilibrium of the universe.

Now it is possible to define dimensionless elementary electric charge. Plugging in Eq.1 c = ħ = F results in E = $(\Omega\cdot\alpha)^{1/2}$ or $(10\cdot\omega\cdot\alpha)^{1/2} \cdot 10^{57}$, where E is considered to be the sum of all elementary electric charges of the universe in the instant of dynamical equilibrium. Applying principle of 'inversion–exponentiation' we come to unit of electric charge e $\approx$ 7.713…$\cdot10^{-3}$ which is considered to be an elementary measure of cumulative electric charge of the universe in the instant of dynamical equilibrium. Now dimensionless analog of the Planck's constant on elementary scale (ħ) can be defined. Plugging in Eq.1 c = l/t results in ħ $\approx$ 0.00408…. Here I would risk expecting that the Planck's constant is a product of alpha and omega ($\approx$ 0.00414…). The first idea came to explain the difference ($\approx$ 0.00006) that it is due to traditionally high volatility of exponential calculations combined with relatively rough author's approximations. The second idea is that it might be caused by difference in values of the light speed or speed of electron measured in today's terrestrial conditions and these corresponded to conditions of the earliest vacuum-dominated universe in the state of dynamical equilibrium. Also, as always dealing with not well-known phenomena, an unknown factor which is yet to be identified should be taken into account. However, relation ħ = $\alpha\cdot\omega$ should be considered only as *ad hoc* hypothesis made on the assumption that e $\approx \pm (2\cdot\alpha^2\cdot\omega)^{1/2}$; plus-minus means that both signs for the radical are to be taken into account; $\alpha^2\cdot\omega$, as defined below, is dimensionless intrinsic mechanical momentum of electron on elementary scale.

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5. **Amber of the Universe**

Relation between omega and alpha can be formally described as following $\alpha \cdot \omega / \alpha = \omega = \alpha \cdot \omega / \alpha$. Taking into account stated equivalence of time-mass and *ad hoc* hypothesis ($\hbar = \alpha \cdot \omega$) this relation can be recorded as following

$$\hbar / T = \omega = \hbar / m \tag{6}$$

One who could see *perfect* symmetry between the numbers 'ω' and 'e' ($\omega \cdot \omega^{-1} = e^{\omega} \cdot e^{-\omega} = 1 = \omega \cdot e^{\omega} \ldots = \ldots \omega^{n} \cdot e^{n\omega}$) also could express parity of absolute time and elementary mass as following

$$(\hbar/T)^{n} \cdot e^{n \cdot \hbar/m} = 1 = (\hbar/m)^{n} \cdot e^{n \cdot \hbar/T} \tag{7}$$

where n is integer.

It is intuitively obvious that algebraically '1' in Eq.7 asks to be defined in terms of the Lambert's function as $W(e) = 1$. In order to discover its physical sense one has to look closer at the Compton wavelength of electron. Appropriate substitutions in $\lambda_c = \hbar/m \cdot c$ result in $\Lambda = \alpha^{-1}$ and $\lambda \approx \omega/2$ (from the beginning the author uses upper-case letters to indicate absolute scale and low-case ones for elementary scale). From $\lambda_c = r_0/\alpha$ it follows that 'classical radius' of electron on elementary scale is $r \approx \hbar/2 \ldots$ or approximately 0.00207; the same parameter on absolute scale (R) exactly equals one, i.e. '1' in Eq.7 can be interpreted as a 'classical radius' of electron in the instant of dynamical equilibrium of the universe. It is reasonable to accumulate some of the electron's characteristics in one table

Table 2 Electron's characteristics (based on the reduced Plank's constant)

Value	Absolute scale	Elementary scale	Source formula
Compton wavelength	α^{-1}	$\approx \frac{1}{2} \cdot \omega$	$\lambda = \hbar/m \cdot v$
Quantum of action	F	$\approx \alpha \cdot \omega$	$\hbar = e^{2}/\alpha \cdot v$
Classical radius	1	$\approx \frac{1}{2} \cdot \alpha \cdot \omega = \frac{1}{2} \cdot \hbar$	$r = \lambda \cdot \alpha$
Bohr radius	α^{-2}	$\approx \frac{1}{2} \omega/\alpha$	$R_B = \hbar/m \cdot v \cdot \alpha$
Gravitational radius	2/F	$\approx \frac{1}{2} \cdot F$	$R_g = 2 \cdot G \cdot m/v^{2}$
Intrinsic mechanical momentum	$\alpha^{2} \cdot G$	$\approx \alpha^{2} \cdot \omega$	$M_i = m \cdot v \cdot r$
Orbital mechanical momentum	G	$\approx \omega$	$M_B = m \cdot v \cdot R_B$
Ratio 1: quantum of action to intrinsic momentum	α^{-1}	α^{-1}	
Ratio 2: quantum of action to orbital momentum	α	α	
Ratio 3: Compton wavelength to classical radius	α^{-1}	α^{-1}	
Ratio 4: Bohr radius to classical radius	α^{-2}	α^{-2}	
Ratio 5: intrinsic to orbital momentum	α^{2}	α^{2}	

It would be reasonable to compare dimensionless values based on the author's approach with dimensional experimental data but at the moment adequate comparison is impossible due to confusion caused by existence of different systems of physical units in which one and the same physical constant may have different numerical values and even different units of measure. However, basic ratios referring to dimensional physical values (for example, Compton wavelength or Bohr radius to 'classical radius' of electron) provide opportunity to see that the author's formulae regarding electron are in excellent agreement with traditional physics

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presentation — only appearing to be elegant.

It is possible, as well, to introduce relation tied to 'classical radius' of electron not only on absolute scale but on elementary scale too: one of the ways is to insert appropriate values in formula for the Rydberg constant ($\alpha^2 \cdot m \cdot v / 2 \cdot \hbar$), so it results in

$$R_0/R_{abs} = r = \Lambda / \lambda \qquad (8)$$

where $R_0 = \alpha^2/\omega$ and $R_{abs} = \frac{1}{2} \cdot \alpha^3$ are Rydberg constants for elementary and absolute scales, respectively, Λ and λ are Compton wavelengths of electron for the same scales.

Also, one can reconstruct the instant of dynamical equilibrium of the universe, assuming — after Roberto Oros di Bartini [3] — that the universe emerged as a result of 'inversion explosion' process. Imagine primordial participle — pre-electron — fluctuating and altering in gravitational radius: let it be labeled GEN = $2/H \approx 0.84 \ldots \cdot 10^{-57}$, it may be considered as primordial physical 'point'. At some time pre-electron reaches self-identity: $(GEN) \cdot (GEN)^{-1} = 1 = (2/H) \cdot (H/2)$, its 'classical radius' reaches 'one' in value and outer sphere of radius H = F (double inversed gravitational radius of pre-electron) emerges as newborn electrons radiating from pre-electron fill internal volume of the sphere. It is not amazing to find out that radii of newborn electrons are as following: gravitational one is inversed gravitational radius of pre-electron (H/2) and 'classical radius' is formed in one's image and likeness: $\hbar/2$.

If desired, one can go on discovering non-dimensionality of physical constants, for example, define 'density' of the universe in the instant of dynamical equilibrium assuming gravitating mass G is proportionally distributed inside a sphere of radius F; enthusiasts of magic numbers will not be disappointed to find out that the value which causes field theorists so much grief bases on the Euler's constant $\approx 0.577 \ldots \cdot 10^{-115}$. One can see, as well, that 'cosmological constant' presented as inversed square of 'world radius' (in general relativity it is supposed to balance gravity) is nothing but inversed 'Big Omega'; its elementary unit exactly equals elementary unit of time taken with opposite sign: $\ln^{-1}\Omega = -\ln^{-1}\Omega$.

6. Time Matters

What is to be discussed here is the relations between elementary masses, absolute radii and time-rates of elementary particles in the instant of dynamical equilibrium of the universe, i.e. in the moment of supposed pre-determination of parameters of microcosm when time (and consciousness) came out of pre-position. Appropriate relations for some elementary participles (for n = 1 in Eq.7) are given in table 3.

Table 3 Elementary masses, time-rates and absolute radii for selected elementary particles

Participle	Mass, MeV	Mass,α	T_{micro}	T_{macro}	R_{micro}	R_{macro}	R_{micro} in 10^{-15} m
Electron	0.511	1	0.00729…	0.00256…	1	2.84…	1361.77…
γ	70	137	0.99…	0.00055…	0.00414…	7.67	5.651…

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μ^+	105	205	1.49…	0.00052	0.00277…	8.16	3.772…
π^+	139	273	1.99…	0.00049…	0.00207…	8.59…	2.817…
Proton	938	1836	13.39…	0.00039…	0.000309…	10.43…	0.4205…

To research mass-time relations one has to look at roots of Eq.9 assuming T_{abs} as a variable

$$\hbar/T \cdot e^{\hbar/m} = 1 = \hbar/m \cdot e^{\hbar/T} \qquad (9)$$

Values T_{micro} and T_{macro} (see table 3) are real roots (x) of Eq.9 for definite masses or appropriate elementary participles; the general solution is as following: $x \approx -\alpha \cdot \omega / W_n$ $(-R_{micro})$, for electron it is different: $x \approx -\alpha \cdot \omega / W_n$ $(-\omega^2)$; R_{micro} and R_{macro} are radii corresponding to appropriate elementary masses on absolute scale. So, relation between mass of elementary particle and its time-rate, at least in algebraic terms, is pre-determined on absolute scale: metaphorically speaking, each elementary mass 'knows' its own time-rate given *a priori* on absolute scale.

Yet, two additional points are to be considered. Firstly, 'coincidences' should be taken into account. Radius of proton on absolute scale, if expressed in fm, is approximately 0.4205, i.e. two times less than latest reported [4] estimation of this value ($\approx 0.841… \cdot 10^{-15}$ m). Next 'coincidence' is that maximum intensity of gamma rays on absolute scale equals 'quantum of action' on elementary scale ($\approx 0.00414…$). May it be coincidences? It may. Then it is worth to notice that radius of π-meson on absolute scale coincides with radius of electron on elementary scale. May it be a coincidence too? Surely, one has to consider this case but then one has to take into account function of π-meson as a carrier of strong nuclear forces (in terms of Yukawa potential). This triadic relation between electromagnetic flow, electron and π-meson ideally matches stated organizing principle of fundamental forces applied to elementary participles' level: if ratio of electron speed to speed of electromagnetic flow equals alpha then strong nuclear forces act otherwise nuclear decay occurs till the ratio again equals alpha.

Secondly, it should be noted that each elementary participle (elementary mass, to be precise) has two time-rates and two radii corresponding to microscopic and macroscopic scales, respectively. It reflects very old idea of time known, at least, to ancient Egyptians who considered time as dual entity: one component is responsible for movement in cosmos while the other causes movement on the Earth but only well-thought-out interaction of these components ensures the world motion and integrity. It should be noted that time-rates of macrocosmic objects are essentially higher than these in microcosm; it reflects the order of multilayer time. So, it turns out that time (flow of elementary participles) traversing through time-space layers changes in rates thus producing an effect of long-range action which is generally accepted in physics as gravity; it can reasonably be expected that gravity does not exist in realty and absolute gravitational constant reflects only information on relations between masses and time-rates of elementary participles.

What is generally accepted in physics as 'time' is a numerical characteristic of a natural cyclic process no matter what event is taken for an anchoring point: Sirius rising over the Nile or nuclear decay of Cs-133. By measuring duration between events of steady cyclic process physicists fix end-result of casual relations between masses and time-rates of elementary participles. Right and left-hand sides of Eq.9 present in total algebraic condition for time-space integrity: time and mass are forced to couple with each other to form and conserve space. If coupling goes smoothly time-space seems to be totally continuous forming what is called reality

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otherwise tangible time-space deformations may occur; in most cases it is reported to happen in the areas of local magnetic anomaly due to action of natural forces or to hand-made forces similar to these presented in tabloid versions of the affairs like the 'Rainbow Project'.

It becomes clear that time *physically* unites one-type objects creating common events in common media, for example, defined by common calendar in human societies. Taking this external parameter for 'time' one mixes together effect and cause; this generally accepted idea of time reached its peak in relativistic physics in which composite time-space parameter (light speed) presented as a single absolute unit; it is not amazing that according to relativistic conclusions acceleration or deceleration of time as well as change in mass or length of physical object moving in microcosm depend directly on speed of the object; this relation is not so straightforward — it is difference in time-rates of elementary participles which is responsible for 'time compression'.

Formulae contained in this letter state that motion of physical object is defined both by inner and outer conditions. Inner conditions exist inside an object due to interaction of time and mass according to Eq.9; but a single physical object suffers motion of the whole according to Eq.3 which defines outer conditions for an object's motion in terms of absolute scale. The scales are connected with each other via common time, it is time-rate of electron: $H/G = \alpha = \hbar/\omega$. On both scales omega plays a principal role controlling fundamentals through 'double-cross' scheme: it controls gravity through both absolute time and absolute force and acts as a mediator between time and mass on elementary scale: $\hbar/T = \omega = \hbar/m$. So, perfectly wrapped into fundamentals omega presents one and only one 'corner stone' skillfully put behind the edifice of the universe.

7. Concluding Remark

It is clear that the author's approach to research of nature bases on formal recursive-driven algebraic speculation made on assumption that a human being interacts with surrounding media through 'intelligent eye', i.e. consciousness is supposed to be the very 'missing link' which (if numerically expressed and properly handled) presents the only way to decompose time-space, at least, in the frames of algebraic model.

Like it or not, omega and alpha are numerical values which have physical sense and fit, at least in terms of algebra, to ensure self-regulation of the universe according to the fundamental equation. The author does not consider here non-physical aspects of this equation although they are of vital importance, especially in terms of foresight and development of human civilization in general.

It should be further noted that the fundamental equation could not emerge from 'nothing' — some reader might have noticed that it is a distinct physical-algebraic image of the very ancient ontological-alchemistical 'Axiom of Maria': *one becomes two, two becomes three, and out of the third comes the one and the fourth.* As it is shown [1], this axiom runs through all the history of world civilizations illuminating way to universal synthesis.

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