

FORMULA OF DISCOVERY # OT – 11 681

By means of analysis and generalization of theoretical and experimental data on radiations oscillators and matter oscillators the unknown phenomenon of formation of mass-energies of quiescent photons was stated:

$$\begin{aligned}\mu_o &= 3 \times \mu_{\text{оря}} \approx 7,84 \times 10^{-48} \text{ g} \\ 7,2 \times 10^{-49} \text{ g} &\leq \mu_{\text{оря}} \leq 10^{-47} \text{ g} \\ \text{when} \quad 2,1 \text{ K} &\leq T_{\text{br}} \leq 4,1 \text{ K}\end{aligned}$$

consists in the fact that at extreme temperature conditions of the star photo-spheres at the peaks of spectral density, when $h\nu \approx 5 kT_{\otimes}$, waves-particles (radiations oscillators) are transformed into particles-waves (matter oscillators) with mass-energy:

$$\mu_o^* \approx 5 kT_{\otimes} / c^2 \approx 5,9 \times 10^{-33} \text{ g}$$

reducing up to mass-energy of relative quiescent state:

$$\mu_o = 3 \mu_{\text{оря}} = 7,84 \times 10^{-48} \text{ g}$$

in the result of aero-hydrodynamic inhibition in background material environment of the universe and reduction of the absolute temperature of the thermostat from

$$T_{\otimes} \approx 6000 \text{ K} \quad \text{star photo-spheres up to} \quad T_{\text{br}} \approx 3 \text{ K}$$

of the background material environment of the space microwave background radiation, in the view of which the cold gas with isotropic density is formed in the universe:

$$\rho = \mu_{\text{оря}} \times L \approx 7 \times 10^{-29} \text{ g/cm}^3$$

forming the dominating component of the concealed mass of the Universe.

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NOTE

If

$$\mu_o = \mu_{\text{оря}} + \mu_{\text{он}} = 3\mu_{\text{оря}}$$

then:

$$\begin{aligned}[\mu_o / \mu_{\text{оря}}] &= [\mu_{\text{оря}} / \mu_{\text{оря}} + \mu_{\text{он}} / \mu_{\text{оря}}] = [3\mu_{\text{оря}} / \mu_{\text{оря}}] = \\ &= [3] = [1 + 2] = [3]\end{aligned}$$

HERE :

$$\mu_{\text{оп}} = 2\mu_{\text{оя}}$$

FIELD – COMPONENT

THE STRETCH FORM

$$3 = 1 + 2 = 3 = 3$$

IS LAW PRESERVATION OF COLD PHOTON–HADRON
IN UNIVERSE
(SEE PARADIGM OF PITHAGORA)

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WEALTH OF VACUUM PHYSICS
(MODEL IMQ MS)

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C o n t e n t s.

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PART TWO
(Physical mechanism of the phenomena of the magnetism)
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General remarks

It is known, that notion "spin" has not a plausible physical model, that disagrees the Principle of the correspondence by Nils Bor and the Principle of general (geometric) co-variativity, refer to [1].

Proposed to attention of the readers review avoids this defect of quantum theory of material vacuum. Description of quantum theory of the vacuum, commenced by academician

Y.B. Zeldovitch, refer to [2], has found its continuation in physic-mathematical model Inexhaustible Multivariate (Spectral) Quantum Material Space (IMQ MS). This is- model of fractal space, which was for the first time described by the author as far back as 1977 - 1978, refer to [3] and [4] , but then in detail explored in monograph [5], [6], [7].

The Model IMQ MS has connected reliable experienced and experimental data of sub-atomic physics, astrophysics and Theory of relativity by A. Einstein in united theory of the construction and life of the Universe. Within the framework of this models notion "spin" occupies far from last place, because it associate with beliefs about material (PHOTON) structure of the vacuum and the Universe as a whole. It is known, that on problem of photon structure of space A.Einstein toil to last 35 years of his life. His studies, regrettably, were not taken to logical end. I write "regrettably" therefore that in the case of successful end of mention works of the great physic and philosopher A.Einstein there would not appear on light low-productive cosmological theories.

Verner Geisenberg lived long before appearance of the Concepts of IMQ MS, but his philosophical look at physical theories is very instructive. He is identical to philosophy, put in base of the Concepts of IMQ MS, refer to [9]:

" We now can say that modern physics in a sense follows the teaching of Geraklita " , which confirmed that Universe was always flashing up and going out fire.

Geisenberg continues:

"If replace the word "fire" word "by energy" , that nearly in accuracy of the utterance by Geraklita it is possible to consider the utterances of the modern science. It is possible to consider Energy as the prime cause of all changes in the world".

The History of cosmology is a history of reconstruction of forgotten old truths.

Long before Geisenberg Rene Dekart confirmed:

"Space there is single fundamental form of the existence of matter. The Physical bodies are only manifestation of essence of space".

In other words, the same truth was described by Epikur, living in the third - fourth century b.c. :

"From surfaces of all bodies come flows. And for long the order in location of atoms in consequence of opposite filling is saved".

Discrete atomic structure of matter (Demokrit and others) , material – energetic structure of space, supplying life of atom in physical body (Epikur and others), form the base of modern subatomic physics, astrophysics and geometric cosmology.

The Authors of Geometrodynamics , refer to [10] , say:

"With discovery of positron was elated the cover on that "life" , which is possible to warm in "empty" space".

Quote hereinafter:

"If Einstein theory throws light upon the whole rest physics, so physics itself also throws light upon Geometrodynamics.

Probably, the most central point consists of the following:
the empty space is not at all empty; it presents itself receptacle of the most tempestuous physical processes".

"Collapse at Plank scale of lengths occurs around and continuously in the manner of quantum fluctuations of geometry and, probably, topologies of space. In this sense collapse constantly runs, but together with that constantly goes the inverse process, prototyping hereunder such process in most Universe that it is possible briefly to characterize by the term "reproduction of Universe"."

"In all the most difficult studies, conducted on length of half century to obtain certain understanding of geometry, as classical, as quantum, the most difficult point was also the most simple:

**THE OBJECT OF DINAMICS IS NOT SPACE-TIME;
THIS OBJECT IS A SPACE.**

**The Geometric configuration of space changes since time.
But the space also changes, three-dimensional space".**

Leaving this base sooner or later is corrected and returns the science of construction of the Universe "on its circles ".

**The Prime examples here can serve the known history with theory of Big bang.
To break through singular point of the Big blast into started space - time , happened to to unite five theories of the strings in united theory of the strings and combine this theory with concept of Big bang. As a result was born the known theory of membranes (M - theory), which has filled the started space-time of quantum energy of structure membranes. Instead of one Big bang appeared many Big explosions, but not in empty space-time, but in material space, endless and inexhaustible.**

A.EInsteIn in his speech, pronounced on 5 May 1920 in Leipzig university, refer to [11], reported his listener the following:

"Resuming it is possible to say that general theory of relativity provides space with physical characteristic; thereby, in this sense airwaves exists. According to the general theory of relativity, the space is impossible without airwaves" "However, it is impossible visualize this airwaves consisting of traceable in time parts, to it it is impossible to use the notion of the motion", refer to [11].

**The Last presentation by Einstein about his airwaves has not allowed him to connect gravity with the main moving power of the Universes - with PHOTON.
In his Nobel lecture A.Salam, refer to [12], reported its listener on this cause the following:**

" Einstein for last 35 years of his life had was two dreams: one of them was to unite gravity with matter (PHOTON) .

Second, connected with this, dream was – to use this association to understand the nature of the electric charge in terms of space - a time geometry, also as he has successfully understood the nature of gravity charge in terms of space - time curvature".

The Author of IMQ MS concept managed to realize this daydream of the great physics and philosopher due to the fact that monochromatic structure of the airwaves by Einstein was transformed into spectral structure.

Thanks to this innovation the main topological problem geometrodynamics was solved , built on the base of RELATIVITY - The General Theory :

It was proved, that division by a part of any physical bodies, does not tear off their SPACE - TOPOLOGICAL RELATIONSHIP, as far as each part of dividing bodies have infinitely crushing STRUCTURE AND AURA, merging with such STRUCTURE AND AURE OF THE VACUUM.

Spectrally crushing vacuum connects the bodies and is their continuation.

Refer to <http://yvsevolod-26.narod.ru/index.html>

The Notion "spin" the most close- fitting image is connected with notion "spectral quantum vacuum" and with united nature of electric and gravity charge.

PART ONE

(About true physical sense of the notion "SPIN")

ANNOTATION

Mathematicians known well fundamental of role natural numbers - even and uneven, simple, mutually simple and component , as well as Pythagora numbers - primitive and non-primitive. The Integer natural numbers form the base of numbers theory in general and theory of numbers by H. Poincare in particular, [13], [14], [15]. It is also well known the role of quantum numbers in subatomic physics.

The Role of natural numbers in mathematician described Leopold Kroneker , refer to.[16], the following aphoristic phrase:

"God created the natural numbers. All others- makes a man".

The Natural numbers alongside with fundamental physical constant form physic - mathematical base of natural science in general and quantum physics - in particular.

In this easy make sure once again, if pass with author on the following way.

By Begin this way from fundamental constant Max Plank, i.e. from quantum of the action:

$$\begin{aligned} & \mathbf{h = \Delta E \times \Delta t =} \\ (1) \quad & \mathbf{= 6.6256 \times 10^{-27} \text{ erg} \times \text{sec}} \end{aligned}$$

Here quantum of energy is:

$$\begin{aligned} & \mathbf{\Delta E = \mu_o \times c^2 =} \\ (2) \quad & \mathbf{= 6.6256 \times 10^{-27} \text{ erg}} \end{aligned}$$

if quantum of time is :

$$(3) \quad \mathbf{\Delta t = 1 \text{ sec}}$$

In accordance with law of equivalence of energy and masses from (2) follows the determination of the quantum of the mass of some certain elementary quantum - dynamic system (EQDS), described in [3]:

$$\begin{aligned}
 (4) \quad \mu_o &= \Delta E / c^2 = 3\mu_{\text{оя}} = \\
 &= 7.3719724 \times 10^{-48} \text{ g}
 \end{aligned}$$

The purpose of the given review is a demonstration of amazing characteristic of this quasi-particle.

If such "particles" did not exist in nature, it would be necessary to find something like that, as were found quarks, anti-quarks, colors and aromas. From such "particles" are built bricks of the Universe - nucleons and electrons, having lived many billions of years. From such quasi-particles is built a physic-mathematical model of the spatial quantum moment of the amount of movement of elementary particles and atom of matter. This quasi-particle realizes the mechanism of earlier unknown phenomena of strong gravity in depths of nucleons and nuclides, supplying them with full set of quantum numbers of quarks

u, d, s, c and corresponding to anti-quarks. And, finally, this quasi-particle creates physical mechanism of the magnetism.

We shall Notice that in correlation to (2) velocity of light in vacuum is accepted equal:

$$(5) \quad c = 2.997925 \times 10^{10} \text{ cm/sec}$$

§1 Non-dimensional form of the law conservation of mass – numbers for EQDS

According to [3] EQDS introduces in the manner of pulsing kernel, surrounded by pulsing spherical waves of spectral quantum matter field of physical vacuum. In base of the model EQDS is put a computer image of the exact decision of the three- dimensional equation by Schredinger:

$$(6) \quad W_N = -2\pi^2 (me^4 / h^2) / N^2$$

According to [3] full mass EQDS introduces in the manner of superposition :

$$(7) \quad \mu_o = \mu_{\text{оя}} + \mu_{\text{он}} = 3\mu_{\text{оя}}$$

formed from pulsing masses kernel:

$$(8) \quad \mu_{\text{оя}} = 2.6136368 \times 10^{-48} \text{ g}$$

and joined masses of pulsing field:

$$(9) \quad \mu_{\text{он}} = 2\mu_{\text{оя}} = 5.2272736 \times 10^{-48} \text{ g}$$

The kernel is a pulsing sources (flow and outflow) of the vacuum, breathing its quasi - gas structure.

Such flow and outflow in one act "breath- exhalation" spends two own masses. The joined field kernel balances this consumption of matter within the framework of conservation of the mass-energy EQDS, refer to (1) - (9).

The forms (7) - (9) allow to construct two relative forms:

$$(10) \quad \left| \begin{aligned}
 (\mu_o / \mu_o) &= (\mu_{\text{оя}} / \mu_o) + (\mu_{\text{он}} / \mu_o) \\
 (\mu_o / \mu_{\text{он}}) &= (\mu_{\text{оя}} / \mu_{\text{он}}) + (\mu_{\text{он}} / \mu_{\text{он}})
 \end{aligned} \right.$$

which equivalent to two superposition of rational numbers:

$$(11) \quad \left| \begin{array}{l} 1 = (1/3) + (2/3) \\ (3/2) = (1/2) + 1 \end{array} \right.$$

The forms (11) have a zero on the right and zero on the left accordingly:

$$(12) \quad \left| \begin{array}{l} 1 - (1/3) - (2/3) = 0 \\ (3/2) - (1/2) - 1 = 0 \\ 0 = (1/3) + (2/3) - 1 \\ 0 = (1/2) + 1 - (3/2) \end{array} \right.$$

It is easy notice that forms (12) contain the full set of quantum numbers of quarks u, d, s, c and corresponding anti-quarks.

These are physical quantum numbers, characteristic to full mass of EQDS, refer to here with (7).

The third relative form of EQDS, the following from (7):

$$(13) \quad (\mu_o / \mu_{оя}) = (\mu_{оя} / \mu_{оя}) + (\mu_{он} / \mu_{оя}) = 1 + 2 = 3$$

It is known variety of hadrons - particles :

$$(14) \quad \begin{aligned} M^{\max} &= c^{-2} \times [(\sum_i E_i)^2 - \\ &\quad - (\sum_i p_i)^2 \times c^2]^{1/2} = \\ &= 3m = (m + \mu) = \text{Const} \end{aligned}$$

Here mass-energy of rest for nucleon :

$$m = 1.67 \times 10^{-24} \text{ g}$$

average on conditions p and n , and

$$\mu_{\text{vac}} \approx 2m$$

join mass-energy of the vacuum material.

Indications in relative invariant are commonly used.

The conclusion of this law of the nature reader will find on web-sites

<http://yvsevolod-29.narod.ru/index.html>

<http://int20730601.narod.ru/index.html>

In conclusion to this section we shall call attention of reader on the following fundamental fact:

Quantum - mechanical systems (7) and (14) is SCALE SIMILARITY, i.e. SCALE INVARIANTS.

These material systems of the physical vacuum are vested by nature characteristic to absolute symmetry.

About this witnesses the following matrix, determinant of which is equal to one. The matrix is formed from quantum numbers, described by forms (12):

$$S_1 = \begin{vmatrix} 3/2 & 1 & 1/2 \\ -1/2 & 2/3 & -1/3 \\ -1 & -2/3 & 1/3 \end{vmatrix}$$

§2 Correlation of uncertainties by W.Geisenberg as the source of information on Superintegration of electromagnetism and gravity (weak and strong).

The known correlation by Geisenberg:

$$(15) \quad \Delta E \times \Delta t \geq h$$

allow to variations the quantum of energy ΔE within constant importance of the quantum of time

$$\Delta t = 1 \text{ sec} .$$

Let's write down correlation (15) in following type:

$$(16) \quad |\pm \Delta E| \times \Delta t \geq h$$

Here charge-changing quantum of energy is identified as with work PULSING CHARGE OF STRONG GRAVITYI , realizing in depths of EQDS, so and with pulsing internal energy of EQDS:

$$(17) \quad \begin{aligned} \pm \Delta E &= \pm Q \times r_{\text{ог}} = \pm \mu_{\text{ог}} \times c^2 = \\ &= \pm 2.3465299 \times 10^{-27} \text{ erg} \end{aligned}$$

The pulsing charge of strong gravity:

$$\begin{aligned}
 (18) \quad \pm Q &= \pm \sqrt{F^* \times F_{\text{оя}}} = \\
 &= \pm (\mu_{\text{ок}} \times c^2) / r_{\text{оя}} = \\
 &= \pm 1.43 \times 10^{-6} \text{ dyn}
 \end{aligned}$$

$$\begin{aligned}
 (19) \quad &\text{acting on distance:} \\
 r_{\text{оя}} &= 1.6409300 \times 10^{-21} \text{ cm} \\
 &\text{is generated by two powers:}
 \end{aligned}$$

A) Zhukovski – Bierknes power, acting between two quasi-particles $\mu_{\text{оя}}$,

pulsing in spectral structure of vacuum :

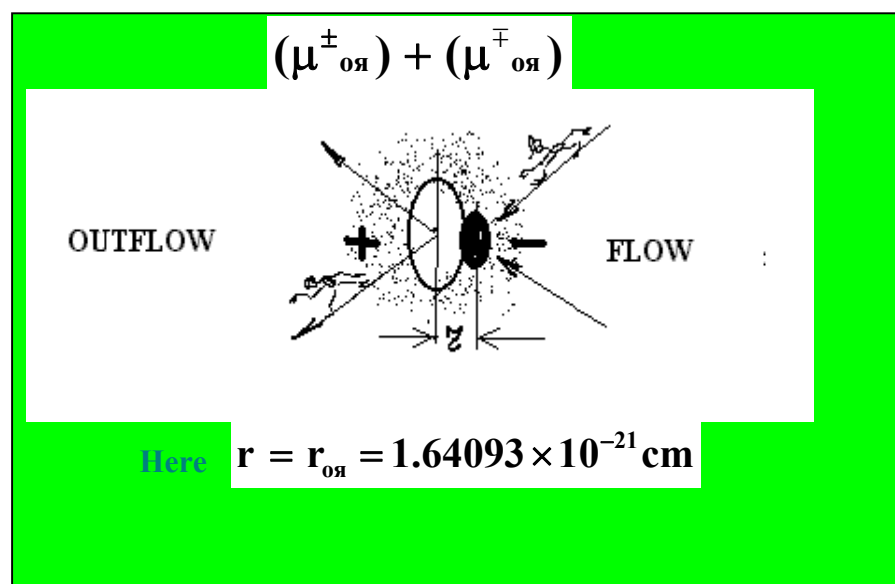
$$\begin{aligned}
 (20) \quad [F_{\text{оя}}] &= -(1/8\pi\rho_{-\alpha}) \times \\
 &\times \{[(\pm\mu'_{\text{оя}})(\mp\mu'_{\text{оя}})/r_{\text{оя}}^2] \times \text{Cos}\beta\}
 \end{aligned}$$

B) Gravity power, acting between two plankeons :

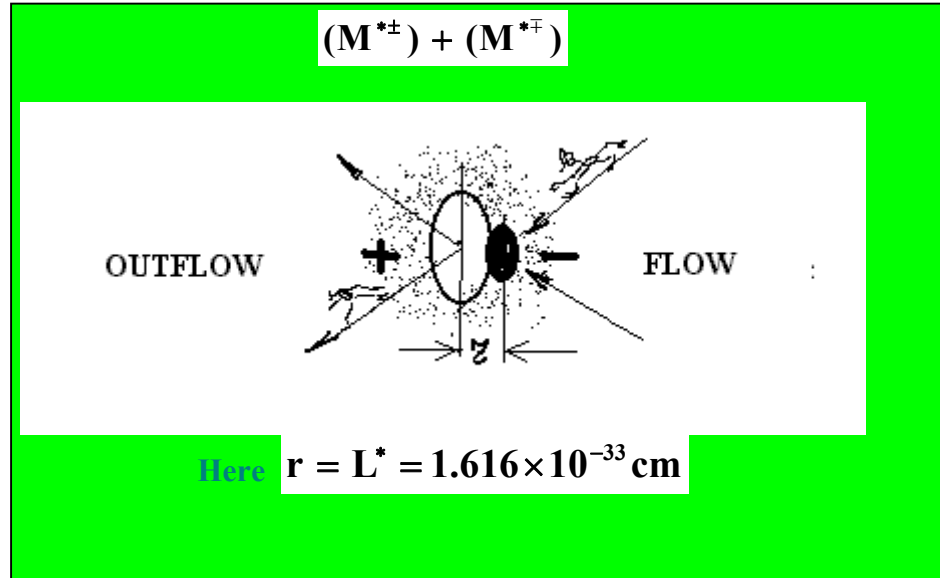
$$\begin{aligned}
 (21) \quad F^* &= G \times (M^* \times M^*) / L^{*2} = \\
 &= c^4 / G = 1.2 \times 10^{49} \text{ din}
 \end{aligned}$$

These two power unite in united system of power at collision
of two elementary gravity dipoles
(EGD and EPGD):

1. Dipol of two quasi – particles (EGD)



2. Dipol of two mass Plank (EPGD)



Energy of the collision EGD and EPGD changes into elementary charge of strong gravity, refer to (18).

On given above identical schemes light of quasi - particles imitates the outflow- source (white micro- hole in vacuum), but dark flow (black micro- hole in vacuum).

Here two systems of the units of the measurement of the physical values are used:

PLANK SYSTEM

Unit of the masse

$$M^* = (\hbar c / G)^{1/2} = 2.177 \times 10^{-5} \text{ g}$$

Unit of the length

$$L^* = (\hbar G / c^3)^{1/2} = 1.616 \times 10^{-33} \text{ cm}$$

Unit of the time

$$T^* = (\hbar G / c^5)^{1/2} = 5.391 \times 10^{-44} \text{ sec}$$

AUTHOR'S SYSTEM, refer to [3] and [4] :

Unit of the masse

$$\mu_{\text{оя}} = 2.6136368 \times 10^{-48} \text{ g}$$

Unit of the length

$$r_{\text{оя}} = 1.6409300 \times 10^{-21} \text{ cm}$$

Unit of the time

$$\tau_{\text{оя}} = 5.4735533 \times 10^{-32} \text{ sec}$$

Unit of the velocity

$$c = r_{\text{оя}} / \tau_{\text{оя}} = 2.9979246 \times 10^{10} \text{ cm / sec}$$

Zhukovski – Bierknes power , refer to (20) ,
is obtain by me from formula by Zhukovski , refer to [17].

In formula (20):

$F_{\text{оя}}$ - power of the interaction between pulsing outflow - flow.

$\rho_{-\alpha}$ - a dominant component to spectral density of the vacuum

$$(22) \quad \begin{aligned} \pm \mu'_o &= \pm \mu_{\text{оя}} \sqrt{2\Delta\varphi_{\text{оя}}} = \\ &= \pm \mu_{\text{оя}} \sqrt{8\pi G \rho'_{-\alpha}} \end{aligned}$$

Is second consumption of pulsing mass,

in which dominates density $\rho'_{-\alpha}$

COMMENTARY TO FORMULA (20) AND (22)

The formula describes all types of interaction of pulsing quasi-particles $\mu_{\text{оя}}$ in spectral structure of the vacuum.

If there is a shift of the phases of pulsations $\beta=0$, then quasi-particles are repulsed.

Power F takes negative meaning

If there is a shift of the phases of pulsations $\beta=\pi/2$, then quasi-particles behave neutrally.

If there is a shift of the phases of pulsations $\beta=\pi$, then quasi-particles are attracted.

Power F takes positive meaning

Formula (20) recorded for two quasi-particles, coming close on

distance r , is equal to averaged radius $r_{\text{оя}}$, refer to (19) and system of the units by Autor.

If in formula (20) substitute resulting right part of formula (22), so formula (20) degenerates into formula of the law of the worldwide gravity, at condition

$$\rho_{-\alpha} = \rho'_{-\alpha} :$$

$$(23) \quad \begin{aligned} F_{\text{оя}} &= G \times (\mu_{\text{оя}} \times \mu_{\text{оя}}) / r_{\text{оя}}^2 = \\ &= 1.69 \times 10^{-61} \text{ dyn} \end{aligned}$$

Several words about density of the vacuum, participating in realization of the phenomena, described above.

According to [5] , [18] and [19] density of the mass-energy of the vacuum is prototyped as spectral density of nucleon:

$$(24) \quad \begin{aligned} \text{Sp}(\rho_n) &= \rho_n \times \lambda = \\ &= \rho_n (K^0 + K^{-1} + K^{-2} + \dots + K^{-\alpha} + \dots = \\ &= \rho_0 + \rho_{-1} + \rho_{-2} + \rho_{-3} + \dots + \rho_{-\alpha} + \dots) \end{aligned}$$

Here:

$$(25) \quad \rho_n = 1.4 \times 10^{14} \text{ g / cm}^3$$

averaged density of nucleon and

$$(26) \quad \begin{aligned} K &= \sqrt[4]{[2(x \times y \times z)^{16}] / 2} = \\ &= \sqrt[4]{N_A} = 8.954 \times 10^5 \end{aligned}$$

the criterion of the scale resemblance or criterion to scale invariance, made from number of electrons on external orbit of atoms of heavy elements starting from Yb:

$$(27) \quad \left| \begin{array}{l} 32, \ 18, \ 8, \ 2 \\ x = 32 / 18 = 1.777777778 \\ y = 18 / 8 = 2.25 \\ z = 8 / 2 = 4 \end{array} \right.$$

In determination (26) is used a proper value of the non- dimensional Avogadro number:

$$(28) \quad \begin{aligned} N_A &= [(2(x \times y \times z)^{16}) / 2] = \\ &= 2^{79} = 6.0446291 \times 10^{23} \end{aligned}$$

According to [20] non- dimensional Avogadro number plays fundamental role in physics of the elementary particles, in sub-atomic physics and in quantum physics .

Criterion of the scale resemblance (criterion of scale invariance) was for the first time described in [3] , [4],[5] and [6].

By means of spectral formula (24), for normal physical conditions, an endless raw of similar scale densities is calculated with acceptable accuracy , including density:

$$(29) \quad \rho_{-3} , \rho_{-5} , \rho_{-7} , \dots, \rho_{-13} , \dots$$

as averaged density of the gas helium, electromagnetic quasi-gas, quasi-gas of microwave and background radiation and gravity quasi-gas accordingly.

The way of the elementary calculations it is easy to make sure in the following.

Supposing in formula (20) and (22):

$$(30) \quad \left| \begin{array}{l} \rho_{-\alpha} = \rho_{-7} \\ \rho'_{-\alpha} = \rho_{-13} \end{array} \right.$$

It is possible to come to the known correlation between electromagnetic and strong interaction:

$$(31) \quad \begin{aligned} F'_{\text{оя}} &= -G(\mu_{\text{оя}} / r_{\text{оя}})^2 \times \\ &\times [(\rho_n \times K^{-7}) / (\rho_n \times K^{-13})] \times \text{Cos}\beta = \\ &= -F_G \times K^6 \times \text{Cos}\beta = \\ &= -F_G \times (5.35 \times 10^{35}) \times \text{Cos}\beta \end{aligned}$$

In this formula met in united power system:

$$(32) \quad \begin{aligned} &\text{Power of weak gravity} \\ F_G &= G \times (\mu_{\text{оя}} / r_{\text{оя}})^2 \\ &\text{as element electro-magnetic power ,} \\ &\text{which is less then} \\ &\text{electromagnetic power in} \end{aligned}$$

$$(33) \quad K^6 = 5.35 \times 10^{35}$$

FORMULA (31) IS A FORMULA OF SUPERINTEGRATION OF ELECTROMAGNETIC AND WEAK GRAVITY INTERACTION AT A RATE OF COOL PHOTON - HADRON, FROM WHICH, AS WILL BE SHOWN BELOW, ARE BUILT LONG-LIVING "BLOCKS" OF UNIVERSE - ELECTRONS AND NUCLEONS.

In conclusion of this commentary we shall call attention of readers on formula (22), in which is used Poisson equation:

$$(34) \quad \Delta\varphi_{\text{оя}} = \text{div} E_{\text{оя}} = 4\pi G \rho'_{-\alpha}$$

In formula (22) is used a right part of equation (34) as constant value, as far as divergence of gravity field, there is value in any point space not hanging from coordinates x, y, z any coordinate system, connected with isotrops by ambience of the vacuum. So is accepted in given review.

Made so important departure from the main text, will return to clarification of the physical sense of the notion "spin", having acquainted with phenomena of strong gravity in the beginning.

§ 3. The mechanism of the phenomena of strong gravity.

Two quasi-particles, pulsing in anti - phase, approach according to (20) on distance $r_{\text{оя}}$. As a result springy - plastic deformation between quasi - particles appears area of which is:

$$(35) \quad f_{\text{оя}} = \pi r_{\text{оя}}^2 = 8.454925 \times 10^{-42} \text{ cm}^2$$

Under the action of pulsing power, refer to (18), contact voltages appear from two sides of the platform:

$$(36) \quad \begin{aligned} \sigma_{\text{оя}} &= |\pm Q| / f_{\text{оя}} = \\ &= 8.4566 \times 10^{34} \text{ dyn / cm}^2 \end{aligned}$$

which spread on the whole body of EGD, transforming in density of the internal energy EGD:

$$(37) \quad \begin{aligned} \omega_{\text{оя}} &= (3/2) \times \sigma_{\text{оя}} = \\ &= 1.26819 \times 10^{35} \text{ erg / cm}^3 \end{aligned}$$

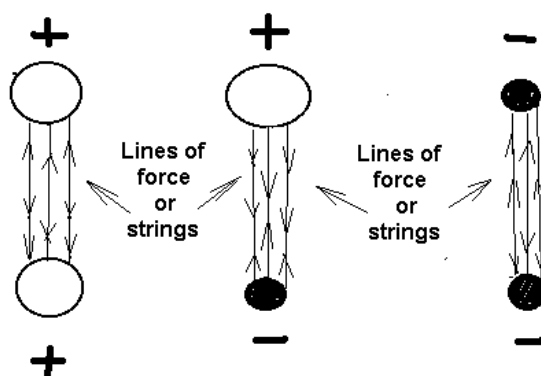
In accordance with law of equivalence of energy and mass, in body of EGD is formed density of nuclear matter:

$$(38) \quad \begin{aligned} \rho_{\text{оя}} &= \omega_{\text{оя}} / c^2 = \\ &= 1.4119 \times 10^{14} \text{ g / cm}^3 \end{aligned}$$

Below we will get acquainted, how this density to nucleus matter is sent on level of living nucleons and electrons.

§ 4. Fractal structure to nucleus matter

For clarity use the following scheme of EGD, given below :



**ONE'S OWN STRUCTURE LINES OF FORCE
(OR STRINGS OF DEVID GROSS)
IS STRUCTURE QUANTUM FILDS
ACCORDING
DISCOVERY № OT-11681**

These schemes display the interaction of charge of EGD, as of the same name, as different - named. Different – named are attracted. Power of the attraction is expressed by fat line. The same name charges are repulsed. Power of the repulsing is expressed by thin line.

**LETS PAY ATTENTION TO THE FOLLOWING SOLELY
IMPORTANT FACT:**

THE MASS NUMBER EGD IS $A = 2$.

THIS NUMBER - A SYNONYM OF PAIRS AND SYMMETRY IN PHYSICS.

IT PENETRATES ALL REGULARITIES OF SUBATOMIC PHYSICS.

THIS NUMBER IS COUNT TO SHORT "MAGIC NUMBERS" NUCLIDES:

2, 8, 20, 28, 50, 82, 126.

**THIS NUMBER IS COUNT TO SHORT AMOUNT OF ELECTRONS IN EXTERNAL
ORBIT OF ALL ATOMS OF MATTER:**

2

**THIS NUMBER IS COUNT TO SHORT AMOUNT OF ELECTRONS ON EXTERNAL
ORBITS OF 47 HEAVY ATOMS OF MATTER (AS FROM Yb):**

32, 18, 8. 2.

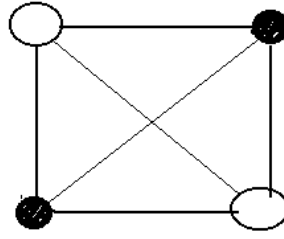
**THIS NUMBER IS COUNT TO SUBORDINATED BIRTH OF ALL V - PARTICLES ,
THIS NUMBER IS COUNT TO SHORT AMOUNT OF ELECTRONS IN LAYERS K,
L, M, N OF ORBITAL MODEL OF ATOM MATTER:**

2, 8, 18, 32 .

**THIS NUMBER IS COUNT TO AMOUNT OF EGD IN NUCLONES , ELECTRONS
AND PLANKEONS, REFER TO. (93) , (41) , (43) ,**

**FROM VARIETY OF NUMBERS OF 2 IS BUILT AN AVOGADRO
NUMBER, REFER TO. (28) AND (41) , ETC.**

According to this scheme two EGD can be united in elementary symmetrical fractal - a square, which mass number is equal to **4**:



The side of square is equivalent $r_{\text{оя}} = 1.64 \times 10^{-21} \text{ cm}$

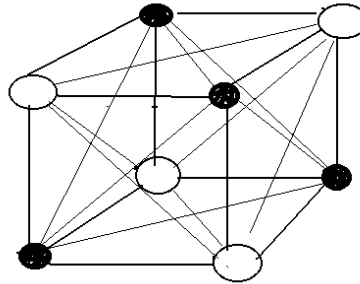
Pic. 1

It is obvious that such "flat" design statically and dynamically is firm.

Its mass number is 4.

From two fractals squares is formed elementary by volume fractal - cube , which mass number is

$$8 = 2^3 = 2 \times 4 :$$



Pic. 2

Here begins a construction of matter for three-dimensional bodies of Universe. All bodies of Universe – nucleons (99.97 %) and electrons (0.03%).

Fractal structure of the electron

$$(39) \quad m_e = 2^2 \times (2^{22})^3 \times \mu^*_{\text{оя}} = 9.1 \times 10^{-28} \text{ g}$$

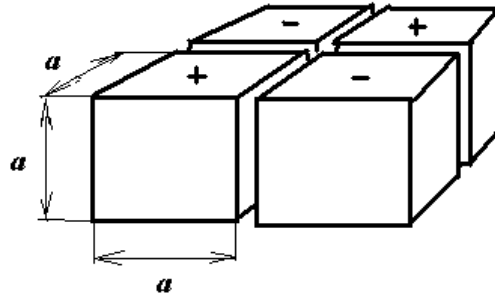
if

$$(40) \quad \mu^*_{\text{оя}} = 3.083 \times 10^{-48} \text{ g}$$

This formula is built in strict correspondence with Principle of general (geometric) co-variability , refer to [9].

Number, made in cube, corresponds to the geometric cube, but number made in square, corresponds to the number of such geometric cubes.

The geometric presentation of the formula (39) is given below on Pic.3.



Here $a = 2^{22}$

Pic. 3

Fractal structure of the nucleon

$$(41) \quad m_n = 2 \times (2^{26})^3 \times \mu_{\text{оя}}^{**} = 1.67 \times 10^{-24} \text{ g}$$

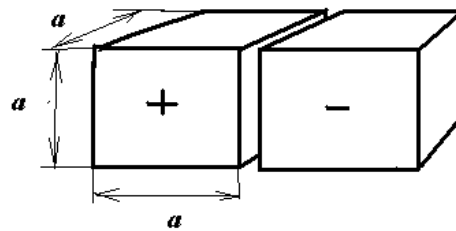
here

$$(42) \quad \mu_{\text{оя}}^{**} = 2.7627832 \times 10^{-48} \text{ g}$$

Here nucleon emerges as moll of the quasigas photons - hadrons, as far as in composition of the determination (41) enters a proper value of the number Avogadro, found earlier in law of the distribution of electrons in atom of matter , refer to (28) :

$$N_A = 2 \times (2^{26})^3 = 2^{79} = 6.0446291 \times 10^{23}$$

The Geometric presentation of nucleon fractal on Pic. 4.



Here $a = 2^{26}$

Pic. 4

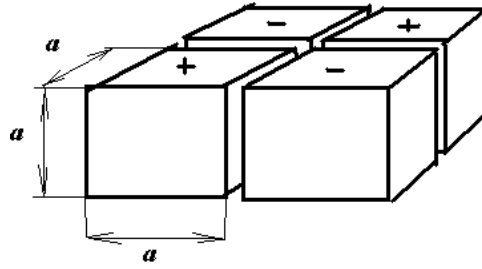
Fractal structure of plankeon

$$(43) \quad M^* = 2^2 \times (2^{47})^3 \times \mu_{\text{оя}}^{***} = 2.177 \times 10^{-5} \text{ g}$$

here

$$(44) \quad \mu_{\text{оя}}^{***} = 1.962 \times 10^{-48} \text{ g}$$

The Geometric presentation
of this fractal on Pic . 5 .



Here $a = 2^{47}$

Pic. 5

It must be noticed that average arithmetic mass:

$$(45) \quad \begin{aligned} \hat{\mu}_{\text{оя}} &= (\mu_{\text{оя}}^* + \mu_{\text{оя}}^{**} + \mu_{\text{оя}}^{***}) / 3 = \\ &= 2.599 \times 10^{-48} \text{ g} \end{aligned}$$

practically complies with importance of the mass-energy of a quasi-particle following uncertainty from correlation by Geisenberg, refer to (4), and exactly complies with mass - energy, define by formula (8) and system of the units of the physical values by author , refer to above, as well as [3] and [21].

§ 5. Fraktal interpretation of notion "spin".

Below, on Pic.6 , are presented two macro-fractals - cube , which elements pulse in antiphase. It is fractal – model for two atoms of silver.

If in elements of macro - fractals dominates the shift of the phases to pulsations $\beta = \pi$ that, according to (31) , variety of such macro-fractals is subjected to the compression - attraction, forming thick material structure matter. In this example we consider material - silver. The mass number of silver atom is 108. Consequently, in each of cube, expressed on Pic. 6, there must be corresponding to order 108 pulsing macro - sources (macro flow-outflow):

$$(46) \quad 108 = (3 \times 3 \times 3) \times 4$$

Such macro - sources (macro flow – outflow) are in this instance considered nucleons, see (41) :

$$(47) \quad m_n = 2 \times (2^{26})^3 \times \mu_{\text{оя}}^{**} = 1.67 \times 10^{-24} \text{ g}$$

Consequently, according to (46) we are physical model of one macro – fractal as masse for kernel to atom of silver (Ag) :

$$\begin{aligned}
 M_{Ag} &= 108 \times m_n = \\
 &= (3 \times 3 \times 3) \times (4 \times m_n) \\
 &= (3 \times 3 \times 3) \times m_{He}
 \end{aligned}$$

Here :

$$m_{He} = (4 \times m_n)$$

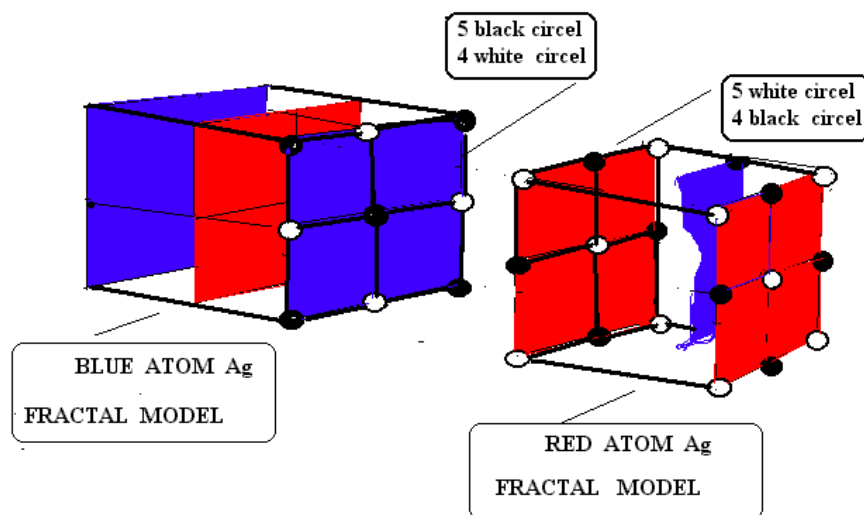
is mass-energy as equivalent of kernel atom helium (He).

On Pic. 6 , in each of two cubes – macro - fractals there is equal number of pulsing compact - objects (tip He) :

$$(3 \times 3 \times 3) = 3^3 = 27$$

On Pic. 6 :

- If black circle , then it is compact- source – 4 flow, sign 4 minus ,
- If white circle , then it is compact- source – 4 outflow, sign 4 plus.



Pic. 6

(51)

Equation for signs of blue atom Ag:

$$\begin{aligned}
 &(5 \text{ black circle}) + (4 \text{ white circle}) = \\
 &= (20 \text{ signs minus}) + (16 \text{ signs plus}) = \\
 &= 4 \text{ sign minus (} 4 \text{ e}^{-} \text{ electrons)}
 \end{aligned}$$

(52)

Equation for signs of red atom Ag:

$$\begin{aligned} & (5 \text{ white circle}) + (4 \text{ black circle}) = \\ & = (20 \text{ signs plus}) + (16 \text{ signs minus}) = \\ & = 4 \text{ sign plus } (4 \mathbf{e}^+ \text{ positron}) \end{aligned}$$

To not to shade the general idea, on Pic. 6 there are not all pulsing objects, but only those, which inhabit the turn blue and reddened plane.

If follow the fractal structure of nucleons , refer to (41) , amount of nucleons 108 in each cube – macro - fractal and amount 27 of black and white pulsing objects in each macro - fractal , it is possible to form necessary physical model of one macro – fractal as atom silver:

(53)

$$\begin{aligned} 108 \times m_n &= 27 \times (4 \times m_n) = \\ &= 27 \times [4 \times (2 \times (2^{26})^3 \times \mu^{**}_{\text{оя}})] \end{aligned}$$

According to this model value of mass - energy, concluded in square bracket, is a mass - energy of four nucleons.

This is a helium - like firm object of nature. Each such object on Pic.6 is put in correspondence to black or white circle.

According to determinations (18) , (41) and (49), in each circle pulses total gravity charge:

(54)

$$\begin{aligned} \pm Q_{\text{He}} &= \pm 4 Q_n = \\ &= \pm 4 N_A \times \mu_{\text{оя}} \sqrt{F^* \times F_{\text{оя}}} = \\ &= \pm 4 N_A \times (\mu_{\text{ок}} \times c^2) / r_{\text{оя}} = \\ &= \pm 4 \times 2^{79} \times 1.43 \times 10^{-6} = \\ &= \pm 3.4575 \times 10^{18} \text{ dyn} \end{aligned}$$

The value and directivity of the charge is dictated by second consumption of the mass - energy of pulsing nucleus of elementary quantum - dynamic system (EQDS) , refer to (22)

:

(55)

$$\begin{aligned} \pm \mu'_{\text{оя}} &= \pm \mu_{\text{оя}} \sqrt{2 \Delta \phi_{\text{оя}}} = \\ &= \pm \mu_{\text{оя}} \sqrt{8 \pi G \rho'_{-\alpha}} \text{ g / s} \end{aligned}$$

If dominates flow, total gravity charge, refer to (54), gains the sign of minus and is marked by black circle.

In accordance to equation for sings of blue atom Ag, we are global
equivalent as charge $4 e^{-}$ (electrons)

If dominates outflow, total gravity charge, refer to (54) , gains the sign of plus and is
marked by white circle.

In accordance to equation for sings of red atom Ag, we are global equivalent as charge
 $4 e^{+}$ (positrons)

Bearing in mind stated, address once again to Pic. 6.
We shall remind the reader that here are fractals of the models
of two nearby atoms of silver .

The following fact attract attention:

Interaction of atoms – macro - fractals of silver occurs
on two touching planes.

In considered moment of time for blue plane dominates the flow
(fife black circles dominate on four white) ,

but on red plane dominates the outflow (fife white circles dominates on four black).

Since amount of flow on both planes is equal to amount of the outflow, that system of the
sources is found any time in dynamic balance.

Disposing information on dynamic condition of two nearby atoms of silver, we can do the
following conclusion:

IN DEVICE, IN WHICH OCCURS IONIZING OF ATOM OF SILVER, EACH PAIR OF
ATOM GETS GENERAL MASS OF MATTER .
GETTING THROUGH ZONE OF THE ACTION OF KAZIMIR POWER , REFER TO
[22], AND MOVES THROUGH COLLIMATOR IN THE MANNER OF BUNCH V -
PARTICLES IN TO AREA OF MAGNETIC FIELD.

DIGGERENT NAME MAGNET FIELD REALIZE SPATIAL SEQUENCING:
BLUE (NEGATIVLY CHARGED) ATOMS MOVE TO ONE POLE OF THE MAGNET,
BUT RED (POSITIVELY CHARGED) ATOMS MOVE TO THE OTHER POLE OF
THE MAGNET. See Pic.6 , (51) and (52).

It is answer to question about true physical sense of the notion "spin"

As to V - a partial condition of atoms of silver, this condition is dictated to atoms by
condition of elementary gravity dipoles (EGD) , which on its nature are V - a particles.

This "dictate" reveals itself are birth of all objects of microcosm. In particular, up to
height of 100 km on sea level terrestrial atmosphere consists on 75.50 % from double-atom
nitrogen (on weight) and on 23.15 % from double-atom oxygen (on weight), refer to [23].

In conclusion this paragraph useful to recall the formula of superintegration, refer to (20)
, which defines united nature and scale invariance of gravity power and electromagnetic
power.

If follow this law of the nature, it is possible to understand, why deflection of ions of silver
in experience by S T E R N – G E R L A H can be described by means of laws of
electrodynamics. The Principle of the correspondence to here is not broken.

Also not broken and spatial quantation of the quant of action, as far as nucleons, being

included in atom of silver, are built from nucleus $\mu_{\text{оя}}$,
in base of which there is a quantum of action :

$$\begin{aligned} \mathbf{h} &= 3\mu_{\text{оя}} \times c^2 \times \Delta t = \\ (56) \quad &= 6.6256 \times 10^{-27} \text{ erg} \times \text{sec} \end{aligned}$$

see herewith (1) and (4).

Impulse of quasi - particle:

$$(57) \quad \mu_o = 3\mu_{\text{оя}} = 7.3719724 \times 10^{-48} \text{ g}$$

is a constant value:

$$(58) \quad \pm \mathbf{p} = \pm 3\mu_{\text{оя}} \times \mathbf{c} = \pm \text{Const}$$

Signs plus and minus here carry conventionally relative nature.

The respective nature has a signs plus and minus to ion of silver .

If "blue" ion, refer to Pic. 6, is assigned sign minus , that red get the sign a plus.

And vice versa.

Here, it one important thing:

**ATOMS OF SILVER UNDER INFLUENCE OF THE MAGNETIC FIELD ARE
REJECTED ON TWO OPPOSITE DIRECTIONS, THAT CAN BE INTERPRETED IN A
DOUBLE WAY:**

- Or so , as it is accepted in modern standard physics,
- Or so , as it is described in a given study.

Considered in a given study phenomenon of spatial slicing of the quantum of the action
excludes need of the use of internal magnetic moment of amount of motion of electron.

This means that standard model "spin" lose physical sense.

In role of quantum numbers of «spin» can be considered relative meaning of impulse
following from (57) and (58):

$$(59) \quad \pm \mathbf{p} / (\mu_{\text{оя}} \times \mathbf{c}) = \pm 3$$

If follow correlations (7) , (11) and (12) ,
that we can get the more profound set of all quantum numbers all bozons
and fermions, as well as quarks **u , d , s , c** and corresponding antiquarks.

In conclusion we shall note, that conventional formula (58) allows to write formula (56) in
following type:

(60)

$$\begin{aligned}\pm h &= \pm(3\mu_{\text{on}} \times c^2) \times \Delta t = \\ &= \pm 6.6256 \times 10^{-27} \text{ erg} \times \text{sec}\end{aligned}$$

PART TWO

Physical mechanism the phenomena of magnetism

All varieties of atoms of ferric (Fe) contain in their own nucleus 26 protons and different amount neutrons. The mass numbers of nucleus of Fe have the following meanings, refer to [24]:

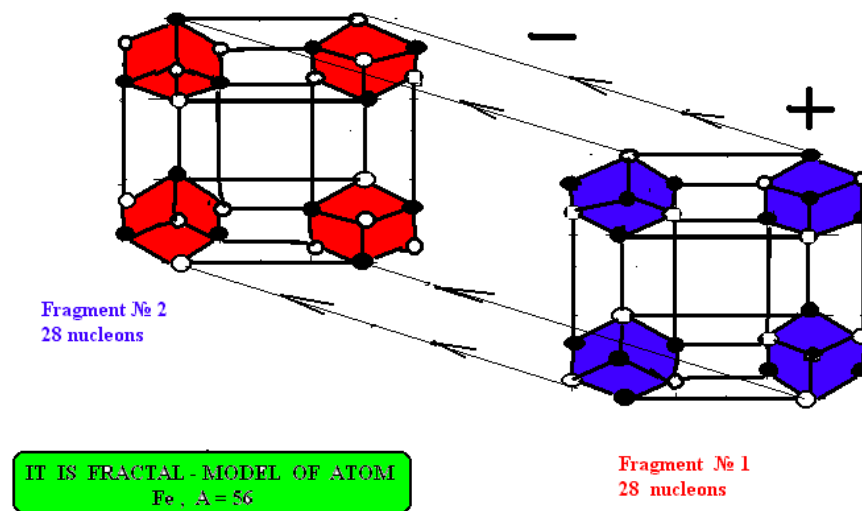
52, 53, 54, 55, 56, 57, 58, 59, 60, 61.

From experience known, that only iron Fe , with mass number:

$$A = 56 = 7(2^3)$$

is made by nature magnetic characteristic.

Below are given unique compositions of fractals, characterised only for this mass count. The composition expressed on Pic.7 , Pic.8 , Pic.9 and Pic.10 is vested by nature by unique ability to pump through itself in one direction flow to energy- masses of the vacuum material. The ensemble such structured composition form in mass of ferric unidirectional flow, which is connected in external ambience of the vacuum by power lines of magnet.



Pic. 7

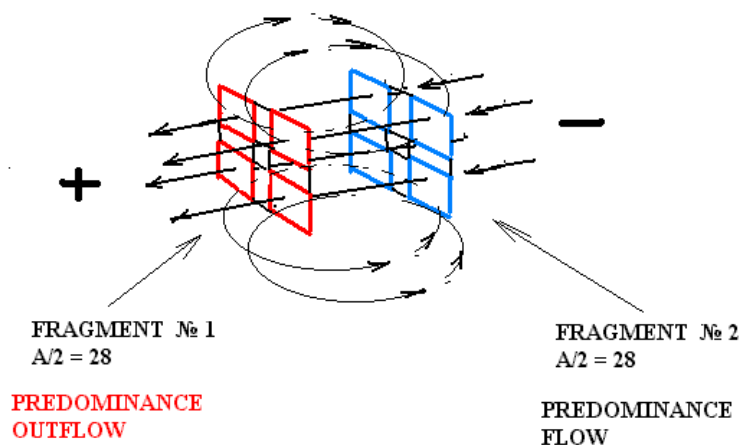
Equation for signs of red Fragment №2 :

$$\begin{aligned}(61) \quad & (12 \text{ black circle}) + (16 \text{ white circle}) = \\ & = (12 \text{ signs minus}) + (16 \text{ signs plus}) = \\ & = 4 \text{ sign plus } (4 \text{ e}^+ \text{ positrons})\end{aligned}$$

Equation for signs of blue Fragment №1:

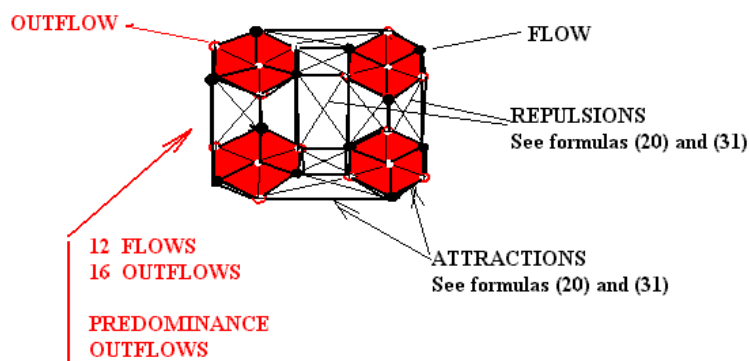
$$\begin{aligned}
 (62) \quad & (12 \text{ white circle}) + (16 \text{ black circle}) = \\
 & = (12 \text{ signs plus}) + (16 \text{ signs minus}) = \\
 & = 4 \text{ sign minus (} 4 \text{ e}^{-} \text{ electron)}
 \end{aligned}$$

FRACTAL OF ATOM Fe (A = 56)



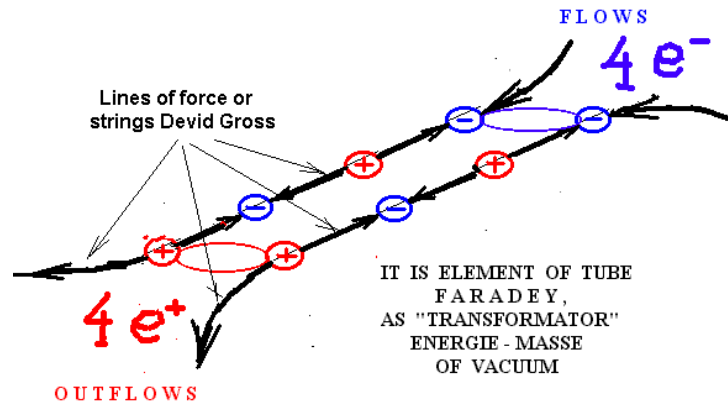
Pic.8

FRAGMENT № 1 (1/2 OF ATOM Fe)



Pic.9

On Pic. 10 there is a pair "tube", formed by two sequences of pulsing fragments one atom of ferric, see Pic.7 and Pic.8.



Pic.10

Redden go out of tube generates red fragments of atoms of ferric. Sign plus. Red fragment of one atom Fe is equivalent of quantum energy – masse as general varieties supply of quasi

– particles $\mu_{\text{оя}}$:

$$\begin{aligned}
 +Q_{\text{Fe}} &= +56Q_n = \\
 &= +56N_A \times \mu_{\text{оя}} \sqrt{F^* \times F_{\text{оя}}} = \\
 &= +56N_A \times (\mu_{\text{оя}} \times c^2) / r_{\text{оя}} = \\
 (63) \quad &= +56 \times 2^{79} \times 1.43 \times 10^{-6} = \\
 &= +4.8405 \times 10^{19} \text{ dyn}
 \end{aligned}$$

Blue entrance of tube generates blue fragments of atoms of ferric. Sign minus. Blue fragment of one atom Fe generates quantum energy – masse as general varieties supply of quasi –

particles $\mu_{\text{оя}}$:

Blue fragment of one atom Fe is equivalent of quantum energy – masse

as general varieties supply of quasi – particles $\mu_{\text{оя}}$:

$$\begin{aligned}
 -Q_{\text{Fe}} &= -56Q_n = -56N_A \times Q = \\
 &= -56N_A \times \mu_{\text{оя}} \sqrt{F^* \times F_{\text{оя}}} = \\
 &= -56N_A \times (\mu_{\text{оя}} \times c^2) / r_{\text{оя}} = \\
 (64) \quad &= -56 \times 2^{79} \times 1.43 \times 10^{-6} = \\
 &= -4.8405 \times 10^{19} \text{ din}
 \end{aligned}$$

On tube flows the flow of matter of the vacuum in one direction.

Diameter of tube is equal to diameter kernel $d \approx 10^{-13}$ cm of the atom. When leaving from bar of ferric tubes disperse in opposite directions close in external structure of the vacuum. These are power lines magnetic field of the piece of ferric. Here Q in accordance (18).

The fission of the piece of ferric up to size of the atom does not break the described physical mechanism of the magnetism.

GENERAL CONCLUSION

Within the framework of this models IMQ MS and EQDS notions "spin" and model «Physical mechanism the phenomena of magnetism» occupies far from last place, because it associate with beliefs about material (PHOTON) structure of the vacuum and the Universe as a whole.

In conclusion this framework useful to recall the formula of superintegration, refer to (20), which defines united nature and scale invariance of gravity power and electromagnetic power.

If follow this law of the nature, it is possible to understand, why deflection of ions of silver in experience by STERN – GERLAH can be described by means of laws of electrodynamics, see § 5.

The Principle of the correspondence to here is not broken.

In accordance (51), (52) and (61), (62) we are global invariant for atoms of matter and for structure of the vacuum as total electronic charge:

$$\pm 4e = \text{Const}$$

for mass – energy of 4 electrons, see (39):

$$\begin{aligned} 4 \times m_e &= 4 \times (2^2 \times (2^{22})^3 \times \mu_{\text{оя}}^*) = \\ &= 4 \times 9.1 \times 10^{-28} \text{ g} = 3.64 \times 10^{-27} \text{ g} \end{aligned}$$

It is basis of charges for electrodynamics to vacuum.

See because (1) – (4):

In this easy make sure once again, if pass with author on the following way.
By begin this way from fundamental constant Max Plank, i.e. from quantum of the action:

$$\begin{aligned} h &= \Delta E \times \Delta t = \\ &= 6.6256 \times 10^{-27} \text{ erg} \times \text{sec} \end{aligned}$$

Here quantum of energy is:

$$\Delta E = \mu_0 \times c^2 =$$

$$= 6.6256 \times 10^{-27} \text{ erg}$$

if quantum of time is :

$$\Delta t = 1 \text{ sec}$$

And see formula (60) :

$$\pm h = \pm(3\mu_{\text{оя}} \times c^2) \times \Delta t =$$

$$= \pm 6.6256 \times 10^{-27} \text{ erg} \times \text{sec}$$

In accordance with law of equivalence of energy and masses from follows the determination of the quantum of the mass of some certain elementary quantum- dynamic system (EQDS), described in [3]:

$$\mu_o = \Delta E / c^2 = 3 \mu_{\text{оя}} =$$

$$= 7.3719724 \times 10^{-48} \text{ g}$$

IT IS MASS-ENERGYE OF KOLD PHOTON – HADRON, see [8].

Here accordance (8):

$$\mu_{\text{оя}} = 2.6136368 \times 10^{-48} \text{ g}$$

It is element of
AUTHOR'S SYSTEM UNITS, see [3]:

Unit of the masse

$$\mu_{\text{оя}} = 2.6136368 \times 10^{-48} \text{ g}$$

Unit of the length

$$r_{\text{оя}} = 1.6409300 \times 10^{-21} \text{ cm}$$

Unit of the time

$$\tau_{\text{оя}} = 5.4735533 \times 10^{-32} \text{ sec}$$

Unit of the velocity

$$c = r_{\text{оя}} / \tau_{\text{оя}} = 2.9979246 \times 10^{10} \text{ cm / sec}$$

In his Nobel lecture A.Salam, refer to [12], reported its listener on this cause the following:

" Einstein for last 35 years of his life had was two dreams: one of them dream was to unite gravity with matter (PHOTON) .

Second, connected with this, dream was – to use this association to understand the nature of the electric charge in terms of space - a time geometry, also as he has successfully understood the nature of gravity charge in terms of space - time curvature".

The Author of IMQ MS concept managed to realize this daydream of the great physics and philosopher due to the fact that monochromatic structure of the airwaves by Einstein was transformed into spectral structure.

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